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Population Bulge and Food Security in Nigeria: A Positive or Negative Nexus?

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Abstract

Purpose:
Nigeria is the seventh most populous country in the world, and estimated population growth suggests that it will become the fourth most populous country by 2050. Population distribution shows a dominant youth bulge and geometric growth in the last three decades. However, blessed with a large population, Nigeria suffers from hunger and food insecurity, with an estimated 23 million (10.55%) facing food shortages in 2023. Therefore, the question arises whether there is a link between population explosion and food security in Nigeria.

Methodology:
This study answers the puzzle of the relationship between population growth and food security in Nigeria. The study uses documented sources and empirical data and applies content analysis to discuss the significant findings.

Findings:
The study concludes that the population explosion is not a curse or negative phenomenon causing food insecurity in Nigeria. However, relatively ineffective agricultural policies, conflicts in agricultural areas, displacement through insurgency, banditry and conflicts between farmers and herders, climatic factors, and underutilized youth and land are more responsible for the food security crisis than population growth.

Implication:
Therefore, the study recommends, among other things, that agricultural policies must be changed to a modern farming system and that youth must be involved in profitable agricultural production to increase productivity and ensure food security in the future.

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INTRODUCTION

The world is facing significant changes in multidimensional perspectives in the 21st century. From the Industrial Revolution to innovations in science and technology, the explosion of the internet, and the development of robotics and Artificial Intelligence (AI), humanity's socioeconomic, cultural, and political aspects have changed continuously and rapidly over the last two centuries. One of the areas where the world is facing inevitable changes is the social environment and global social expansion. The world population has proliferated from 6 billion in the last century to 8 billion in the first quarter of the 21st century. It is expected to grow despite diametric opposition in individual countries and regions. While sub-Saharan Africa, Southeast Asia, and Eastern Europe are experiencing population increases, especially among the young, the Western European countries of Germany and Italy and the Asian countries of Japan, South Korea, and Canada face significant population declines (World Bank, 2023).

The world's population will continue to grow over the next decade. The estimated population of 7.3 billion is expected to reach 8.5 billion by 2030, an annual increase of 85 million or 1.16% (United et al., 2020). According to a recent study commissioned by the Club of Rome and conducted by Earth4All Collective in collaboration with the Potsdam Institute for Climate Impact Research, Stockholm Resilience, and BI Norwegian Business School, the world's population is expected to fluctuate, and instability could occur (Watts, 2023). The United Nations estimated that the world's population would reach 9.7 billion by mid-century. However, the new study's results show that the world's population will rise to 9 billion by 2046 and then decline to 7.3 billion by 2100. Like the UN estimate, the study by Earth4All Collective predicts that throughout the first half of the century, the population will record a steady increase (Watts, 2023). The growing world population indicates that youth is the segment that is rapidly increasing. By 2050, 1.3 billion (16%) of the global population will fall within the age category of 15–24

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years. In Sub-Saharan Africa, youth aged 15–24 constitute 20% of the total population and are expected to increase by 2050 (Niang, 2015). Between 2020 and 2050, about 1.4 billion children are expected to be born in Africa (European Commission, 2023). Thus, the African region will account for the highest share of population growth in the future, but this will have an impact on youth violence and conflicts due to policy backlash, negligence of the ruling class, and a massive gap in infrastructure supply and economic development (Ikelegbe, 2020; Sanderson, 2020).

Nigeria is an essential player in population studies because of the demographic strength it poses. With an estimated population of 220 million, it is the seventh most populous country in the world, constituting 15% of the African population (Worldometer, 2023). Nigeria is an exciting area of study in population discourse because it is the country that is projected to have the highest population bulge in the next 50 years. By 2050, Nigeria is projected to reach 450 million people, with youth between the ages of 15 and 24 constituting around 25%, and this will qualify the country to be the third most populous country on earth after China and India. This population bulge in Nigeria is welcomed with mixed reactions by many experts in population studies, policy, economics, and agricultural productivity. In the second half of the 19th century, the famous political economist Thomas Malthus warned the world that if adequate measures were not taken to checkmate population explosions, food productivity would be overwhelmed, and the globe would face a food security crisis (Thomas, 1983). It is a claim that the recent study by Earth4All Collection debunks: the population bomb is no longer a fear to contain. However, before this study, several studies (Woolston, 1924; Marx, 1984; Lenin, 1986) discarded Malthusian postulation based on improved science and technology, modern mechanized farming, population stability, improved healthcare, and other relevant factors.

