



An Analysis of the Malthusian Population Theory and its Prevalence in the Nigerian Society

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ABSTRACT: *This paper investigates the relevance of the Malthusian population theory and its prevalence in the Nigeria society. In its unique way, the paper tilt it weights towards looking at how the positive checks (war, disease, famine, starvation) and preventive checks (sterility, abstinence, birth control) gains weight in the Nigeria society. It was revealed that the predictions of the Malthusian population theory are quite prevalent in Nigeria especially in both the positive and preventive checks. The Nigeria society has experienced outbreak of diseases such as Ebola, Bird flu and HIV/AIDS. Similarly, the study also reveals that there has been knowledge and application of birth control measures in the country such as the use of contraceptives – both modern and traditional, as well as the use of condoms and pills. However, the feature that population grows in a geometric progression is not valid in Nigeria as the country's population has been growing by 3.25%. The paper also reveals that there is a fairly positive correlation (0.46) between population and food importation in Nigeria. It was recommended that there should be improvement of the social/human welfare of the people and population related policies to promote growth in national output as population increases. Such policies include food subsidizing, employment generation, and public health provision.*

Keywords: Population; Theory; Positive Checks; Preventive Checks; Means of Subsistence; Population Growth. JEL Classifications: B12; B31; J11; J13

INTRODUCTION

Nigeria is blessed with a huge quantum of available human and natural resources ranging from resources in the land, water, vegetation, minerals, and in the atmosphere. As it is believed by the mercantilist, a strong population is a veritable tool for economic prosperity as it will offer the required manpower to build a strong army that will defend the territory (Bhatia, 2007). However, Malthus took a different view of such and posit that population can grow beyond the means of subsistence and that some forces can come to play so as to reduce the population. To him, "the problem lied in the fact that food supply limited the quantity of population that an area can support" (Malthus, 1798). Economists are wavering between three theories; one that states that population growth helps a nation's economy by stimulating economic growth and development and another that bases its theory on Robert Malthus' findings. Malthus (1798) stated that population increase is detrimental to a nation's economy due to a variety of problems caused by the growth. For example, overpopulation and population growth places a tremendous amount of pressure on resources, which result in a chain reaction of problems as the nation grows. The third school of thought is that population growth does have any impact on economic growth. Malthus (1798) pointed out that population tends to grow geometrically, whereas food supplies grow only arithmetically. According to the Malthusian model, the causation goes in both directions. Higher economic growth increases population by stimulating early marriages, high birth rates, and reducing mortality rates from malnutrition. On the other hand, higher population depresses economic growth through diminishing returns. This dynamic interaction between population and economic growth is the centre of the Malthusian model, which implies a counter balancing effect on population in the long-run equilibrium (Thuku, Gachanja, and Almadi, 2013).



Rates of population growth in many less developed countries are at least half the rates of economic growth and in some cases almost equal the latter (SCOFNAS, 1972). Rapid population growth slows down the growth of per capita incomes in developing countries and tends to perpetuate inequalities of income distribution (Adewole, 2012). It further culminates to a stress on available resources and the means of subsistence. High population can result in conflict in the society which according to Locke, 'scarcity is the basic causes of all conflicts'. This has so far been experienced in the Nigeria society as series of intra-ethnic and inter-ethnic conflicts ensues (Onwioduokit and Effiong, 2018). Several anti-population growth signals have been observed in Nigeria and gleaning from history, Malthus has already made such predictions. These, ranging from positive checks to preventive checks. Evidence can be seen from the prevalence of HIV/AIDS, outbreak of Ebola as well as Bird flu. This has caused a lot of death in the country particularly, HIV/AIDS. The activities of Boko Haram in the North East of the country is highly bloody and the recent killing in the Zamfara state. Not failing to mention the blood shedding activities of the Fulani herdsmen in the country as well as birth control of which it is reported that contraceptive prevalence increased from 6% in 1990 to 15% in 2013; use of modern methods increased from 4% to 10%; use of injectables increased from 1% in 1990 to 3% in 2013; condom use increased from less than 1% to 2% within the same period; and use of traditional methods has also increased over the years from 3% in 1990 to 5% in 2013 (NHDS, 2013). All these are vices and events towards reducing the population of the country which of course, were predicted by Malthus. Thus, one can simply ask: Is this the manifestation of the Malthusian catastrophe in Nigeria? It is in this light that this paper seeks to investigate how the Malthusian population theory is prevalent in the Nigeria society. In achieving this, this paper adopts the use of tables and figures to portray the prevalence of the theory in the Nigeria society by capturing the preventive and positive checks as pronounced in the theory. This paper is divided into five sections. Section 1 deals with the introductory aspect of the paper; part 2 focuses on the literature review; part 3 deals with the main ideas behind the Malthusian Population Theory; part 4 focuses on the prevalence of the theory in the Nigeria society; and part 5 captures the recommendations and conclusion.

LITERATURE REVIEW

This section captures both the relevant theoretical and empirical literatures.

THEORETICAL LITERATURE

Several theories have been put forward to explain population growth. Early economists like Cantilon and Smith believed that population growth will either be counter balanced by a corresponding increase in the means of subsistence or reason would help people to check population growth (Bhatia, 2006). This is quite conflicting in the Nigeria set up as people who would even see the reason to check population growth are even the ones who perpetrate the act. It can even be observed that even the poor with less means of subsistence produces more children. Malthus digress from the ideas of Cantilon and Smith by trying to integrate the ideas into a systematic line of thought as he was able to link the growth of population to its effects. To him, there was a natural phenomenon which triggered population in a geometric progression and food in arithmetic progression. Joseph et al. (2015) summarized



