ECONOMY-BASED DEMOGRAPHIC VARIABLES AND RESOURCE CONSERVATION PRACTICES IN TROPICAL RAINFOREST IN IKOM EDUCATION ZONE OF CROSS RIVER STATE

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Abstract

This study investigated the influence of economy-based demographic variables and resource conservation practices in tropical rainforest in Ikom Education Zone of Cross River State. Economy-based demographic variables were sub-divided into two - occupation and income level while resource conservation practices were treated as the dependent variable. A survey design was adopted for the study. Study's population was made up of all inhabitants in the study area. Sample was drawn using purposive sampling procedure with a sample of 555 respondents drawn for the study. A questionnaire tagged "Economy-Based Demographic Variables and Resource Conservation Practices in Tropical Rainforest Questionnaire" was utilized to collect data. Cronbach Alpha was used to estimate the reliability of the instrument. The two hypotheses formulated for the study were analysed using One-Way Analysis of Variance (ANOVA) and tested at .05 level of significance. The findings revealed that each of occupation and income level had a significant influence on resource conservation practices in tropical rainforest.

Introduction

Forests and its resources therein are natural endowments which are of high value to both the environment and man. Amongst all forest types, the one situated within the tropics, generally known as tropical rainforests are the most endowed. Aside the common environmental and ecological forest functions (climate mitigation, source of natural oxygen, air and water purification, soil and water conservation, flood regulation, natural habitat provision for fauna and flora species, etc), they house a little more than 50% of all the world's biodiversity; they house about 67% of the world's fauna and flora species; they store about 50% of the world's terrestrial carbon; they have a variety of highly valued and exotic flora and fauna endemic to the forest' habitat; they are known as the "world's largest pharmacy" as many of its plants have been found to be effective against diseases such as malaria, HIV/AIDS, bronchial and skin ailments etc; it is estimated that only 2% of its plants' potentials have been discovered in terms of herbal/medicinal value; its Non-Timber Forest Products (NTFPs), logging and ecotourism services are valued in excess of $500bn annually (the highest amongst all forest types), and; they are the source of livelihood for more than 2.5 billion rural people (also the highest of all forest types) (United Nations Environment Programme (UNEP), 2000; Philip, Akintoye, Olorundami,

Nkpena, Ukata & Harrison, 2014). Inspite of all the above stated natural endowments, the tropical rainforests cover only about 6% of the earth's terrestrial surface.

Based on the nature of the people living in close proximity of the forests, the practices which the forests and its resources are subjected to include a wide range of agro-based activities; extraction of a wide variety of non-timber forest products (NTFPs) for edibles, craft-making resources, medicines/herbs, fodder, chemicals, fuel-wood, etc; logging; spiritual fulfilment and other purposes related to their pattern of livelihood.

According to Enuoh and Bisong (2014), Cross River State had 17 forest reserves as at when Nigeria attained independence from her colonial masters and most of them are situated within the geographical location of the present study area (Ikom Education Zone of the state). The Forest Reserves (FR), where they are located and their sizes in terms of landmass are stated as follows – Afi River FR (Boki – 383.32 km^2); some part of Agoi FR (Akamkpa, Biase & Yakurr – 46.62 km^2); Boshi FR (Boki – 41.44 km^2); Boshi Extension FR (Boki – 67.34 km^2); Cross River North FR (Etung – 129.50 km^2); Cross River South FR (Etung & Ikom – 349.65 km^2); Ikom Fuelwood Plantation (Ikom – 1.06 km^2); Ikrigon FR (Ikom – 5.29 km^2); Okwangwo FR (Boki – 468.79 km^2), and the Ukpon River FR (Obubra & Yakurr – 313.39 km^2).