Food security is one of the fears of experts, policy analysts, and policymakers about the population bulge (Walker, 2016). Global food security is at stake because of several factors, including rapid population growth. The Food and Agriculture Organisation (FAO) and the World Food Programme (WFP) warn that food security is likely to deteriorate in around 18 hunger red zones across 22 countries between June and November 2023 (The World Bank, 2023). The report by the World Bank indicates that Nigeria has the highest population in acute food insecurity, at 25 million. Out of 36 states and the Federal Capital Territory of Abuja, 26 states face acute food insecurity, according to the report (World Bank, 2023). A joint report by FAO, IFAD, UNICEF, WFP, and WHO (2022) indicates that global hunger will increase in 2021 due to COVID-19, rising food costs, and exacerbated inequalities. Between 702 million and 828 million people suffered from hunger in 2021, and the prevalence of malnourishment was 9.8% (FAO, IFAD, UNICEF, WFP, and WHO, 2022). There is a projection that 670 million people will face hunger in 2030, or about 8% of the world population. Alarmingly, about 2.3 billion people will face moderate or severe food insecurity in 2021, while 11.7% of the global population will face food insecurity at high risk (FAO, IFAD, UNICEF, WFP, and WHO, 2022). In 2020, an estimated 22% of children under age five faced malnutrition, and one in three women aged 15 to 49 years (571 million) were affected by anemia globally in 2019. Moreover, almost 3.1 billion people could not afford a healthy diet in 2020 (FAO, IFAD, UNICEF, WFP, and WHO, 2022).

As the World Bank (2023) reported, Nigeria will face severe food insecurity more than any other country. It is interesting to examine because Nigeria will also face a population bulge in some years more than any other country in the world and is eventually projected to become the third most populous country in 27 years. Nigeria has been one of the most food-insecure countries globally for many decades, and the situation is not changing. In 1983, Watts warned Nigeria that famine and food insecurity create silent violence that may erode into physical violence if not appropriately tackled (Watts, 1983). However, the world risks food insecurity, causing violence and conflicts if not tackled appropriately in the coming years (Brinkman & Hendrix, 2011). The Global Hunger Index reported 2021 that 31.6% of Nigerian households faced food scarcity in 2020, while the Federal Ministry of Agriculture reported that about 65% of Nigerians are food insecure (Sambo & Sule, 2023a).

METHODS

Based on the above background, this study examines the level and pattern of the population bulge in Nigeria and food security. Most importantly, the study answers the following critical questions: Is the population bulge directly correlated with food scarcity in Nigeria? Are there intervening variables apart from population that affect food security in Nigeria? Is Nigeria's burgeoning population a curse or a blessing? Can food security be guaranteed

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in the future amidst a continuous population explosion? The study used a documented and empirical data-gathering and analysis technique to address these topics. Vital documents were consulted critically and analyzed using content analysis. It is necessitated by the nature of Nigerian geography, which is widely spread. Covering a topic of this nature using a field survey is only possible with funding to support the deployment of research assistants and logistics for data collection. No grant was accessed for this study or any intervention from institutions or agencies. The study is carried out through the independent efforts of the researchers owing to the urgent need for policy implications on the subject matter. The paper is structured into five main categories: introduction, examining the population bulge in Nigeria, perspectives on food security in Nigeria, and population bulge and food security in Nigeria: a positive or negative nexus? And conclusion.

RESULTS AND DISCUSSION

Examining Population Bulge in Nigeria. The Nigerian population has constantly faced change and restructuring since the pre-colonial, colonial, and post-colonial periods. For example, the 1963 Census showed about 56 million people, with the Northern region having the largest share. The South contested and rejected the Census, but that does not change that Nigeria is populous, irrespective of agreements or disagreements on who is more populated. Also, there are significant changes in urban settlements, an observed increase in rural-urban migration, and an increasing number of children, youth, and the working class. The 2006 Population Census reported 140 million, with a projected annual increase of 3.2%. This projection indicates that Nigeria is now over 200 million as of 2023. However, Nigeria's population explosion is commensurate with economic growth (Alimi et al., 2021). With over $450 billion in GDP, it is the biggest economy in Africa and one of the 20th largest in the world (Jimenez & Pate, 2017). Nigeria has more than 450 ethnic groups, the biggest in the world, in two slightly imbalanced significant regions of the North and South, with the North higher by a narrow margin in population.

