Environmental Drivers of Temporary Migration in Nigeria.

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Abstract

The interaction of man with his environment has brought considerable changes to his environment, having a devastating impact on the environment, as well as resulting to disasters such as flooding, deforestation, desertification, among others. This study seeks to examine temporary migration decisions of Nigerians in response to their environmental, economic and demographic factors. The Lee's Migration model provides the theoretical framework for this study. Data were obtained from the 2010 Harmonized Nigeria Living Standard Survey (HNLSS) conducted by the National Bureau of Statistics (NBS) with 332,938 household members sampled. Probit regression was estimated and analysis conducted nationally, rural and urban. The results show that Nigerians migrated temporarily because of flooding, desert encroachment, and deforestation at the national level. Across all levels, individual characteristics were additional significant determinants of temporary migration. Thus, environmental policies by the government should be tailored towards mitigating the effects of these environmental changes on migration.

1. Introduction

A natural phenomenon exercised by man is movement from rural areas to urban areas, from developing countries to developed countries and from societies with stagnant economic conditions to societies with better off economic conditions to address their economic and social needs or in search of better environments. Migration from one area to another in search of improved livelihood is a key feature of man which has significantly influenced its history. Migration within and outside the country is a phase of life which tends to expand opportunities for productive work and wider interaction among people and cultures. Why people migrate is one of the most interesting questions in social science research. (Stark and Fan, 2010).

Migration, which can be referred to as the movement of people over a defined space and time, is a phenomenon that has been part of humans from creation. Migration can be either voluntary or involuntary. The voluntary migration is self-willed and based on the individual's choice/desire or by the household, that is, when members collectively desire to send a family into the migration process. The decision to migrate here is taken based on the evaluation of the cost and benefits involved in entering the migrating process. This usually is as a result of the assurance of a better standard of living, or as a result of the assurance of a higher chance of getting a better livelihood. This is, however, not the case with involuntary or forced migration. For involuntary migration decision, people are forced to migrate against their desire and will to destinations far removed from their area of origin or usual place of residence. This is usually caused by environmental shocks such as floods, famine, drought, desertification, and earthquakes among several others; as well as socio-economic instability, insecurity, conflict, and warfare. In this case, they are forced to move due to unbearable situations.

In migration studies, for migration to take place, there are usually push factors and pull factors at work that motivates them to move. Push factors are factors or reasons that make people decide to move due to the experience of living in one place which gives them good reasons to leave it. Often times, push factors are negative events such as unemployment, crop failure, droughts, flooding, war, desert encroachment, deforestation, poor education, among others. On the other hand, pull factors are the expectations which attract people to the new place. These are usually positive reasons such as getting a means of livelihood, job opportunities, a better standard of living, better education, and better healthcare among others.

Temporary or circular migration is a move made for a short period of time with the intention of returning to the place of usual residence (Keshri and Bhagat, 2012). The encyclopedia of migration defines temporary migration as migration to a country that is not intended to be permanent, for a specified and limited period of time, and usually undertaken for a purpose. Temporary migrants are referred to as "guest workers". This term is a generic label for those that do not have the right to permanent settlement.

Whether for survival or to accumulate more wealth, a very important strategy for most people living in rural areas, especially in developing countries is temporary migration. Among the numerous migration literature, much focus and efforts have been given to understanding permanent migration and international migration, with fewer studies on temporary migration. In

communities where the rural life revolves around the agricultural cycle, temporary migration (seasonally) tends to be prevalent and thus becomes a coping strategy during lean seasons (when there are agricultural downturns); the lack of income and alternative means of earning influences household members to extend their tentacles of working from their source location (where they live) in rural areas to their migration destinations (where they move to) whether in other rural areas or to urban areas or cities. They would prefer temporary/seasonal migration to a permanent one because they would rather see it as an opportunity to combine their village (home) based existence with that of the urban opportunities.

