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Ecotourism for Transformative and Youth Development in sub-Saharan Africa: the Role of Corporate Social Responsibility in Nigeria's Oil Host Communities

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Ecotourism for Transformative and Youth Development in sub-Saharan Africa: the Role of Corporate Social Responsibility in Nigeria's Oil Host Communities**Joseph I. Uduji & Elda N. Okolo-Obasi****Abstract**

We examine the impact of multinational oil companies' (MOCs) corporate social responsibility (CSR) initiatives on enabling youth participation in the ecotourism development in Niger Delta region of Nigeria. Results from the use of average treatment test of a combined propensity score matching and logit model indicate a significant difference between youths in MOCs' CSR global memorandum of understanding (GMOU) households and non-GMOU households in the four parameters measured: availability of finance (3.76), access to adequate training (5.91), direct patronage (18.97), and economic capability of the youths (8.2). It shows that opportunities to supply products and services to the tourism sector can help ensure a sustainable market and increase incomes and other revenues in local communities driven from ecotourism – related activities, while minimizing economic leakages. This suggests that a pro-youth GMOU ecotourism projects of MOCs have a potential to play in the formation of linkages to help promote local economic development through job creation and business opportunities. It implies that a younger generation can help to promote economic diversification and contribute to job creation and enterprise development, while helping to address underdevelopment in remote areas and intractable environmental challenges of sub-Saharan Africa.

Keywords: Ecotourism development, environmental justice, corporate social responsibility, Niger Delta youth, sub-Saharan Africa.

1. Introduction

Ecotourism as a term refers to responsible travel to natural areas that aid in the conservation of the environment and enhancement of the welfare of local people; it is usually linked with destinations in remote areas (UNCTAD, 2017). As an active subsector of tourism that is related with environmental protection, ecotourism can contribute to sustainable development and assist in ensuring environmental sustainability (UNESCO, 2004). Owing to the immense and diverse natural landscapes, wildlife and secure areas on the continent, African nations have a competitive advantage in ecotourism that, if well utilized, can assist in promoting economic diversification and contribute to creation of jobs and development of enterprise, while being useful in addressing underdevelopment in secluded regions and complex environmental challenges (UNWTO/ Casa Africa IPDT – Institute of Tourism, 2015). Engaging youth in ecotourism development has been a prominent topic recently and has risen up to the development agenda, as there is growing concern worldwide that young people have become disenchanted with rural economies (UNWTO, 2013). With most young people – around 85% - living in developing countries, where natural landscapes, wildlife and protected places of ecotourism is likely to provide the main source of income, it is vital that young people are connected with ecotourism development (UNCTAD, 2017).

In the meantime, Africa will keep up with accounting for significant and growing share of the global youth population, rising from a fifth in 2012 to presumably a high third by 2050 (Bloom, 2012; African Development Report, 2015). Present trends propose that much of the youth prominence will be intense in West, Central and East Africa (UNECA, 2011; UNCDF, 2011; African Economic Outlook, 2017). However, Africa has a lot of forest reserves, national parks and wildlife safaris which have impending roles to play in the formation of links to stimulate local economic development via creation of jobs and providing business opportunities for its youths (African Development Bank, 2011). For instance, the wildlife in Nigeria is spread in several wildlife reserves that could bring a varied range of animals, including African Cape buffalo, giraffe, monkeys, mammals, birds, elephants, lions, cheetahs, and reptiles, among others (Uduji *et al*, 2021). The Niger Delta region of Nigeria is particularly enriched with diverse mosaic of ecological types that is considered the world's third largest wetland, characterized by substantial biological diversity and bulk of confirmed oil reserves estimated at 37.2 billion barrels (FGN, 2017). Oil multinationals have worked with the international union for conservation of nature (IUCN) on biodiversity policy and

projects, to understand how to protect areas that are rich in biodiversity and contribute to the well-being of host communities where they operate (NDDC, 2004).

Nonetheless, since the drilling of the first oil well in Nigeria, evolving of the key tourism market sectors have suffered neglect, and rural youths fail to see a future for themselves in the immense and diverse natural landscape, wildlife and secure areas in the country (Economic Development in Africa Report, 2017). The Niger Delta, where multinational oil companies (MOCs) are noticeably active has been turned into a region of relentless violent conflicts. Youths in the rural region wish to work in the eye-catching oil and gas sector, and communities have criticized MOCs as being skeptical about employing indigenous ones due to the agitation in the area (PIND, 2015a, 2015b). This possibly has been responsible for the rise of militant youth groups that line up themselves with chiefs and take part in sabotage of oil company equipment (and conflict with competing groups) in order to attract concessions and reimbursement from the oil companies for their communities (Watts, 2004). The environmental wreckage which goes with oil extraction, in addition to the relationship between MOCs and the Nigerian government along with the lack of sharing of revenue, have resulted in these grievances being exacerbated and focused on MOCs (Marchant, 2014). It is against this backdrop of worsening and usually violent domestic protest, escalating international disapproval of oil companies and the associated character castigation risk that MOCs' quick adoption of corporate social responsibility (CSR) ought to be viewed (Asgil, 2012).

In 2006, MOCs brought into existence a new way of dealing with communities called the global memorandum of understanding (GMoU) which represent a vital shift in MOCs' CSR method, emphasizing on clearer and more accountable processes, regular flow with the grassroots, sustainability and prevention of conflict (SPDC, 2013; Chevron, 2017). Under the conditions of GMoUs, the communities choose the development they desire, while MOCs make available secure funding for five years, guaranteeing the communities having stable and unswerving financing as they commence the execution of their community development plans (Chevron, 2014; SPDC, 2018). This system displaces the previous method whereby MOCs accepted to execute hundreds of distinct development projects with individual communities and accomplished them directly and independently (Alfred, 2013). Yet, academics such as Frynas (2012), Idemudia (2014), Slack (2012), Ekhaton (2014), Eweje (2006) and others insisted that CSR approach in Nigeria is not extensive or deeply embedded.

In contrast, Ite (2007), Lompo and Trani (2013) are for the MOCs CSR initiatives, disputing that GMoU approach have been effective in community development in the region, considering the degree of governmental failure. Lately, Uduji *et al* (2019) added some gradation to the discussion as they suggested that GMoUs of MOCs have been beneficial in the development of cultural tourism of sub-Saharan Africa, but have also weakened rural young people. Likewise, Uduji *et al* (2020) suggested that the new CSR model of MOCs have been effective in sustainable cultural tourism development in sub-Saharan Africa, but to the detriment of gender equalities.

Ensuing the proceeding varying points of view of the CSR initiatives in the Niger Delta, this paper adds to discourse on inequality in sustainable African tourism development and wide-ranging growth literature from the CSR perspective, by looking at empirical facts in four areas that have been of interest in the literature. The paper seeks to ascertain the level of investment that MOCs have made in the area of natural landscapes, wildlife and protected places as well as confirm the level of gain from such investment that goes to the rural youths and how effective it is on creation of jobs and entrepreneurship development. These four areas of concern, which are consistent with the MOCs' new CSR model (GMoUs) relative to Sustainable Development Goals (SDGs) associated with eradication of poverty [SDG1], obliteration of hunger [SDG2], decent work and economic growth [SDG8], inequality reduction [SDG10], enhancing conservation below water [SDG 14], and reducing loss of natural habitats and biodiversity [SDG 15], equally stand for four main questions notably:

- i. What is the intensity of MOCs' CSR investment in natural landscape, wildlife and protected places for ecotourism improvement in the Niger Delta region of Nigeria?
- ii. What is the level of rural youth participation in the GMoU intervention of the MOCs in the host communities?
- iii. Do GMoU interventions trigger positive changes on rural youth's entrepreneurship development in natural landscapes, wildlife and protected places of ecotourism in the Niger Delta region of Nigeria?
- iv. Do MOCs' GMoU interventions impact on ecological tourism sustainability (ETS) among youths in the Niger Delta region of Nigeria?