Similarly, the country is divided nearly equally between Islam and Christianity, with Islam having a slightly higher proportion, and the North is predominantly Muslim while the South is Christian (Sambo & Sule, 2023a). About 70% of the population lives in rural areas engaged in subsistence agriculture with a traditional method of farming (Jimenez & Pate, 2017). About 70% of the Nigerian population falls within the poverty cycle, living below $2 per day; 25 million (11.47%) of the population face food scarcity in 2023; youth unemployment and underemployment stood at 42.5% (Okenwa, 2023); and the country is suffering from a series of humanitarian crises including insecurity, hunger, malnutrition, and diseases (Sambo & Sule, 2023a).

The rapid population growth in Nigeria is attributed to several factors, including an increased fertility rate, improved healthcare service delivery, and an improved standard of living (UNDP, 2020). However, Nigeria is facing more than just a population bulge. There is a significant transition in population growth. The dependency ratio will decline by 2050, indicating that the population tilts towards youth and working-age categories. However, there is a concern that Nigeria's population bulge emanates from the youth category, which is seen as either a bomb or a dividend. It can be a bomb if policymakers pay attention to youth policies that will productively engage them in economic activities. However, it can be a dividend if sound policies are designed to accommodate the growing population in active, productive ventures (UNDP, 2020). Vesey (2020), for example, argues that Nigeria's population is at risk of escalating violent conflict if misgovernance continues. This assumption is a warning to the elite's reckless plunder of state resources, considering their flamboyant lifestyle amid most Nigerians' squalor and abject penury.

In a similar view to the above, Kinnan (2011) reports that Nigeria faces impending doom shortly, precisely by 2030, when the population is projected to hit 237 million, from a lack of social cohesion and national integration, corruption, ethnoreligious chasms, and an untamed population explosion. Thus, Kinnan (2011) perceives the population bulge as a time bomb in Nigeria unless the identified problems are addressed. Aiyedogbon et al. (2022) stress that Nigeria's growing youthful population is primarily unemployed and unproductive, which is a primer for the food security crisis. Sakor (2020) argues that the population bulge in Sub-Saharan African countries like Nigeria increases the risk of armed conflicts unless accurate demographic policies that will tame reproduction and boost youth employment are guaranteed. The population bulge ordinarily should not constitute an obstacle for security dimensions if sound policies steer the populace toward development (Sakor, 2020). Okenwa (2023) emphasizes that Nigeria should be able to transform the population bulge into a demographic dividend through job creation, especially for the youth, capacity building, and engaging the youth in agriculture, manufacturing, and

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entrepreneurship. Due to weak and ineffective policies, Nigeria needs to reap the dividends of its population's leverage towards development (Cohen, 2019). Akinyemi and Mobolaji (2020) stress that Nigeria can turn its population bulge into an asset or allow it to be a burden. Utilizing productive segments of society through enhanced modern agricultural practices, sustainable job creation, an expanding manufacturing sector, and investment in social security can convert Nigeria's growing population into a national and global asset. However, failure to do so may spell doom for the country already battling political and socioeconomic crises (Akinyemi & Mobolaji, 2020).

Nigeria in 2050 can be a significant global political economy player or the world's most enormous burden, poverty capital (Yeboua et al., 2022). This statement depicts a future in Nigeria based on consideration of population growth. By 2050, Nigeria is projected to have a population of 450 million, third in the world, with youth between 18 and 35 constituting more than 60%. Although Nigeria made significant progress socioeconomically, the presence of numerous social, economic, and security challenges, including insurgency, banditry, separatist agitations, policy discontinuity, corruption, and mismanagement, threaten Nigeria's development prospects (Yeboua et al., 2022). Going by current trends and performance, the desire to achieve SDG policies by 2030 is still achievable. Instead, the country is predicted to be the poorest in the world by 2050. The public health and education sectors are comatose, strangled by corruption, mismanagement, and chronic underfunding. More progress is needed in economic diversification, with the country relying heavily on oil as the primary source of export (Yeboua et al., 2022). Instead of mitigating the suffering and initiating pro-poor policies to cater to the population bulge, the Nigerian government is busy applying inimical policies that further push the downtrodden into impoverishment. For example, the fuel subsidy removal increased the poverty of poor households by shooting up the cost of transportation and essential goods; the proposed electricity tariff hike will escalate the deprivation and extortion of people experiencing poverty by the government they have voted into power; the enactment into law by the government of the student loan policy; and the proposed introduction of tuition fees will deny the poor access to high-quality education and throw people experiencing poverty into extreme suffering and deprivation (Kperogi, 2023).

