Impact of Demographic Characteristics on Nomadic Pastoralists/Farmers Conflict in North Central Nigeria

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***Abstract*—** This study examined the impact of population dynamics, socioeconomic characteristics and environmental changes on nomadic pastoralist/farmers conflicts in North Central Nigeria. Survey design was adopted, questionnaires were administered to 796 respondents as population sample of which 63% were farmers and 37% were nomadic pastoralists. The survey yielded a response rate of 78.5%. Using descriptive statistic for data analysis, the study found that immigration, urbanization and fecundity rate were identified population dynamics that played a significant roles in nomadic pastoralist and farmers' conflicts; the study also identified income level, indigenization, ethnic identity, religion, educational level and land ownership as the major socioeconomic characteristics that caused nomadic pastoralists/farmers' conflict; while climate change, deforestation, drought, change in ecosystem and flooding were environmental changes that constituted major impacts on nomadic pastoralist/farmers. Generally, the study concluded that, destruction of properties, loss of innocent lives and the growing cases of humanitarian crises are major consequences of the conflict. The deduction therefore is that from nomadic pastoralists' perspective, blockage of grazing and water routes need to be addressed; and from the farmers' perspective, addressing the problem of encroachment on farm lands and crops will play an important role. As a result, the study concluded that active and serious government participation in the form of grazing lanes or ranches in the regions would boost productivity and achievement of Sustainable Development Goals 2, and 6, which emphasize the need to adequately ensure food security and sustainable management of resources for the teaming population.

***Keywords*—** Demographic Characteristics, Nomadic Pastoralists, Farmers and Conflict, North Central.

INTRODUCTION

In recent times, the issue of violent clashes and instability between farmers and nomadic pastoralists across the regions in Nigeria has become a major focus to the Nigerian Government, International community, Socio-cultural Groups and the Indigenous Development Organizations. Analysts believe that if not nipped in the bud, the conflicts may affect the achievement of Sustainable Development Goals (SDG) number 2, which aims at ending hunger, achieving food security and improving nutrition and promoting sustainable agriculture by 2030 (World Bank, 2012). The hitherto symbiotic relationships that existed between nomadic pastoralists and farmers for many decades has continued to deteriorate partly as a result, factors such as changing demography, climate variability, shrinking of natural resources, socioeconomic and political manipulation. As the advocacy for economic diversification from an oil-dependent mono-economy to an agricultural-based economy continues to gain momentum, particularly because agriculture seem to be the single largest contributor to the well-being of the rural residents in Nigeria. It is reported to account for about 70% of the rural and total labor force respectively in the country (Kaunganya, 1992). This is distributed between crop cultivation and livestock husbandry, resulting in fierce struggle between farmers and herders for control and ownership of farms and grazing pastures (Kaunganya, 1992). Land as a key factor of production which was once regarded a non-depreciating asset, is fast declining in fertility while population is growing at a rate of 3.2 percent per year. (World Bank, 2012). Experts believe the major source of farmers-herders' conflict is usually either the encroachment of crop farmers into areas mapped out for grazing and/or devastation of crops by herds trespassing (NOIPOLLs, 2016; Manu, 2008; Tonah, 2006).

The Nigerian State is predominantly an agrarian society, which is reported to be responsible for creating jobs for about 30 percent of its population (World Bank, 2012). The World Bank's report further noted that Nigeria is endowed with massive agricultural potentials having arable land of more than 84 million hectares, out of which only 40% is cultivated. Nomadic farming being the most common system of livestock agrobusiness and livestock owners are traditionally nomads in search of grazing fields where they can feed their cattle and readily available markets. Owing to the vast arable lands in the North-Central zone, the herders prefer to take their livestock to these places, thereby encroaching on

already cultivated farmlands and results in most of the crops been either destroyed or eaten up by the herds. The reactions by farmers to the perceived wanton destruction of their subsistence and economic crops and a counter-reaction by the herdsmen is at the core of what is tagged "Farmer/Herders' Conflict".

The North-Central region been the focus of this study has a high concentration of livestock herders and crop farmers living together and sharing land assets for both grazing and cropping purposes. However, sudden clash between crop farmers and nomadic pastoralists in the region has continued to escalate as evidenced by recent killings in some communities and local government areas across the region. For example, in 2016 it was reported that several lives and property were lost in some communities of Agatu LGA of Benue State (NOIPolls, 2016). Again, just recently, there was a call by the Northern Elders' Forum for Fulani herders to protect themselves, alleging that they have become endangered species (TheGuardian, 2021).

According to the "Environmental Law Thoughts" (2010), the cause of these parallel activities is largely due to access to natural resources such as land, water and pasture. The rise in population in Nigeria coupled with the increase in livestock growth rate in the past years has led to increasing demand for land, water and pasture for cropping and grazing, consequently the ensuing herders-farmers' conflict (Manu, 2008). The major cause of these conflicts has been attributed to intolerance and unhealthy competition as each party in the conflict struggle to occupy more land for exploitation (Akpaki, 2002).

Furthermore, the incessant conflicts witnessed between farmers and herders could also be attributed to climate change and environmental degradation with its adverse impacts on the ecosystem (Niemella, Young, Watt, et al., 2005). Naturally, nomadic pastoralists roam their ancestral grazing routes in search of greener pasture for their flocks. In most cases, their movement is caused by the absence of good and veritable land for their flocks to feed on. However, the cause of roaming the flocks tend to cause collateral damages to farmlands and crops; which breeds consequences including violet conflict and bloodletting (Adegbola, Are, Ashaye, & Komolafe, 1979) as cited in Zirra & Garba (2012).

Despite efforts by the Government to mitigate against the impacts of Conflicts, clashes have remained unabated. The need to examine the demographic characteristics amidst exponential population increase, socioeconomic variance and environmental degradation and climate change. It is against this backdrop that this study attempted to examine the demographic implications of herders-farmers' conflicts in middle belt States of Nigeria comprising Benue, Kogi, Kwara, Nasarawa, Niger States respectively.