Malthus thesis thus: *“Sex instinct is a powerful instinct in humans which if left unchecked (or unless checked through moral restraint) leads to high rate of procreation. Also, the means of subsistence which is food supply obtained from agribusiness cannot increase that fast. Therefore, so long as population and subsistence conformed to their geometric and arithmetic progressions, population was guaranteed to surpass the means of subsistence. Finally, unless population growth was slowed down through ‘preventive checks’, ‘positive checks’ then become inevitable”* (Joseph et al., 2015). Malthus argued that, the best form of population control is the moral restraint which meant late marriage, remaining chaste for the meantime – the only option to save people and their communities from “rags and squalid poverty”. In other words, poverty was an inevitable result of rapid population growth. Although, he was not unaware of improved farming methods, the opening up of new lands in places like USA, New Zealand, Austria, South Africa, etc.; and improvement in transportation which eased international trade as possibilities of large output to the expanding population, he however, argued that these improvements were “merely to postpone the evil day” (Hanson, 1977). Another outstanding theory of population is the demographic transition theory. This theory puts up a model which recognises three main stages in the process of population growth or demographic transition. The first stage which is the pre-industrialisation stage is characterised by high birth rate and high death rate due to lack of medical facilities and birth control. The second stage is the transitional stage which is characterised by high birth rate but low death rate as a result of industrialisation, urbanisation, better diet, higher income, and improved medical facilities. In stage three which is the post transitional stage, the society is characterised by low birth rate and low death rate thus, the population is relatively stable and it is characterised by developed countries. The low birth rate is as a result of the knowledge of birth control such as the use of contraceptives.

Jhingan (2005) contributed to the theory of population by capturing the consequences of population growth on economic development. To him, the consequences have attracted the attention of economists ever since Adam Smith wrote his “Wealth of Nations” in 1776. “The annual labour of nation is the resource which, originally supply with it all the necessaries and conveniences of life”. It was only Malthus and Ricardo who created an alarm about the effects of population growth on the economy (Jhingan, 2005). But their fears have proved unfounded because the growth of population in Western Europe has led to its rapid industrialization. Population growth has helped the growth of such economies because they are wealthy, have abundant capital and scarcity of labour. In such countries, the supply curve of labour rate of population has led to a rapid increase in productivity and every increase in population has led to a more than proportionate increase in the gross national product (Adewole, 2012). Jhingan (2005), in his view further state that the effect of population growth on per capita income is unfavourable. The growth of population tends to retard the per capita income in three ways: it increases the pressure of population on land; it tends to raise the cost of consumption goods because of the scarcity of the cooperate factors to increase their supplies; and it tends to a decline in the accumulation of capital because with increase in family members, expenses increase. These adverse effects of



population growth on per capita income operate more severely if the percentage of children in the total population is high, as is actually the case in Nigeria (Adewole, 2012).

EMPIRICAL LITERATURE

Several empirical studies have been conducted in this area. Joseph et al. (2015) in their attempt to investigate empirically the Malthusian population theory in Nigeria adopted the Vector Error Correction (VEC) Mechanism on time series data from 1982 to 2012. In their study, they observed that population growth has no significant impact on the economic development within the period and therefore recommend among others that government should embark on enlightening campaigns to intimate the populace on the dangers of overpopulation and its attendance consequences. In the work of Thuku, Gachanja, and Almadi (2013), they examined the impact of population changes on economic growth in Kenya by employing the Vector Auto Regression (VAR) estimation technique on time series data ranging from 1963 to 2009. Their findings revealed that population growth and economic growths are both positively correlated and that an increase in population will impact positively on economic growth in the country. The study concludes that in Kenya inadequate government policies, rather than population growth is responsible for the woes including, famines that besiege the nation. Adewole (2012) took his turn to investigate the effect of population on economic development in Nigeria from 1981 to 2007 based on a quantitative assessment. The study use trend analysis as well as ordinary least square method of analysis as well as using the Phillips-Perron (PP) non-parametric unit root test in testing the unit root property of the series. The study revealed that population growth has positive and significant impact on economic sustainability proxied as Real Gross Domestic Product (RGDP) and Per Capita Income (PCI). The study concludes that population growth has brought about a vast increase in food requirement. Dao (2012) carried out a research on population and economic growth in 43 developing countries. He applied the least-squares estimation technique in a multivariate linear regression. He found that the growth rate of GDP per capita is linearly dependent upon population growth, both the young and old dependency ratios, and the mortality rate. He concludes that the effect of population growth on per capita GDP growth is linear and everywhere negative.

Ewugi and Yakubu (2012) investigated the Malthusian population theory and the Nigerian economy from a political economy approach. Their work discovers that the predicted doom of population theory is manifesting in Nigeria - rapid population growth rate, food crises, large scale poverty, ethnic and religious conflict, HIV/AIDS epidemics, etc. They recommended that the judicial arm of government be made more efficient at law-enforcement, education sector be given appropriate budgetary attention to subdue poverty, diseases and health care predicaments. Klasen and Lawson (2007) investigated the impact of population growth on economic growth and poverty reduction in Uganda. The paper examines the link between population and per capita economic growth, and poverty. Using panel data, they found both theoretical considerations and strong empirical evidence suggesting that the currently high population growth puts a considerable break on per capita growth prospects in Uganda. In addition, they recommended that measures to assist



households with alternative ways to smooth consumption over the life-cycle would clearly assist in reducing fertility.

Oramah (2006) examined the effects of population growth in Nigeria. He discussed the use of double time growth analysis in the explanation of the need for population control in Nigeria and the potential danger that might emanate from the continuous neglect of environmental issues presented by environmentalists and population demographers in Nigeria and the world at large. His recommendations were that clue should be taken from China and other countries like Russia and Hungary. Bucci (2003) investigated whether there is a long-run relationship between population (size and growth) and per-capita income focusing on human and physical capital as reproducible inputs. The study found out that population growth exerts a negative effect on economic growth. However, when individuals choose endogenously how much to save, population growth can also have a neutral influence on economic growth. The study also extended its analysis to the case where physical and human capital can interact with each other in the production of new human capital.