Of all the studies examined above, only Aiyedogbon et al. (2022) attempted to establish a correlation between Nigeria's population bulge and food security. It leaves a substantial intellectual gap in the subject of study. Even the study by Aiyedogbon et al. (2022) limits itself to two variables only, population growth and food security, without transcending to look outside. This study contributes to knowledge and is compelling for diversifying the subject to include other elements. In the discussion section under Population Bulge and Food Security in Nigeria: The Nexus," the study attempts to look beyond population as a decisive factor in food security in Nigeria. Thus, the subject is expanded, and the study critically delves into broader issues. It is the main contribution to the work.

Perspectives on Food Security in Nigeria. Food security is a global phenomenon affecting all countries at different levels and patterns. Food security is now a significant policy issue in many countries due to rising food prices, unforeseen contingencies affecting food production, and a lack of full access for all. Food security means possessing a sufficient combination of diets to supply a calorie requirement of about 2200–2300 calories per day for adult females and 2900–3000 calories per day for adult males. However, children require less than adults (International et al., 2023). According to the IMF, the cost of achieving 2251 calories per day in Nigeria is approximately N82000 per person annually. However, about 40% of Nigerians cannot afford it, making them food insecure. Nigeria was ranked 97 out of 113 countries in the global food security ranking in 2019 (IMF, 2023). In 2022, food insecurity in Nigeria will escalate due to the impact of the COVID-19 pandemic and skyrocketing food prices. Food inflation rose to 23% in September 2022, making essential food items beyond the reach of people experiencing poverty (IMF, 2023). Food insecurity varies across regions and geographical distributions in Nigeria. The urban food insecurity rate is 18%, while the rural counterpart is 52%. The UN-supported food and nutrition analysis reported that about 25 million Nigerians are at risk of food insecurity between June and August 2023 (UNICEF, 2023). About 17 million people are food insecure, with 3 million affected in the Northeast-insurgency-torn region (UNICEF, 2023). One irony of food insecurity in Nigeria is that even the young farmers who were surveyed disclosed that they felt food insecure (Adeyanju et al., 2023). It implies that if those youth engaged in active farming feel unsatisfied with their food security status, what about the underage, the old, and the non-farming or jobless youth? It is a critical matter of importance in studying population and food security in Nigeria that should not be overlooked.

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The drivers of food insecurity in Nigeria are complex, multiple, and interrelated. Historical and contemporary socioeconomic processes are factors behind hunger and malnutrition in Sub-Saharan African countries (Baro & Deubel, 2006). Agricultural systems, socioeconomic factors, natural disasters, conflicts and political crises, environmental and climatic conditions, and policies are identified as significant factors, each influencing or being influenced by others (Quak, 2021). The Food Security Cluster (2023) attributes the cause of food insecurity in Nigeria to the protracted and prolonged conflict in Northeast Nigeria. The area is famous as an agrarian area where crops, cereals, legumes, vegetables, spices, and other varieties of agricultural commodities are produced annually in thousands of metric tonnes. During the peaceful period in the Northeast, it was produced what was sufficient within the zone, the Northern region, and the products were transported to southern parts of the country as well as exported to neighboring Benin Republic, Chad Republic, Cameroon Republic, Niger Republic, and as far as Central Africa. According to FSC (2023), this area is now a shadow of itself, bedeviled by the Boko Haram insurgency for more than a decade. Agbaoye (2023) has a similar view to that of FSC (2023) on the impact of the Northeast insurgency on food security in Nigeria. Agbaoye (2023) adds that the banditry crisis in the Northeast worsens the food security crisis, which has negatively affected the health indices performance in the country. The COVID-19 pandemic is identified as a significant threat to food security in Nigeria and other African countries because the sharp effects of the lockdown and economic crash declined agricultural productivity (Doss et al., 2020). Also, 2023 is an election year in Nigeria. The volatile political environment causes violence and persistent conflict that drive high food needs orchestrated by inflation and fear of the unforeseen (United States Agency for International Development, 2023).