Statement of the Problem

The socioeconomic dynamism in population growth and environmental change has put enormous burden on the agricultural resources commonly used by crop growers and nomadic pastoralists (such as land, water). Thus, the population growth has led to an increase in land cultivation and a decrease in accessible grazing land for nomadic pastoralist and thus led to struggle over declining resources. In the far Northern part of the country, the impact of desertification and the crisis of energy, which has resulted in deforestation, coupled with climatic uncertainty and lower rainfall have made it more difficult to sustain increasing populations, pushing many nomadic pastoralists with livestock central wards. This has happened gradually over a period of decades with an apparent increase over the past decade and has added to "pressure on land and water" for farming and grazing activities in the North-Central Nigeria.

In the recent time, nomadic pastoralist/farmers' conflict has cost the Nigerian state a lot in terms of man and materials, as well as worsened the already fragile security situation in the country, mainly in North-Central zones, with even more potency than the Boko-Haram insurgence. The consequences of the conflict are human casualties or lives lost, internal displacements, and material cost in physical and economic terms. The International Crisis Group (2018) observed that farmer-nomadic pastoralist conflicts have turn out to be one of the major security challenges in Nigeria. Ajibo (2018) corroborating similar view by observing that the violent conflicts farmers and nomadic pastoralist have not only spread southwards to the central zones and have escalated in recent years and threatening the country's security, stability and peace, and have resulted in about 2,500 death tolls in 2016 alone. Putting this side-by-side Gbaradi (2018) assertion of about 3,780 from 2012 to 2018 deaths of Nigerians by herdsmen aside injuries and abductions, 2016 alone recorded more than half of human casualties from farmer-herder conflicts in Nigeria in the last half a decade.

Amnesty International (2018: para 2) in a press release reported that clashes between nomadic "pastoralist and farmers in Benue, Nasarawa and Plateau States resulted in 168 deaths in January 2018 alone and in 2017, 549 deaths, many killed by airstrikes by the Nigerian military in the warring communities, and thousands

displaced across Enugu, Zamfara, Kaduna, Plateau, Nasarawa, Niger, Cross River, Adamawa, Katsina, Delta and Ekiti State." The Crisis group (2018: 3) also observed that "from January to June 2018, over 260 people were killed in several incidents in Nasarawa state alone, mostly in the southern zone covering Doma, Awe, Obi and Keana local government areas." These statistics show that the toll of human casualties from farmer-herder conflicts, including officers of the Nigerian military.

In addition to human casualties, internal displacement has also been on the rise arguably exponentially. The Crisis group (2018: para 4) reported that between September 2017 and June 2018, farmer- nomadic pastoralist conflicts in Nigeria claimed 1,500 lives, and displaced about 300,000, "an estimated 176,000 in Benue, about 100,000 in Nasarawa, over 100,000 in Plateau, about 19,000 in Taraba and an unknown number in Adamawa." The Internal Displacement Monitoring Centre {IDPLC} (2018) also reported that by the end of 2017 a total of 1,707,000 were still displaced. Although this figure was considered underestimated, the situation significantly deteriorated by the 1st and 2nnd quarters of 2018, with another about 417,000 new displacements in the Northern part of Nigeria.

Internal displacements and rising insecurity in the Nigeria, in a report by the International Crisis Group (2018), have disrupted agriculture in parts of middle belt states. Many of the herders displaced from communities in Benue state cannot find enough fodder for their herds in neighboring Nasarawa state; hence the cattle graze pastures indiscriminately. In the same vein, farmers are unable to work on their farms for fear of attacks from nomadic pastoralist. Consequently, the economy is negatively affected as production and distribution of food is increasingly challenged. These are just an estimate from three of the almost two dozen states in northern Nigeria, a region that arguably makes up much of Nigeria's breadbasket. Increase in such predicament, could lead to food production in the country. Beyond food production, physical infrastructures, both private and government-owned, have also felt the impact of these rising violent conflicts across the nation. The Punch (2017) and Premium Times (2017) simultaneously reported the assertion of the Benue state Governor; Samuel Ortom that, "a total of 99,427 households were affected, with billions of naira in property losses. It is on the above basis that the study set out to archive the following objectives:

- To examine the impact of population dynamics on nomadic pastoralists/farmers' conflict,
- To determine the impact of socioeconomic demographics on nomadic pastoralists/farmers' Conflict, and
- To ascertain the impact of environmental change on nomadic pastoralists/farmers' conflict.

Conceptualization and Review of Related Literature

Demography is described as the study of human populations with respect to their size, structure, and dynamics. For demographist, a population is a set of persons that live at a point in time and share a defining characteristic such as dwelling in the same geographical area. The structure or composition of a population refers to the distribution of its members by age, sex, and other characteristics, such as dwelling, marital, health and economic status. These characteristics are usually results from past trends in fertility, mortality, urbanization and migration. Hence, these developments comprise the mechanisms of 'demographic change'.

Population dynamics is a process that deals with the determinants and consequences of changes in the structure, growth and distribution of populations over time. Population Dynamics is detailed examination of the characteristics of populations. It provides a mathematical description of how those characteristics change over time. Demographics consist of all "statistical factors that influence population growth or decline, but several parameters are particularly important: population size, density, fecundity (birth rates), mortality (death rates), and sex ratio" (Dodge, 2006: 141).

According to Tuff (2012), populations have characteristics that are the basis of their dynamics and that are definable and measurable. They exhibit age-specific rates of development, mortality, and reproduction. They migrate into or out of an area at a definable rate. They have a measurable sex and age composition which may or may not be stable, and which is also determinant of the dynamics of change in the population. "Demography" a word with Greek origin, literally means "describing the population". And that's precisely what demographers do: they describe the size, composition and structure of populations. The term "demographic change" is most commonly used to refer to shifts in population structure that have emerged in many industrialized nations including Germany since the 1970s, chiefly due to three major developments: declining birth rates, longer life expectancy and increasing immigration. These changes present many challenges, but many opportunities, as well.

