Malthouse



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Introduction to demography and population studies

- Ezebunwa E. Nwokocha

Introduction

Perhaps at no other time in history than now is the study of population more crucial. The world population has hit the seven billion mark, and counting, despite the depletion of human communities through HIV/AIDS, high maternal and infant mortality rate and conflicts in its several manifestations, particularly in Africa (Population Reference Bureau 2012; Nwokocha, E.E. 2012a; Isiugo-Abanihe and Nwokocha 2008)). The contradiction wherein high mortality-regime is occasioned by increasing population suggests some in-built mechanism sustaining the fertility momentum that readily diffuses the effects of mortality and emigration. Understanding changes in population is essential for effective planning, allocation of resources, determining population trends and making informed projections into the future.

Yet, demography and population studies as a sub-discipline of sociology is either less emphasized or not part of the curricula of most universities in Nigeria. This indifference towards the discipline is partly due to the conception of population, in some parts of Africa, as synonymous with fertility, which should not be discussed in order not to violate the transcendental connotation of divine providence related to child bearing. Indeed, it is quite difficult to state the precise date on which the formal study of population began, but as Kammeyer and Ginn (1986:21) noted, the interest in population issues generally is timeless:

It is fairly safe to guess that concerns about population and population size predate historical time by hundreds of thousands of years. As soon as early humans began to identify with their groups, tribes, or bands, they probably started to have some concerns about the size and the future existence of the group.

The early Chinese, Greeks and Romans attempted to understand the causes of population growth or decline and its influence on society largely in terms of the desired values. Thus initial approach of investigating population situation was crude and devoid of validity and reliability. The scientific study of population was embraced by seventeenth century scholars such as John Graunt and William Petty. Graunt for instance took weekly reports of all deaths, arising from plagues, from churches in London, number of births and the statistics of houses in England's capital for estimates and projections (Kammeyer and Ginn 1986). With that came a paradigm shift from unpredictability to predictability, haphazardness to development planning.

For the most part, the standard of living among individuals in society is an index of its level of development. Thus, knowledge of population issues related to size and characteristics is important for adequate adjustment and re-adjustments that ought to take cognizance of the resources available in the community in order to ensure socioeconomic stability. It, therefore, means that collecting accurate data is essential in achieving this. Although, the connection between reliable data and planning is well established, most states in less industrialized parts of the world for ethno-cultural, religious, political and socio-economic reasons undermine consistency of such data. We note that information that is either suppressed or does not reflect the reality of the context is almost as bad as information that does not exist.

To be sure, introducing a prospective population scientist to the field of demography and population studies will enable him/her appreciate the forces and dilemma that drive development and underdevelopment respectively. She or he would likely quickly identify the pathways to contributing to the advancement of society on one hand, and interventions that disentangle the contradictions of underdevelopment on the other. Either way, population studies exposes individuals to a whole range of insights necessary for development.

Basic concepts in population studies

This section examines five basic concepts in population studies. These include *demography, population studies, fertility, mortality* and *migration*.

Demography

Demography is defined as the scientific study of human population with respect to size, structure and composition. Within this definition lie issues that require clarifications. For instance, it is not sufficient to ascribe the scientific status to a discipline or sub-discipline unless it employs the scientific methods of experimentation, observation and fieldwork. It must emphasize the positivistic outlook embedded in empiricism and discoverability. Achieving these scientific virtues that abhor conjecture, intuition and introspection require focus on the modus operandi for social scientists described by Isiugo-Abanihe (2000) as the norms of the scientific community. These norms are *universality, disinterestedness, organized scepticism, communality* and *honesty.*

The universality of the demographic science implies that given the same conditions, the data collecting demographer will generate similar results irrespective of the location of study. As a corollary, a trained demographer is not limited by space but should have the ability to adjust effectively to different contexts without compromising the quality of information to be collected. To be disinterested in what becomes of the data collected for population analysis is to be steadfast and unbiased. In that case, the data collector neither manipulates the data to be/or already collected nor the persons from whom these data are to be elicited. She or he is not interested in who becomes the respondent or participant and whether or not data affect 'significant others' negatively. Rather, a sustained interest in ensuring validity and reliability of data must be a constant concern among fieldworkers notwithstanding misgivings, personal convictions and bias.