Globally, several environmental changes have occurred in recent years, both in developed and developing countries. Some of the global environmental changes that have occurred over years are changes in climate (which serves as a major factor), storm or cyclone frequency, forest fires, land degradation, soil erosion, pollution, increase in temperature and ocean acidification, hurricanes, tsunamis, floods, and landslides, among others. In the year 2010, a large number of people were displaced by weather-related disasters, such as floods in central Europe, Mozambique, Brazil, Kenya, and Thailand.

A renewed interest in the relationship between changes in the environment and migration have been spurred among researchers recently. While some researchers believe that environmental changes cause people to migrate, some others believe that migration causes changes in the environment. Laczko and Piguet (2014) identified that except in extreme cases, movements of people tend to be the result of a multi-causal relationship between environmental, political, economic, social and, cultural dimensions. The interaction of man with his environment has brought considerable changes to his environment; these changes have had a devastating impact on the environment resulting in disasters such as flooding, deforestation, desertification, among others. Aside from social, economic and even political factors, the occurrence of any or combination of these, environmental disaster has always forced the movement of people from one place to the other. However, the approach adopted to mitigate the disasters will determine if the migration will be temporary or permanent.

Demographic and environmental factors affect how and whether displaced peoples return (Black et al, 2011). Although, environmental-induced migration is a global phenomenon, the incidence of flooding, desert encroachment, erosion, drought, and deforestation is forcing Nigerians to migrate from their places of residences. While few of the migrants relocate permanently, majority returned to their place of origin after a specific period of time. Indeed, the relationship between migration and the environment has been at the core of population-environment studies (Adamo and Izazola, 2010). This study, therefore, seeks to examine temporary migration decisions of Nigerians in response to their environmental, economic and demographic factors. Following this section, the paper is arranged as follows: section 2 shows some environmental challenges in Nigeria; section three contains the literature review and theoretical framework; section four shows the source of data, section 5 reveals the results, the study ended with conclusion and recommendation.

2. Environmental Challenges in Nigeria

Nigeria is a country blessed with landmass as well as resources on the land. However, the country is not an exception from environmental factors such as flooding, erosion, deforestation, among others. With the country's population of over 180 million people, the use/misuse of the resources has enormous impacts on the environment in the form of flooding, deforestation, among others. A pronounced case of flooding in the country occurred in the year 2012, with 30 states (of the 36 states in the country) were affected. Some of the worst-hit states were Adamawa, Taraba, Plateau, and Benue states. Kogi state also experienced the case of severe flooding as the state serves as the confluence state for the rivers Niger and Benue. Several lives and properties were lost. Many individuals and households were also temporarily or permanently displaced, forcing them to migrate.

The forest resources in Nigeria are under pressures from varying activities of man such as urbanization, infrastructural developments of varying capacities, residential construction, population growth, expansion of agricultural crop cultivation as well as nomadic farming. Several plants and animals are being supported by the presence of forest resources. Ecologically intact forest stores and purify drinking water, they can mitigate natural disasters such as drought and floods, they help store carbon and regulate the climate, they provide food and produce rainfall and they provide a vast array of medicinal cultural and spiritual purposes (CBD, 2009). However, the case of Nigeria with rapid population growth and urbanization has brought about the exercise of deforestation. Furthermore, much pressure has been placed on the forests as a result of the changes in the land use.

Drought and desertification impact directly or indirectly on all aspects of human life and the environment including the ecological, health, geochemical, hydrological and socio-economic facets (Olagunju, 2015). In the case of Nigeria, some states are being affected by desert encroachments and drought, ranging from the moderate to severe rates. Some of the causes of drought and desertification as discussed by Olagunju (2015) are climate variability, Anthropogenic activities (human activities such as deforestation, extensive cultivation, fuelwood extraction, overgrazing cultivation of marginal land, bush burning, faulty irrigation management, as well as urbanization.

In Nigeria, there are environmental agencies and commissions all across the country with an oversight and protection of the environment in the country, as well as the resources on the environment. Table 1 shows some specific agencies related to the environmental preservation and management in Nigeria. These are at the Federal level. Across the states, there are also state agencies.

Table 1: Selected Environmental Agencies in Nigeria.