1.1. Study hypothesis

According to African Development Report (2015), widespread inequality is limiting both growth and poverty reduction across Africa. These income disparities have remained persistently high over decades, leaving Africa one of the World's most unequal regions. Income inequality, particularly in Nigeria is also mirrored in unequal access to resources and opportunities between elders and young people due to traditions and customs (Okolo-Obasi *et al*, 2021). For example, the youths in Nigeria's oil producing communities have continued to be left out in the recent economic evolvement in sustainable ecotourism development of the region. This is due to the local people's traditional beliefs that natural landscapes, wildlife and secure areas are occupied by evil spirits, and only the elders of the land can step into such places which are prohibited to youths (NDDC, 2001). As a result, young people in the region are in no way benefiting from the prospects and gains arising from the ecotourism economic wealth when compared with the elders of their communities. Thus, we postulate that the CSR of MOCs has not meaningfully impacted on the entrepreneurship development of the youths in the eye-catching ecotourism adventure of the Niger Delta.

The remaining parts of the paper are organized thus: section 2, examination of the background, literature and theoretical underpinnings; section 3, methodology and data; section 4, empirical results and corresponding discussion; then, section 5, concluding remarks, caveats and future research directions.

2. Background, literature and theoretical underpinnings

This section will look at the environmental degradation and loss of traditional livelihood, context of African youths in labour market, the idea (concept) of ecotourism, key products of ecotourism, and the theoretical underpinnings.

2.1 Environmental degradation and loss of traditional livelihood

According to Francis *et al* (2011), the deterioration of the Niger Delta environment is one of the most visible forms of the negative impact of oil exploration and sets the region apart from other poor regions in the country. Environmental damage, a major focus of local discontent, has often brought communities into conflict with the federal government and oil companies (Ejumudo, 2014). Oil spills, gas flaring, and shoreline flooding and erosion are the main environmental challenges faced by the host communities in the region (Udo, 2020). Protecting the natural environment of the Niger Delta is closely linked to the protection of the economic wellbeing of its citizens; destruction of the environment through oil spills and gas

flaring has made the poorest communities vulnerable and has had direct deleterious impacts, such as harming traditional livelihoods of the people (Mmadu, 2013). The negative impact of environmental damage due to oil extraction on employment in fishing and agriculture in the region has not been offset by the addition of new jobs in the oil industry (Kalama and Asanebi, 2019). The main implications of this dependence are that environmental degradation has a greater impact on the poor youths than on the wealthy homes, and the Niger Delta region has a high vulnerability to poverty because of the high proportion of the population dependent on agricultural income source (Ejumudo, 2014).

2.2. African youths in labour market

Youth unemployment is one of the sensitive development challenges facing policy makers in sub-Saharan Africa (World Bank, 2012). Only about 11 percent of youths are employed in this region which seems relatively small when compared to other regions of the world. Yet, due to sub-Saharan Africa's large population, obviously designates a very large number of unemployed youths (ILO, 2010; 2012, 2017; Ebeide, 2018; Okolo-Obasi and Uduji, 2021). Approximately, the workforce sees 12 million people join it each year, but only about 3 million jobs are created yearly (IFAD/ILO, 2012, IFAD, 2011a, 2011b, 2010; African Development Bank, 2011; Asongu *et al*, 2019c). The challenge of youth unemployment is for the most part pressing in societies that have been affected by violent conflicts, where development economic-wise is low, infrastructure is lacking, and private sector, which should have made jobs available for cubing youth unemployment is weak (FAO, 2010; African Economic Outlook, 2017). Demonstrations, tension, and civil disobedience by youths in oil producing communities have been identified with Nigeria's Niger Delta region (PIND, 2019). The basic driver of these tensions is that communities are not profiting from the oil extraction that takes place on their land (Watts, 2004). The protests grew into armed militant struggle. As a result, youths associated with different militant groups concentrated on disrupting and destroying oil industry infrastructure and critical assets, in addition to, kidnapping expatriate who work in the oil industry (Marchant, 2014). These negative activities have led to a substantial reduction of crude oil in Nigeria, from 25 million barrel per day in the first quarter of 2006 (Chevron, 2017; FGN, 2017; SPDC, 2018). Many youths who partook in the armed militant activities have blamed the want of employment opportunities as a strong reason for joining armed groups (PIND, 2017, 2018). Therefore, this paper looks at how CSR interventions of MOCs towards youth entrepreneurship in ecotourism development can cut unemployment among rural youths in host communities.

2.3. Conceptualization of ecotourism

Ecotourism is among the most debated subjects in recent years. So many comments, diverse ideas, opinions and methods of approach have been written and communicated about ecotourism, which visibly point at the inability of tourism experts and researchers to reach a common ground. Besides, there are divergent views over its terminology and concepts (Dimitriou, 200; Fennel, 2001). However, with regard to this paper, the term 'ecotourism' is interpreted as central themes. Firstly, ecotourism progresses in a way that will not damage the environment, physically and generally; avoids the damaging effects that large-scale tourism has caused, and cautiously manages the resources for posterity (Dimitriou, 2017). Secondly, it consists of smaller improvements, or fascinations for tourists which are set in and planned by villages and communities (Smit and Eadington, 1992). Thirdly, local people participate with most of the profits flowing to them and not to other places or abroad in the form of leakages (Dimitriou, 2017). Fourthly, ecotourism meets the essentials rather than requests (Romeril, 1994). Fifthly, ecotourism encourages cultural sustainability; respects and protects the culture of the host community without creating room for damages or changes (Dimitriou, 2017). These elements of validity are intensely emphasized in this study.

2.4. Key ecotourism products in Niger Delta

Registered forest reserves in Nigeria are about 1,275. The International Union for Conservation of Nature (IUCN) and the UN Environment Programme-World Conservation Monitoring Center (UNEP-WCMC) have acknowledged 966 of them. Over 70 of them are found in the Niger Delta region (NDDC, 2001). One of them is the *Cross river wildlife sanctuary*, which is the biggest rain forest in Nigeria and the oldest existing one in Africa. Aside from having the highest tropical biodiversity in Africa, 20 % of the world's total known species of butterflies live there in addition to 75 species of mammals recorded in it; moreover, the local people (Kanyang communities of Cross River State) welcome tourist that visit their village (Agba *et al*, 2010; Okolo-Obasi and Uduji, 2022). Another is the *Okomu wildlife sanctuary*, the second largest rain forest in Nigeria, totaling 44,726 acres. Being largely undisturbed, it is a great place for primate and bird watching besides being a habitat of many species of animals and plants. Also, many uncommon species of animals that live in this forest (Okomu) reserve include: red river hogs, duikers, porcupines, antelopes elephants, buffaloes, chimpanzees and white throated monkey species. The local people of Bini in Edo State welcome tourists coming to their village (Onyima, 2016; Uduji *et al*, 2022). The *Afi mountain wildlife sanctuary* is yet another example of the forest reserves in Nigeria that helps

in providing a home for endangered species in Cross River State. Those who visit enjoy watching the rare animal species living their natural lives there. Tourists can research about and gather knowledge on the rare species of animals which will help them place value on African wildlife (Adeniran and Akinlabi, 2011). The *Edumanoni forest reserve* in Bayelsa State, that covers an area of 93 square kilometers and known to be one of the last habitat spaces for chimpanzees in Nigeria, is another one. Various species like Niger Delta red colobus, olive colobus, sclater monkeys dwell there, besides other animals. This area, however, is being degraded by oil producing industry, which as it were is a threat to the local wildlife. Those indigenous to Nembe kingdom welcome tourists to their village (NDDC, 2004; Uduji *et al*, 2023). Then, another example is *Idanre forest reserve* in Ondo state of the Niger Delta that covers an area of over 561 square kilometer. It is on the list of International Union for Conservation of Nature; a home to threatened species in Nigeria (King, 2009). The aforementioned, among others, are key ecotourism products available in Nigeria's oil producing communities that have the capacity to assist in the formation of linkages in promoting local economic advancement through creation of jobs and business opportunities for the innovative youths in the Niger Delta region.

