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Income Inequality and Climate Change in Nigeria

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Abstract

Climate change is without doubt one of the greatest threats that mankind has to contend with in this 21st century globally. Although, climate change invariably provides opportunities to create a more improved environment for the future, the drive to address the risks and effects of climate change has been hindered due to income inequalities in developing countries. This paper presents offers an understanding of the relationship between climate change and Income inequalities. Available evidence indicates that this relationship is characterized by a vicious cycle, whereby income inequality causes the low-income groups to suffer more from the adverse effects of climate change and vice versa, resulting in greater subsequent inequality. The paper identifies the main pathways through which the inequality-aggravating effect of climate change materializes, namely (a) low income earners in the exposure to the adverse effects of climate change; (b) increase in their vulnerability to damage caused by climate change. The paper presents evidence to explain the above. It also notes that the same cycle can be used to discuss the relationship between climate change and inequality in other developing countries. Finally, it points to the ways in which the climate change and income inequality can be reduced to the minimum.

Keywords: Climate Change; Inequality; Vulnerability; Adaptation; Poverty.

Introduction

Nigeria is endowed with a rich and diverse natural environment, but over the years it has reaped its riches with insufficient care for the well-being of future generations. According to the National Planning Commission (NPC 2004), the country and undergone negative climate change which has adversely affected both man and animals in the country. Some researchers have earlier noted that climate change aggravated inequality, and they provided evidence in support of this claim. There are, however, two over-looked issues that will be discussed so far. First, evidences were often indirect and not focused on inequality such that implications regarding inequality are presented as an afterthought of climate change effect. Second, the evidences presented are generally not connected to each other. Inequalities in consumption pattern caused by the uneven distribution of income can encourage the formation of carbon-intensive habits because the compulsion to survive is one of the drivers of consumption patterns thereby contributing more to climate change effects. An example is the case of rural settlements being largely deforested owing to the lack of cooking fuels such kerosene and gas for cooking. This development had further compounded the natural climate of the country. For instance, as at 2004, some 92,000 hectares of land (a quarter of the country's land space) was covered in forest. Today, about half of the forest had been destroyed due to the activities of wood cutting (NPC 2004) Thus, the potential for their exploitation is extremely limited. Deforestation had been followed by erosion and desertification in some areas.

Meanwhile, other mechanisms are at play. Income inequality erodes social cohesion and undermines individual willingness to engage in collective action as it weakens the sense of social responsibility that is so vital to foster demand for pro-environmental policies as we see that our habitats are permanently under threat from the exploitation of timber (in the west and eastern region), oil spills and gas flaring (in the south-south region) and the impact of increasing coastal urbanization.

Vona and Patriarca (2011) demonstrated how high-income inequality can hamper the development and adoption of modern green technologies because such technologies are only accessible to fewer people who can afford them. This applies to Nigeria as Bakare, (2016) shows that income inequality in Nigeria is high-with a Gini coefficient that ranges between 0.46 to 0.60. Thus, there is a real and ongoing environmental challenge that are increasingly threatening the fragility of the Nigeria's ecosystems which is becoming more dangerous due to the increasing income gap. This calls for a concerted effort by all available relevant agencies and particularly the essence of our research to arise to this threatening challenge so as to save mankind from eminent destruction.

Some recent studies examined the impacts of climate change on poverty using cross-country data, and Skoufias et al. (2011) provided a review of several such studies, taking note of the different methodologies used, different units of analysis adopted, and various policy suggestions offered. Hallegatte et al. (2014) identified four channels through which households may move in and out of poverty – prices, assets, productivity, and opportunities – and examine the effect of climate change on each of these. Lichenko and Silva (2014) provide a synthesis, noting that the connections between climate change and poverty are, “complex, multifaceted, and context-specific.” Hallegatte et al. (2016) showed that comprehensive guidance on joint solutions so that poverty reduction policies and climate change mitigation and adaptation policies can reinforce each other. The contribution of the Working Group II to the IPCC periodical Assessment Reports (AR) also increased gradually its focus on the human dimensions (such as income distributions) of the climate change impact. In particular, this group’s contribution to AR provided an extensive compilation of the evidence – both statistical and anecdotal, and from all parts of the world – regarding the dynamic interaction between climate change, livelihoods, and poverty. They found out that “socially and economically disadvantaged and marginalized people are disproportionately affected by climate change” (IPCC 2014, p. 796; italics added). Similarly, Skoufias (2012) discovered that “climate change impacts tend to be regressive, falling more heavily on the poor than the rich.” In the context of the effects of climate change on Brazil, the study notes that “there is significant variation, with already poor regions being more affected than prosperous regions”. References to inequality are more frequent in the AR5 WGII report. Its overall conclusion is that climate change “exacerbates inequalities” (IPCC 2014, p. 796, italics added). It notes that socially and geographically disadvantaged people – including people facing discrimination based on gender, age, race, class, caste, indigeneity and disability – are particularly affected negatively by climate hazards (ibid). As noted above, exacerbation of inequality can happen through disproportionate erosion of physical, human, and social assets. AR5 WGII finds evidence regarding each of these. Even climate change adaptation expenditure is often found to be driven more by wealth than by need, so that these expenditures end up aggravating inequality (Georgeson et al. 2016).