When the two types of capital are substitutes for each other in the education sector, the effect of population growth on per-capita income growth is always negative. Instead, if human and physical capital is complementary for each other, the impact of population change on real per-capita income growth becomes ambiguous. He gave the intuition behind this thus: for a given per-capita physical capital stock, an increase of population causes the aggregate physical capital to rise. If physical and human capital are substitutes for each other (in the sense that the larger amount of physical capital now available in the economy deters the demand and, thus, the consequent supply of human capital), the increase of population size, together with the reduction of the aggregate human capital stock, determines an unambiguous decline of the per-capita level of skills and, through this channel, a lower per-capita income growth rate. On the other hand, if physical and human capital are complementary for each other (the increase in the supply of physical capital spurs the demand and, therefore, the consequent production of new human capital), the final effect on the per-capita level of skills and, hence, on per-capita income growth of an increase in population may be either positive, or negative, or else equal to zero. Long-run per-capita income growth can be positive even without any population change; in equilibrium, both the growth rate and the level of per-capita income are independent of population size; the long-run level of per-capita income is proportional to per-capita human capital (Thuku, Gachanja, and Almadi, 2013). Bloom and Freeman (1998) examined the prospects for economic growth in Nigeria based on a demographic perspective. Using a cross-country growth model, their principal conclusion is that Nigeria has a substantial demographic opportunity on the horizon, and even though features of Nigeria's economy make capitalizing on this opportunity challenging, Nigeria does have policy options available that can allow it to harness its demographic transition into indefinite sustained growth. Bloom and Williamson (1997) also found that demographic factors are important determinants of economic growth. Their results show that it is not overall population growth rate that drives economic performance but age distribution. The age distribution effect operates through the difference in growth rates of the working-age and the dependent



population. The study found that population dynamics explain as much as 1.4 to 1.9 percentage points of the GDP per capita growth in East Asia or as much as one third of the average East Asian miracle GDP per capita growth rate. In Southeast Asia, the estimated effect ranges from 0.9 to 1.8 points of economic growth or about half of the recorded growth in GDP per capita. Mankiw et al. (1992) used a Cobb-Douglas economy-wide production function to investigate the impact of population growth on 'steady state' income per capita as well as on economic growth in the transition to the steady state. They revealed that an increase in the population growth rate of 10% would reduce per capita income in the steady state by 5%. If, however, one considered human capital to be an additional factor of production, then the negative impact of population growth is larger as population growth now forces economies to use their scarce savings to equip young people with physical and human capital. As a result, a 1% increase in population growth would decrease per capita income by 2%. According to Kelley (1988), a slower pace of population growth will help to enhance economic growth at a higher rate. The study elaborated that economic growth would be higher in the situation of slower population growth even though the impact of population growth in many countries was insignificant. Population and per capita income are closely associated to depict the picture of economic growth. Lower population growth and higher per capita income show that nation achieve their growth targets. In countries with population growth under 1 percent, their per capita income could increase at the rate of 2.5 percent annually. Countries with population growth more than 2 percent had a little increase in per capita income of less than 2 percent.

Bloom and Freeman (1986) provided a comprehensive organizing framework for analysing the impact of population growth on labour supply and employment. In particular, they identified two distinct mechanisms through which population growth affects labour supply and employment. One is the "accounting" aspect that refers to changes in the demographic structure and cohort size. The other is the "behavioural" aspect that refers to the decision to participate in the labour force, particularly for women. Fertility, mortality and migration will affect labour supply differently. Mortality and migration will have immediate effects while fertility will have delayed effects. They also pointed out that the structure of the labour market mediates the impact of population growth on employment. In a neoclassical labour market rapid population growth will instantaneously depress wages; in a dual labour market where one market (modern) is behaving like a new classical labour market and another (traditional) is characterized by surplus labour and low wage rates, rapid population growth will delay the tightening of and eventual dissolution of the low wage traditional labour market or the elimination of the dualistic structure (Thuku, Gachanja, and Almadi, 2013). Bloom and Freeman (1986) review of labour markets in developing countries covering the period 1960-1980 concluded that despite population increasing rapidly, developing countries managed, on the whole, to improve their economic positions significantly. Simon (1977) investigated the long run benefits of population growth. Whereas population growth has a negative effect on living standards in the short run due to diminishing returns and the temporary burden it poses on society, it has positive effects on living standards in the long run due to knowledge advances and economies of scale. Employing a simulation model, the study found out that in the long run (after 30 to 100 years) and when compared to constant-



size population, moderate population growth improves standards of livings both in more developed and in less developed countries. In the long run, a growing population tends to advance knowledge, which, in turn, increases productivity and output at a higher rate than that of population growth. Nevertheless, a country's optimal policy regarding population growth depends on the weight given to future periods relative to the present. The more weight a country gives to future generations and the more willing a country is for the short run decline in standards of livings, the better it is for that country to pursue a policy of moderate population growth. The long run benefits of population growth that links to economic development of poor countries are on the positive balance, contrary to conventional wisdom. Thirlwal (1973) investigated the relationship between population growth and economic development with special reference to developing economies. The study found out that the relationship between population growth and economic development is a complex one, particularly concerning what the cause is and what the effect is. Rapid population growth lowers per capita income growth in less developed countries (LDCs), yet there are many ways in which population growth may be a stimulus to progress, and there are many rational reasons why families in developing countries choose to have many children. The study concluded that complexity of the subject is compounded by the fact that, economic development is a multidimensional concept. The pace of economic development depends on the diversion of resources from consumption to uses that raise future output. A population with a high ratio of dependants on producers consumes more of a given output and devotes less to investments. Thus, high fertility, which produces a high level of dependency, promotes consumption at the expense of investment. Boserup (1965) found out that population growth is an autonomous factor, which affects agricultural productivity rather than being affected by it, as suggested by the Malthusian school. The study claimed that Malthus' assumption of diminishing returns to labour needs not hold in the long run, as higher population may lead to a more efficient division of labour as well as to improved agricultural practices (signalled by the frequency of cropping). The study concluded that soil fertility should not be viewed as fixed and given by nature, but instead can be improved by substituting the agricultural technology to a better one, which is likely to be a result of an increase in population. Primitive communities with higher population growth rates are more likely to experience economic development, provided that the necessary investment in agriculture is undertaken.