According to Dimitriou (2017), ecotourism has been offered as a more considerate, softer and advantageous form of tourism. Its primary goal is to preserve an area's cultural heritage, safeguard and enhance the environment as well as concentrate on the socio-economic sustainability of a tourist destination. There is emphasis on sustaining the unique sense of significant, cultural and community identity of each place (Chin *et al*, 2000; Fennell, 2001; Farrell and Marion, 2001; Christie *et al*, 2011; Asongu *et al*, 2019a). The direction of this research, however move off from the current ecotourism literature, which is aimed at, *inter alia*: ecotourism as life politics (Butcher, 2009); indigenous heritage and environment (Godden, 2002); a review of ecotourism in Tanzania (Mgonja *et al*, 2015); tourism, economics development and global-local nexus (Milne and Ateljevic, 2001); factors influencing support for community-based ecotourism in Botswana (Moswete and Thapa, 2015); mountain ecotourism and sustainable development (Nepal, 2002); sustainable ecotourism in Tanzania (Pasape *et al*, 2015); tourists' and locals' preference toward ecotourism development in the Maya biosphere reserve (Hearne and Santos, 2005); concept and practices of biosphere reserves (Iswaran, 2008); conservation geographies in sub-Saharan Africa (King, 2009); promoting ecotourism in the buffer zone (Maikhuri *et al*, 2000); ecotourism in Botswana (Mbaiwa, 2015); conservation and landscape governance in Kenya

(Pellis, *et al*, 2015); Tourism and insecurity (Asongu *et al*, 2019b); tourism and peace (Pratt and Liu, 2016); business tourism and pro-poor tourism (Rogerson, 2014); community view of ecotourism (Stronza and Gordillo, 2018); achieving pro-poor tourism objectives (Torres and Momsen, 2004); tourist satisfaction in Korea (Weisheng *et al*, 2016); issues for the travel and tourism sector (World Travel and Tourism Council, 2015); travel and tourism (World Travel and Tourism Council, 2016); heritage tourism in the global south (Rogerson and Vander Merwe, 2016); tourism, civil society and peace in Cyprus (Scott, 2012); consumer behavior in tourism (Scott, *et al*, 2014); community-based ecotourism (Stone, 2015); local economic benefits of ecotourism development in Malaysia (Yacob *et al*, 2007); ecotourism in Thailand (Yoko, 2006) and others.

2.5. MOCs' new CSR model: How it works

A GMoU is a written statement between MOCs and a group (or cluster) of several communities. Clusters are based on local government or clan/ historical affinity lines as advised by the relevant state government (SPDC, 2013). The governing structures are well defined, with a 10-person Community Trust, a Cluster Development Board (CDB) and Steering Committee cheered by the State Government. The CDB functions as the main supervisory and administrative organ, ensuring implementation of projects and setting out plans and programmes (Chevron, 2014). It is the decision-making committee, and the GMoU enables representatives of state and local governments, MOCs, non-profit organizations, such as development NGOs to come together under the auspices of the CDB as the governing body (SPDC, 2018). According to Chevron (2017), GMoUs have engendered better ownership and a stronger sense of pride among communities as they are responsible for implementing their projects; the transparency and accountability in the GMoU model provides a good platform for other local and international donor agencies to fund development projects directly through the CDBs.

2.6. Theoretical underpinning

This study combined the frustration – aggression theory (Breuer and Elson, 2017), the relative deprivation theory (Walker and Pettigrew, 1984), and an African perspective of CSR (Visser, 2006; Amaeshi *et al*, 2006), to explain the fact that environmental injustice is rising from the activities of the multinational oil companies adversely affect the land and people of the Niger Delta and the youth in particular. The formulation of the frustration – aggression theory focused on the limited interference with an expected attainment of a desired goal on

hostile (emotional) aggression hence; implying that when the youth find it difficult to achieve their goals and targets in any given system or society, they are bound to react otherwise by demonstrating aggressive threats and tendencies. Relative deprivation therefore refers to the discontent people feel when they compare their positions to those of similar situation and find out that they have been less than their peers hence; it is a condition that is measured by comparing one group's situation to the situations of those who are more advantaged. Carroll's (1991) CSR Pyramid is likely the most popular model for CSR, with its four levels showing the relative significance of economic, legal, ethical and philanthropic responsibilities respectively. However, Visser's (2006) exploration of CSR in Africa was used to question the correctness and applicability of the Carroll's CSR Pyramid. According to Visser, if Carroll's basic four-part model is recognized, it is suggested that the relative priorities of CSR in Africa will probably be different from the classic, American Ordering. Hence, Visser projected that Carroll's Pyramid may not be the best model for comprehending CSR in general, and particularly in Africa. Similarly, Amaeshi *et al* (2006) disputed that Nigerian conception of CSR is clearly different from the Western version; and ought to be targeted at addressing the distinctiveness of the socio-economic development challenges of the nation and be controlled by socio-cultural influences. Ekhatior (2014) observed that philanthropic initiatives as CSR by companies are predominant in Nigeria. Hence, in developing countries, the inability of government to provide amenities for its citizens heightens the roles of multinationals in CSR and philanthropy which is not considered as CSR in Western countries (Frynas, 2009). Muthuri (2012), depending on the extant literature on CSR in Africa, postulated that widespread CSR issues in Africa include poverty reduction, community development, health and HIV/AIDS, environment, sports, education and training, economic and enterprise development, human rights, corruption, then, governance and accountability. Thus, this paper embraces a quantitative approach, but deliberates on the outcome from the frustration – aggression theory, the relative deprivation theory, and the African perceptive while looking at the role of cultural context in determining appropriate CSR priorities and programmes for alleviating the rise in cult violence in Nigerian's oil-producing communities.

3. Methodology and data

Conducting research into CSR in developing countries is still comparatively underdeveloped and seems to be adhoc with a heavy dependence on convenience-based case studies or descriptive accounts. We chose a quantitative method for two reasons: the research is targeted

at testing a hypothesis and it is given the dearth of quantitative works in the region (Uduji *et al*, 2019). The survey research was used with the view of gathering information from a representative sample of the population, as it is basically cross-sectional, giving a description of and interpreting the contemporary situation. Figure 1 detects the constituents' administrative states of the Niger Delta region in Nigeria.



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

3.1. Sample size

We made use of the Topman's formula (which is considered to be very apt in circumstances with large populations) in deciding the size of the sample put to use in this study. The formula is expressed thus:

$$n = \frac{(z^2)(pq)}{(e^2)}$$

We took a 95% confidence level and $\pm 5\%$ precision, and calculated the sample size thus:

$$p = 0.5 \text{ and hence } q = 1 - 0.5 = 0.5; e = 0.05; z = 1.96$$

$$n = \frac{(1.96)^2(0.5)(0.5)}{0.05^2} = 384.16 = 384$$

Still, in order to get a minimal error, we ended up representing two streams of household by multiplying them by two. These streams are: (i) households in a community with a cluster development board and that has received CSR intervention as a household (i.e. at least a member of the household) — we refer to such household in this study as GMOU; (ii) households in a community without a cluster development board and without any CSR intervention— such is seen as a Non-GMOU household. Table 1 shows the sample size distribution of the study.