The temptation among scientists to shout 'eureka!' or 'I have discovered' is great, especially due to the recognition and respect accorded ground-breaking discovery in the scientific circles. However, demographers like other scientists are expected to withhold approval until a claim to discovery has been thoroughly scrutinised and accepted as valid. Before such scrutiny, practitioners of science should be sceptical or ambivalent in responding to the claim simply by a gentle response 'Really?' In the latter sense, the scrutinizer is supposedly open to the possibility of either confirming the claim or discrediting it without apologies. The norm on communalism suggests that a scientific discovery is a public good to be communicated to members of the community through various means including publications, conferences, symposia, workshops among others. The idea is to discourage seclusion, insulation, mischief and falsity. Moreover, without experience-sharing among researchers, the tendency to unwittingly re-invent the-will will be high with almost no further contributions to knowledge. It is also inviolable to be honest in the course of scientific enterprise. Honesty is required from the point of conceptualization, instrument-design, data collection, analysis and report writing.

Other important elements in the definition of demography are size, structure and composition. Population size refers to the specific number of people in a given state like Nigeria estimated to comprise 170 million people (Population Reference Bureau 2012). Structure of population is mainly in terms of whether a population is young or aged/aging. For instance, the 2006 Nigerian population census shows that about 42 per cent of the total population are children age 0-14; and more than half of all Nigerians (52.4%) is age 0-19 years. The figure rises to over 60 per cent with the extension of the age to 0-24 years (Isiugo-Abanihe, 2011). Population composition involves variables like age, sex, marital status, education, occupation, religion and place of residence among others that mainly act as independent variables in demographic research.

Population studies

The focus on population size, structure and composition indicates the inexhaustiveness of demography in understanding the complex population issues in relevant communities. Moving beyond such basic tripartite analytical description of population features requires a deeper inquiry and explanation of why and how identifiable characteristics are what they are in a given setting or in comparison to other groups. For instance, instead of limiting an inquiry on population size at the numbers say 170, 80 and 40 million for Nigeria, Ethiopia and South Africa respectively, a population scientist will rather be further interested in investigating the reasons for these variations. The same approach goes for understanding the differences among states in a country or local government councils within states. These reasons may be related to cultural beliefs and practices, socio-economic, religious, political and technological factors among others. A study by Isiugo-Abanihe and Nwokocha (2008) among the Mbaise-Igbo, for instance, found that the *Ewu-Ukwu* custom, which requires a prospective woman-inductee into their perceived privileged group to have experienced at least ten pregnancies, was the single most important factor responsible for high fertility in the area. Similar research is necessary in explaining the structure and composition of populations.

Does it then mean that population studies is more important than demography? No. It is rather appropriate to conceive of the two aspects of population knowledge as complementary, as a part will present only an incomplete view of reality. Most times, demography precedes population studies that, in turn, rides on the results of the former as the basis of investigation. Indeed, a combination of these two components contributes to a holistic understanding of the sub-discipline.

Fertility

Fertility is probably the most misunderstood concept among the three components of population dynamics. The misunderstanding may be a function of the controversies surrounding the definition of the term and the cultural conception of high or low fertility among different people. More than that, in everyday usage, several individuals conceive of fertility as the capacity to bear a child. However, a woman that is medically certified as biologically or physiologically able to conceive a foetus is said to be Fecund – not fertile. Demographically speaking, fertility is the actual reproductive performance of a woman or a population – the number of live-births. Thus, stillbirths and miscarriages are not inclusive in the definition. This definition also situates the concept exclusively within the domain of feminity.

Attempts at expanding the meaning of fertility beyond its traditional conception have since been made to include men, as literature now recognises both primary and secondary infertility in both sexes (Adegbola 2007). To be sure, this extension focused on biological capability and incapability to impregnate or conceive among men or women respectively for which some forms of treatment were sought (Adegbola 2007). While we are persuaded to accept the physiological conceptualizations that include men, they are only related to fecundity or infecundity (Kammeyer and Ginn 1986). The position of this chapter, however, is that the traditional definition that feminizes fertility is most appropriate for proper understanding of the concept.

Determinants of fertility

The determinants of fertility are relative to peoples and cultures and times in human history. However, we adopt John Bongaarts' 1978 proximate determinants of fertility thesis, which identified eight variables, as frame of reference. In what follows, we present the factors.

a). Proportion of married people – the assumption here is that couples in stable relationships engage in frequent sexual intercourse that likely result in pregnancies unless deliberate attempts are made to avoid conception. In other words, avoidance of coitus or infrequent intercourse may undermine conception. This factor also assumes that non-married people including never-married, co-habiting, separated, divorced, widowed among other persons do not engage in regular coital activities. We note that in some circumstances, individuals in other marital status categories engage in more sexual intercourse than the manifestly married. With respect to adolescents and young people, Munthali and Zulu (2007) observed that exposure to out-of-wedlock sex has been on the increase and has accounted for high incidence of HIV in communities. Nwokocha's (2012b) study on youth culture using seven African countries and India

corroborates high premarital sexual activities and low median age at sexual debut, especially among females.