The food security crisis in Sub-Saharan Africa, including Nigeria, can be addressed through adequate social protection. Programs that will promote entitlements to food, reduce vulnerability, provide emergency food aid, stabilize income, and provide access to food across all categories of people and seasons are some measures to adopt to mitigate the food security crisis (Devereux, 2015). De Martinez et al. (2016) suggest that shifting towards agricultural mechanization and adapted financial measures are plausible solutions to guarantee food security in Sub-Saharan African countries. However, Boon (2010) argues that poverty reduction, enhancing policies on sustainable agriculture, and mainly rural development (SARD) enunciated in the Den Bosch Declaration will enhance achieving food security in Sub-Saharan Africa. It is suggested that some practical measures will eliminate food insecurity in Nigeria, including corporate investment in the agricultural sector, deployment of modern technologies, adoption of the science and art of precision agriculture, and FarmSense, which is a technique that will guide farmers to boost productivity (Ayodeji, 2023). Social protection, addressing child poverty, humanitarian intervention, and relief supply will mitigate the immediate crisis. However, more needs to be done to respond to the challenges in the future (Relief Web, 2022). About 1,232,127 people were assisted from January to April 2023; 9,776 metric tonnes of food assistance were distributed to the most affected; $10.95 million was distributed through cash-based transfers by the World Food Programme; and 2 million are targeted before the end of 2023 (World Food Programme, 2023).

Population Bulge and Food Security in Nigeria: A Positive or Negative Nexus? As earlier reiterated, most studies on food security in Nigeria directly relate population as the cause or other factors. As its significant contribution, this study takes a different view. The study reports in this section two distinctive and convincing views. One is the role of the population bulge in food security, and the other is the influence of other intervening factors apart from the population, including climatic factors such as drought, flood, desertification, conflicts, underutilized youth, and land and agricultural systems. The study thus arrives at the middle-level conclusion that both population and non-population factors aid in the food security question in Nigeria but concludes in the next section that population should not be a factor from the inception with adequate management of state resources and sound policies considering that China, India, the United States of America, Brazil, Indonesia, and Pakistan, which are more populous than Nigeria, are either food secure or relatively less vulnerable to hunger and famine than Nigeria.

Studies (Gupte et al., 2014; Alimi et al., 2021; Aiyedogbon et al., 2022; Sambo & Sule, 2023a; Wudil et al., 2023) that attribute the population bulge to food security issues in Nigeria believe that the population outlook and growth pattern affect food security. Aiyedogbon et al. (2022) established that from 1981 to 2015, population growth steadily resulted in declining food production and security. It relates to failure to harness the potential of population growth towards a modern farming system, joblessness, and continuous ineffective agricultural policies. Sambo & Sule (2023a) reported that as individual household populations expand, the level of their food security

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declines. Based on documented evidence, the study (Sambo & Sule, 2023a) discovered that a household with three members in 2015 expressed satisfaction with food security. However, after a significant expansion of that house by 2022 to have 8 or 9 members, the food security satisfaction is gone. That house can hardly sustain itself currently. Thus, through this mechanism, the study (Sambo & Sule, 2023a) claimed a direct correlation between the population bulge and food insecurity in Nigeria. In addition, Gupte et al. (2014) reported that the population bulge compelled a massive rural-urban migration in Sub-Saharan Africa. However, the ambitious youth that trooped to city centers for a better life could not secure jobs, making them volatile, vulnerable, and easily absorbed by criminal groups for violence. It directly establishes a link between population growth and food security. Wudil et al. (2023) assert that while the prevalence of hunger decreases globally, it has risen in Sub-Saharan Africa, specifically Nigeria, due to unchecked population growth, low agricultural productivity, and economic retrogression. In this study (Wudil et al., 2023), rapid population growth was perceived as a significant cause of food insecurity in Nigeria.