Table 1: Sample size distribution

States	Total Population	Household Population	% of Total Population	Total Sample Per Sate	Samples Per Community
Abia	2,881,380	411,626	14.7	113	19
Akwa Ibom	3,902,051	557,436	20.0	154	26
Delta	4,112,445	587,492	21.0	161	27
Ondo	3,460,877	494,411	17.7	136	23
Rivers	5,198,716	742,674	26.6	204	34
Total	19,555,469	2,793,638	100	768	128

Source: NPC, 2007/ Authors' computation

3.2. Sampling

We made use of a multi-stage probability sampling procedure to arrive at our final respondent households. This procedure consists of stratified, quota and simple random samplings. In the first stage, we stratified the states to fit into the former 19 States of Nigeria. In other words, Abia and Imo States fall under one strata - (A); Rivers and Bayelsa under another strata- (B); Delta and Edo under strata- (C); Cross River and Akwa Ibom under one strata- (D), and Ondo in one strata - (E). From each strata, we purposively selected one State on the basis of MOCs concentration in the State. To this, we chose Abia (strata A); Rivers (strata B); Delta(strata C); Akwa Ibom (strata D), and Ondo being the only state in this strata(strata E) was chosen. In the second stage, we also applied a purposive sampling to choose two local government Areas (LGAs) from each of the States. The intent for this choice of selection was on the basis of the LGA hosting at least one MOC facilities, or the LGA is close to a host LGA. Ten (10) LGAs were selected for the study, as a result this. In the following stage, we chose 3 communities from each of the picked LGAs. This assortment was also targeted at communities hosting facilities of MOCs in the region. Lastly, to make sure there is suitable representation in the choices made, the community gate-keepers helped us in randomly selecting 384 respondents from GMOU household and another 384 respondent from non-GMoU households. Therefore, a total of 768 households (Table 1) were chosen for the study.

3.3. Data collection

Data for this study were sourced primarily using participatory appraisal technique involving structured questionnaires. We used participatory research technique in gathering quantitative cross sectional data to measure CSR impact particularly as it concerns young people because

their views on all the issues are paramount. The structured written questionnaire we used was divided into two sections, with section 1 eliciting information on the socio-economic characteristics of respondents, while the other section elicited information on the four research objectives. The researchers were assisted by local research assistants in administering the questionnaires directly to the respondents. We used the local research assistants because the researchers' inability to speak the different dialects of the multiple ethnic groups like, Anangs, Binis, Bekwarras, Efiks, Ekpeyes, Engennes, Etches, Ibenos, Ibibios, Igbos, Ijaws, Ika-Igbos, Ikwerres, Isokos, Itsekiris, Kalabaris, Obolos, Ogbas, Ogonis, Okirikans, Oron, Ndonis, Nemebes, Urhobos, Yorubas, and so many other sampled communities. Besides the language barrier, the terrain is also hostile and rough, requires the assistance of local assistants who understand the culture, terrain and the people.

3.4. Analysis technique

Basically the study analyzed the effort and potentials of MOCs' CSR in enabling the youths of their host communities to participate in sustainable ecotourism development as entrepreneurship ventures. Using both descriptive and inferential statistics we achieved the objectives of the study. We achieved Objectives 1 and 2 by using descriptive statistics, the results are presented in tables, charts and graphs. However to achieve objectives 3 and 4, we combined the use of logit model and propensity score matching (PSM) so as to be able to test the hypothesis and determine the impact of CSR of the multinationals using the GMoU on entrepreneurship development of the youths in the attractive ecotourism adventure of the Niger Delta region. To curtail the problems of selectivity and endogeneity was the major reason we went for these methods.

In assessing the CSR interventions of the MOCs aimed at the entrepreneurial effort of the youth using GMoUs, and likewise accessing the effort of the households and positioning of the youth for the intervention, we projected the following questions: (i) What is the strength of MOCs' CSR investment in natural landscape, wildlife and secure places for ecotourism enhancement in the Niger Delta region of Nigeria? (ii) To what extent are rural youths involved in the GMoU intervention of the MOCs in the host communities? (iii) Do GMoU interventions prompt positive changes on rural youth's entrepreneurship improvement in natural landscapes, wildlife and secure places of ecotourism in the Niger Delta region of Nigeria? (iv) Do MOCs' GMoU interventions impact on ecological tourism sustainability (ETS) among youths in the Niger Delta region of Nigeria? Being aware that the CSR of these

MOCs, particularly in the Niger Delta has drawn interest of quite a number of studies in the past, we chose to go for a large sample study that can certify the nature of the impact of the programme. This large quantitative survey would help in understanding impressively what role CSR interventions of MOCs have, or have not played in the area of raising eco-tourism entrepreneurs among the youths of host communities of the region.

Putting the propensity score matching (PSM) to work, the households picked from the GMoU communities are considered as “treatment”; while the households picked from the non-GMoU communities are considered as “control”, to enable us evaluate an average treatment effect of CSR using propensity score matching approach. To Odozi *et al*, (2010), estimating the probability of treatment based on the observed covariates for both the “treatment” and the “control” is what PSM is suitable for. This is because the PSM sums up the pre-treatment features of each subject into a single index variable and is then used to match similar individuals. In PSM, an ideal comparison group, (the control) is chosen from a large survey and then matched to another group (treatment) based on a set of observed characteristics (used in picking the participants in treatment group but not affected by the treatment) on the forecast probability of treatment given observed characteristics (propensity score) (Ravallion, 2001). This is therefore our major take, in espousing this methodology. Selecting PSM to capture our measurement in this study is not because it has no limitation but because it balance observed baseline covariates between the treatment and the control groups.

Nevertheless, the major limitation of PSM as it concerns our study remains that, in balancing the unmeasured characteristics and confounders, PSM does little or nothing. Hence, unlike randomized control trials (RCT) that entertain no presence of unmeasured confounding variables, remaining unmeasured confounding variables may still find their way in PSM. Such unmeasured variable may have the capacity of causing biased results. The basis of this study is anchored on the assumption that the decision to be treated is a function of the variables observed. Rosenbaum and Rubin (1983), pointed out that the aptitude to match on variable X means that one can match on probability of X. To this, assessing the effect of CSR of the multinationals in enabling the participation of the host communities’ youth in eco-tourism resulted in identifying two groups. These groups are those from the GMoU communities, (i.e communities with established cluster development board and have CSR intervention) as treatment group; and this is denoted as $R_i = 1$ for Household_i. The other is those from non-GMoU (i.e communities without established cluster development board and

no CSR intervention), control group denoted a $R_i = 0$ otherwise. The treatment group is thus matched to the control group on the basis of the propensity score (Probability of receiving CSR given observed characteristics)

Hence:

$$P(X_1) = \text{Prob}(R_2 = 1/X_2) \quad (0 < P(X_2) < 1) \quad \text{Equation 1}$$

Here X_1 represents a vector of the before CSR control variables when R_1 's are not dependent over all 1 and the results are not dependent of CSR given X_1 , then results are also not dependent of CSR given $P(X_1)$, just as they will do when CSR are received randomly. To be able to make precise conclusions concerning the effects of CSR activities of the multinationals on the youths eco-tourism participation, we were mindful of the importance of avoiding the bias of selecting the observables by matching on the probability of the treatment (covariates X); thus, the propensity score of the vector X is defined as:

$$P(X) = \text{Pr}(Z = 1/X), \quad \text{Equation 2}$$

Here, Z stand for the treatment indicator =1, if the chosen household has received CSR and 0 if the household chosen has not received CSR. Because the PS is a balancing score, the observables X, will be allotted the same for the treatment and the control. The variances emanating from this are seen as the attribute of treatment. We adapted the four steps approach like in Liebenehm *et.al*, (2011) and Uduji *et.al* (2019h) to be able to get this balanced impact estimates. Firstly, we recognized that binary response model with suitable observable characteristics predicts the likelihood of receiving CSR. For this reason, we combined the treatment and the control to estimate the logit model of receiving CSR or otherwise as a function of some socio-economic characteristics variables. The explanatory variable to be used include both individual, household and community variables represented in this equation as thus:

$$P(x) = \text{Pr}(Z = 1/X) = F(\alpha_1 x_1 + \dots + \alpha_n x_n) = F(x\alpha) = e^{x\alpha} \quad \text{Equation 3}$$

The value of the probability of receiving CSR from the logit regression was designed by assigning each household a propensity score. From the assigned PS, we dropped the control groups with very low PS outside the range found for treatment. For each treatment household

a control household that has the closest PS as measured by absolute difference in score referred to as “nearest neighbor” was obtained. To this, we tried to make the evaluation more rigorous by using the nearest five neighbours. Taking the mean values of the outcome of indicators for the nearest five neighbours, we calculated the difference between the mean and actual value for treatment as the gain due to CSR receipts. Average treatment effect on the treated (ATT) is what is used to access the variance between treatment and control groups. The difference in number of eco-tourism entrepreneurs from GMoU communities (treatment) and those from non GMoU communities (control) were determined. A simple descriptive statistic, frequency, mean and media was used.