SUMMARY OF EMPIRICAL LITERATURE

A great deal of literature investigates the effect of population on economic development (Adewole, 2012 and Thirlwal, 1973); the impact of population changes on economic growth (Thuku, Gachanja, and Almadi, 2013; Oramah, 2006; Dao, 2012); impact of population growth on economic growth and poverty reduction (Klasen and Lawson, 2007); long-run relationship between population (size and growth) and per-capita income focusing on human and physical capital as reproducible inputs (Bucci, 2003); prospects for economic growth in Nigeria based on a demographic perspective (Bloom and Freeman, 1998); impact of population growth on 'steady state' income per capita as well as on economic growth in the transition to the steady state (Mankiw et al., 1992); impact of population growth on labour supply and employment (Bloom and Freeman, 1986); demographic factors and



economic growth (Bloom and Williamson, 1997); long run benefits of population growth (Simon, 1977); Malthusian population theory and the Nigerian economy from a political economy approach (Ewugi and Yakubu, 2012); and Malthusian population theory in Nigeria (Joseph et al., 2015). This paper therefore digress from them by focussing on the positive and preventive checks as predicted by Malthus.

MAIN IDEAS BEHIND THE MALTHUSIAN POPULATION THEORY

Reverend Thomas Robert Malthus (13 February 1766 – 23 December 1834), a clergyman and a well-known political economist, wrote his essay titled “An Essay on Population” in 1798 and modified some of his conclusions in the next edition in 1803. The rapidly increasing population of England encouraged by a misguided Poor Law distressed him very deeply. He feared that England was heading for a disaster, and he considered it his solemn duty to warn his country-men of impending disaster. He deplored “the strange contrast between over-care in breeding animals and carelessness in breeding men”. In his own day, however, the country attracted attention, not so much as a scientific contribution to the study of Demography, but as a refutation of the optimism of Godwin, Condorcet, and Owen regarding the perfectibility of human society by means of legislation (Bhatia, 2006). Malthus defended his theory partly by logic, partly by facts, but not rigorous by either. In this light, Malthus declared that: “The best lands are taken up first, then the next best, then the inferior, at last the worst; at each stage the amount of food produced is less than before. If existing cultivated land were farmed intensively the same inexorable law will operate and again there will be diminishing return. Consequently, it would be impossible to maintain expansion of food production to keep pace with increasing population” (Hanson, 1977). The idea behind the Malthusian Population theory can be depicted in the diagram below.

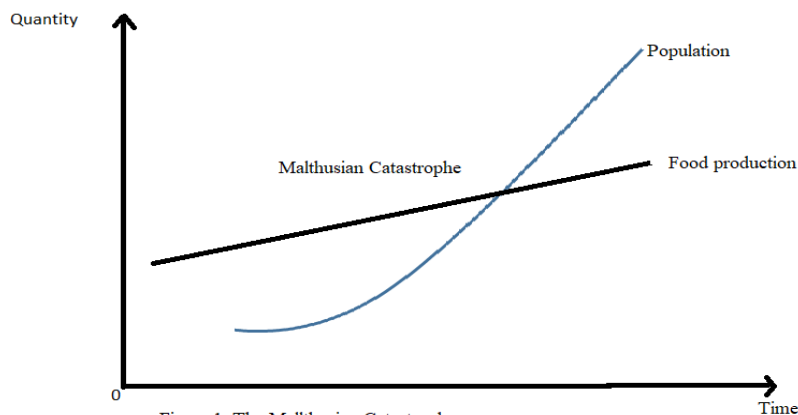


Figure 1: The Malthusian Catastrophe

From the figure 1 above, the Malthusian population predict that population grows in an arithmetic progression such as 1, 2, 3, ... while food production grows in a geometric progression such as 2, 4, 8, 16, 32, ... It therefore follows that population can grow beyond the means of subsistence and this result in what is known as the Malthusian Catastrophe. Also, the fundamental assumption of Malthus based on his experience of time, is that human beings are like plant and non - rational animals – have the instinct and urge to reproduce. Therefore, without a check, human beings would grow to an ‘incalculable’



number to fill the world in few thousand years (Weeks, 2002). Similar to this, Boserup (1965) was of the view that, even though people don't usually take the effect of population growth on the development of an economy serious, increase in the population requires a proportionate increase in food production, means of subsistence, natural resources and even living area. Population, according to Malthus if not checked by some preventive (sterility, abstinence, birth control) or positive (famine, plague, war, starvation) ways doubles exponentially at every quarter of a century exceeding the growth of food production (Malthus, 1798). Malthus argued that, the best form of population control is the moral restraint which meant late marriage, remaining chaste for the meantime – the only option to save people and their communities from “rags and squalid poverty” (Ewugi and Yakubu, 2012). In other words, poverty was an inevitable result of rapid population growth. Although, he was not unaware of improved farming methods, the opening up of new lands in places like USA, New Zealand, Austria, South Africa, and improvement in transportation which eased international trade as possibilities of large output to the expanding population, he however argued that these improvements were “merely to postpone the evil day”, (Hanson, 1977). According to Todaro and Smith (2009), human population has tremendously grown over the years. At the beginning of Christianity, the world population was about 250 million. From 1 A.D. to 1750, it increased to 750 million (three times the number that exists at the beginning of Christianity). And, from 1750 – 1950 - in 200 years, the world population increased by double.