However, unlike the above views, this study reiterates that other compelling factors beyond population contribute to food security issues in Nigeria. One of them is the declining agricultural productivity caused by climatic factors. Evidence of climate change in Nigeria appears in increasing heat, depleting lakes and rivers, decreasing annual rainfall quantities, drought, floods, deforestation, and other related ways (Sambo & Sule, 2023a). The Nigerian climate conditions significantly changed, with a recorded increase of 0.80 °C from 1960 to 2006 (Sambo & Sule, 2023a). A decrease of 3.5 mm per month in four decades is recorded in precipitation across Nigeria (Sambo & Sule, 2023a), and the future climate projections in Nigeria show a rise in temperatures of 1.1–2.5°C by 2060, with extreme heat anticipated in the North more than the southern part of the country. The number of heat days is projected to increase to 260 days annually by 2100, and rainfall unpredictability and variability will likely escalate by 2100 with a rising sea level of 0.4–1.0 m (Sambo & Sule, 2023a). The study (Sambo & Sule, 2023a) further notes that unpredictable rainfall affects farm produce and agricultural outputs across the country; higher temperatures, drought, floods, desertification, and erosions erode farmlands and reduce agricultural productivity. By 2018, Nigeria had lost an estimated 30–40% of food valued at $750 million annually due to floods (Sambo & Sule, 2023a). The Lake Chad, which caters to nearly 8 million Nigerian farmers and fishermen, dried up by 95% (Frimpong, 2020). The Lake has the potential to provide 350000 ha of irrigation to Nigerian inhabitants in the Northeast, the production of around 200000 metric tonnes of fish annually, and a host of other commercial activities, including agricultural productivity, that turnover billions of Naira annually that are lost due to the impact of climate change and the depletion of Lake Chad (Usigbe, 2020).

Conflict and forceful displacement are other dimensions of food security in Nigeria, apart from the population bulge. Nigeria faces numerous security threats across all six geopolitical zones, ranging from the Boko Haram insurgency in the Northeast, banditry in the Northwest, the conflict between farmers and herders in the North Central, the Indigenous People of Biafra (IPOB) secessionist uprising in the Southeast, militancy, and oil theft in the South, and organized crimes by ritualists and separatist agitations in the Southwest, in addition to political violence across the country (Sule et al., 2022). However, the Boko Haram insurgency, banditry, and conflict among farmers and herders are the most influential factors affecting food production and security. The three regions in the North are the primary producers of both food and cash crops, especially grains such as maize, wheat, rice, millet, cowpea, sorghum, soybeans, beans, groundnuts, cotton, vegetables, livestock including goats, sheep, and cattle, and local fruits (Attah & Sule, 2023). The Northeast, affected by the Boko Haram insurgency, suffered the forceful displacement of over 3.5 million inhabitants who are mostly peasant farmers; more than 100,000 were killed; about 1.5 million could not be reached in trapped areas of Boko Haram influence; nearly 12 million face hunger and a severe humanitarian crisis; and more than 40% of farmlands are deserted, leading to chronic food shortages and declining agricultural activities (Sule, 2023). Lake Chad fishermen who had hitherto produced about 200,000 metric tonnes of fish left the place because of the Boko Haram conflict, signaling a massive gap in fish supply in the region and outside.

Like the Boko Haram conflict, banditry in the Northwest sharply affects agriculture and food security. Northwest Nigeria is one of the biggest food producers in Nigeria, with about 80% of the inhabitants engaged in subsistence farming. The intensified assaults of bandits displaced farmers left abandoned farmlands uncultivated, and led to a sharp decline in food production. Due to banditry, Attah and Sule (2023) report that about 13,000 hectares of farmlands are inaccessible in Zamfara State alone. In Sokoto State, 21,316 hectares of farmlands across five local governments remained uncultivated in 2021, and about 80,000 farmers stayed away from farming for fear of attacks from bandits (Attah & Sule, 2023). Forced displacement caused more than 250 000 refugees to

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scatter to the Niger Republic and other parts of Nigeria primarily farmers. In the North Central, conflict between farmers and herders affects food and livestock production and supply. From 2004 to 2020, more than 100,000 people were killed in clashes between farmers and herders, over 250,000 were forcefully displaced, and more than 200 communities were affected (Sambo & Sule, 2023b). The economic cost of farmers-herders conflict in only four states—Benue, Kaduna, Nassarawa, and Plateau—was estimated at $14 billion annually, while the social effects are declining food production because of deserted farmlands and livestock killed in reprisal attacks by the farmers. It is estimated that more than 30% of agricultural production is halted in North Central by farmer-herder conflicts (Sambo & Sule, 2023b).