The true ATT, based on PSM is written thus:

$$ATT_{PSM} = E_{p(x)} \{E(y_1/Z = 1, P(x)) - E(y_0/Z = 0, P(X))\}, \quad \text{Equation 4}$$

Here, $E_{p(x)}$ represents expectation associated with the circulation of PS in the population. The real ATT shows the mean difference in enabling the youths to participate in ecotourism which also help in achieving the SDGs 8, 14 and 15. Suitably, we matched participants with their counterfactual as long as their observable characteristics are same. In this matching, options exists for three dissimilar matching methods which though vary in terms of bias and efficiency but all could be used in achieving the same goal. The methods are: Radius matching (RM), Nearest Neighbor Matching (NNM) and kernel-based matching (KM), a non-parametric matching estimator. Then we took the third step of checking the quality of the estimators of matching by standardizing variances in means of observables between treatment and control. Hence, we demonstrated difference in percent after matching with X for the covariate X, the difference in sample means for treatment as (\bar{X}_1) and matched control as (\bar{X}_0) to get the sub-samples as a percentage of the square root of the average sample variance put thus: $(\int_1^2 \text{ and } \int_0^2)$.

Hence:

$$SD = 100 * \frac{(\bar{X}_1 - \bar{X}_0)}{((.05 \int_1^2 \text{ and } \int_0^2)^{1/2})} \quad \text{Equation 5}$$

Acknowledging that we have 95% significant level, we accepted 5% as the remaining bias after matching, even when there is no manifest threshold of successful or failed matching. Hence we assumed that it represent a sign that the balance among the different observable characteristics between the matched groups is adequate. In all, we also noted that,

considering the quasi-experimental design of GMoU activities, chance that unobservable factors might evolve. Such factors which have influence on the decision to participate in the GMoU and receive CSR or not include, household's intrinsic motivation and specific abilities or preferences. We avoided this problem of hidden bias by using the bounding approach. We added to the logit model in equation 3 to estimate propensity score by a vector U . This vector is made up of all the unobservable variables and their effects on the probability of treatment and captured by γ : Hence we represent the complemented function as thus;

$$P(x) = \Pr(Z=1/X) = F(X\alpha + U\gamma) = e^{X\alpha + U\gamma} \text{Equation 6}$$

Lastly we carried out a sensitivity analysis with which we looked at the strength of the influence of γ on treatment so as to diminish the impact of treatment on potential outcomes. To be more elaborate, our assumption remains that the unobservable variable is a binary variable taking values 1 or 0. Thus, the treatment probability of both household is applied following the bounds on the odds ratio as stated thus:

$$\frac{1}{e^\gamma} \leq \frac{P(Xm)(1-P(Xn))}{P(Xn)(1-P(Xm))} \leq e^\gamma \text{Equation 7}$$

Looking at the works of Rosenbaum and Rubin (1983), Liebenehm *et.al*, (2011) and Uduji *et.al* (2019h) individual household from GMoU households and that of the non-GMoU households have the same probability of treatment, in as much as they are identical in X , and only if $e^\gamma = 1$

4. Results and discussion

4.1. Descriptive characteristics

In this analysis (Table 2), we began with the explanation of some of the respondent's social (education, gender, access to health care etc), economic (land ownership access to finance etc.) and demographic (age, experience) characteristics. These characteristics are vital in grasping the dissimilarities in the socio-economic status of the households who take part in GMoU in comparison to their uninvolved counterparts.

Table 2: Socio-economic characteristics of the respondents

Variables	Non GMoU Households			GMoU Households		
	Freq.	%	Cum	Freq.	%	Cum
Males	280	73	73	242	63	63
Females	104	27	100	142	37	100
	384	100		384	100	
Primary occupation						
Fishing	65	17	17	73	19	19
Trading	65	17	34	61	16	35
Farming	161	42	76	142	37	72
Govt./Private Paid Employment	15	4	80	27	7	79
Handicraft	54	14	94	50	13	92
Cultural and Eco-tourism	23	6	100	31	8	100
	384	100		384	100	
Years of Experience						
0- 10 Years	157	41	41	46	12	12
11- 20 Years	96	25	66	57	15	26
21 - 30Years	65	17	83	70	19	45
31 - 40 Years	42	10	94	84	22	67
Above 40 Years	23	6	100	127	33	100
	384	100		384	100	
Age of Respondents						
Less than 20 years	69.12	18	18	54	14	14
21-35 years	211.2	55	73	96	25	39
36-50 years	92.16	24	97	115	30	69
51 years and above	11.52	3	100	119	31	100
	384	100		384	100	
Level of Education						
None	31	8	8	19	5	5
FSLC	188	49	55	223	58	64
WAEC/WASSCE	107	28	84	108	28	92
B.Sc. and Equivalent	23	6	90	12	3	95
Post Graduate Degrees	12	3	94	8	2	96
Others	23	6	100	15	4	100
	384	100		384	100	
Marital Status						
Single	46	12	12	35	9	9
Married	280	73	84	253	67	76
Widow	19	5	90	42	11	86
Divorced/Separated	38	10	100	54	14	100
	384	100		384	100	
Household Size						
1-4 Person	131	34	34	250	65	65

5-9 Person	219	57	91	104	27	93
10-14 Person	27	7	98	23	6	98
15 Person and above	8	2	100	8	2	100
	384	100		384	100	
Monthly off Eco-tourism Income Level						
1000 - 50,000	35	9	9	46	12	12
51,000 - 100,000	46	12	21	54	14	26
101,000 - 150,000	119	31	53	77	20	45
151,000 - 200,000	88	23	75	108	28	74
201,000 - 250,000	69	18	93	50	13	87
251,000 - 300,000	19	5	98	35	9	96
Above 300,000	8	2	100	15	4	100
	384	100		384	100	
Monthly Eco-tourism Income						
None	157	41	41	73	19	19
1000 - 50,000	23	6	46	12	3	22
51,000 - 100,000	27	7	53	19	5	26
101,000 - 150,000	38	10	63	26	7	33
151,000 - 200,000	50	13	76	42	11	44
201,000 - 250,000	50	13	89	82	22	65
251,000 - 300,000	35	9	99	90	24	89
Above 300,000	4	1	100	40	11	100
	384	100		384	100	

Source: Authors' compilation based on household survey.

Analysis (Table 2) reveals that a total of 768 households were sampled, 384 from each divide of GMoU communities and non GMoU communities. The result shows that 73% of the respondent youth in the non-GMoU communities are men as well as 63% of the GMoU communities, leaving 27% and 22% for women respectively. These findings agree with Agba *et al* (2010) in that young rural women hardly partake in development programmes in the region due to the cultural and traditional context which are imbedded in beliefs, norms and practices that create discrimination, and women's vulnerability to impoverishment. In primary occupations, the results show that only 6% of the household youth in non-GMoU household take part in cultural and or eco- tourism, while the participation of GMoU households is about 8%. Also, the finding further indicates that about 97% of the household youth in the non-GMoU communities are 50 years or less, while just about 69% of the household youth in the GMoU communities are in that age category. As the findings reveal, level of education may not be a challenge in the study area since household youth in the non-GMoU communities have only 8% as complete illiterates, while it is just 5% for the GMoU

communities. Similarly, this information is in agreement with Alfred (2013) in that rural youths remained widely left out from the GMoUs interventions in prospective cultural tourism projects as a result of the traditional belief that cultural affairs are purely entitlements of elders.