Hayes and Potters (2021) opine that "demographic data refers to socio-economic information expressed statistically including employment, education, income, marriage rates, birth and death rates and more." Thus, socioeconomic demographics is a sociological and economic characters of person's work experience, individual's or family's social and economic status in relation to others, based on education, occupation and income (Linda, et al. 2015). Social demographics includes gender, age, ethno-religious relationship status and borough of residence while economic demographics status involve level of education attained, 'social class', 'employment status', 'household income' and 'housing tenure'. Level of education attained can be indicated "by qualifications up to GCSE or Ordinary level (e.g., high school diploma), qualifications up to Advanced level (e.g., advanced placement qualification) and higher degree or above (e.g., university degree)." For 'social class', on the other hand, it includes professional, managerial, technical, skilled non-manual, skilled manual, semi-skilled and unskilled. Employment status usually indicates whether or not a member of population is engaged in full or part-time employment, or a student, unemployed or economically inactive person (this comprises 'temporary sick or permanent sick/disabled, retired or a person looking after the home with children' household income).

Oladele (2011) defined farmers-herdsmen conflict as a competition between two agricultural land users, comprising farmers and herdsmen, which often times turn into serious overt and covert hostilities and social friction. This definition views farmers-herdsmen conflict as a struggle over scarce resources-land and water. It underlines the importance of resources in farmers-herdsmen conflict.

Audu (2013) in his submission posits that farmers-herders' conflicts are a struggle for land or other resources that are critical for the sustainability and/or development of farm production systems, such as watering areas, wet lands and fertile lands which can assume violent or non-violent dimensions. This view outlines the importance of 'land and water resources' to the development of livestock and crop production, as well as emphasizing the influence of resource scarcity in farmers-herders' conflict. Other scholars who support this view include Udoh and Chilaka (2012) who believe that resource scarcity is the primary cause of farmers-herdsmen conflict.

King (2013) defines farmers-herdsmen conflicts as conflicts involving farming communities and pastoralist occasioned by the struggle for land resources and socio-cultural dominance in a given environment. He postulates that management and resolution of farmers-herdsmen conflict could be enhanced through an in-depth understanding of the socio-cultural behavioral patterns of herdsmen and farmers. This definition highlights the importance of socio-cultural perspective as vital to understanding farmers-herdsmen conflict.

King's view is supported by scholars such as Moritz (2012) who believed that farmers-herders' conflict is influenced by socio-cultural factors such as religion, livelihood practices and other cultural practices. Herders-farmers' conflicts have received clarification from different scholars. Bello (2013) maintained that the struggle between these two land-user groups has often times turned into grave hostilities and social friction. Writing on conflicts between herders-farmers, Karim, Sumberg and Seddon (1999) distinguish between conflicts of interest, competition, and violent conflict. Conflicts of interest to them refer to the fundamental relationship between actors who permanently or temporarily co-habit an area, have different objectives and interests, and use similar local resources such as land, vegetation and water. Conflicts of interest over the ownership and use of resources may therefore exist between any resource users (farmers and farmers, herders and herders, herders and farmers), and may be intra-household, inter-personal, intragroup, inter-group or in some cases between local users and outside interests such as corporations and the state.

Marcel (1999) and Bollig (2003) attributes the cause of changes noted in pastoral regions above to population increase and stratification of livestock ownership in Africa. Also, Blanth (2001) quoted in Mkutu (2016: 52) observes that "the significant increase in resource conflict in semi-arid areas in Africa is due in part to human population increase." Furthermore, scholars have observed the pressures due to population density in the Eastern Mediterranean semi-arid areas and argued that "in Turkey, Tunisia, Morocco and Algeria, the result of the population bomb is an increase in small ruminant numbers linked to the preference for mutton leading to the expansion of animal forage production in semi-arid areas" (Boyazoglu & Flamant, 1993: 379).

More also, "pressure from population upsurge in the Andes has also been observed" (Brownman, 1993: 333), and this has also "led to conflict among the Bassri pastoralists of Iran" (Mkutu, 2016: 52). Furthermore, it was reported that Rajasthan experienced a 28.5% rate of population growth with the Western districts equaling or surpassing this figure (Pitaliya, 1993). There is considerable evidence to show that population pressure

cuts across all pastoral areas around the world. This puts pressure on grazing lands, not only for food but also for firewood, causing land degradation. Population pressure also implies decline in community resources, which sometimes leads to violent conflicts.

Malthus (1798) observes that the world's population tends to increase at a faster rate than its food supply. Thus, population growth is at geometric rate, while growth in production capacity of these population is only on the arithmetic rate. Therefore, when there are no constant measures to control population growth tendency, the logical assumption, according to Malthus, is that "in a short period of time, scarce resources will have to be shared among an increasing number of individuals." However, such checks that ease the pressure of population explosion do exist, and Malthus distinguished between two categories, the preventive check and the positive one. The preventive check consists of voluntary limitations of population growth.
Furst (2010) observed a strong example of the utilization of a socioeconomic position index to cost of conflict analysis. Within their paper they apply PCA estimation methods to household data in Cote d'Ivoire in order to analyze the effect of armed conflict on the relative socioeconomic position of rural households. The PCA weight estimation was conducted on 182 households (out of 203 households surveyed) in rural Cote d'Ivoire with data collected in 2002 and 2004. The PCA estimation was run on nine categories (including land possession, house construction materials, people per sleeping room, primary energy sources, and ownership of electronic devices, sanitation infrastructure, and transportation) with a total of 25 indicators. Overall, better-quality housing materials, ownership of electronic devices, improved sanitation facilities and safer health practices (mosquito net or insecticide spray) all contribute to higher index scores that represent greater economic welfare. Households were then classified into quintiles and the movement between quintiles from 2002 and 2004 assessed based on conflict intensity experienced.

The connection that exists between climate change and conflict has been simplified by Odoh and Chigozie (2012) when they pointed that poor responses to climatic shifts (such as changes in temperature, rainfall pattern, sea levels, storm, etc.) in a region, population, or sector lead to shortages in resources (such as land, water, vegetation/forages, etc.) and poor responses to these shortages engender conditions like sickness, hunger, job losses, and other vulnerabilities which could heighten conflict risks. Poor governance and societal inequalities in the country has also promoted political and economic instability, social fragmentation, and migration.

