

**PAPER TITLE:
ENVIRONMENTAL PROTECTION OR ECONOMIC GROWTH? WHAT
NIGERIANS THINK¹**

BY

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INTRODUCTION

Nigeria, like most developing countries has continued to witness the negative social, economic and political impacts of climate change. It is difficult to establish a link between climate change and violent conflicts. However, the persistent farmer-herder conflict in Nigeria is often seen as consequences of shortages of resources like land and waters caused by climate change (Alaanuloluwa Ikhuoso et al., 2020). Further, climate change is adversely affecting food security in Nigeria and with about 70 percent of Nigerian households engaging in agricultural activities, something urgent must be done to mitigate the impending crisis. Any attempts to mitigate further climate change crisis will depend on collective contribution and collaboration of all countries of the world including Nigeria. In 2015, Nigeria was the second highest emitter of greenhouse gases after South Africa and the production of oil and gas in the country has been linked to steep environmental disasters and social inequalities (Elfredah, 2020). Meaning that both developed and developing countries must effectively contribute to the fight against climate change.

However, Nigeria being the eight largest suppliers of oil in the world has a mostly monoculture economy with about 80% of government income coming from oil revenue. This means that attempts by Nigerian state to contribute to the fight against climate change might negatively impacts government revenue which in turn affects state`s capacity to manage existing climate change challenges. In other words, on the one hand, Nigerian economy is deeply tied to oil revenue. On the other hand, the Nigerian state has continued to suffer from climate change with its attendants socio-economic and political crises. However, it is not uncommon for environmental protection and economic growth to be seen as competing aims. Indeed, in short terms, policies that protect the environment and those aimed at achieving economic growth are often portrayed as conflicting (List & Kuncce, 2000). At the basic level, this means that if Nigerian governments were to manage the environmental crisis and its

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attendant socio-economic and political crises, it would have to reduce its dependent on oil revenue which could affect state's capacity to achieve economic growth and create jobs.

What does Nigerians think about this climate-economic conundrum? What explains the choices between economy and the environment? For many years, studies on climate change in Nigeria have focused on the negative impacts of global warming on the Nigerian society with specific emphasis on its social, economic and political consequences (Edeh et al., 2014; Emodi & Ekene, 2016; Ezegwu, 2014; Sayne, 2011). Other studies have looked at the direct linkage between climate change and violent conflicts in Nigeria (Adejobi & Fatile, 2012; Alaanuloluwa Ikhoso et al., 2020; International Crisis Group, 2020). No studies I have seen has explored the contradictions between negative impacts of climate change in Nigeria and Nigeria's oil economy with its attendant environmental degradation capacities. And more importantly, what Nigerians think about the dilemma of choosing between environmental protection and economic growth.

In this study, I examine climate-economic considerations in Nigeria. The primary objective is to analyze the factors that influence choices between environmental protection and economic growth. To analyze the factors influencing choices between economic growth and protection of the environment in Nigeria, I rely on binary variable of environment-economic consideration available in the 7th wave of the World Values Survey (WVS) conducted in 49 countries including Nigeria between 2017-2021. The results of the analysis show that income has a positive relationship with choice of economic growth. That is, the higher the level of income of an individual, the increase in the likelihood of supporting economic growth against environmental protection. Secondly, though individual with right wing political orientation will likely support economic growth against environment protection, this relationship was not statistically significant. In other words, there is no statistically significant relationship between left-right political position and environment-economic consideration.

THEORY

Climate change is one of the defining challenges of the 21st century that has generated intense debates and controversies among governments, academics and policy makers. Scholarly discussions on climate change and economic growth have often focus on the negative impacts of climate change on economic growth and development. There are increasing theoretical and empirical evidence on the extent and nature of the damages of climate change on the economy. Climate change as we know it causes the destruction of the ecosystems through flood, drought, as well as deaths of animals leading to permanent damages to the society. Furthermore, the resources used in managing the challenges of global warming could have been invested in economic, infrastructures, and research and development (Ali, 2012; Pindyck, 2011). Studies by (Dell et al., 2012), using a panel of 136 countries from 1950-2003 found climate change (1°C) to have reduced economic growth in developing country by 1.3 percentage points. According to the study, higher temperatures due climate change also have wide-ranging effects

including reducing agricultural and industrial output and also increasing political instability (Dell et al., 2012).