In 1994, the British Overseas Development Administration assisted the State in carrying out a Forest Inventory Report and the following was revealed - Afi River FR (31% cleared); Agoi FR (33% cleared); Boshi FR (51% cleared); Boshi Extension FR (35% cleared); Cross River North FR (61% cleared); Cross River South FR (21% cleared); Ikom Fuelwood Plantation (100% cleared); Ikrigon FR (100% cleared); Okwangwo FR (now part of the Cross River National Park), and the Ukpon River FR (16% cleared) (Cross River State Government (CRSG), 1994). The reasons fingered for the situations faced by the forests were clearing and burning the forest for agro-based purposes (the major driver here being the establishment of large scale mono-crop plantations), logging and fuel-wood extraction. Attendant issues of unsustainable harvesting of NTFPs, poison-based hunting and fishing techniques, and unauthorized poaching were also mentioned as factors which contributed to the situations faced by the forests.

The need to investigate the conservation practices of the community members has ecological, environmental and socio-economic benefits. The forest is a rare type of tropical rainforest endemic to West Africa. Within this unique forest are endemic fauna and flora such as the Cross River gorilla (*gorilla gorilla dielhi),* the bareheaded rock fowl *(picarthates oreas),* Sclater's guenon monkey *(cercopithecus sclateri),* the African rainforest elephant *(loxodonta cyclotis)* and some exotic flora species such as *habenaria prionociaspedon* and *cola philippi jonesi* (Odey, Eyamba & Chapman, 2006; Borokini, 2014). Already, fauna species such as the black duiker (*cephalophinae niger),* bush cow *(syncerus caffer brachyceros),* leopard *(panthera pardus pardus),* water chevrotain *(hyemoschus aquaticus)* and the giant pangolin *(smutsia gigantean)* are believed to be extinct within the area (Enuoh & Bisong, 2014). In addition to the fauna species, Bisong and Buckley (2014) reported that about half of the 86 commercially exploited tree species within the present study area were identified as being threatened towards extinction with some species requiring urgent conservation attention.

As for loss of NTFP species, Ogar, Bisong and Eka (2016) revealed how logging activities within the area had grossly depleted a wide variety of them towards the brink of being critically endangered. Lastly, in 2009, the area was included amongst the Global Biodiversity Hotspots. In conservation parlance, a Global Biodiversity Hotspot is an area which has less than 25% of its original biodiversity left. It is believed that the designation

of the area as a Global Biodiversity Hotspot was because of the subsequent Directorate for International Development (DFID) assisted Cross River State Forest Inventory Reports in 2003 and 2006 which projected the state's forest and its resources to disappear completely based on the current rate of deforestation.

Environmentally, deforestation ensures that forests' ability to provide services to the earth's life support system declines drastically, giving way for global warming and its attendant consequences. Lack of forest cover also ensures habitat destruction thereby bringing about undesirable changes in ecosystem functioning that could affect water and soil conservation adversely. Most importantly would be a drastic decrease in the production of natural oxygen, thus leading to a change in the environment's natural air composition. Socio-economically, deforestation could cause untold hardship to the community members, due to their dependence on the forest as their source of livelihood. A wide range of diseases/ailments could remain incurable if attention is not paid towards the community members' forest conservation practices. Lastly, a wide range of products and resources obtained from the forests could become very scarce thereby upsetting the pattern of livelihoods of the community members. There are many factors which are connected with community members' resource conservation practices in tropical rainforests. Research works have shown that their economy-based demographic variables such as occupation and income level are inclusive in the factors which can influence their positive or negative resource conservation practices in the forest.

Occupation is a variable that refers to the activity that an individual does which takes most of his or time due to expectation of reaping benefits from such activity. It has been mostly revealed to have a significant influence on locals' resource conservation practices in forests by some studies (Jalilova & Vacik, 2012; Asena, 2013) while very few have revealed it as having an insignificant influence (Ezeali, 2015). Income level is a variable that refers to the stipulated amount of money which is accruable to an individual in a given period of time. Most studies have shown that it can influence conservation prone practices towards forest-based resources (Szell, 2012; Lepetu & Garekae, 2015) while very few have shown it to be an insignificant factor concerning peoples' forest resource conservation practices (Abdullahi, 2012).

Based on the above stated evidences from research works, it is premised that economy-based demographic variables can possibly serve to influence their resource conservation practices in tropical rainforests. The variables investigated are occupation and income level. In line with the presupposition that community members' resource conservation practices in tropical rainforest could be influenced by their economy-based demographic variables, this study investigated the influence of economy-based demographic variables on resource conservation practices in tropical rainforest in Ikom Education Zone of Cross River State, Nigeria.