But in just four decades thereafter, (i.e. 1950 – 1990) it increased to more than double, bringing the figure to 5.3 billion. The world entered the 21st century with over 6 billion people. In a clear term, the poor with a lower means of subsistence is observed in the Nigeria society as being the once with the highest number of children. Interactions with people in the society brings out a clear reason for this. The poor believed that by having many children, by sheer luck one or two of them will become rich and lift the family out of poverty. This is a quite strange belief as such families are often characterised by malnutrition, lack of medical facilities, poor educational attainment, and possibly a high degree of dependence. No wonder Malthus posit that only the wealthy and moral upper class people would show restraints. So, if everyone's wealth and income increased through reforms that had the effect of wealth or income redistribution, the majority of the people, especially the lower class, would respond by having more children causing the majority of people to return again to the subsistence level of living. Therefore, because any policy that favoured or helped the lower working class resulted in a redistribution of wealth and income that merely had the effect to increase the number of poor, Malthus opposed any such policy. It is worthy to note that,

“for the more advanced industrialised countries, Malthusian pressures are not a problem today. However, for many poor countries, where people subsist on what they grow for themselves, the tendency for the growth in population to outstrip the growth in the food supply makes Malthusian pressures a current threat (Lipsey and Chrystal, 2004).”



This theory is, however, not limited to criticisms. Such include the following: Improvement in technology which has enhanced increased food production at geometric ratio. Improvements in contraception that permit sex without necessarily producing children. Establishment of peace as a result of improved governments and their security mechanisms which have relatively checked or hindered communal and tribal conflicts. In conclusion, Malthus made a significant influence in linking population growth with the means of subsistence and therefore reveal the fact that positive and preventive checks can come to fruition when population grows beyond the means of subsistence so as to create a balance in the society.

PREVALENCE OF THE THEORY IN THE NIGERIA SOCIETY

This study basically look at how the theory is relevant in Nigeria by considering some of the predictions made by Malthus. Such include the positive checks (war, disease, famine, starvation) and preventive checks (sterility, abstinence, birth control).

MALTHUS ON POSITIVE CHECKS AND THE NIGERIA SOCIETY

In this sub-section, the prevalence of conflicts, diseases and starvation are captured. Conflict in Nigeria can be captured in the North East, North Central, and South-South region of the country. Capturing the idea of Locke into this analysis,

“Locke maintained that if there arises any conflict between man and man, it is on account of the niggardliness of nature. Nature does not provide enough resources needed by man and this causes a conflict between human beings. This conflict, therefore, is not the result of wickedness of man and the ‘state of nature’ is essentially good. The state should therefore step in to help the society in overcoming the scarcity which is the basic causes of all conflicts (Bhatia, 2007, p.73).

From the above extract, scarcity is seen to be a key cause of conflict and it is seen as a natural happening. Thus, scarcity of food (famine) can be a cause of conflict and this was anticipated by Malthus. Conflict, if not controlled, can result in loss of lives and properties. The loss in lives checks the population size of such an area in line with the prediction of Malthus. Conflict was higher in 2016 than in 2010 in each of the three zones. A report by World Bank and National Bureau of Statistics (2018) shows that households in North East Nigeria are the most exposed to all types of conflict events ranging from terrorism (Boko haram) to intercommunal clashes. Their findings indicate that the average number of victims killed in terrorist activities in Nigeria was much lower prior to Shekau’s Boko Haram. Nigeria registered about 124 terrorist fatalities per year on average in 2006, 2007, and 2008, while 730 fatalities were recorded on average in each of the following five years (2009 to 2013). This represents approximately six-fold increase in the number of deaths from terrorist attacks. The reports also indicate that armed assault, bombing and explosion, and facility/infrastructure damage are the main techniques employed by Boko Haram. Just recently, there have been massive killings in Zamfara state with 150 confirmed dead while in Benue, the number is quite massive (World Bank and National Bureau of Statistics, 2018). As noted by the World Bank and National Bureau of Statistics 2018 report, each of the three geopolitical zones surveyed has a distinct principal cause of conflict.



“ Conflict levels peaked in 2014 in North East Nigeria, but remained relatively high through 2017. From 2010 to 2017, 49% of households in the North East experienced at least one event of conflict or violence against a household member. More than two-thirds of conflict events in North East Nigeria were caused by Boko Haram. Conflict and violence events in North Central Nigeria have remained steady since 2013 to 2016. 25% of households experienced any type of conflict event from 2010 to 2017. More than half of all reported conflict events (55%) were caused by disputes over access to land or resources. 33% of conflict-affected households had at least one member displaced as a result. 34% of the events of conflict in North Central Nigeria were never reported to any authorities. The proportion of households affected by violence in Nigeria’s South - South has risen steadily each year from 2010 to 2016. One-fifth of households (22%) have been directly affected by conflict events or violence since 2010. 87% of conflict events in communities are attributed to criminals, cultists, and individuals. Nearly one-third of conflict-affected households had at least one member who was displaced or migrated (37%). Three quarters of conflict events in South - South Nigeria were reported to authorities” (World Bank and NBS, 2018).

Ethno religious conflicts were also reported by Onwioduokit and Effiong (2018) as being pronounced in several parts of the country including the Fulani herdsmen guerrilla styled attacks in Plateau, Benue, Taraba, and even Delta state as well as the Hausa-Fulani against the northern minorities in most of the northern states. All these conflicts result to loss of lives thus, cutting down the population size of the country. In terms of diseases, HIV/AIDS have been noted as one of the positive checks on the population of Nigeria. In the North Central zone, prevalence of HIV among adults age 15 – 64 years was 2.1%, 2.8% among females and 1.4% among males. HIV prevalence was the highest among females age 35-39 years at 5.6% and the highest among males age 50-54 years at 4.4%. The HIV prevalence gender disparity between females and males was greatest among younger adults, with females age 20-24 years (1.3%) having slightly more than 10 times the prevalence of males in the same age group (0.1) (NAISS, 2019). Among adults age 15-64 years, HIV prevalence varied by state across North Central Zone, ranging from 5.3% in Benue State to 0.7% in Niger State as shown in table 1 below.