For many years, it is developed countries that have behaved more irresponsibly towards the environment (Bowen et al., 2012; Reddy & Assenza, 2009). Nonetheless, research has shown negative impacts of climate change to be more devastating in developing countries than developed countries (Bowen et al., 2012; World Bank, 2010). This is because, on the one hand, most economies in developing countries rely heavily on agriculture which is highly sensitive to climate change. And on the other hand, developing countries have less adaptive capacities to cope with the negative consequences of climate change compare to developed countries (Bowen et al., 2012).

Existing studies on climate change in developing countries focus on the challenges of climate change as well as policy responses of developing countries to these challenges. Reddy & Assenza (2009) in their studies on developing countries` perspectives on climate change, argue that market-based response is the best policy response of developing countries to climate (Reddy & Assenza, 2009). By this, they mean that developing countries should focus on their development priorities first before any climate change considerations. This argument was further supported by (Maikasawa, 2013) who suggests the introduction of holistic and pragmatic responses that meet the realities of the developmental needs of the people living in developing countries. According to Maikasawa (2013), “it is more compelling and desirable for developing countries to adopt policy frameworks that will respond to their domestic exigencies first before those of the international system. It is therefore strongly suggested that environmental policies must be people-friendly, people-centred and people-driven”.

This paper will build on this literature by examining what Nigerian people mostly think about climate change and economic considerations. Though studies focusing directly on this subject are limited, there are enormous body of knowledge with focus on population perception of climate change in relations to their livelihoods. For example, a study by (Elum et al., 2017) examines farmers` perception of climate change in South Africa. The studies reported negative perception of climate change by farmers in South Africa though many of these farmers developed various climate-response strategies including planting of drought-tolerant crops. Another study by (Haque et al., 2012) on perception of Bangladeshis to climate change reported clear perception of climate change among the participants which included increased heat, overall warmer winters, reduced rainfall. More importantly, the studies reported negative perception of climate change in terms of its effects on means of living, human health, agriculture and overall livelihoods. This finding was also confirmed by another study by (Kais & Islam, 2019) which focuses on shrimp-farmers in coastal areas of Bangladesh. The studies reported that local shrimp-farmers associated climate change to increase frequency of extremes events like cyclones and storm surges as well as with temperature increase which threatened their traditional sources of livelihood and their quality of life.

With different objectives, study by Chou (2013) focuses on the one hand on citizens` attitude towards the choices between economic growth and environmental protection. And on

the other hand, on citizens` perception of climate change risk and the ability of the government to manage the risk. Concerning the dilemma between environmental protection and economic growth, about 69% of the participants in the studies did not think environmental protection can hinder economic growth (Chou, 2013). In other words, they believe that both environmental protection and economic growth can co-exist together. A similar study by Begum & Pereira (2015) among corporate managers in Malaysia reflect a much positive perception of environmental protection in relations to economic growth. Though the participants noted the likely negative impact of climate change on their companies` profits, more than 95% of them believed that climate change would have no effect on the economy of Malaysia (Begum & Pereira, 2015).

Further studies have also focus on the attitude towards climate change in times of severe economic challenges. That is, what do people think about climate change when there is economic meltdown. For example, a study by (Papoulis et al., 2015), examine the attitude of citizens of Greece towards climate change during severe economic crisis. According to their findings, though citizens of Greece were aware of climate change, they do not have confidence in the ability and capacity of the government to address climate change in a way that will also protect the economy.