Abuja Environmental Protection Board (AEPB)	1997	Achieving sustainable development; as well as the secure quality of the environment adequate for the health, conserve and use the environment and its natural resources for the benefit of the territory.
Federal Environmental Protection Agency (FEPA)	1988	Environmental protection and management
Federal Ministry of Environment (FMOE)	1999	Ensure effective coordination of all environmental matters, streamlined into all developmental activities
Forestry Research Institute of Nigeria (FRIN)	1954	Ensure sustainable forest resource management and production, food production/security, forest-based industrial raw materials.
National Biosafety Management Agency (NBMA)	2015	Adequately safeguard human health and the environment from potential adverse effects of modern biotechnology and its derivatives, for the benefits of Nigerians.
National Emergency Management Agency (NEMA)	1999	Coordinate resources towards efficient and effective disaster prevention, preparedness, mitigation and response in Nigeria.
National Environmental Standards and Regulations Enforcement Agency (NESREA)	2007	Protection and development of the environment, biodiversity conservation and sustainable development of Nigeria's natural resources.
National Oil Spill Detection and Response Agency (NOSDRA)	2006	Restore and preserve the environment by ensuring the best oil field, storage and use of oil in the quest to achieve sustainable development in Nigeria.
Nigeria Hydrological Services Agency (NIHSA)	2010	Provide information on the status and trends of the nation's water resources including its location in time and space, extent, dependability, quality and the possibility of its utilization and control.
Nigerian Conservation Foundation (NCF)	1980	Promote the sustainable use of natural resources for the benefit of present and future generations.
River basin Authority	1979	Construct, operate and maintain dams, dykes, polders, wells, boreholes, irrigations, and drainage systems.

Source: Authors compilation

3. Literature Review and Theoretical Framework

The study on migration and environment is not a new area of research (Laczko and Piguet (2009), however, recent interests have spurred among researchers on the relationship between environmental changes and how it affects the movements of people, most especially because of the global environmental changes prevalent. Fears that millions of people from some of the poorest countries in the world could be forced to migrate to richer parts of the world due to climate change have led to a renewed interest in research on migration and the environment (Laczko and Aghazarm, 2009).

Black et al (2011) identified five families of drivers which affect migration decisions: economic, political, social, demographic and environmental drivers; thus, Individual migration decisions and flows are affected by these drivers. They further mentioned that age, sex, education, wealth or marital status could also serve as influences on migration decisions. Mason et al (2010) hypothesize data from Nepal to bring about a connection between environmental change and out-migration. Their study operationalized environmental change in terms of rising times required to gather organic inputs, declining land cover, increasing population density, and perceived declines in agricultural productivity. The effects of other social and economic variables were held constant, and as such, their findings revealed that short distant moves were predicted by perceived declines in productivity, declining land cover, and increasing time required to gather firewood; while the long-distance moves were predicted by perceived declines in productivity.

Natural disasters on the extreme (such as floods and hurricanes) can cause huge amounts of damage to life, property and economic activity (Black et al, 2011). They found that the drivers of migration in response to extreme weather events were multi-causal and were also complex. Although an extreme environmental event could cause people to migrate, it may be just one of a number of other causes, such as individual, social, economic and even political. However, the authors in their research suggested that in order to help improve the resilience of individuals in disaster risk reduction, concerns should be placed for vulnerable populations at the center of development policies. This will help them adapt to environmental changes. The authors concluded that extreme environmental events are likely to remain a significant policy challenge in the future. In the context of climate change and a future increase in extreme events, adequate adaptation strategies and mechanisms must be put in place to ensure rapid responses with clear choices for those displaced to return home or to move elsewhere. The existence of these choices may, the authors say, determine whether the future policy will be needed to give legal protection to displaced people.