Table 1: HIV/AIDS Prevalence in States in the North Central Zone

States	HIV Prevalence (%)
Benue	5.3
Nasarawa	2
FCT	1.6
Plateau	1.6
Kwara	1
Kogi	0.9
Niger	0.7

Source: NAISS, 2019.

In the North East, HIV prevalence was the highest among females age 40-44 and 50-54 years at 2.5%, and the highest among males age 35-39 years at 2.2%. The HIV prevalence gender disparity between females and males was greatest among younger adults, with



females age 55-59 years (2.0%) having 5 times the prevalence of males in the same age group (0.4%) (NAIIS, 2019). Among adults age 15-64 years, HIV prevalence varied by state across North East Zone, ranging from 2.9 % in Taraba State to 0.4% in Yobe State. This is depicted in table 2 below.

Table 2: HIV/AIDS Prevalence in States in the North East Zone

States	HIV Prevalence (%)
Gombe	2.9
Taraba	1.3
Bauchi	1.2
Adamawa	1.2
Borno	0.5
Yobe	0.4

Source: NAISS, 2019.

For the South - South zone, prevalence of HIV among adults age 15 – 64 years was 3.1%, 3.9% among females and 2.2% among males. HIV prevalence was the highest among females age 35-39 years at 5.8%, and the highest among males age 50-54 years at 4.7%. The HIV prevalence gender disparity between females and males was greatest among younger adults, with females age 20-24 years (3.9%) having slightly less than 4 times the prevalence of males in the same age group (1.2%) (NAIIS, 2019). Among adults age 15-64 years, HIV prevalence varied by state across South – South Zone, ranging from 5.5% in Akwa Ibom State to 1.9% in Bayelsa, Delta, and Edo State. As shown in table 3 below.

Table 3: HIV/AIDS Prevalence in the South – South Zone

States	HIV Prevalence (%)
Akwa Ibom	5.5
Rivers	3.8
Cross River	2.0
Bayelsa	1.9
Delta	1.9
Edo	1.9

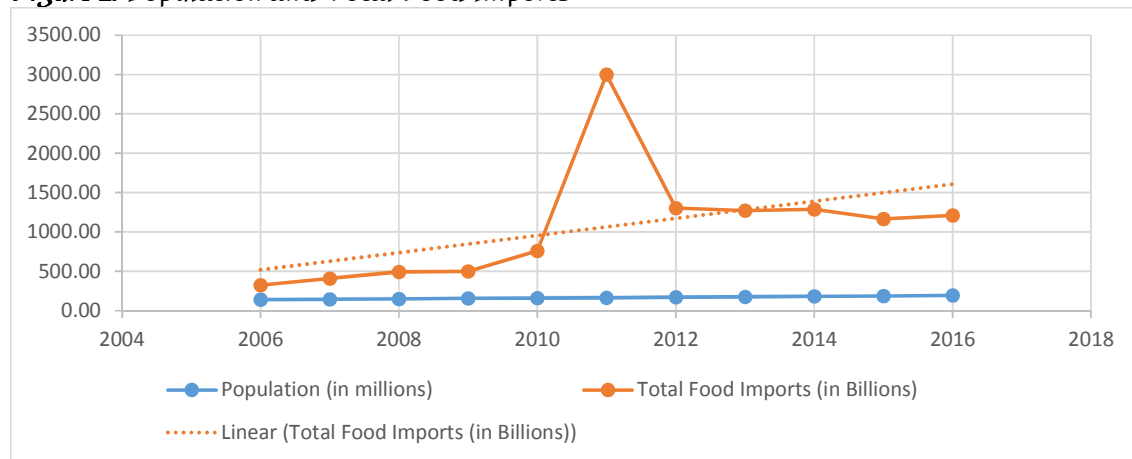
Source: NAISS, 2019.

As captured by the study, the prevalence of HIV among adults age 15-64 years in the South – East was 1.9%, 2.2% among females and 1.5% among males. Prevalence of HIV among adults age 15-64 years was 0.6%, 0.7% among females and 0.4% among males. Prevalence of viral load suppression (VLS) among people living with HIV (PLHIV) age 15-64 years in North West Zone was 44.4%, 42.3% among females and 48.4% among males (NAIIS, 2019). From the fore going discussions of the statistics, one thing that should come in to mind is that HIV/AIDS is still a big threat to the Nigeria society of which Umo (2012) considered it to be not merely a health problem, but a developmental one as well. This disease has so far caused a lot of death in the country hence, reducing the population size. As a country with the highest population in Africa, coming from the angle of the



Malthusian population theory could mean that this disease is drastically reducing the population size so as to support the means of subsistence. Other diseases are not left out. There has been outbreak of diseases in the country and people in the country have been dying of various epidemics such as bird flu and Ebola. The 2014 Ebola virus disease (EVD) outbreak remains unprecedented both in the number of cases, deaths and geographic scope. The first case of EVD was confirmed in Lagos Nigeria on 23 July 2014 and spread to involve 19 laboratory-confirmed EVD cases. The EVD cases were not limited to Lagos State as Rivers State recorded 2 confirmed cases of EVD with 1 out of the 2 dying. Swift implementation of public health measures was sufficient to forestall a country-wide spread of this dreaded disease (BMC Public Health, 2017). The 2014 Ebola outbreak in Nigeria was effectively controlled using the incident management approach with massive support provided by the private sector and international community. Eight of the confirmed cases of EVD in Nigeria eventually died (case fatality rate of 42.1%) and twelve were nursed back to good health. On October 20, 2014 Nigeria was declared free of EVD by the World Health Organization. The Nigerian EVD experience provides valuable insights to guide reforms of African health systems in preparation for future infectious diseases outbreaks (BMC Public Health, 2017). Poverty and hunger has belittled a large chunk of the population so far. Poverty has been a serious problem in the country as domestic poverty index increased from 42.7 affecting 37.9 million of the population in 1992 to 60.9 affecting 101.7 million of the population; the international poverty index was put at 70.2 Affecting 62.5 million of the population in 2000 but increased to 70.8 affecting 154.6 million people in 2011 (Umo, 2012). In terms of food supply, it can be noted that Nigeria is still importing food items from other countries so as to support the available ones. Evidence of this can be presented in the figure 2 below.