Occupation in this study refers to an activity(ies) which an individual engages in that takes most of his or her time due to the expectation of reaping benefits from such an activity. Synonymous with the concepts of job or profession, occupation could also be seen as an activity engaged in with the aim of meeting needs, expectations or desires. Having an occupation (whether self-employed or as an employee) is a necessity for every living individual as it tends to ensure livelihood security, or better still, progress and development in one's life endeavour. Occupation types are mainly categorized into two, which is being self-employed or being an employee. In rural areas, occupations are mainly typified by the nature of the rural area's environment. Aquatic environments are typified by fishing and its allied professions while terrestrial environments are usually typified by farming and agro-allied professions. The following reviews reveal how occupational

dynamics of people interfaces with their dispositions toward natural resource conservation.

A survey approach was used to ascertain the influence of personal variables on environmental dispositions of locals around protected areas in Nigeria by Ogunjimi, Onadeko and Adewumi (2012). All dwellers around seven national parks in the country composed the population. A sample of 1,170 respondents was randomly drawn. Chi-square analysis results revealed occupation as a statistically significant correlate of attitude towards conservation of the reserves. Asena (2013) used a survey method to evaluate locals' attitudes concerning conservation of biodiversity in Kenya. Population of locals living in forested areas in Ikuywa and Kakamega (communities in the country) composed the population. 40 respondents were randomly drawn and chi-square technique was applied to analyse data. Occupation was revealed to have a statistically significant association with conservation of forests and its resources.

Ezeali (2015) also examined occupation as a determining factor in terms of farmers' attitudes to adopt improved forest resources' conservation measures in a study which investigated gender's influence on sustainable management of forest resources in Nigeria. Using a Tobit Model analysis technique, occupation was found to be an insignificant determining factor of farmers' tendencies to adopt improved conservation measures for forest resources. In their study on factors hindering locals' participation in exploiting and managing forest resources in Cross River National Park, Eneji, Mubi, Husain and Ogar (2015) assessed the predictability of occupation as one of the factors. Analysis using multiple regressions revealed occupation as a negative but statistically significant determining factor of locals' dispositions towards participation in exploitation and conservation of the forest reserve.

Odebiyi, Ayeni, Umunna and Johnson (2015), in their study on dispositions towards conservation of forest resources in Gashaka Gumti National Park examined the extent to which occupation was correlated to conservation-based tendencies amongst locals in proximity of the park. Results of chi-square analysis revealed occupation as a significant correlate of conservation-based dispositions amongst the locals. Tesfaye and Bezabih (2017) assessed indigenous knowledge and determinants of practices of forest resource conservation in Ethiopia by applying a survey procedure. Locals in Tocha district in the southern part of the country made up the population while snowball sampling principles were used to select 162 respondents. A binary logistic regression model was applied to analyse data and occupation was found to be a statistically insignificant correlate of how the locals' carried out their forest conservation practices.

In their study on rural dwellers' perceptive beliefs and tendencies towards community forest management in Ethiopia, Tadesse and Teketay (2017) evaluated occupation as a predicting factor of the locals' tendencies towards being part of a participatory forest management program, or being accorded the responsibility to protect the forest. Using a multiple linear regression model for data analysis, occupation was revealed as an insignificant predicting factor of dispositions to either being part of a joint forest management program, or being given the responsibility of protecting the forest.

Income refers to a stipulated amount of money accruable to an individual over a given period of time. It can also be seen as the amount of money left at one's disposal to spend after having paid taxes. The accruable amount of money could come in form of wages, salary, pay, earnings or yield, depending on the source through which the income was generated from. The given period of time in which the money is accruable could be annually, monthly, weekly, daily or even hourly, and this is also dependent on the income

generating source. Sources through which income could be generated include work (either as an employee or en employer), trade (businesses inclusive), investment(s), etc.