When pastoralists move out of their climate-affected communities down south in search of water and forage for their cattle, they do so into communities of farmers who fear that their crops will be destroyed by the herders and their herds. Since climate change does not only affect pastoralists, it has also pushed farmers to expand their cultivation area which limits the area of land available for pastoralists to graze their animals. This leads to struggle for resources between and among the sedentary farmers and migrating herdsmen often resulting in fights. Apart from environmental degradation, resource scarcity, and climate change which are responsible for these conflicts, there are conflict entrepreneurs, who, according to Frerks (2007) and cited in Shettima and Tar (2008), use political and socioeconomic factors often as tools to fuel distrust and hate among herders and farmers.

Political and socio-economic marginalization of the pastoralists is a phenomenon discussed by several authors. Lesorogol (1998) observed that most pastoralists in Kenya and elsewhere live on the margins, yet in the pre-colonial period, the Masai in particular dominated the entire Rift Valley region of Kenya. She argues that pastoralists inhabit the entire border of Kenya, Uganda, Sudan, Ethiopia, Somalia and Tanzania and Nigeria. However, most of the boundaries in the North Central were drawn through the lowland pastoralists' habitat, and many pastoralists ethnic groups found themselves partitioned among several states, which has now limited their access to resources.

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Climate change affects the availability of pasture and water for animal consumption and is responsible for droughts, desertification, extreme cold, and storms. Lakes are drying up and there is a decline in river flow in the northern regions. There is fewer supply of water for agricultural purposes like crop production and

maintenance of pasture for cattle rearing. When herdsmen are short-changed by these basic needs for their cattle due to climate change, it is common to find them moving from northern Nigeria down south in search of better environmental and weather conditions. This migration usually for adaptation purposes creates problems for the receiving communities. This kind of encroachment, according to Odoh and Chigozie (2012), could engender conflict given the pressure on land, food shortage, conflicts of interest, cultural differences, overpopulation, social disorganization, and religious, social, and cultural intolerance that follows.

Abbas (2012), posit that land acquisition by capitalist farmers exacerbates the upsurge of conflict as pastoralist can no longer find where to pass let to talk of where to stay. It is common to see that cattle now have to compete with motorist to the only path that is tarred road. Homer-Dixon (1999) environmental scarcity theory is of great importance in the phenomenon of environmental change and headers/farmers' conflict across Nigeria.

This theory is built on complex causes which could move 'from the most local to the most global' types of conflict. The theory proposes that environmental scarcity could produce violent conflicts. Such conflicts range from local environmental degradation, to ethnic clashes, to civil strife (insurgencies), scarcity induced wars out of a loss of sources of livelihoods and the negligent behavior of the state and elite class (Homer-Dixon, 1999). Lending support to the environment and conflict argument, (Brunborg & Urdal (2005) specified that demographic factors may also be possible grounds for conflict, with factors likes "high population growth" making negative impact on arable land and waters resources and this could cause violent conflicts.

In his own contribution, Benjaminsen (2008) argues that 'scarcity is believed to be rapidly increasing in many marginal environments, in particular, owing to ongoing processes of environmental degradation primarily by escalating population growth. Accordingly, "the environmental scarcity theory has three main dimensions: supply-induced scarcity, demand-induced scarcity, and structural scarcity" (Homer-Dixon, 1994: 7). Supply–induced scarcity emerges when resources are diminished and degraded quicker than they are replenished. Demand–induced scarcity arises out of population growth as against its source of livelihood, while structural scarcity exists because of inequitable distribution of resources due to their concentration in the hands of a few, while the rest of the population suffers from resource inadequacy (Homer-Dixon,1999).

METHODOLOGY

The study adopts survey research designs to sample the opinion of members of the Nigeria Farmers Association and "Miyyeti Allah" Cattle Breeders Association in three most affected Local Government Areas, at least one each from Benue, Nasarawa and Plateau States in the North Central, Nigeria. The Population of the study comprised of one hundred and sixty-nine thousand, four hundred and ten (163,431) of nomadic pastoralist and farmers in the three selected state chapters. Clustered sampling technique was adopted for the division of the population into separate groups. Primary data were sourced through the Nigeria Farmers Association and Miyyeti Allah Cattle Breeders Association. Farmers comprises of one hundred and thirty-eight thousand, six hundred and sixty-nine populations (138,669) gotten from Farmers Association Registrar (FAR, 2019), while nomadic pastoralist comprises of twenty-four thousand seven hundred and sixty-two (24,762) respondents gotten from Miyetti Allah Cattle Breeders Association Registrar (MACBAR, 2019). Data were collected using structured questionnaire. 5-point Likert scale method were used in measuring the impacts of population dynamic, socioeconomic and environmental change on nomadic pastoralist and farmer's conflict in North Central Nigeria (see Table 1, 2 & 3). Descriptive statistic such as frequency table, percentage and graphs were used to analyze data.

RESULT AND DISCUSSION OF FINDINGS

A total of 796 questionnaires were administers to a cross section of respondents and 625 questionnaires returned answer. Farmers accounted for 63% of the respondents while herders accounted for 37%. In terms of gender classification, it was found that 10% of the respondents were Females and 90% were men. When cross tabulated with occupation, the data revealed that all the females were farmers implying that no herder sampled was female. The distribution of respondents by age shows that those within the ages of 25-34 years' account for the largest share of respondents.

Population Dynamics and Nomadic Pastoralist/Farmers Conflict.

The result of this study indicates that 92%, 72% and 60% of the respondents agreed that immigration, urbanization and fecundity rate respectively played a substantial role in nomadic pastoralist and farmer's conflict; while 6.4%, 24% and 32% of the respondents respectively disagreed (see Table 1). It is instructive to note that the proportional percentages of the respondents who chose "strongly greed" and "agreed" had been classified under agreed. The same thing is done for the proportional percentages of the respondents who chose

"strongly disagreed" and "disagreed" which has also been classified under "disagreed". The proportion of undecide respondents is left out because it is of no significant in the analysis. This implies that immigration through the nomadic nature of herders, urbanization and fecundity rate through overpopulation, are the factors responsible for farmer's/pastoralist conflict in North Central Nigeria. This is consistent with the finding of Simon (1977), Boserup and Schultz (1990) and Malthus (1798) who identify over population and dynamism on population as critical factors in resource conflict. The Table 1 below illustrates the percentage of responses on population dynamics and nomadic pastoralist/farmers' conflict.