Figure 2: Population and Total Food Imports



($r = 0.46$)

From figure 2 above, increase in population with a domestic food supply not being sufficient have to be matched with food importation so as to do away with hunger, malnutrition and starvation which were predicted by Malthus. The correlation coefficient of 0.46 shows that there is a fairly positive relationship between population and food importation.



Table 4: Population, Total Food Imports and Population Growth

Years	Population (in millions)	Total food Imports (in Billions)	population growth rates
2006	140.43	323.29	3.25
2007	145	406.84	3.25
2008	149.71	493.03	3.25
2009	154.58	498.4	3.25
2010	159.61	759.18	3.25
2011	164.8	2999	3.25
2012	170.16	1302.3	3.25
2013	175.69	1272.5	3.25
2014	181.4	1288.7	3.25
2015	187.3	1165.5	3.25
2016	193.39	1212	3.25

Source: CBN Statistical Bulletin, 2017.

Following table 4 above, it is observed that the population of the country grows by 3.25%. This is not in line with one of the ideas of Malthus that population grows in a geometric progression.

MALTHUS ON PREVENTIVE CHECKS AND THE NIGERIA SOCIETY

Malthus predicted that several preventive checks will come into force when population grows beyond the means of subsistence. Such include sterility, birth control and abstinence. These areas are therefore investigated as it relates to the Nigeria situation. Starting with contraceptive methods which are classified as modern or traditional methods modern methods include female sterilisation, male sterilisation, the pill, the intrauterine device (IUD), injectables, implants, male condoms, female condoms, the diaphragm, foam/jelly, the lactational amenorrhoea method (LAM), and emergency contraception while traditional methods include the rhythm (periodic abstinence) and withdrawal methods. Others include folk methods such as strings and herbs (NDHS, 2013). According to NDHS (2013) report, knowledge of any contraceptive method is widespread in Nigeria, with 85% of all women and 95% of all men knowing at least one method of contraception. Modern methods are more widely known than traditional methods; 84% of all women know of a modern method, while only 56% know a traditional method. Similarly, 94% of all men know of a modern method, while 65% know of a traditional method. The modern method most commonly known among women is the pill (71%), followed by injectables and male condoms (68% and 67%, respectively). Although the least known modern methods are male sterilization, female condoms, and implants (16%, 29%, and 25%, respectively), knowledge of these three methods has increased markedly since 2008 since the proportions were 8%, 15% and 10%, respectively as at then (NHDS, 2008). The 2013 NHDS also reported that currently, married women are less likely than sexually active unmarried women to know of a contraceptive method (85% and 98%, respectively). Among traditional methods, withdrawal and rhythm are the most commonly known (45% and 41%, respectively) among



women. Overall, women know a mean of 5.6 contraceptive methods. The most commonly known modern method among men is the male condom (91%). Similar to women, withdrawal is the most commonly known traditional method among men (59%). Knowledge of the rhythm method is similar for men and women (42% and 41%, respectively). The study further reported that variations in contraceptive knowledge by background characteristics are greater for women than men. Younger women (age 15-19) and women living in the North East are least likely to know of a contraceptive method (67% and 73%, respectively). Knowledge of contraceptive methods is higher among women living in urban areas (95%) than among those living in rural areas (78%) while among the states, knowledge of contraceptive methods is lowest for women in Niger (56%) and in Kebbi (51%); similarly, knowledge of contraceptive methods is lowest among women with no education and those in the lowest wealth quintile (72% and 67%, respectively); among men, there are only small differences in knowledge of any contraceptive method by age group, but the differentials are greater by place of residence, zone, educational level, and wealth quintile (NHDS, 2013).

The report presents information on the prevalence of current contraceptive use among women age 15 – 49. Overall, 15 percent of currently married women in Nigeria are using a contraceptive method, an increase of only 2 percentage points since the 2003 NDHS. Most of these contraceptive users rely on a modern method (10%); 5% use traditional methods. Injectables (3%), male condoms (2%), and the pill (2%) are the most commonly used modern methods (NHDS, 2013). Other modern methods are used by 1% of women or less. Interestingly, 3% of currently married women use withdrawal as a method of contraception. The use of contraceptive methods among currently married women increases with age from 2% among women age 15-19 to 22% among women age 40-44, after which it falls to 13% among women age 45-49. The overall contraceptive prevalence among women in Nigeria is 16% (NHDS, 2013). The use of any family planning method increases with age from 6% among women age 15-19 to 21% among women age 35-39, after which it declines to 12% among women age 45-49. Most women currently using contraception use a modern method (11%), while 5% use traditional methods. The male condom is the most commonly used modern method (5%), followed by injectables and pills (3% and 2%, respectively), while female sterilisation and implants are the least used modern methods (less than 1% each). Among the traditional methods, the rhythm method and withdrawal are the most commonly used (2% each).