As a concept in research parlance, income level refers to categorized amounts of monies earned by individuals over a given period of time and the categories are usually classified as low, moderate or high. The concept of income level is usually researched upon by researchers when any of peoples' demographics, background, socio-demographics, socio-economic or personal variables are to be investigated. The following reviews reveal how income level serves as any of a correlate, predictor, determinant, or as an associative factor of peoples' attitudes, perceptions, tendencies or dispositions concerning conservation of forest-based resources.

Abdullahi (2012) determined locals' variables and sustainable management and conservation in Nigeria's forest reserves in a case study which focused on the Maladumba Lake and Forest Reserve in Bauchi State. Population of rural dwellers around the reserve composed the study's population while systematic random sampling was used to draw 100 respondents. Multiple regression analysis revealed annual income level as an insignificant determining factor of attitudes and perceptions towards the park. Attitudes and perceptions of rural dwellers and tourists toward a protected area in Romania were researched upon by Szell (2012) with a case study approach. All locals and tourists residing in proximity of the country's Retezat National Park served as population. Judgmental, random and snowball sampling principles were used to select 220 respondents. Analysis was done using Pearson Product Moment Correlation (PPMC) analysis. Income level was revealed to be statistically and positively significant in terms of its relationship with acceptance to pay in support of the park's conservation.

In a study which investigated use of forest resources and locals' attitude/perception towards a community-based forest management program in Madagascar, Ratsimbazafy, Harada and Yamamura (2012) investigated extent to which income level served to predict favourable tendencies toward conservation of a forest. Using a regression model, income level was found to be an insignificant predictor of the locals' favourable tendencies towards forest resources conservation. Chen, Zhu, Krott and Maddox (2013) studied management of community forests and development of livelihoods in China by adopting a descriptive survey design. Dwellers in proximity of the country's Gansu Baishuijiang National Nature Reserve made up the population. 200 respondents were randomly drawn and data was quantitatively obtained. Data was analysed using independent t-test. Result revealed income level serving as a statistically significant indicator as the income level of participants was significantly higher than those of non-participants.

An evaluation of forest villagers' perspectives concerning forests and forestry organizations in Turkey was embarked upon by Alkan and Kilic (2014) in a study which utilized a case study design. Local community inhabitants in proximity of the country's Sivas forest district made up the population. Random sampling principles were used to sample 1,059 respondents from whom data was obtained using a questionnaire. Using chi-square technique, it was found out that income level did serve to have a statistically significant association with each of attitude and satisfaction towards the forest and its management. Hema and Devi (2015) assessed income level obtained from mangrove forest resources and willing acceptance to donate monies for conserving mangroves in India. Applying a regression model for analysis, income level from the forest's resources was significantly and positively correlated to locals' willing decisions to raise funds for mangroves' conservation.

Lepetu and Garekae (2015) ascertained the predictability of income level on willingness to be part of managing a reserve in Botswana. Using logistic regression analysis, income level was found to be a statistically significant factor of voluntary acceptance to partake in the forest management program for the reserve. In their study, Mutanga, Vengesayi, Gandiwa and Muboko (2015) examined whether level of income was a significant correlate of perceptions and attitudes toward forest-based biodiversity conservation in Zimbabwe's forest reserves. Application of PPMC revealed income level serving as an insignificant correlate of dispositions and beliefs towards conservation of forest-based biodiversity in the reserves. Chinangwa, Pullin and Hockley (2016) evaluated income level as a significant determinant of voluntary enthusiasm to partake in co-management of forest reserves in Malawi. Regression analysis revealed income level as a statistically significant predictor for each of locals' WTP, and the amount which will be voluntarily paid.

Statement of problem
Amongst all forest types, the forests situated within the tropics are the most naturally endowed. Hectare for hectare, they have more species, wildlife biodiversity, store much more carbon than any other terrestrial vegetation type thus producing higher amounts of oxygen inspite of its relatively smaller size comparable to non-tropical forest types. In addition, amongst all forest types, they serve the highest number of rural people on earth. These facts imply that they play very vital roles towards the continuous existence of each of the earth's life support system and man's survival. The forests within the study area are rare types only typical of West Africa, thus providing habitat for some flora and fauna species both endemic and non-endemic to the area. Upon achieving independence from our colonial masters, many forest reserves were created. Recent reports have revealed a high level of deforestation with projections being made that the forest and its resources will disappear in about 18 years from now. In spite of the reports even making the forest within the area to be designated a global biodiversity hotspot by the United Nations, unsustainable tropical rainforest conservation practices continue unabatedly.