Table 1: Population dynamics and nomadic pastoralists/farmers' conflict.

Items on Questionnaire	**SA-5**	**A-4**	**UD-3**	**D-2**	**SD-1**
Urbanization has a positive impact on nomadic pastoralist/farmers conflict in North Central, Nigeria	250 (40%)	200 (32%)	25 (4%)	80 (12.8%)	70 (11.2)
Immigration (nomadic) nature of nomadic pastoralist has impact headers/farmers conflict in North Central, Nigeria	325 (52%)	250 (40%)	10 (1.6)	20 (3.2%)	20 (3.2%)
Fecundity rate through overpopulation has impact on nomadic pastoralist/farmers conflict in North Central, Nigeria	175 (28%)	200 (32%)	50 (8%)	150 (24%)	50 (8%)
Population density has impact on nomadic pastoralist /farmers conflict in North Central Nigeria	125 (20%)	75 (11.2%)	325 (52%)	100 (16%)	50 (8%)
Rates of reproduction has impact nomadic pastoralist /farmers conflict in North Central, Nigeria	75 (12%)	125 (20%)	100 (16%)	325 (52%)	100 (16%)

Source: Field Survey (2020)

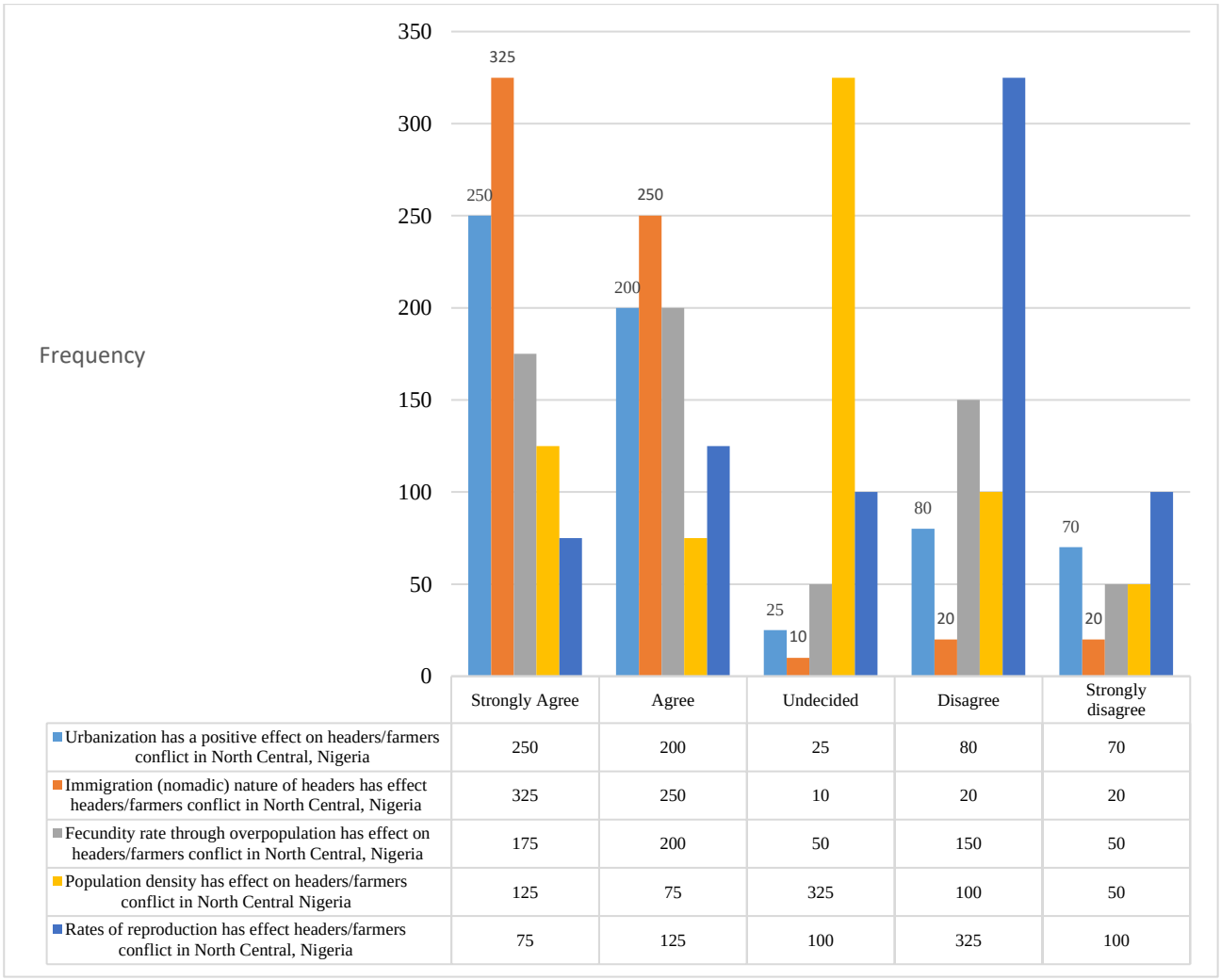


Figure 1: Population dynamics and Nomadic Pastoralist/farmers' conflict

The population growth in the North Central is increasing at a very rapid rate and may lead to excessive increase in the 'demand for food.'

Therefore, it is no longer news that the North Central population is dynamic and ever increasing\ compared to land that is relatively static. Nigeria, being the 7th most populated country in the world, is rapidly experiencing growth rate population at 3.2% per annum (National Population Commission, 2012). Therefore, more and more people will continue to compete for land and water resources.

The level of intolerance among the nomadic herders and crop farmers in North Central has deteriorated to unimaginable rate of armed conflict resulting in numerous deaths among villagers with the attendant reduction in the population of the peasant farmers.

Hence, it is important to note that these violent clashes have direct impact on the lives and livelihoods of those involved and lead to the displacement of economic productive population of the community. In most cases, these incessant violent clashes lead to reduction in output and income of crop farmers as a result of the destruction of crops by cattle.