Ocello et al (2014) used individual-level data from the Tanzania National Panel Survey conducted in 2008–2009 to examine the roles played by droughts or floods, crop diseases, and severe water shortages in inter-district migration in Tanzania. Their Findings showed that droughts or floods and crop diseases are associated with an overall decrease in the likelihood of inter-district mobility. Also, their finding revealed that migration becomes a likely response to droughts and floods among individuals with no education suggesting mobility is a key livelihood strategy among those most disadvantaged

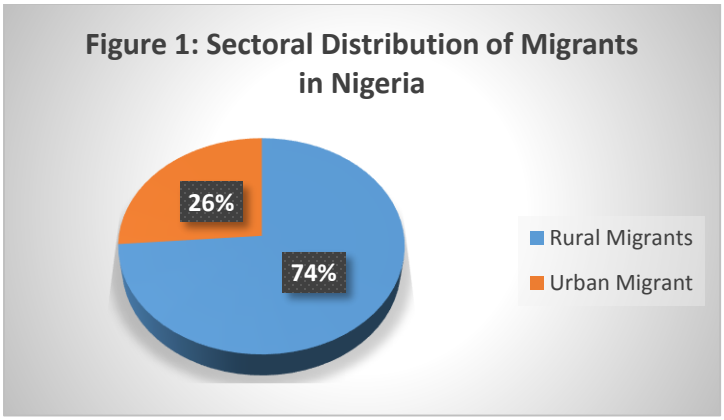
The Lee's Migration model provides the theoretical framework for this study. This model divides the factors of migration into two: push and pull factors. The basic assumption of the push-pull model is hinged on the fact that there exist push factors or repulsive forces that move people to other places or destinations of higher opportunities (Ikwuyatum, 2016). Often push factors arise from environmental shocks such as droughts, flooding, deforestation, as well as other economic, social or even political reasons as unemployment, crop failure, war, poor education opportunities among others. On the other hand, pull factors are the expectations which attract people to the new place such as getting a means of livelihood, job opportunities, better standard of living, better education, and better healthcare among others. These factors are basically the reasons for migration.

4. Data

This study conceptualizes temporary migration as involving those who ever moved away from their original village or town for more than 12 months and returned thereafter. In understanding the migration decisions of Nigerians, this study obtained data from the 2010 Harmonized Nigeria Living Standard Survey (HNLSS) conducted by the National Bureau of Statistics (NBS). The model was estimated using the Probit regression and data were estimated at $\rho \leq 0.05$. Analyses were conducted nationally and by sector (rural and urban). The survey sampled 332,938 household members. Of the 332, 938 household members surveyed, 215,206 people reported to have migrated, with 158,766 migrants from the rural sector and 56,440 migrants from the urban sector. Howbeit, 86,890 were reported to have been affected by environmental factors. Of this category, 58587 individuals migrated temporarily due to the environmental conditions prevalent in their locations.

5. Results

In explaining the determinants of temporary migration in Nigeria, a Probit regression model is estimated, with the dependent variable as migration (as involving those who ever moved away from their original village or town for more than 12 months and returned thereafter). The explanatory variables considered as some of the determinants of migration in Nigeria are age, Household size, the dependency ratio, gender (whether the individual is male or female, education level, employment (whether the individual is self-employed or in the agricultural sector), sector (whether the individual lives in the rural or urban areas) and the per capita household expenditure. Figure 1 shows the sectoral distribution of total migrants in Nigeria, revealing that migration is more prominent among rural dwellers as compared to urban dwellers. This is reflected in the proportion of urban migrants (74%) to rural dwellers (26%).



Source: Authors' compilation from HNLSS (2010)

Description of variables and A-priori Expectation

This study conceptualized temporary migration as individuals who ever moved away from their original village or town for more than 12 months and returned thereafter. A dummy is created for this variable, where those who migrated temporarily take the value of 1, and 0 if otherwise. The explanatory variables are categorized into gender, individual/household characteristics, education, sector, employment and environmental factors. The description of variables and apriori expectation is summarized in table 2 below.

Table 2: Description of variables and A-priori expectations

Variable	Description	A-priori
Dependent		
Migration	those who ever moved away from their original village or town for more than 12 months and returned thereafter	
Independent		
Gender		
Male	1 if male, 0 otherwise	±
Individual/Household Characteristics		
Dependency ratio	the ratio of dependents to non-dependents	+
Household size	number of household members	+
Per Capita Expenditure	log of per capita household expenditure	±
Education		
No education	1 if no education, 0 otherwise	+
Primary Educ.	1 if primary education, 0 otherwise	±
Secondary Educ.	1 if secondary education, 0 otherwise	±
Post_Secondary Educ.	1 if post_secondary education, 0 otherwise	±
Sector		
Rural	1 if rural, 0 otherwise	±
Urban	1 if urban, 0 otherwise	±

Description of variables and A-priori expectations contd.