b). *Contraception* – described by Bongaarts as any deliberate attempt including abstinence and sterilization to reduce the vulnerability to conception. Thus, any calculated practice that distorts the course of natural fertility is considered contraception. We identify two types of contraception – the natural and artificial. The natural methods include abstinence, billings and calendar rhythm (Centres for Disease Control and Prevention 2000). The artificial methods include condoms, oral contraceptives, injectables, norplant implant, female sterilization, vasectomy, intrauterine devices (IUDs), lactational amenorrhea method (LAM), spermicides, diaphragm among others (Hatcher, Rinehart, Blackburn, Geller & Shelton 2001; CDC 2000). According to the Population Reference Bureau (2012), the percentage of women using all methods of contraception in selected countries include Nigeria 15, Ghana 24, Niger 11, Cape Verde 61, South Africa 60, Afghanistan 23, USA 79, Canada 74, UK 84, Portugal 87, Malta 86 and China 85 among others.

c). Induced abortion – implies any deliberate act that interrupts the normal course of gestation mostly undertaken due to unintended and unwanted pregnancy experiences (Cu Le, Magnani, Rice, Speizer and Bertrand 2004). Yearly, an estimated 46 million women engage in induced abortion globally, with over 78 per cent of the cases taking place in less developed societies. Most of these abortions are carried out by quacks in unhygienic conditions (Nwokocha, Obono & Adedimeji 2007; Benson 2005; WHO 2004; Ahman & Shah 2002).

d). Lactational infecundability – before the normalization of ovulation and menstruation following a pregnancy a woman will remain infecundable and unable to conceive. The length of infecundity depends on duration and intensity of breastfeeding (Arkutu 1995; Bongaarts 1978).

e). Frequency of intercourse – the rate of sexual intercourse is strongly related to the risk of pregnancy. Hence, temporary separation from spouses due to circumstances like illness, official employment-related transfers and displacements resulting from civil unrests and natural disasters such as earthquakes, landslides, famine among others impinge on the frequency of intercourse.

f). *Sterility* – normally, women are sterile before the onset of menstruation as well as after menopause. In some cases, however, sterility may occur before menopause for reasons not associated with contraceptive-related sterilization.

g). *Spontaneous intrauterine mortality* – not all pregnancies end in live births. Some result in a spontaneous abortion or stillbirth.

h). Duration of the fecund period – ovulation takes place for approximately two days within the menstrual cycle. A woman is able to conceive only within this short period of time when both the sperm and ovum are viable (Arkutu 1995). Outside this period, conception does not take place; therefore, a couple intending to bear a child must recognize the importance of engaging in coitus at this appropriate time which requires some measure of awareness to ascertain (McSweene 2006; Arkutu 1995).

Apart from these direct factors, socio-cultural variables such as poverty, level of awareness of family planning methods, nutrition, access and use of maternal health facilities, cultural beliefs and practices, low status of women among others contribute significantly in determining fertility in relevant contexts (Nwokocha *et al.* 2007).

Fertility concepts and measures

We now highlight some fertility concepts and their measurements. The concepts include crude birth rate (CBR), general fertility rate (GFR), age specific fertility rate (ASFR), total fertility rate (TFR), gross reproduction rate (GRR), and net reproduction rate (NRR).

Crude birth rate (CBR) is the number of births per thousand in the population. This rate is obtained by dividing the number of births in the population at a given time of the year by the total population at that period (Newman & Matzke 1984):

CBR= <u>Total live-births during a given period</u> x K Total mid-year population

The CBR does not consider specific characterizations within a population. It is considered crude due to the emphasis on lumping of all aspects of birth together. Such non-disaggregated measure indicates limitations in understanding variations that could lead to important insights into the population situation of a community.

General fertility rate (GFR) is measured by the number of live-births per thousand women divided by the number of females age 15-49:

GFR= <u>Total live-births during a given period</u> x K Total number of females age 15-49

It is a more refined measure than the CBR because it relates births to an agespecific group with a likelihood of giving birth. Thus, it is more indicative of changes in behaviour than the CBR

Age specific fertility rate (ASFR) is a relatively refined measure of birth rate. It deals with the number of live-births among females of definite age groups in a given year divided by the total number of females in the same age category per thousand:

ASFR = Total live-births to females age 25-29 at a given period x KTotal number of females age 25-29

Total fertility rate (TFR) is the summation of age specific fertility rates of women in all age specific cohorts. It is the number of live-births per 1000 women would have if they experience a given set of ASFR during their reproductive period (Bongaarts 1978). According to the Population Reference Bureau (2012) the TFR for selected countries in 2012 include: Nigeria 5.6, Ghana 4.2, Niger 7.1, Cape Verde 2.5, South Africa 2.4, Afghanistan 6.2, USA 1.9, Canada 1.7, U.K 2.0, China 1.5, Taiwan 1.1, among others.