In general, there is high level of impoverishment in the study area as the result of the study reveals that about 75% of youths in non-GMOU household communities earns N200,000 (\$571) or less as average annual income, while about 74% of such GMOU household communities are in same category. Moreover, the findings reveal that only 2% of the non-GMoU household communities earn more than N300,000 (\$871) while only 4% of GMOU communities are in the same category. Earnings from eco-tourism reveals that 76% of the the-GMoU household communities earns N200,000 (\$571) or less, while 44% of same in GMOU household communities are in same category. Onyima (2016) agrees with this characteristic in that forest reserves in the region have an important role to play in the formation of linkages to assist in promoting local economy of the people via the creation of jobs and business opportunities.

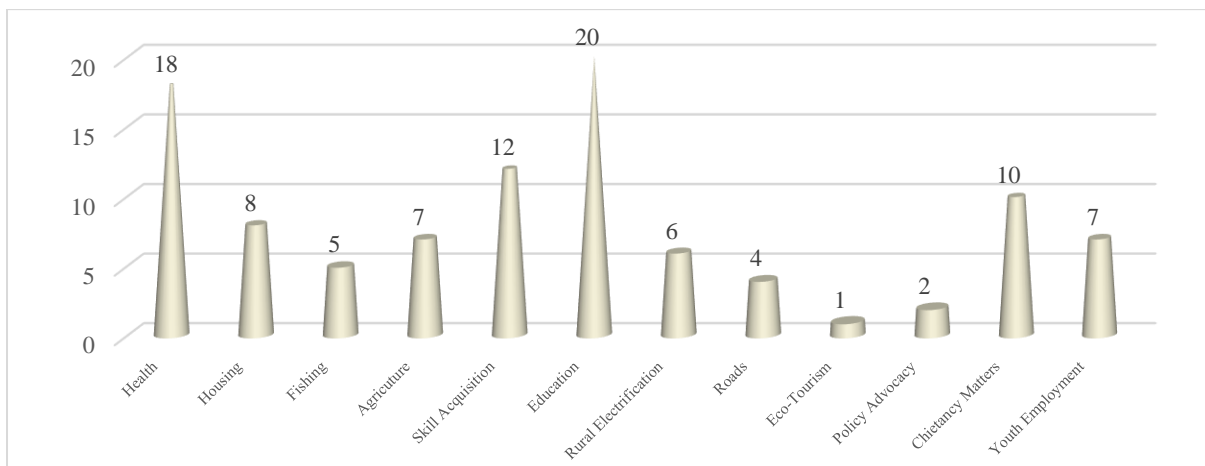


Figure 2. Percentage distribution of GMoUs intervention of MOCs by sectors

Source: Uduji *et.al* (2019b)/ Authors' modification based on household survey.

Analysis (Figure 2) reveals the dispersal of the CSR interventions of the MOCs with health care provision having 18% and education 20%. Development of households account for 8%, while combination of agriculture and fishing account for 12%. It is essential to note that while policy advocacy is as low as 2%, investment in eco-tourism for the youths came even lower with just 1%. Invariably, Mbaiwa (2015) on ecotourism in Botswana came to the conclusion that tourism establishments in forest reserves can create employment for unskilled

youths like drivers, cleaners and housekeepers at accommodation facilities. In addition to amassing income in local communities, occupational opportunities for youths in tourism establishments can boost youth entrepreneurial skills and productivity.

Table 3: Rating of the CSR interventions of six major MOCs in enabling youth participation in ecotourism.

Area of investment/intervention	Chevron	Shell	Total E&P	Exxon Mobil	Halliburton	Agip	Av.
Provision of infrastructure	19	20	16	17	16	18	18
Provision of soft loans	18	17	18	10	14	20	16
Entrepreneurship training in tourism	12	11	13	9	8	7	10
Provision of grants	6	10	9	11	8	9	9
Subsidy of inputs	0	0	0	0	8	0	1
Bulding and renovation of centres	6	5	3	5	8	8	6
Mopping up excess produce	4	5	6	10	11	10	8
Advocacy to the government	3	2	6	5	5	4	4
Direct patronage	11	12	10	9	6	4	9
Organising exhibition and promotion	21	18	19	24	16	20	20
	100	100	100	100	100	100	100

Source: Authors' compilation based on CSR reports of MOCs in Niger Delta, Nigeria.

Analysis (Table 3) indicates that the six major MOCs in the region have invested in eco-tourism. Such investment is targeted towards promoting sustainable inclusive economic growth and creating productive and decent employment for all. Also to conserve and sustainably use the oceans, seas and marine resources for sustainable development as well as to protect, restore and promote sustainable use of terrestrial ecosystems, sustainably manage forests, combat desertification and halt and reverse land degradation, and halt biodiversity loss. Simply put, they have invested in actualizing the sustainable development goals 1, 2, 8, 10, 14 and 15. However, the level of investment has not been lauded as the best as the MOCs have only invested about 1% of their total CSR interventions in eco-tourism development. Averagely, 18% of the 1% investment in eco-tourism went into provision of infrastructure, provision of soft loans took 16%, while entrepreneurship training in tourism took 10%. Others are provision of grants, 9%, subsidy of inputs 1%, building and renovation of centres 6%, mopping up excess produce 8%, advocacy to the government 4%, direct patronage 9%, and organising exhibition and promotion 20%.

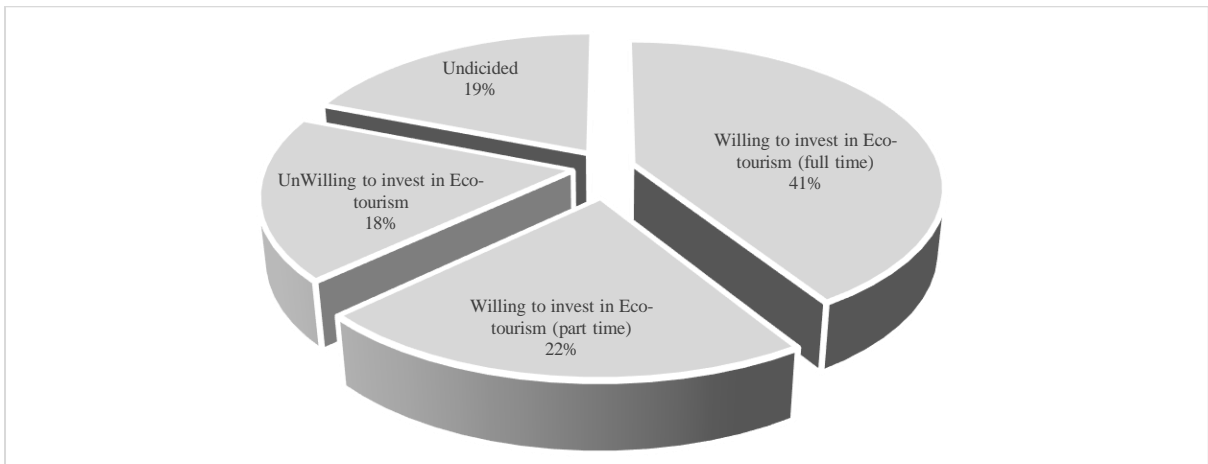


Figure 3. Percentage distribution of people’s willingness to be involved in eco-tourism development

Source: Authors’ compilation based on household survey

Analysis (Figure 3) shows that 63% of the respondents are eager to participate in eco-tourism as it is avital part of their culture but, Figure 3 analysis have put forward that the MOCs have not made much intervention in this area. To this, we agreed that GMoUs intervention may fail to impact on youths’ development unless their area of interest is unlocked. With a good venture in eco-tourism, even the 18% of the youths who are undecided will be encouraged to invest. Mgonja *et al* (2015) on ecotourism in Tanzania shared similar view in that demand for accommodation facilities, and inputs from local suppliers and ancillary services(which include laundry, transport and construction fromyouth owned local enterprise), can support youth development and create business opportunities.