Issues of forest clearings for large scale mono-crop agricultural land uses coupled with slash and burn practices decimate the forest immensely from an agro-based dimension. From the commercial dimension, logging and fuel-wood extraction have also contributed a very significant quota towards the fast rate at which the forest is disappearing. On a much lower scale though with significant impacts on the forest and its resources are aspects of harvesting NTFPs unsustainably, unauthorized poaching and usage of chemicals/poisons for hunting and fishing. It is based on the issues stated above that this study sought to inquire the following – to what extent do community members' economy-based demographic variables influence their resource conservation practices in tropical rainforests within the Ikom Education Zone of Cross River State, Nigeria?

Purpose of the study
The purpose of the study was to investigate the influence of economy-based demographic variables on their resource conservation practices in tropical rainforest in Ikom Education Zone of Cross River State.

Statement of hypotheses
1. There is no significant influence of occupation on resource conservation practices in tropical rainforest

2. Income level has no significant influence on resource conservation practices in tropical rainforest

Methodology

A survey research design was used for the study. The study was carried out in Ikom Education Zone. The area comprises six Local Government Areas (LGAs) namely; Abi, Boki, Etung, Ikom, Obubra and Yakurr. According to available records, the coordinates of the area are - latitudes $5^030^'$ and $6^030^'$N of the equator and longitudes $7^045^'$ and $9^015^'$E of the Greenwich Meridian. The area has a landmass of 7632km^2 and is bounded on the South by Akamkpa and Biase LGAs, on the East by the Republic of Cameroun, to the North by Obanliku, Obudu, Ogoja and Yala LGAs, and on the West by Ebonyi State respectively. It lies within the tropical rainforest region of Nigeria and has both dry and wet seasons. The 2017 projected population for the area is 1,143,625 with a population density of 150 inhabitants per km^2 (NPC, 2017).

The people of the area are predominantly farmers, fishermen, weavers, carvers and crops like cocoa, plantain, maize, banana, yam, cocoyam, okra, cassava, vegetables etc., are grown all year round. There are plantation farms within the area such as the cocoa plantation in Etung and Ikom LGAs and the oil palm plantations in Boki and Etung LGAs. Some forest reserves were once found within the study area but in recent times, the only renowned one left is the Okwangwo Division of the Cross River National Park situated in Boki LGA. The area is blessed with a lot of natural and man-made tourism sites, viz, Ikom Town Beach, Agbokim Waterfalls, Nkarasi carved monoliths, Afi Wildlife Sanctuary, Boje swallow birds, Ohana Lake, Ogurude Pond, etc. The area also has mineral resources such as salt brine deposits, barite, quartz and pyrite (Bassey, 2010).

Purposive sampling technique was applied to select the sample. First of all, the technique was applied to purposively select four out of the six LGAs that still have large tracts of forest within the area. Afterwards, from a list of communities in each of the LGAs which was obtained from the state's NPC office, the technique was utilized to select a community in each of the selected LGAs before *adopting the Krejcie and Morgan (1970) sample size determination method* to determine the sample from the four communities' projected population for 2017.

The sample size determination method has a table which depicts the desired sample size *for any given population*. The total population of the sampled communities is 10,274 and from the table, the sample size for the population of the communities is 370. However, to account for attrition bias, (this refers to systematic differences between groups in withdrawals from a study, and withdrawals from the study lead to incomplete outcome data) the desired sample size was increased by (50%) giving a sample size of 555 for more accuracy. Afterwards, the sample was proportioned amongst the communities based on the ratio of their various populations to the total target population for the study. The communities selected were Okumurutet (Obubra), Bendeghe-Afi (Ikom), Nsofang (Etung) and Okwangwo (Boki). The sample for the study was 555 respondents.