Income Inequality, Food Affordability and implication on climate and environmental change

A number of greenhouse gasses which contribute to global warming are emitted into the atmosphere both by natural and human activities such as the industrial and commercial as well as residential sectors which are not unrelated to income distributions. Most scientists agree that fossil fuel combustion have greenhouse gases concentration (Moses 2005). Heat emission into the atmosphere is a key contributor to global warming and climate change. Gases like Carbon-dioxide, Sulphur-dioxide and Nitro-oxide released from industries and automobile usually absorb the heat from the sunlight which consequently raise the temperature level of the environment. In recent decades, income inequality had increased in almost all OECD countries of which Nigeria is one. The average income of the richest 10% of the population today is almost as high as the average income of the poorest 10%, while overall prosperity has increased, nor everyone has benefited. The question to be asked is how does income inequality comes to play?

Food affordability exist when people at all times can afford to buy the sufficient nutritious food necessary to meet their dietary needs and for healthy living. However, when income inequality persists, food affordability reduces for those with low income thereby fueling distrust, discontent and encourages criminality because as those who earn barely the means of survival tend to be uncomfortable with their level of living thereby inclined to committing crime compared to those whose income is quite high. We are now facing one of humanity’s greatest challenges - the climate which can reduce crop yields and in turn increase the price of food that will force people to change production and consumption patterns. Curbing the global rise in temperature demands difficult policies, costly measures and international cooperation but for action to be possible, the transition to a low carbon economy requires that costs be shared, income to be equally distributed and wealth more equally shared. If those who have fallen behind also have to bear the cost of transition, there is an imminent risk as it might fail to achieve its objective of attaining a low carbon emitting economy.

Various degrees of vulnerability to the impacts of climate change are strongly correlated with the existing patterns of Income inequality in Nigeria. Individual, household and societal exposure to the hazards of a warming climate varies widely, not only between developed and developing countries which is a known fact already but more importantly between different income earning groups with a country that determine the food affordability of such groups.

fig 1: Income inequality by education attainment in Nigeria (2003 - 2018)

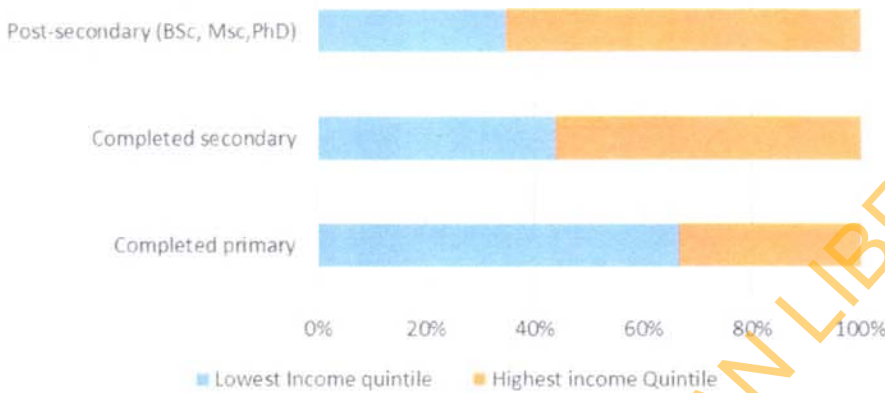
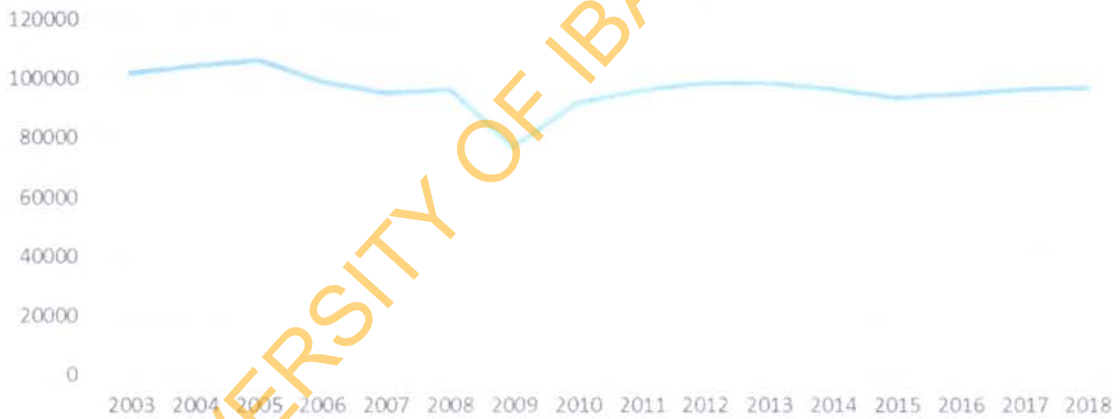