Variable	Description	Apriori
Employment		
Paid_work	1 if paid work, 0 otherwise	-
Agric_self_employment	1 if agricultural self-employed, 0 otherwise	±
Environmental factors		
Flooding	1 if flooding, 0 otherwise	±
Desert_Encroachment	1 if desert encroachment, 0 otherwise	±
Deforestation	1 if deforestation, 0 otherwise	±
Long_Dry weather	1 if long dry, 0 otherwise	±

Source: Author's computation

Table 3 shows the proportion of household members who migrated due to environmental factors in their location as characterized by their gender, educational status as well as their sectors (rural or urban). The result shows that there is not much significant differences between the male and female migrants as the proportions are almost the same. Furthermore, the environmental migrants are more in the rural areas (67.66%) as compared to those of the urban sectors (32.34%). Migration decisions based on the education status shows that those with no education (35.70%) and Primary education (35.47%) as their highest level of education had more proportion of migrants as compared to those with secondary education (21.27%), nursery education (0.62%) as well as post-secondary education (6.94%).

Table 3: Proportion of environmental migrants

Variables	**Env. Migrants**	**Percentage (%)**
Gender		
Male	29,395	50.17
Female	29,192	49.83
Education		
No education	21,396	35.70
Nursery	370	0.62
Primary Educ.	21,262	35.47
Secondary Educ.	12,752	21.27
Post_Secondary Educ.	4,159	6.94
Sector		
Rural	39,639	67.66
Urban	18,948	32.34

Source:Author's Compilation from HNLSS 2010

Migration decisions of these household members based on the environmental factors are reported in Table 4. It shows that at the national level, the most prominent environmental factor that causes people to migrate is the long dry weather.

Flooding takes a higher frequency after long dry weather with 36,901 migrants due to this. In understanding these environmental changes by the sectorial distribution of rural and urban, it is obvious from Table 2 that rural dwellers are more prone to these environmental changes. 87.8% of those who migrated as a result of desert encroachment were from the rural sector while 12.2% were from the urban. For long dry weather, 74.1% were from the rural while 25.9% were from the urban sector.

Table 4: Migration and Environmental Factors in Nigeria.

	National	Rural	Urban
Flooding	36,901	26,911 (72.9%)	9,990 (27.1%)
Desert Encroachment	17,912	15,727 (87.8%)	2,185 (12.2%)
Deforestation	15,724	12,722 (80.9%)	3,002 (19.1%)
Long dry weather	86,072	63,757 (74.1%)	22,315 (25.9%)

Source: Authors' compilation based on HNLSS (2010)

Flooding takes a higher frequency after long dry weather (86,072) with 36,901 migrants at the national level. In understanding these environmental changes by the sectorial distribution of rural and urban, it is obvious from Table 4 that rural dwellers are more prone to these environmental changes. 87.8% of those who migrated as a result of desert encroachment were from the rural sector while 12.2% were from the urban. For long dry weather, 74.1% were from the rural while 25.9% were from the urban sector.

The Probit regression results show that Nigerians migrated temporarily because of flooding (ρ=0.073), desert encroachment (ρ=0.056) and deforestation (ρ=0.091) at the national level. Urban dwellers temporarily migrated due to deforestation (ρ=0.007) and long dry weather (ρ=0.026). However, environmental changes were not significantly inducing temporary migration in the rural areas. At the national and rural levels of the analysis, individual characteristics such as gender, dependency ratio and per capita expenditure were additional significant determinants of temporary migration in Nigeria, where per capita expenditure was not significant in the urban level of analysis.