These studies above mostly document citizens` perception of impacts of climate change and they lacked predictive capabilities of factors influencing negative or positive perception of climate change in these countries. Many of the studies also failed to consider the dichotomy between environmental protection and economic growth. However, available studies with objective closer or similar to this mostly focused on western developed societies (Egan & Mullin, 2012; Hamilton, 2011; McCright & Dunlap, 2011). Their analyses show that right-wing political orientation are mostly favourable towards economic consideration as against environmental protection. For example, a study by (Ziegler, 2017) examines the factors that influence climate change beliefs and attitudes in Germany, The US and China. Though the study reported significant influence of political orientation on climate change beliefs and attitudes, it was less impactful than environmental values measured using New Ecological Paradigm (NEP) scale in predicting attitudes and beliefs to climate change. Nonetheless, US and German citizens with right-wing political orientation expressed significantly less support for publicly financed climate policy.

With slightly different objective, a comprehensive cross national study by (Knight, 2016) examine perception of climate change risks across different countries while focusing on factors that influence negative or positive attitudes toward climate change. According to the findings of the study, citizens of wealthier and highly educated countries tend to be more aware of climate change. However, the studies found no conclusive evidence on the influence of political orientation and vulnerability to climate change on negative or positive attitudes toward climate change. The study also reported inconsistent results regarding the influence of unemployment and level of education on climate change risk awareness.

Though these studies focused mostly on western societies, they provide basic explanation of factors that influence climate change awareness and positive or negative attitudes towards climate change. Along the same line, though focusing on developing country, Nigeria, this current study attempts to document the influence of political orientation on the choices between environmental protection and economic growth. Based on findings of existing literature, I expect that right-wing political orientation will favour economic growth against environmental protection. I therefore hypothesize that:

H1: right-wing political orientation favours economic growth against environmental protection.

Further studies have discussed the role of income or inequalities on citizens perception of impact of climate change. On the one hand, evidence has shown that poor members of the society are likely to be more negatively impacted by climate change while also decreasing their ability to cope with negative impacts of climate change (Intergovernmental Panel on Climate Change, 2014; Islam & Winkel, 2017; Skoufias & Bank, 2012). On the other hand, rich member of the society or citizens of wealthier countries tend to downplay the risk of climate change compare to the citizens of poor countries or poor members of the society (Lo & Chow, 2015; McCright & Dunlap, 2011). This is because adequate economic resources possibly provide sense of security and protection against environmental crises. Given this reality, I expect that individuals with high income in middle-income countries like Nigeria will favour economic growth against environmental protection. I hypothesize that:

H2: high income earners or high level of income will favor economic growth against environmental protection.

METHODOLOGY

This study uses a survey data sourced from 7th wave of the World Values Survey (WVS) conducted in 49 countries including Nigeria between 2017-2021. About 50 countries around the world participated in the 7th wave of the survey with more than 70, 000 respondents and it is latest data available as of April 4, 2021. Essentially, the World Values Survey asks citizens of participating countries their opinions on issues relating to politics, democracy, governance, international politics as well as different socio-demographic questions. The survey data for Nigeria was collected in 2018 and it contains 1, 237 participants selected through random probability representative samples. In relations to country documentation focusing on Nigeria, there were interesting questions specifically focusing on climate change and economic growth. One of them, used for this analysis asked respondents if they (a) think protecting the environment should be given priority even if it causes slower economic growth and some loss of jobs or (b) economic growth and creating jobs should be the top priority, even if the environment suffers to some extent. This makes a binary variable of environment protection-economic growth.

My objective from the beginning is to know the predictors of the choices between environmental protection or economic growth are, therefore, I used this binary variable of environment protection-economic growth as my dependent variable in two logistic regression analyses. My first model examines the influence of left-right placement on environment protection-economic growth. The left-right placement variable varies from 1 to 10 with 1 corresponding to complete left placement and 10 corresponding to complete right placement. My second model retains the binary dependent variable of environmental protection or economic growth and I explored the influence of level of income on the choices between economic growth and environmental protection. The level of income variable varies from 1 (lowest income group) to 10 (highest income group).