A questionnaire was used to collect data for the study. It is tagged the "Economy-Based Demographic Variables and Resource Conservation Practices in Tropical Rainforest Questionnaire" (EBDVRCPTRQ). Draft copies of the instrument were given to validators from the Department of Environmental Education and an expert in Test and Measurement in the Faculty of Education in University of Calabar for an assessment of its face and content validity. The reliability of the instrument was ascertained using Cronbach Alpha reliability estimate method and a coefficient of .78 was attained. Data analysis was achieved using one-way ANOVA.

Results

The first hypothesis stated that there is no significant influence of occupation on resource conservation practices in tropical rainforest of Ikom Education Zone. The independent variable is occupation which was categorized into 3 - civil servants, traders and farmers while the dependent variable is resource conservation practices in tropical rainforest of Ikom Education Zone. The mean scores in resource conservation practices of the subjects in the various occupations were compared using One-way ANOVA tested at .05 level of significance is presented in Table 1. The result in Table 1 revealed that the mean score obtained by the 80 subjects who are civil servants was 35.85 with a standard deviation of 6.22 is less than the mean score of 38.04 with a standard deviation of 6.19 obtained by the 252 subjects who are traders and this is also less than the mean score of 39.95 with a standard deviation of 5.15 obtained by the 182 subjects who are farmers.

Table 1: One-way ANOVA of occupation and resource conservation practices in tropical rainforest of Ikom Education Zone.

Occupation	N	Mean	SD
Civil servant	80	35.85	6.22
Trader	252	38.04	6.19
Farmer	182	39.95	5.15
Total	514	38.38	6.00

Source of variance	Sum of squares	df	Mean square	F-ratio	p-level
Between groups	990.173	2	495.087	14.471*	.000
Within groups	17482.35	511	34.212		
Total	18472.531	513			

*Significant at .05 alpha level; p<.05.

This implies that farmers are better in the resource conservation practices among the residents of tropical rainforest of Ikom Education Zone followed by traders and civil servants respectively. The result further revealed that the calculated F-ratio obtained was 14.471 with a p-value of .000 at .05 level of significance with 2 and 511 degrees of freedom. With the obtained result, the null hypothesis was rejected. Since resource conservation practices in tropical rainforest of Ikom Education Zone were significantly influenced by occupation, the source of the difference was determined using Fisher Least Significance Difference (LSD) Post Hoc Test multiple comparison analysis. The result is presented in Table 2.

The result of the Post Hoc Test analysis as presented in Table 2 revealed that the mean score in resource conservation practices among the subjects who are civil servants differ significantly in absolute sense when compared with that of those who are traders in favour of those who are traders (MD = -2.19; p<.05). The result further showed that the mean score in resource conservation practices among the subjects who are civil servants also differ significantly in absolute sense when compared with that of those who are farmers in favour of those who are farmers (MD = -4.10; p<.05). The result finally revealed that the mean score in resource conservation practices among the subjects who are traders differ significantly in absolute sense when compared with that of those who are farmers in favour of those who are farmers (MD = -1.91; p<.05). Based on these, the

source of the difference was basically from all the different occupations but was more from those that are civil servant followed by those who are farmers and traders respectively.

Table 2: Scheffe Post Hoc Test for occupation and resource conservation practices in tropical rainforest of Ikom Education Zone

Occupation	N	Mean	Mean difference	p-level
Civil servant	80	35.85	-2.19*	.004
Trader	252	38.04		
Civil servant	80	35.85	-4.10*	.000
Farmer	182	39.95		
Trader	252	38.04	-1.91*	.001
Farmer	182	39.95		

*Mean difference is significant at .05 level; p<.05.

The result in Table 2 further showed that the mean score in resource conservation practices among the subjects who are civil servants also differ significantly in absolute sense when compared with that of those who are farmers in favour of those who are farmers (MD = -4.10; p<.05). The result finally revealed that the mean score in resource conservation practices among the subjects who are traders differ significantly in absolute sense when compared with that of those who are farmers in favour of those who are farmers (MD = -1.91; p<.05). Based on these, the source of the difference was basically from all the different occupations but was more from those that are civil servant followed by those who are farmers and traders respectively.