Underutilized lands, youth, and the agricultural system are identified as other factors that cause food insecurity in Nigeria. Nigeria has a total estimated arable land area of 70.8 million ha, but only about 13 million ha are cultivated, leaving more than 70% untapped (Chiaka et al., 2022). The former President of Nigeria, Muhammadu Buhari, lamented that due to climatic conditions of drought, flood, low-level irrigation capacity, and an archaic farming system, Nigeria is only able to cultivate 2.5% of its arable land (Channel Television, 2021). With an arable land area of 52.5%, the North, being the primary producer of agricultural commodities in the country, is only able to cultivate 18% of the total area, and irrigation farming constitutes only 2.2%, making a total of 20% (Sedano et al., 2020). This leaves about 80% of arable land uncultivated in the North, the primary grain producer. Also, the youth between 18 and 35 constitute 51% of the total Nigerian population, but youth unemployment will hit 35% in 2022, according to the National Bureau of Statistics (2022). These youth should have been engaged in productive activities, especially farming, but the government should address them. Thus, if arable land is sufficiently cultivated in Nigeria, the country can conveniently feed its population and, at least, supply food to neighboring West African states. Besides, poor and ineffective agricultural policies resulted in a food crisis in Nigeria. The farming system has remained static since the 1960s. The use of primitive farming implements continues without a serious effort towards mechanization. Nigeria has a chronic undersupply of tractors and other modern farming implements. The Government of President Buhari introduced agricultural policies of anchor borrowers where soft loans are given to farmers to cultivate and pay later. However, the policy needs to be more robust because of corruption, a poor approach, a lack of dynamism by overlooking mechanization in the process, poor fertilizer supply, and other related issues (Sambo & Sule, 2023a).

Therefore, this study discovered that the population bulge contributes to the food crisis in Nigeria, but other factors are more responsible than population growth. The Malthusian theory could not be applied in the context of this study because it is believed that Thomas (1983) erred in his projections and predictions. Malthusian mathematical analysis forgot critical factors that should have made him rethink his conjectures. For example, technological innovation and modern farming systems enabled the production of large farming outputs in a small area due to improved practices, an improved health system, economic buoyancy, and population control measures. Likewise, Thomas (1983) overlooked other causal factors that may be more responsible for food security, such as conflicts, climatic factors, an underutilized population, farmlands, and agricultural systems, as in the case of this study. Hence, population growth is a blessing in areas where policymakers are focused and are ready to engage the population in productive ventures.

CONCLUSION

What Alternative Measures?. The entire answer to this vital question rests on policymaking. People must believe that the government is positively touching their lives to cooperate for effective population control. Unfortunately, most Nigerians feel the opposite. Few believed that the government was impacting their lives. Indeed, most Nigerians interviewed in a recent survey responded that they could not see how and where government exists in their lives. Thus, the government must assert its authority and exercise a positive approach that will make the populace feel relevant to initiate policies on population control; otherwise, the population bulge in Nigeria may exceed the current projection. The government should know that the Nigerian population is an asset that must be positively engaged in productivity and not a liability.

Countries that have surpassed Nigeria in population are food secure. Nigeria can do it, but how? First, agricultural policies need a radical and aggressive overhaul. Mechanization should be pursued immediately as a national policy. The government should prioritize foreign agricultural investment instead of oil, mining, and manufacturing. It will make mechanization easier if foreign investors introduce modern farming tools. Youth can

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easily engage in modern farming practices, decisively minimizing unemployment, underutilization, and unproductivity. The government should innovate climate change adaptation and resilience policies to evade unforeseen floods, drought, and desertification circumstances. Introducing new adaptable and resilient crops can mitigate these disasters, while crops with high resistance to low rainfall should be supplied against declining rainfall. Conflict areas should be secured immediately, and the root causes should be addressed, of which modern farming is one.

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