In the two logit regression models, I controlled for the following variables: age, education attainment level, religion, ethnic group and gender, sex, place of residence (urban or rural) . The age variable ranges from 18 years to 70 years with a mean age of 32 years. The education attainment level variable moves from no education to Master or equivalent education. The Religion variable includes major religious groups in Nigeria: Roman catholic, Protestant, Muslim and other types of Christian denominations. Gender variable was a binary variable of male and female.

DISCUSSION OF RESULTS AND ANALYSES

Environmental Protection and Economic Growth

The first important findings from our analysis is the respondents support for environmental protection or economic growth. As presented below (Table 1), about 41% of the total respondents reported support for environmental protection even if it causes slower economic growth and loss of jobs. More than half of the respondents (57%) reported support for economic growth even if the environment suffers as a result of it. Only about 2% of the respondent did not answer the question or don't know the answer.

Table 1: Environmental protection vs economic growth

Values	N	Percentage (%)
Environmental Protection	500	41.4
Economic Growth	709	57.3
N.A (I don't know or other answer)	28	2.3
Total	1237	100

This demonstrates that on average, for many Nigerians, there is a slightly more support for economic growth against environmental protection.

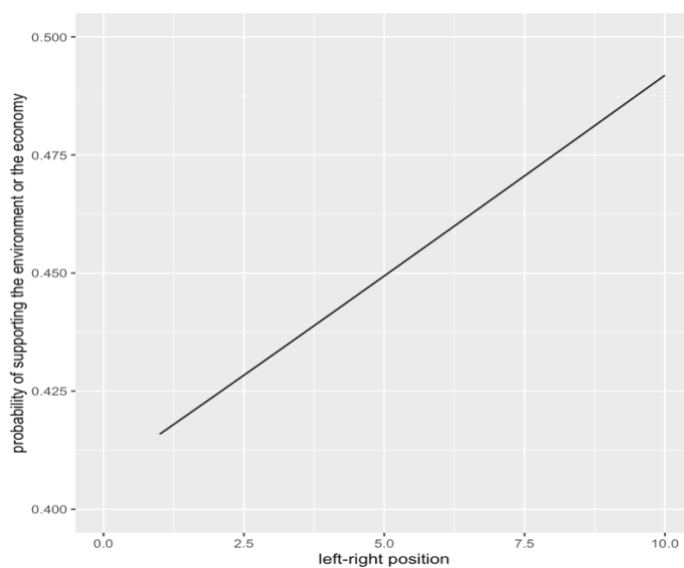
Environment-economic and left-right political orientation

The results of the first logistic regression analysis (see Table 2 & Figure 1) reveal that the relationship between environmental protection vs economic growth and left-right position is not statistically significant though there is a positive relationship. As left-right position moves from left to right wing position, the likelihood of supporting the economy against the environment also increases. The figure 1 below showing the predicted probabilities of environment-economic as a function of left-right position reveal that an individual with right wing political orientation has about 48% (0.485) probability of supporting economic growth against environmental protection. While an individual with the left wing political orientation has a little over 41% (0.41) probability of supporting economic growth against environmental protection. Further, as individual moves from left wing to right wing, the probability of supporting the economy against environmental protection also increases (Figure 1). However, as seen in Table 2, the relationship between environment-economic and left-right position is not statistically significant ($P.V = 0.12$), therefore, we accept the null hypothesis and reject the hypothesis that “right-wing political orientation favours economic growth against environmental protection”

Table 2: Model 1- Odd ratios of binary logit regression of environment_economic as a function of left_right position

<i>Predictors</i>	<i>Odd Ratios</i>	<i>CI</i>	<i>P</i>
(Intercept)	0.69	0.27 - 1.72	0.43
left right	1.02	0.99 - 1.08	0.12
income	0.93	0.88 – 0.99	< 0.05
education	1.00	0.93 - 1.08	0.86
urban_rural.	1.04	0.81 - 1.34.	0.72
age	1.00	0.99 - 1.01	0.70
religion	1.02	0.94 - 1.10	0.54
sex	1.06	0.83 - 1.36	0.62
ethnic_group	1.00.	1.00 - 100	< 0.05

Figure 1: Model 1 - Predicted probabilities of supporting the environment or the economy as a function of left-right position.