Most farmers have been forced to flee their farms for fear of being killed by well-armed herdsmen and loss of part or the whole of their crops which translated into low income on the part of the farmers who take farming as a major occupation.

This tends to negatively affect their savings, credit repayment ability, as well the food security and economic welfare of urban dwellers that depend on these farmers for food supply. Hence, discourages the farmers and stifles rural/agricultural development

Socio-economic Demographics and Nomadic Pastoralists/Farmers' Conflict.

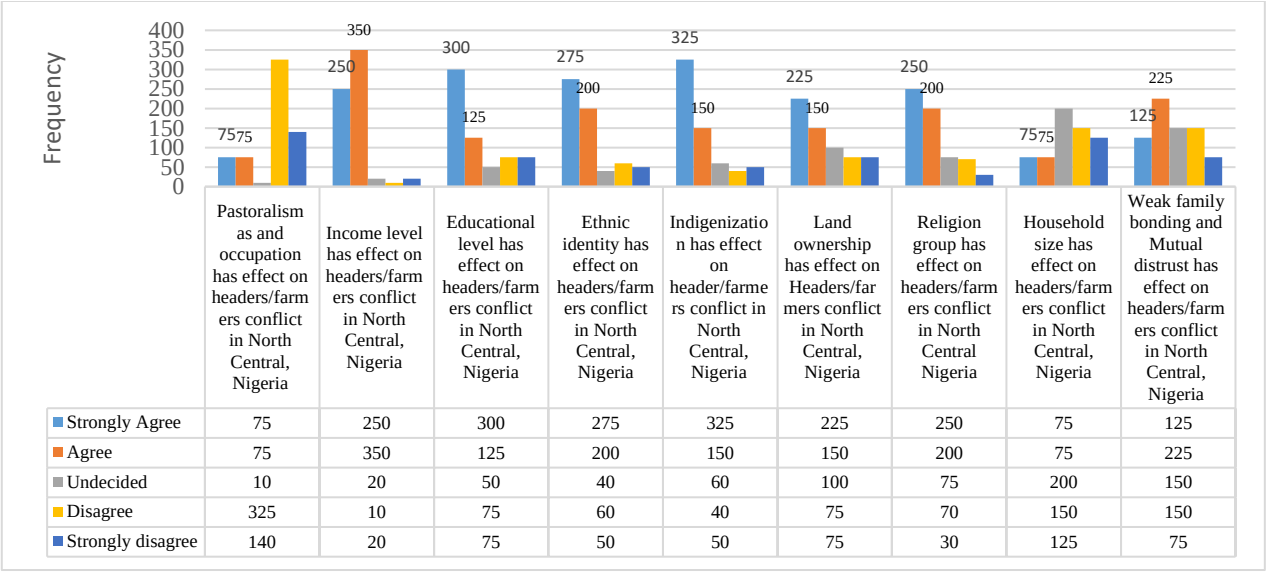
The result of this study indicates that 96%, 68%, 76%, 76%, 60%, 72% and 56% of the respondents agreed that income level, educational level, ethnicity, indigenization, land ownership, religion, and mutual distrust have significant impact on nomadic pastoralist and famer's conflict.

While pastoralism as an occupation and household size with which 74.4% and 44% disagreed cannot be said to have significant impact on nomadic pastoralist and famer's conflict. This finding is consistent with the finding of Pappas (2012), Furst (2010), Musa (2014), Lahelma (2002) and Adisa & Adekunle (2010) who identify that socioeconomic characteristic like ethnicity, education, land ownership and income dependence constitute the major social problem generating nomadic pastoralist and farmers' conflict.

Table 2: Socioeconomic demographics and nomadic pastoralist /farmer's conflict.

ITEMS ON QUESTIONNAIRE	SA-5	A-4	UD-3	D-2	SD-1
Pastoralism as an occupation has impact on nomadic pastoralist /farmers conflict in North Central, Nigeria	75 (12%)	75 (12%)	10 (1.6%)	325 (52%)	140 (22.4%)
Income level has impact on nomadic pastoralist /farmers conflict in North Central, Nigeria	250 (40%)	350 (56%)	20 (3.2%)	10 (1.6%)	20 (3.2%)
Educational level has impact on nomadic pastoralist /farmers conflict in North Central, Nigeria	300 (48%)	125 (20%)	50 (8%)	75 (12%)	75 (12%)
Ethnic identity has impact on nomadic pastoralist /farmers conflict in North Central, Nigeria	275 (44%)	200 (32%)	40 (6.4%)	60 (9.6%)	50 (8%)
Indigenization has impact on nomadic pastoralist /farmers conflict in North Central, Nigeria	325 (52%)	150 (24%)	60 (9.6%)	40 (6.4%)	50 (8%)
Land ownership has impact on nomadic pastoralist /farmers conflict in North Central, Nigeria	225 (36%)	150 (24%)	100 (16%)	75 (12%)	75 (12%)
Religion group has impact on nomadic pastoralist /farmers conflict in North Central Nigeria	250 (40%)	200 (32%)	75 (12%)	70 (11.2%)	30 (4.8%)
Household size has impact on nomadic pastoralist /farmers conflict in North Central, Nigeria	75 (12%)	75 (12%)	200 (32%)	150 (24%)	125 (20%)
Weak family bonding and Mutual distrust has impact on nomadic pastoralist /farmers conflict in North Central, Nigeria	125 (20%)	225 (36%)	150 (24%)	150 (24%)	75 (12%)

Source: Field Survey (2020)



	Pastoralism as and occupation has effect on headers/farmers conflict in North Central, Nigeria	Income level has effect on headers/farmers conflict in North Central, Nigeria	Educational level has effect on headers/farmers conflict in North Central, Nigeria	Ethnic identity has effect on headers/farmers conflict in North Central, Nigeria	Indigenization has effect on header/farmers conflict in North Central, Nigeria	Land ownership has effect on Headers/farmers conflict in North Central, Nigeria	Religion group has effect on headers/farmers conflict in North Central Nigeria	Household size has effect on headers/farmers conflict in North Central, Nigeria	Weak family bonding and Mutual distrust has effect on headers/farmers conflict in North Central, Nigeria
Strongly Agree	75	250	300	275	325	225	250	75	125
Agree	75	350	125	200	150	150	200	75	225
Undecided	10	20	50	40	60	100	75	200	150
Disagree	325	10	75	60	40	75	70	150	150
Strongly disagree	140	20	75	50	50	75	30	125	75

Figure 2: Socioeconomic demographics on nomadic pastoralist /farmer's conflict.