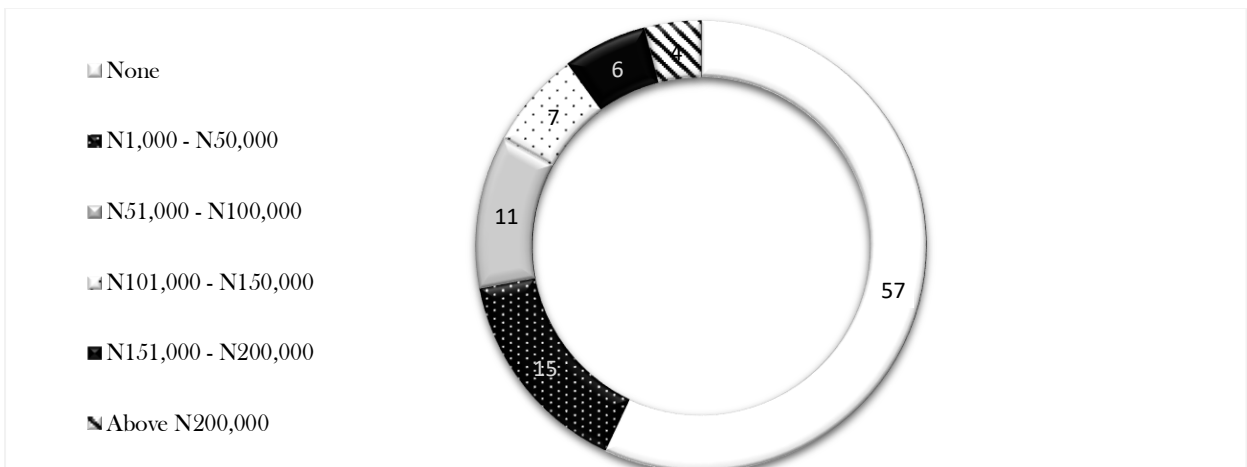


Figure 4. Rate of receipt of intervention in Eco-tourism development from the MOCs

Source: Authors’ compilation based on household survey

Analysis (Figure 4) indicates that only few of the youths in the study area have received reasonable CSR interventions to invest in the eco-tourism. The finding reveals that from both the GMoU and non-GMoU communities, 57% of the youths have never been assisted with any form of input, credit and such to invest in eco-tourism. Also, 26% have been privileged to receive between N1,000 - N100,000, while only 7% have received between N101,000 – N150,000. Then, just 6% have received between N151,000 - N200,000. For amounts above N200,000, the percentage is as low as 4. Moswete and Thapa (2015) in supporting community-based ecotourism in rural communities agree that opportunities given to youths to supply products and services to the tourism sector will aid in ensuring a sustainable market. It will also increase income cum other revenues in local communities derived from tourism-related activities, while curtailing economic leakages.

4.2. Econometric analysis

Analysis (Table 4) gives a summary of the average differences in the basic scores and independent observable characteristics between GMoU communities (treatment) and non-GMoU communities (control). Generally, the variance in means shows that the score on availability finance, score on access to adequate training, score on direct patronage, and score on economic capability of youth are: 3.76%, 5.91%, 18.97%, and 8.23%, respectively. The implication is that there is a high score on the four parameters in the GMoU communities than the non-GMoU communities. This shows that the treatment – receipt of CSR has impacted the GMoU communities in that regard. When the selected observable characteristics were looked at, the analysis shows that there are significant positive differences in Education (9.49), Primary Occupation (3.21), Age (0.21), Sex (1.79), Annual income (23.62), Access to medical care (0.29), Freedom of participation in socio-economic activities (0.56). Also, there are significant negative difference in Marital Status (-2.81), Household Size (-2.78), and Access to land (-0.98). This result suggests that the CSR intervention of MOCs using the GMoU even though small in the area of eco-tourism have made a significant impact on entrepreneurship development of the youths in eco-tourism.

Table 4. Comparison of mean score and observable characteristics across participants and non-participants (N = 768)

Score in Percentage of maximum score	GMoU Communities	Non-GMoU Communities	Difference
Score on availability of finance	21.10	17.34	3.76**
Score on access to adequate training	27.12	21.21	5.91**
Score on direct patronage.	42.15	23.18	18.97**
Score on economic capability of youth	32.41	24.18	8.23**
Socio-Economic Characteristics			
Age	18.34	18.13	0.21
Sex	31.31	28.52	1.79
Education	28.21	18.72	9.49
Marital Status	31.32	34.13	-2.81**
Household Size	11.43	14.21	-2.78
Primary Occupation	16.52	13.31	3.21*
Annual Income	58.24	34.62	23.62
Household Characteristics			
Access to Shelter	18.01	11.11	6.9**
Access to portable water	21.32	18.19	3.13**
Access to medical care	15.21	14.92	0.29*
Freedom of participation in socio-economic activities	21.42	20.86	0.56**
Access to land	18.18	19.16	-0.98*
Observation	384	384	

Source: Computed from the field data by authors

We predicted the probability of enabling a youth participate in eco-tourism via receiving CSR by using the selected characteristics which capture pertinent observable differences of the GMoU communities and non-GMoU communities. Analysis (Table 5) reports the Logit model in equation 3. The projected coefficients, the odd ratio are expressed in terms of odds of Z=1, the marginal effect and standard error. Following through the single observables, the proof is that, the respondents' primary occupation, perception of the GMoU, highest educational level, political affiliation, income of other household members and marital status

are factors that positively affect the youth's ability to seek and receive direct CSR in the GMoU programmes. On the other side, age of the respondent, sex, and annual income of the respondent affect it negatively. This observation tends to conform to Asgil (2012) in that in the planning of the CDBs of GMoUs clusters, they do not contemplate much on the involvement of the youths in traditional means of livelihood. Consequently the youths kept facing joblessness and thereby continue in jobs that are not decent in line with the SDG 8 of the United Nations.

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

Variables	Coefficient	Odds Ratio	Marginal Effect	Std. Error
Age	-.143	.653	.001	.049
Sex	-.215	.031	.107	.037
PriOcc	1.148	.912	.042*	.352
Polaff	.323	1.24	.031	.011
Edu	.28	1.135	.065**	.032
AY	.012	1.981	.024	.023
MS	.312	.906	.031	.132
HMY	.292	.243	.002	.235
Location	-.239	.925	.0312	.312
Perception of GMoU	1.352	8.731	.061*	.021
Constant	1.214	1.213	.0231	.215
Observation	768			
Likelihood Ratio - LR test (p=0)		χ ² (1) = 5793.42*		
Pseudo R ²	0.34			

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

Source: Computed from the field data by authors.

Following the probability of receiving CSR predicted in the model, we estimated the impact of the CSR on sustaining eco-tourism in the region using the ATT modeled in equation 4.

¹Age = Age of the respondent household head measured in number of years, Sex = the natural sex of the respondent (male or female) PriOcc, = primary (major) occupation of the Household head, Polaff = political affiliation of the Household head measured with a dummy (member of ruling party = 1 otherwise = 0); Edu = highest educational attainment of the respondent, measured in number of years spent in formal education, AY = annual income of the respondent measured in Nigeria naira (NGN), MS = marital status, HHCCom = income of other household members measured in NGN, Location = location of the respondent (urban = 1 rural = 0) and GMou perception = how the respondent household heads see the cluster development board

Cautiously, we certified the observations to be randomly ordered and that no large discrepancies in the distribution of PS. This is why nearest neighbor matching (NNM) shows to have produced the highest and most significant treatment effect estimate in all the four outcome categories of: Score on availability of finance, Score on access to adequate training, Score on direct patronage, and Score on economic capability of youth.