The second hypothesis stated that income level has no significant influence on resource conservation practices in tropical rainforest of Ikom Education Zone. The independent variable is income level which was categorized into three: below ₦20,000; ₦20,001 - ₦50,000 and above ₦50,000 while the dependent variable is resource conservation practices in tropical rainforest of Ikom Education Zone. The respondents' mean scores in resource conservation practices in the various income levels were compared using One-way ANOVA, tested at .05 level of significance and shown in Table 3. The result in Table 3 revealed that the mean score of subjects whose income level is below ₦20,000 was less than the mean score of the subjects whose income level is between ₦20,001 – ₦50,000, and theirs was also less than the mean score of the subjects whose income level is above ₦50,000. This implies that the higher the income level, the better the resource conservation practices among the residents of in the study area.

Table 3: One-way ANOVA of income level and resource conservation practices in tropical rainforest of Ikom Education Zone

Income level	N	Mean	SD
Below ₦20,000	157	36.92	7.35
₦20,001 – ₦50,000	222	37.85	5.25
Above ₦50,000	135	40.93	4.48
Total	514	38.38	6.00

Source of variance	Sum of squares	df	Mean square	F-ratio	p-level
Between groups	1276.256	2	638.128	18.962*	.000
Within groups	17196.276	511	33.652		
Total	18472.531	513			

*Significant at .05 alpha level; p<.05.

The result further revealed that the calculated F-ratio obtained was 18.962 with a p-value of .000 at .05 level of significance with 2 and 511 degrees of freedom. With the obtained result, the F-ratio was to be statistically significant. Thus, the null hypothesis was rejected. Since resource conservation practices in tropical rainforest of Ikom Education Zone were significantly influenced by income level, the source of the difference was determined using Fisher Least Significance Difference (LSD) Post Hoc Test multiple comparison analysis. The result is presented in Table 4. The result of the Post Hoc Test analysis as presented in Table 4 revealed that the mean score in resource conservation practices among the subjects whose income level is below ₦20,000 did not differ significantly in absolute sense when compared with that of those whose income level is between ₦20,000 – ₦50,000 but it was in favour of those whose income level is between ₦20,000 – ₦50,000 (MD = -.92; p>.05). Also, the mean score of the subjects whose income level is below ₦20,000 did differ significantly in absolute sense when compared with that of those whose income level is above ₦50,000 in favour of those whose income level is above ₦50,000 (MD = -4.01; p<.05). The result finally revealed that the mean score in resource conservation practices among the subjects whose income level is between ₦20,000 – ₦50,000 differ significantly in absolute sense when compared with that of those whose income level is above ₦50,000 in favour of those whose income level is above ₦50,000 (MD = -3.09; p<.05). Based on these, the source of the difference was basically from those whose income level is above ₦50,000.

Table 4: Scheffe Post Hoc Test for income level and resource conservation practices in tropical rainforest of Ikom Education Zone

Income level	N	Mean	Mean difference	p-level
Below ₦20,000	157	36.92	-.92	.128
₦20,000 – ₦50,000	222	37.85		
Below ₦20,000	157	36.92	-4.01*	.000
Above ₦50,000	135	40.93		
₦20,000 – ₦50,000	222	37.85	-3.09*	.000
Above ₦50,000	135	40.93		

*Mean difference is significant at .05 level; p<.05.

Discussions

For the first hypothesis, the null hypothesis was rejected as there is a significant influence of occupation on resource conservation practices in the study area's forests with the result suggesting that farmers indulged in better resource conservation practices than traders and civil servants. Presumably, the finding of farmers displaying more conservative tendencies towards the forest' resources could be attributed to certain mediating factors which include; (i) farmers' relatively higher level of dependence on the resources, and; (ii) the perceived relatively higher "commercial" based tendencies which the other occupations would display towards forest resources when they come into contact with them.