CONCLUSION AND RECOMMENDATIONS

The problem of population on the Nigeria society is much more than the food problems enunciated by Malthus. Some of these consequences are congestion, high dependency ratio and mounting social problems, emigration, higher unemployment and/or underemployment, inequality including the current acts of insurgency and terrorism. Thus appropriate measures should be taken to curb this growing menace which may become endemic in the Nigerian society resulting in pervasive poverty, and presages danger to sustainable development. As predicted by Malthus, both the preventive and positive checks are well pronounced in Nigeria, such including conflicts, starvation, diseases, and birth control. It is recommended that a well – managed population expansion will ensure that both the



population and the society are complementing each other without concerns that population expansion will lead our society to famines and lack of other socio economic facilities since it is the inadequate government policies, rather than population growth which are responsible for the woes including, poverty and unemployment that besiege the nation. Improvement of the social/human welfare of the people and population related policies to promote growth in national output as population increases should also be considered. Such policies include food subsidizing, employment generation, and public health provision. Nigeria should establish policies to influence the rate of growth of their population and to adopt politically and ethically. Also, family planning exercises should be encouraged by the government to help curb increasing fertility rate in Nigeria. Furthermore, a high mortality rate has crucial consequences on the development of the Nigerian society. Thus, the continuous benefits of western modernization in terms of improved health care services should be made available to the populace. Constitutionally, Nigeria should follow the step of China by legalising the number of children one should have as well as promoting monogamy. However, rarely is this binding duty carried out by most Nigerians. The government should therefore embark on enlightening campaigns to intimate the populace on the dangers of over population and the need to have healthy family that can be adequately catered for. Efforts should also be made in checking the cost of the birth control measures. For instance, there have been an upsurge in the price of male condoms from ₦30 as at 2009 to ₦100 in 2019. Regulating such price from skyrocketing is crucial in ensuring that people afford this avenue as it is seen to be the most convenient.

REFERENCES

- Adewole, A. O. (2012). Effect of Population on Economic Development in Nigeria: A Quantitative Assessment. *International Journal of Physical and Social Sciences*, Volume 2, Issue 5.
- Bhatia, H. L. (2007). *History of Economic Thought* (fourth revised edition). New Delhi: Vikas Publishing House PVT LTD.
- Bhatia, H. L. (2006). *History of Economic Thought*. New Delhi, India: VRINDA Publications Ltd.
- Bloom, D. E., and Freeman R. E. (1998). Economic Development and the Timing and Components of Population Growth. *Journal of Policy Modelling*, 10(1), 57–81.
- Bloom, D. E., and Freeman, R. (1986). The Effects of Rapid Population Growth on Labour Supply and Employment in Developing Countries. *Population and Development Review*, pp. 381–414.
- BMC Public Health, 2017 Report.
- Boserup, E. (1965). *The Conditions of Agricultural Growth: The Economics of Agrarian Change under Population Pressure*. London.
- Bucci, A. (2003). *Population Growth in a Model of Economic Growth with Human Capital Accumulation and Horizontal R&D*. Milan: University of Milan.
- Central Bank of Nigeria Statistical Bulletin, 2017.
- Dao, M. Q. (2012). Population and Economic Growth in Developing Countries. *International Journal of Academic Research in Business and Social Sciences*, Vol. 2, No. 1.



- Ewugji, M. S., and Yakubu, I. (2012). Malthusian Population theory and the Nigerian Economy: A Political Economy Approach. *International Journal of Human Resource Studies*, Vol. 2, No. 4.
- Hanson, J. L. (1971). *A Textbook of Economics (5th edition)*. London: MacDonal and Evans.
- Jhingan, M. L. (2005). *The Economic Development and Planning (38th Edition)*. New Delhi, India: Vrinda Publications.
- Joseph, O., Simeon, A. O., Samuel, O., and John, A. (2015). An Empirical Investigation of Malthusian Population Theory in Nigeria. *Journal of Emerging Trends in Economics and Management Sciences (JETEMS)*, 6(8), pp. 367-375.
- Kelley, A. C. (1988). *Population Matters - Demographic Change, Economic Growth, and Poverty in the Developing World*. New York: Oxford University Press.
- Klasen, S. And Lausen, D. (2007). The impact of Population Growth on Economic Growth and Poverty Reduction in Uganda. *Diskussionsbeiträge aus dem Volkswirtschaftlichen Seminar der Universität Göttingen*, No. 133.
- Lipsey, R. G. and Chrystal, K. A. (2004). *Economics (Tenth edition)*. New York: Oxford University Press Inc.
- Malthus, T. R. (1798). *An Essay on the Principles of Population*. Cambridge: Cambridge University Press.
- Mankiw, G., Roemer, D., and Weil, P. (1992). A Contribution to the Empirics of Economic Growth. *Quarterly Journal of Economics*.
- NAIIS, (2019). Nigeria HIV/AIDS Indicators and Impact Survey.
- NDHS, (2008). Nigerian Demographic and Health Survey. Web site: www.population.gov.ng
- NDHS, (2013). Nigerian Demographic and Health Survey. Web site: www.population.gov.ng
- Onwioduokit, E. A. and Effiong, E. E. (2018). Federalism and the Challenge of Nation Building. A Paper Presented at Faculty of Social Science 2nd International Conference, University of Uyo.
- Oramah, I. T. (2006). The Effect of Population Growth in Nigeria. *Journal of Applied Sciences*.
- Study Committee of the Office of the Foreign Secretary National Academy of Science (SCOFNAS) (1972) Report.
- Simon, J. L. (1977). *The Economics of Population Growth*. Princeton, New Jersey: Princeton University Press.
- Thirlwal, A. P. (1993). *Growth and Development with Special Reference to Developing Economies (5th Edition)*. Canterbury: University of Kent, Pp. 143-155.
- Thuku, G.K.; Gachanja, P.; and Almadi, O (2013). The Impact of Population Change on Economic Growth in Kenya. *International Journal of Economics and Management Science*, Vol. 2 No. 6, pp. 43-60.
- Todaro, M. P and Smith, C. S. (2009). *Economic Development*, (10th edition). Patpargaj, India: Pearson Educational.
- Umo, J. U. (2012). *Escaping Poverty in Africa: A Perspective on Strategic Agenda for Africa*. Lagos, Nigeria: Millennium Text Publishers Limited.



- Weeks J. R. (2002). *Population: An Introduction to Concepts and Issues* (5th Edition). USA: Wadsworth Group.
- World Bank and National Bureau of Statistics (2018). *Conflict and Violence in Nigeria: Results from the North East, North Central, and South South Zones. A Preliminary Draft Report.*