These results did not confirm the hypothesis that right wing political orientation favours economic growth against environmental protection, hence the rejection of the hypothesis. However, the results show that those with right wing political orientation are likely to support economic growth (not statistically significant). Therefore, the results provide insight on what the relationship between political orientation and environment-economic consideration could be. Using different data set, it would be interesting if other research can further explore the relationship between political orientation and support for the economy against environmental protection in Nigeria.

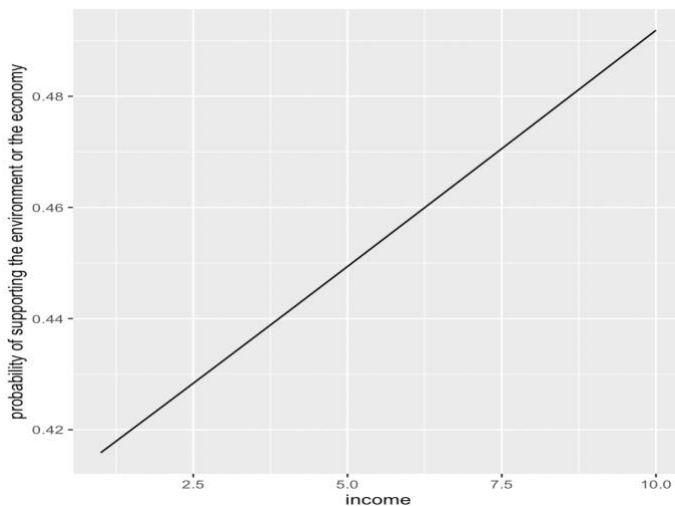
Environment-economic and income

The results of the second logistic regression model show the effect of income on environmental protection vs economic growth. The model reports a statistically significant relationship between environmental protection vs economic growth and income (see Table 3 & Figure 2). As income increases, the likelihood of support for the economy against the environment also increases. As the predicted probabilities (see Figure 2) shows, an individual in the highest income level has about 49% (0.491) probability of supporting economic growth against environmental protection. While an individual in the lowest income level has a little below 42% (0.41) probability of supporting economic growth against environmental protection. This confirms the hypothesis that high income earners will favor economic growth against environmental protection. Nigerians within the highest income bracket are more likely to support economic growth ahead of environmental protection and as their income increases, the probability of supporting the economy also increases.

Table 3: Model 2- Odd ratios of binary logit regression of environment_economic as a function of income

<i>Predictors</i>	<i>Odd Ratios</i>	<i>CI</i>	<i>P</i>
(Intercept)	0.69	0.27 - 1.72	0.43
income	0.93	0.88 – 0.99	< 0.05
left-right	1.03	0.99 - 1.08	0.12
education	1.00	0.93 - 1.08	0.86
age	1.00	0.99 - 1.01	0.72
religion	1.02	0.94 - 1.10	0.54
sex	1.06	0.83 - 1.36	0.62
urban_rural	1.04	0.81 – 1.34	0.72
ethnic group	1.06	1.00 - 1.00	< 0.001

Figure 2: Model 2 - Predicted probabilities of supporting the environment or the economy as a function of income.



These findings expand on existing literature on the effect of income on environmental risk perception. As reported by Low & Chow (2015), rich members of the society in wealthier countries tend to downplay environmental risks. However, our findings show that rich people in poor or developing countries are also likely to downplay environmental risk or at least believe it is not as important as economic growth. These findings have important implication for environmental protection policies in societies like Nigeria. It means that any given environmental protection policies that negatively impact on economic growth or that is perceived to be negatively impacting on the economy maybe rejected by rich members of the societies or those in within the highest income bracket.

DIAGNOSTIC OF MODELS

I conducted a McFadden model fit analysis. However, the results show that both models do not provide a good fit to analyze the variance of the dependent variable. Both models have a McFadden's pseudo-r² of 0.016 and 0.016, meaning that they each explain only about 1.6% of the variance of the dependent variable, environment-economy. Indeed, this is a very low measure, and it means the model did not do well. I cannot currently accurately explain why the model has done badly especially given the fact I have included all independent variables that intuitively make sense in the logistic regression. I will explore the relationship further with another dataset to see if the problem is with the dataset.