On socioeconomic causes and consequences of recurrent crisis between herders and crop farmers in Nigeria, the study revealed that the incessant violent crisis between crop farmers and herders have drastic effects on food security. It became glaring that if nothing is done to arrest this ugly situation, the achievement of food security and sustainable development becomes a mirage.

The nomadic pastoralist and farmer's clashes dislocate and threaten the livestock farming and crop production in Nigeria. These clashes reinforce circles of extreme poverty and hunger, and destroy social status, food security and affect mostly the most marginalized groups that include women and children of a teaming population like Nigeria. In the host communities, nomadic herdsmen relocate as a result of conflict and host farmers, especially women and children, who remain behind, stop going to the distant farms for fear of attack by the nomads in the bush. Such exiled agriculturalists have become a source of liability to other farmers whom they have to beg for food for themselves and their families. This has created a vicious cycle of poverty in such communities and affected the education of children leading to obstacles in their development and mass displacement.

Environmental change and nomadic pastoralist/farmer's conflict.

Environmental change was conceptualized into ten variants. They are: climate change, deforestation, change in ecosystem, natural disasters, and change in biodiversity, land degradation, drought, and flooding, tropical stone and environmental pollution. Respondents were then asked to state whether how they perceived each of these factors as having effect on the herder's/farmers conflict using a scale of strongly agree, agree, undecided, disagree and strongly disagree. 425 out of 625 (68%) agreed that climate change had an effect on farmer's/herders' conflict. Likewise, 475 out of 625 (76%) also agreed that deforestation is another environmental change factor that triggers farmers/herders' conflict. Other factors are: change in ecosystem (40%), flooding (32%), drought (24%), environmental pollution (24%) and land degradation (20%).

Table 3: Environmental change and nomadic pastoralist/farmer's conflict.

ITEMS ON QUESTIONNAIRE	SA-5	A-4	UD-3	D-2	SD-1
Climate change has impact on nomadic pastoralist /farmers conflict in North Central Nigeria	225 (36%)	200 (32%)	40 (6.4%)	75 (12%)	75 (12%)
Deforestation has impact on nomadic pastoralist /farmers conflict in North Central, Nigeria	225 (36%)	250 (40%)	50 (8%)	10% (1.6)	100 (16%)
Change in ecosystem has impact on nomadic pastoralist /farmers conflict in North Central Nigeria	125 (20%)	125 (20%)	200 (32%)	100 (16%)	75 (12%)
Natural disasters have impact on nomadic pastoralist /farmers conflict in North Central, Nigeria	75 (12%)	50 (8%)	200 (32%)	150 (24%)	150 (24%)
Change in biodiversity has impact on nomadic pastoralist/farmers conflict in North Central Nigeria	100 (16%)	75 (12%)	150 (24%)	150 (24%)	150 (24%)

Land degradation has impact on nomadic pastoralist /farmers conflict in Nigeria	125 (20%)	50 (8%)	150 (24%)	200 (32%)	100 (16%)
Drought has impact on nomadic pastoralist/farmers conflict in North Central, Nigeria	150 (24%)	150 (24%)	100 (16%)	125 (20%)	100 (16%)
Flooding has impact on nomadic pastoralist/farmers conflict in North Central Nigeria	200 (32%)	100 (16%)	50 (8%)	200 (32%)	100 (16%)
Tropical stone has impact on nomadic pastoralist/farmers conflict in North Central Nigeria	100 (16%)	100 (16%)	300 (48%)	75 (12%)	50 (8%)
Environmental pollution has impact on nomadic pastoralist/farmers conflict in North Central Nigeria	150 (24%)	50 (8%)	200 (32%)	125 (20%)	75 (12%)

Source: Field Survey (2020)

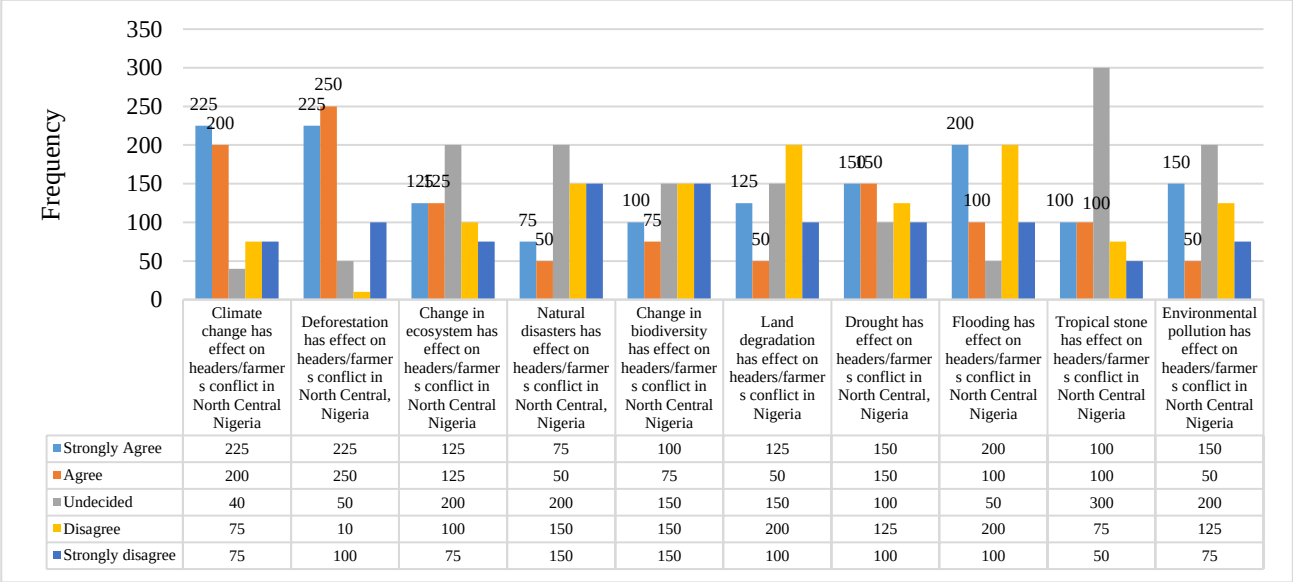


Figure 3: Environmental change on nomadic pastoralist /farmer's conflict.