Table 5: Probit Regression Results

	National	female	male	rural	urban
VARIABLES	migration_dv	migration_dv	migration_dv	migration_dv	migration_dv
Age	0.00231	-0.00301	0.00265	0.00152	0.00346
	(0.00263)	(0.00643)	(0.00293)	(0.00309)	(0.00508)
Age2	-1.04e-05	2.78e-05	-1.44e-05	2.03e-06	-3.18e-05
	(2.49e-05)	(5.78e-05)	(2.78e-05)	(2.93e-05)	(4.76e-05)
Gender	-0.0819***			-0.0887***	-0.0848**
	(0.0219)			(0.0270)	(0.0380)
Dependency_ratio	-0.508***	-0.267**	-0.545***	-0.500***	-0.540***
	(0.0409)	(0.110)	(0.0444)	(0.0469)	(0.0842)
household_size	0.00568	-0.0119	0.00798**	0.00357	0.0126*
	(0.00369)	(0.0117)	(0.00391)	(0.00427)	(0.00734)
no_education	0.0767	0.620	-0.00850	0.165	-0.260
	(0.235)	(0.640)	(0.255)	(0.267)	(0.510)
primary	0.161	0.631	0.0883	0.265	-0.208
	(0.236)	(0.640)	(0.255)	(0.267)	(0.510)
secondary	0.147	0.595	0.0699	0.218	-0.151
	(0.236)	(0.643)	(0.255)	(0.268)	(0.510)
post_secondary	0.117	0.610	0.0344	0.156	-0.154
	(0.236)	(0.644)	(0.256)	(0.269)	(0.509)
sector_new	-0.0460**	-0.0495	-0.0444**		
	(0.0180)	(0.0424)	(0.0199)		
paid_work_new	0.00433	0.103	-0.0119	0.0185	-0.0189
	(0.0256)	(0.0760)	(0.0274)	(0.0352)	(0.0374)
agric_self_employment	0.00579	0.0591	-0.00410	0.0113	-0.0109
	(0.0185)	(0.0433)	(0.0206)	(0.0222)	(0.0354)
flooding	0.0394*	0.130**	0.0218	0.0373	0.0456
	(0.0220)	(0.0528)	(0.0242)	(0.0261)	(0.0412)
desert_encroachment	-0.0558*	-0.0913	-0.0493	-0.0426	-0.0900
	(0.0292)	(0.122)	(0.0304)	(0.0323)	(0.0738)
deforestation	-0.0495*	-0.0974	-0.0433	-0.0149	-0.168***
	(0.0293)	(0.0761)	(0.0317)	(0.0333)	(0.0626)
long_dry_weather	-0.0191	-0.0505	-0.0146	0.00209	-0.0721**
	(0.0179)	(0.0445)	(0.0196)	(0.0215)	(0.0323)
logper_cap_exp	0.0309***	0.0213	0.0306***	0.0306***	0.0296
	(0.00955)	(0.0264)	(0.0103)	(0.0112)	(0.0183)
Constant	0.394	0.00285	0.416	0.310	0.717
	(0.272)	(0.741)	(0.294)	(0.312)	(0.574)

Standard errors in parentheses

*** p<0.01, ** p<0.05, * p<0.1

6. Conclusion and Recommendation.

This study has been able to identify some environmental issues in Nigeria and how it affects the migration decisions of household members. From the study, it is evident that environmental changes such as flooding, desert encroachment, deforestation as well as other economic and demographic factors influence migration decisions of Nigerians. Other individual and household characteristics such as per capita expenditure, gender and dependency ratio have been identified in addition. Environmental variability and change result from both natural processes and human activities (Kniveton et al, 2009). Thus, there is a need to put a proper check on man's activities that cause changes to the environment using appropriate government policies. Policies such as tree planting campaigns, as well as sensitization of the households at the grassroots level by making them understand the need to reduce some of their activities causing environmental changes should be intensified. Other activities such as overgrazing and bush burning should also be controlled. Furthermore, in understanding the influence of environmental changes on migration decisions of individuals, there is need to identify the major environmental challenges peculiar to the different sectors in the country, which makes it easy for environmental policies by the government to be tailored towards mitigating the effects of these environmental changes on migration.

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