Fig 2: CO2 Emissions in Nigeria(kt)



World Development Index

A pronounced effect of global warming can be observed in Nigeria which is doubly vulnerable due to its high proportion of agricultural employment, deforestation (the destruction of the forest resource among other factors accelerates the changes in the environment resulting in climate change and most importantly food production as crop yields will fall) and oil drilling have elevated the susceptibility to the dangers of climate change. All of these activities cause a shift in the temperature (climate change) which occurs over time. The outcome of these changes leads to extreme weather events such as flood, hurricane and diseases among other unsavoury circumstances which in turn affect food security

The trend (as observed in fig 2) in the CO2 emissions in the country have steadily been on the increase though there seems to be a drop around 2009 however since then, it has continually been on the rise. This will affect the amount of arable land as CO2 emissions affect the productivity of crops. Fig 1 presented us with the systematic analysis of the observed income inequality in Nigeria where we found that those with basic educational qualification are among the lowest income earners and

those with post-secondary qualifications are among the high-income earners. This highlights that those exposed to climatic hazards are unequal.

Climate change poses not just serious threat to the most vulnerable, it also heightens their sensitivity to its adverse effects and diminishes their capacity to adapt and recover following any extreme climate event such as flooding as evidenced in Nigeria over the years.



Computed from NIMET,2019

From fig 3- In Nigeria, almost 44.7% of CO₂ emissions have direct impacts on those at the lowest income earners while about 1.1% of household at the highest income quintile are directly impacted by the CO₂ emissions. It seems quite clear that highly unequal social class where economic and political power is disproportionately held by the super-rich are not significantly affected thereby tending to incubate conditions that foreshadow a dangerously carbon-intensive future for the masses. Many countries in Africa such as Ethiopia, Liberia, Ghana and particularly Nigeria have lost about 70 – 80% of their forest reserve to excessive logging and hunting which had further aggravated the climate conditions of the region. According to a report presented by the Stern Review on the Economics of Climate Change in 2006, massive deforestation caused by the need to seek more means of income for households no doubt has an impact on climate change because the trees and vegetation in the forest store enormous quantity of carbon dioxide which is normally usually by trees for the process of photosynthesis. However, when the trees are burnt or decay, this carbon is released into the atmosphere thereby contributing to the incidence of global warming because it can result to shortage of rainfall which will further exacerbate the level of food availability.

Boyce (2003) discovered the formalization of the political channel through which inequality aggravates environmental degradation, including climate change. He points out that in reality social decisions are not based on maximization of the simple sum of utilities that accrue from a particular decision to different members of the society. Instead they are based on a weighted sum, in which the utilities of the advantaged (powerful) groups get greater weights, resulting in activities that serve more the utilities of the advantaged groups, who can also shield themselves from the adverse effects of climate change through greater protection. As a result, inequality leads to public policies that leave the disadvantaged groups more exposed and susceptible to climate hazards especially in developing countries; this definitely applies to Nigeria. From the analysis done earlier, we can therefore infer the case of the climate change and income inequality circle in Nigeria from the diagram below:

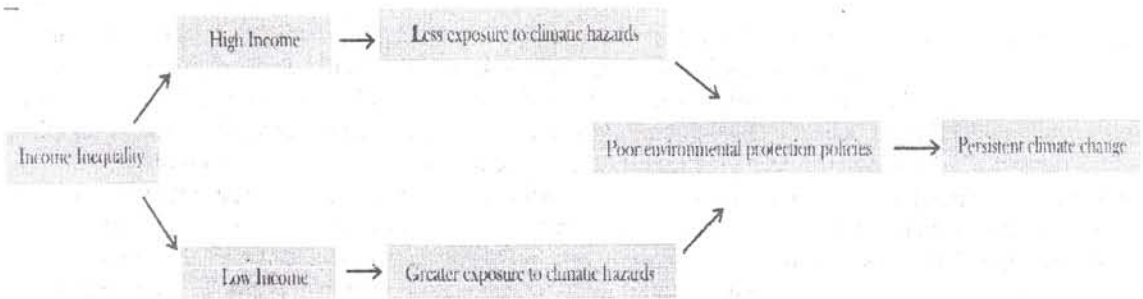


Fig 4: Authors compilation

From Fig.4, it is evident that climate change and inequality are locked in a continuous vicious cycle in Nigeria, whereby income inequality end up aggravating climate change. This is how it works; it begins with levels of income inequalities, which then cause greater exposure of the low-income groups to climate hazards, increase their vulnerability to damage caused by these hazards, and decrease their ability to cope with and recover from the damage and vice versa. As a result, when the climate hazards actually hit, low income groups suffer loss of income and assets while the high-income groups are protected. Since those in the high-income groups are the same people controlling political power, they make poor environmental policies thus worsening climate change impacts and the cycle continues. In view of these assertions, it may be expected that countries with higher inequality will tend to have higher levels of per CO₂ emissions. Given some evidence in this regard showing that the correlation between inequality and climate change is positive. Inequality thus indeed aggravates climate change

Mitigating the Effect of Income Inequality on Climate Change in Nigeria: the factors

To achieve the Paris Agreement's climate goals, emissions must decrease by 45% by 2030 compared to 2010, according to the UN intergovernmental Panel on Climate Change (IPCC). If the transition to a low-carbon society is to gain general acceptance, citizens must feel that the measures are just and that they do not make life unnecessarily difficult for the masses. The Government does have an important role to play in the reduction of the effect of gaseous emission into the Nigerian air space. This is to ensure the safety of both man and other useful environmental habitants for the overall wellbeing of its citizens. The debate surrounding global warming and climate change is currently focused on carbon dioxide emission. Thus, there is need to focus attention and effort toward reducing fossil-fuel greenhouse gases by developing and reducing carbon concentration in the atmosphere.

Secondly, government could impose emission tax to mitigate the effect of atmospheric pollution through gas emission. Some countries have already tolled this line by putting in place the mechanism for emission control through the introduction of certain tax incentive. Example is Switzerland (incentive on carbon dioxide emission tax from January 1, 2008), the United State of America (taxing corporations for their carbon dioxide emission). Moreover, there is climate change levy in Vauxhall U.K and emission trading in Europe. All of these tax policies were intended to give value to environment and redistribute income among the population (see Moses 2008). A fair transmission to a low carbon emitting economy demands that the largest emitters should bear a greater part of the costs and this can be done by taxation on those who contribute more to pollution. It has long been understood that the rich must take responsibilities for the transmission. In Nigeria, the National Environment Standard Regulatory Agency Act (NESRA Act) empowers the agency to regulate air quality, land atmosphere pollution in Nigeria. The act provides that defaulters shall be liable to a fine of N200, 000 or imprisonment for a term not exceeding one year. In the case of corporate body, shall be liable to a fine not exceeding N2, 000,000 and an addition of N50, 000 for every day the offense subsists. However, the fundamental question is to what extent has the Nigerian government enforce these rules in order to ensure a safe environment for all. Another approach to reducing income inequality is to encourage alternative sectors that are fossil-free and are not heavy CO₂ emitters. This will generate good income as the workers employed will compete favourable with their counterparts in the steel, oil, transport industries to stimulate this investments, public institutions should impose

requirements in their procurement for fossil-free and climate smart solutions. A specific example where waste recycling now thrives is the Lagos abattoir where about 3000 to 5000 animals are slaughtered daily. The slaughters of this large herd of cattle leaves behind several tonnes of bones, horns, hooves and huge volume of blood which as a result of lack of proper waste disposal facilities often result in serious air pollution problems to the residents and the neighbouring communities. This pollution is somewhat being minimized by people who engage in recycling large quantities of these cattle remains to make more money. Nigeria generates over 50 million tons of solid wastes annually with less than 10% waste management capacity (Wainason 2009) in Osibanjo (2009). Management problems in country varied and complex with infrastructural, management, political, technical, socio-economic, organization, regulatory and legal issues and challenges to be addressed. Municipal solid waste management is needed in the country especially in industrial areas such as Lagos and other urban residents in order to enhance a quality environment for all.

Conclusions and Recommendations

The prospect of the negative effects of climate change and global warming on future food supply, income distribution, health and other welfare programmes demand that serious attention be paid to the effective control and management of our environment. Mainstreaming our environment to continually accommodate man and animals for the general wellbeing of all should be pursued. If low income earners must bear a disproportionately large share of the cost of reducing our emissions, the result will be dismal. If the wealth created is not shared equitably, the consequences will be more discontent, distrust and more climate change denial. Therefore, the level of literacy needs to be improved upon. This is because the schools could act as a source of transformation and behavioural change and eventual means of earning higher income. Moreover, there should be effective legislative laws enacted to safe guide the environment. It is not only enough to enact the appropriate laws and policies for the protection of the environment; it should be ensured that they are enforced and implemented.

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