The study's finding is supported by the finding of Ogunjinmi *et al*. (2012) who found out that occupation had a statistically relationship with conservation related attitudes with the number of farmers in the study's sample perceived as having influenced the result. Asena (2013) revealed occupation as being significantly associated with the way rural dwellers were disposed to conserving forests and its resources. Eneji *et al*. (2015) revealed a significant relationship between occupation types and dispositions towards exploiting and conservation of the forest. Lastly, Odebiyi *et al*. (2015) reported occupation having a significant predictability on willingness to accept being compensated in order to contribute manual effort towards conservation of mangroves.

The finding contradicts Ezeali (2015) who revealed an insignificant predictability of occupation on locals' ecological conservation behaviors. Also, Tesfaye and Bezabih (2017) revealed an insignificant relationship between occupation and rural dwellers' forest conservation practices. Lastly, Tadesse and Teketay (2017) reported occupation as an insignificant determining factor of tendencies towards each of participation in a joint forest management association, and being saddled with responsibility of protecting a forest.

The finding of the second hypothesis revealed income level as having a statistically significant influence of resource conservation practices in tropical rainforests with the result implying that the lower the income level, the poorer the resource conservation practices in tropical rainforests. Perhaps, this could be attributed to the mediating factor of the mentality pattern which is presumed to accompany the acquisition of various levels of income. Those with more income are presumed to be more concerned with how they will utilize the resources in a manner so that they will not run out of stock while those who survive on subsistence farming and collection of forest resources seemingly do not have much concern about utilizing the resources in a sustainable manner. This then could also serve to explain why it is easier for those having more to willingly donate for conservation related projects while those having less will have more difficulties doing such.

The study's finding agrees with that of Szell (2012) who revealed that income level was a statistically significant correlate of acceptance to donate monies in support of a reserve's conservation. Chen *et al*. (2013) revealed income level as having a significant influence on being part of a forest conservation program. Alkan and Kilic (2014) reported a significant and positive association between income level and each of attitude and satisfaction toward sustainable management of a forest reserve. In their study, Hema and Devi (2015) investigated economic valuation of mangrove forests and revealed income level as a significant predictor of willing acceptance to give cash for mangroves' conservation. Lastly, Chinangwa *et al*. (2016) examined income level as a determining factor of willingness to donate funds towards co-management of forest reserves and revealed income level as being a statistically significant predictor of willing enthusiasm to give funds for the forest' co-management.

The finding was not in agreement with that of Abdullahi (2012) who found out that annual income was not a significant indicator of locals' dispositions towards a reserve. The finding also contradicted that of Ratsimbazafy *et al*. (2012) who explored locals' forest resource utilization, attitude and perception towards forest co-management and reported income level as an insignificant predictor of locals' tendencies towards conserving forest resources. The finding also disagreed with that of Mutanga *et al*. (2015) who reported an insignificant relationship between income level and voluntary agreement of participating in forest resource co-management.

Conclusion

In present times, based on an accumulation of long-standing negligent actions of human beings on the environment, the era of environmental sustainability has been ushered in. This implies that it has become an imperative for man's actions or practices in terms of natural resource exploitation to be more conservative in nature. The need for extreme conservative measures towards natural resource exploitation in some ecosystems such as the tropical rainforest is even more of an imperative due to the unique services it renders both to the continuous functioning of the environment and man's survival. It is a fact that it houses trees which store huge amounts of terrestrial carbon that cannot be found in any other ecosystem type. Continuous careless exploitation of this unique ecosystem type is fingered as one of the major reasons which ushered in the phenomenon of climate change. It is also on record that in recent times, some countries which have been clearing large tracts of their tropical forests for plantation farming are presently the highest contributors of terrestrial carbon in the atmosphere and there have been some consequences within those areas.

Continuous careless exploitation of this unique ecosystem type can only lead to greater and more undesired impacts from the phenomenon of climate change. With its attendant academic, ecological, socio-cultural, economic, political and other far-reaching implications, it implies that human beings might have to learn to embrace more undesired reactions from the environment if we do not learn to appreciate that the need to be more conservative towards natural resource exploitation in one of its most unique ecosystems.

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