Desertification, degradation and deforestation as a result of climate change are significant factors in the escalation of nomadic pastoralist and farmers conflict closely with t drought (48%) and flooding and finding which are consistent to the finding of Alawode (2013), Okpanachi (2010), Abbas (2012), CIA (2016), Nsongola-Ntalaja (2004) and Suberu (2005) whose deposited that climate change as a result of man-made and natural factors have contributed to land resource conflict between the nomadic pastoralist and farmers conflict over the years. From the analysis of the above findings, it was reviled that socioeconomic characteristics like education, income level, ethnicity, religion and land ownership constitute the major impacts on nomadic pastoralist and farmer's conflict seconded with the factors of population dynamic. This ware consistent with the work of CIA (2016), Simon (1977), Shabu (2014), Abbas (2012) and Alawode (2013) who agreed that social and economic factors contributed greatly to land resource conflict. Also, from our discussion of population dynamics, socioeconomics characteristics and environmental change, it shows that Nigerian population is dynamic and ever increasing compared to land that is relatively static. Nigeria's population, currently the seventh largest in the world, is growing rapidly. The population growth rate of Nigeria per year is 3.2% (National Population Commission, 2012). Therefore, more and more people will continue to compete over land, water and pasture. The socioeconomic imbalance, ethnicity, land ownership, region and education level among the conflicting party is worrisome. The impact of climate change and shortage of water for human and animal is alarming.

CONCLUSION AND RECOMMENDATIONS

On the basis of these finding the study conclude that demographic characteristics such as urbanization, immigration, fecundity, occupation, income level, education, ethnicity, indigenization, religion, deforestation, change in ecosystem, change in biodiversity, drought. Flooding, rate of reproduction and land ownership, have positive and statistically significant effect on herders-farmers conflict. While tropical stone, environmental pollution, nature disaster, land degradation and weak family bonding, have negative and statistically significant effect of headers-farmers conflict.

This study has situated and analyzed the demographic implications resulting from various violent clashes

between herders and farmers in Nigeria and observed that their relationship in the previous years have been cordial and symbiotic. This possibly led to mutual respect and cross-cultural relationships among the herders and the crop farmers. Surprisingly, in recent years this somewhat mutual and complementary relationship between the herders and their host communities is shrinking and being replaced by conflicts and open hostilities. Many farmers have been forced to flee their farms for fear of being killed by well-armed herders and loss of part or the whole of their crops which translate into low income on the part of the farmers who take farming as a major occupation. Also, the failure of the government in mediating such conflicts and setting up judicial commissions cannot be underestimated because it pushes communities to take the law into their own hands. There is no doubt that conflicts between the two parties if constructively resolved by the government could ensure peaceful coexistence and interdependence. This is with respect to a more direct impact on food security by conflicts between the farmers and herders.

The study conclude that nomadic system was appropriate when human and animal populations were small and land was huge just as the system of shifting cultivation was appropriate. But over the last couple of decade populations of both have exploded fallow periods have been drastically reduced and weather patterns have changed. In this 21st century when the whole world has to pay serious attention to the issues of environment and agricultural production, there can be no place for the nomadic system of animal production. It is complete illegality for nomadic pastoralist who has not acquired such lands to invade North Central States when it is a known fact that, over grazing drastically reduces vegetation and breakdown is an irretrievable and widespread devastation scale of the natural regulatory mechanisms of the planet earth which are very necessary for crop production. Although the conflict has caused so much damage, the resolution of nomadic pastoralist conflict with the North Central farming communities is possible and less problematic after the moral consciousness and behavior will be fully restored and attitude changed. This restoration will revive the effective functioning of the combatant faculties of knowing, thinking, reasoning, deciding, choosing and exercising freewill, the study therefore recommend that:

Modernization of Livestock and Ranching Practices: The transition to modern forms of livestock farming must be enhanced and funded.

Government may review the existing structure of cattle routes and reserves: In concert with the state and local governments, the federal government should conduct a comprehensive review on the existing structures providing for cattle routes and reserves to determine which aspects are working, which are not, and what challenges remain to be addressed. Since the Land Use Act vests the ownership and management powers of land with the State Governors, the reviews should be state-specific and recognize the dynamics of urbanization, population growth, and climate variability. Given that the challenges of farmer-herder conflict are often conflated with ethno-religious and political considerations, reviews of the current strategies and their effectiveness should be done in a transparent and consultative manner, with attention given to how monies appropriated for this purpose were utilized.

The Federal Government may review the current program on nomadic education: This should be inclusive to ensure that the policy is a reflection of the expectation of the herders' community in terms of appropriateness in timing and realization of the target of providing the nomadic children with quality education, as well as training on modern herding. The review should also access existing financial, technical, and human resources with a view of strengthening the structures for service delivery. Mobilizing community and religious leaders (who are highly influential and respected, listened to and credible in their communities) as well as youth organizations to support and accelerate on-going transformations, making sure these are adapted to the realities in each country.

The Federal Government should provide adequate funding for the Great Green Wall Initiative: The federal government developed the Great Green Wall Initiative to address desertification and environmental challenges affecting the Northern States. However, due to lack of funds their activities have been slow. In addition, the climate and environmental issues are increasingly affecting more areas of Nigeria that are not currently provided for under the GGWA's mandate. In order to make it more proactive, the federal government should fully fund the GGWA and partner with the state and local governments, the private sector, and communities to build local buy-in and implement the initiative.

The Government should establish Peace and Reconciliation Commission: creating a peace and reconciliation commission is necessary to address the ill-feelings and accumulated animosities, which permeates along ethnic divides and have the potentiality

of leading to unprovoked aggression targeted at the antagonizing party. Farmers and herders should have conciliatory meetings to allow for forgiveness, tolerance and peace in the interest of all.

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