However, the model do not suffer from multicollinearity. A test of Variance Inflation Factor (VIF) reveals that none of the independent variables is above 1.2 (see Appendix). The smallest possible value of VIF is one (absence of multicollinearity). As a rule of thumb, a VIF value that exceeds 5 or 10 indicates a problematic amount of collinearity (James et al., 2013). Since none of the independent variables has VIF that is above 1.2, the models do not suffer from multicollinearity.

CONCLUSION

This study examines the perspective of Nigerians on climate change and economic growth considerations. Existing studies have focused on factors that influence perception of climate change risks especially in developed countries. With a slightly different objective, I examined the factors that influence choices between environmental protection and economic growth. The findings show that left-right political orientation does not have statistically significant relationship on environment-economic considerations, though right wing political orientation increases the likelihood of supporting economic growth against environmental protection thereby supporting existing literature. This means that there is no statistically significant evidence that left-right political orientation influences environment-economic consideration. However, further research can explore this relationship with another dataset.

The results of the second logistic model show that there is a statistically significant relationship between environment-economic and income. As income increases, the likelihood of supporting economic growth against environmental protection also increases. This finding has serious implication for environmental protection policies. At the basic level, environmental policies of government that threatens economic growth may not be supported by rich members of the society due to the fact that they are downplaying environmental risks. Or because they think the economy is just more important than the environment. Therefore, government must design environmental protection policies more carefully or in a way that does not threaten economic growth.

APPENDIX

A). Variables of interest

Q111, Q240, Q288, Q275, Q262, Q289, Q290, Q260, H_URBRURAL.

Dependent variable survey question:

Here are two statements people sometimes make when discussing the environment. Which of them comes closer to your own point of view? A). Protecting the environment should be given priority, even if it causes slower economic growth and some loss of jobs. B). Economic growth and creating jobs should be the top priority, even if the environment suffers to some extent.

Coding:

1 (protecting environment), 2 (economy growth and creating jobs). I recorded them to 0 (protecting environment), and 1(economic growth).

B). Multicollinearity Test (Variance Inflation Factor)

Independent Variables	Variance Inflation Factor (VIF)
Income	1.08
Left-right	1.00
Education	1.26
Age	1.05
Ethnic group	1.11
Urban-rural	1.05
Religion	1.14
Sex	1.03

C). Summary of the variables used in the regression models

Variable	Coding	Not NAs	Descriptive statistics
DV: environment- economic	0=(environment); 1=(economic)	1209	0= 40.4% of total sample, 1= 57.3%, and NA= 2.3%.

Left-right political orientation	1=(left wing); 10=(right wing)	1170	1= 8.3%, 2= 3.7%, 3= 7.6%, 4= 8.1%, 5=15.2%, 6=9.9%, 7=11.8%, 8=8.6%, 9= 5.9%, 10= 15.4%., NAs=5.4%
Income	1= lower step; 10 = tenth step	1226	1=6.5%, 2=10.8%, 3=17.4%, 4= 18.2%, 5=20.0%, 6=11.6%, 7=7.9%, 8=3.2%, 9=1.3%, 10=2.2%, NAs= 0.9%
Education	0= no education, or early childhood education; 7= Masters or equivalent	1228	0= 17.5%, 1=11.1%, 2=12.6%, 3= 39.5%, 4=9.5%, 7= 9.2%, NAs= 0.7%.
Ethnic group	1= others; 6 = Tiv	1228	1= 24.7%, 2=25.2%, 3=30.8%, 4=15.2%, 5=1.4%, 6=2.0%, NAs=0.7%
Sex	1= Male; 2= Female	1237	1=51.2%, 2= 48.8%
Age	From 18 and above	1237	Mean= 32.56
urban rural	1= urban; 2= rural	1237	1= 49.2%, 2= 50.8%

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