Table 6. Estimated impacts of CSR activities using the MOCs' GMoU on respondents via different matching algorithms

	Access and Knowledge Score in Percentage of Maximum Score		Average Treatment effect on the treated
	Treatment	Control	
Nearest neighbor matching	Using single nearest or closest neighbor		
Score on availability of finance	21.10	17.34	3.76**
Score on access to adequate training	27.12	21.21	5.91**
Score on direct patronage.	42.15	23.18	18.97**
Score on economic capability of youth	32.41	24.18	8.23**
Observations	340	340	
Radius matching	Using all neighbors within a caliper of 0.01		
Score on availability of finance	16.72	13.32	3.4**
Score on access to adequate training	14.35	13.41	0.94**
Score on direct patronage.	18.31	15.38	2.93**
Score on economic capability of youth	23.42	19.16	4.26**
Observations	340	340	
Kernel-based matching	Using a bi-weight kernel function and a smoothing parameter of 0.06		
Score on availability of finance	17.34	15.62	1.72**
Score on access to adequate training	25.24	21.81	3.43**
Score on direct patronage.	19.45	16.32	3.13**
Score on economic capability of youth	41.25	39.24	2.01**
Observations	384	384	

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

Source: Computed from the field data by authors

From the above the NNM method yields relatively better result than the rest two methods in all the parameters measured.

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

Covariates <i>X</i>	Standardized differences in % after		
	NNM	RM	KbM
Age	2.6	19.2	15.3
Sex	3.9	18.4	27.4
PriOcc	9.2	19.6	18.6
Polaff	3.6	17.4	15.7
Edu	2.5	18.5	12.5
AY	3.2	21.2	14.2
MS	3.3	35.3	11.3
HMY	3.1	19.5	13.6
Location	2.9	39.4	15.3
Perception of GMoU	4.8	54.7	17.2
Constant	4.5	38.7	28.6
Mean absolute standardized difference	3.96	27.45	17.25
Median absolute standardized difference	2.5	18.5	12.5

Source: Computed from the field data by authors

The summary statistics (Table 7) for the overall balance of all covariates between GMoU communities and non-GMoU communities confirms the higher quality of NNM compared to the other methods. For the kernel-based matching and radius, both the mean and the median of the absolute standardized difference after matching are far above the verge of 5%, while the NNM is reasonably below.

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

	Upper bounds on the significance level for different values of e^y				
	$e^y= 1$	$e^y= 1.25$	$e^y= 1.5$	$e^y= 1.75$	$e^y= 2$
Nearest neighbor matching	Using single nearest or closest neighbor				
Score on availability of finance	0.0001	0.0020	0.0442	0.421	0.812
Score on access to adequate training	0.0001	0.0031	0.0231	0.321	0.241
Score on direct patronage.	0.0001	0.0051	0.0012	0.302	0.243
Score on economic capability of youth	0.0001	0.0012	0.0013	0.0522	0.143
Radius matching	Using all neighbors within a caliper of 0.01				
Score on availability of finance	0.0004	0.0241	0.1461	0.628	0.072
Score on access to adequate training	0.0002	0.0033	0.0020	0.142	0.061
Score on direct patronage.	0.0001	0.0021	0.0041	0.012	0.0732
Score on economic capability of youth	0.0001	0.0042	0.0019	0.081	0.0643
Kernel-based matching	Using a bi-weight kernel function and a smoothing parameter of 0.06				
Score on availability of finance	0.0001	0.0132	0.126	0.582	0.034
Score on access to adequate training	0.0001	0.0171	0.0241	0.193	0.017
Score on direct patronage.	0.0001	0.00217	0.0021	0.015	0.0327
Score on economic capability of youth	0.0001	0.00145	0.0018	0.011	0.0124

Source: Computed from the field data by authors.

Analysis (Table 8) indicated that there is a more generated robust treatment effect in KM than in NNM and RM in line with estimates to hidden bias, particularly for availability and affordability of school, availability of basic school need and the economic capability of household heads. To this, we have a probability that matched pairs may vary by up to 100% in unobservable characteristics, while the impact of CSR on availability of finance, access to adequate training, direct patronage and economic capability of youth would still be significant at a level of 5% (p -value = 0.034, p -value = 0.017, p -value = 0.0327, and p -value = 0.0124 respectively). The same categories of knowledge score are robust to hidden bias up to an influence of $e^y= 2$ at a significance level of 10% following the radius matching approach.

On the whole, the findings show that the frustration that emanates from the insensitivity of oil extraction activities eventually turn the region into a complex operating environment, characterize by cult violence, bandits, and armed groups. Also, the results from the average test of this study shows there is a significant difference between the youths in GMoU households and non-GMoU households in all the four parameters measured. These parameters are: availability of finance (3.75), access to adequate training (5.91), direct patronage (18.97), and economic capability of the youths (8.2). This suggests that that because of the treatment (receiving CSR intervention), the youths of GMoU households had more access to finance, entrepreneurial training, received more patronage from MOCs and their economic capability enhanced. It implies that pro-youth - tourism establishment projects in forest reserves can create employment for unskilled youths, such as drivers, laundry, cleaners and house keepers at accommodation facilities, transport and construction (logdes, camps and camp sites), and create business opportunities for local agricultural producers. However, it is true that the level of youth participation in the subject matter is still low, but the effect is significant on the participants and should be encouraged as participating in the ecotourism enterprise will speed up actualization of Sustainable Development Goals 1, 2, 8, 10, 14 and 15. Hence, in line with the literature on Africa's youth in the labour market, it is our contention that ecotourism could provide significant self-employment opportunities to young people owing to its labour intensity and some of its underlying characteristics; moreover as many aspect of ecotourism jobs are high-energy pursuit particularly, suited to young able-bodied entrepreneurs and often demand long shifts of standing, walking and climbing. Additionally, the variety of jobs associated with ecotourism for youth entrepreneurship can contribute to environmental sustainability development goals; a green tourism, which refers to the efficient use of energy and water resources, better waste management and protection of biodiversity; it offers opportunities for job creation in the tourism sector, and enterprise development in green businesses. Therefore, if MOCs are to work towards an ideal CSR approach for Sustainable Development Goals, we would argue for assigning the highest GMoU priority in enabling youth participation in the conservation of ecotourism resources, thereby helping to ensure environmental sustainability through the preservation of biodiversity in Niger Delta, Nigeria.

5. Concluding remarks, caveats and future directions

This paper seeks to ascertain the level of CSR investment that multinational oil companies (MOCs) operating in the Nigeria's Niger Delta, have made in the areas of natural landscapes,

wildlife and protected places as well as confirm the level of benefit from such investment that accrue to the rural youths and how effective it is on creation of jobs and entrepreneurship development. These four areas of concern, which are consistent with the MOCs new CSR model (GMoUs) relative to Sustainable Development Goals (SDGs) associated with eradication of poverty [SDG 1], obliteration of hunger [SDG 2], decent work and economic growth [SDG 8], inequality reduction [SDG 10], enhancing conservation below water [SDG 14], and reducing loss of natural habitats and biodiversity [SDG 15], equally stand for four main research questions of the study.

A total of 768 households were sampled across the rural Niger Delta region. We combined the use of propensity score matching and logit model; and the results from the average treatment test show there is a significant difference between the youths in GMoU households and non-GMoU households in all the four parameters measured. These parameters are: availability of finance (3.76), access to adequate training (5.91), direct patronage (18.97), and economic capability of the youths (8.2). This implies that because of the treatment (receiving CSR intervention), the youths of GMoU households had more access to finance, entrepreneurial training, received more patronage from MOCs and their economic capability enhanced. However, the level of youth participation in the subject matter is still low, yet the effect is significant on the participants and should be enhanced as participating in the ecotourism enterprise will intensify actualization of Sustainable Development Goals 1, 2, 8, 10, 14 and 15. This finding remains speculative and provocative, and would therefore benefit from further empirical research. However, if confirmed, this raises the importance of cultural context in the determination of appropriate CSR priorities and programmes in rural sub-Saharan Africa, and the need for flexibility in approaches to CSR policy and practice by multinationals operating in Africa and globally.

Declaration of Conflict of Interests

The authors declared no potential conflict of interest with respect to the research, authorship and/ or publication of this article.

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