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Gross reproduction rate (GRR) relates to female births only. It measures the total number of girls that a group of women will have. Thus, it deals with the number of daughters expected to be born to 1000 females during their reproductive years. According to Jhingan *et al* (2006) GRR is calculated thus:

GRR= <u>No of female births</u> x Total Fertility Rate Total number of births

Net reproduction rate (NRR) measures the number of girls that a category of newly born daughters will bear during their lifetime. It is calculated by dividing the number of girls expected to be born to 1000 newly born daughters over the same figure,1000:

NRR= No. of females expected to be born to 1000 newly born girls

1000

The limitation of NRR is its unrealistic assumption that both birth and death rates will remain constant within a generation. Thus, some scholars have argued that it should not be used for projections into future population dynamics (Jhingan *et al* 2006).

Mortality

Simply stated, mortality which is an important element of population dynamics is defined as the occurrence of death in a population. Although the rate at which people die in different places is not the same, mortality is a common feature of all societies irrespective of the level of development. Three causes of death are easily identifiable: degeneration, diseases and death arising from socio-economic activities. However, we have included maternal and infant mortality in this analysis due to the very high rate of its occurrence not only in sub-Saharan Africa but also Nigeria.

Degeneration

Refers to death resulting from deterioration of the biological system. As people get older, their body organs become weak and continue to depreciate until death. All things being equal, such age-related death not only allows for predictability but also described as natural. Arguably, it is 'the best cause of mortality' compared with others particularly communicable diseases and accidents. Ailments related to age include arthritis, hypertension, diabetes, stroke among others. We note that degeneration although biological is also indirectly determined by socioeconomic and environmental factors given the variations across countries and times. For instance, data indicate that life expectancy for Nigeria in 2005, 2011 and 2012 was 44, 52 and 51 years respectively. At the same time, other countries have different statistics, as shown in the sample table below:

Table Showing Selected Countries by Life Expectancy at Birth in two Successive years

S/n	Country	2011	2012
1.	Hong Kong	80 years	83 years
2.	Spain	82	82
3.	Sweden	82	82

Switzerland	82	82
New Zealand	81	81
Austria	80	80
Belgium	80	80
United Kingdom	80	80
United States	78	79
Ghana	64	64
South Africa	53	54
Nigeria	52	51
Afghanistan	44	49
PRB 2011 & 2012		
	Switzerland New Zealand Austria Belgium United Kingdom United States Ghana South Africa Nigeria Afghanistan PRB 2011 & 2012	Switzerland82New Zealand81Austria80Belgium80United Kingdom80United States78Ghana64South Africa53Nigeria52Afghanistan44PRB 2011 & 201291

Communicable diseases

These include conditions such as chicken-pox, diarrhoea, small-pox, lassa fever, tuberculosis, among others. The contagious nature of these diseases makes them nonage specific as every member of the society is prone or vulnerable to the risk of infection. In severe cases, deaths occur while moderate conditions are successfully treated with adequate medical care. However, most of these infectious diseases can be prevented through awareness campaigns, vaccination, personal and environmental hygiene practices among others.

Deaths as a result of socioeconomic activities

In Nigeria like most countries in sub-Saharan Africa where poverty levels are extreme high, people engage in activities that expose them to avoidable life-threatening vulnerabilities. Hazardous jobs and activities such as commercial motorcycling and commuting, travelling long distances in deserts of North Africa in order to migrate to Europe, travelling in rickety vehicles, drunk-driving and concomitant road accidents, communal conflicts and restiveness, ritual killings, suicides, homicides among others are included in this category.

Maternal and infant mortality

It is estimated that 529,000 women die of maternal related causes each year, with 99 per cent of these deaths occurring in less developed countries, especially sub-Saharan Africa (Nwokocha 2012a; Gipson, Koenig & Hindin 2008). Nigeria alone accounts for 10 per cent of this total (Nwokocha 2007). Some of these deaths needlessly occur and could have been prevented with access to necessary maternal and basic health care services (UNICEF 2009; Sweidan, Mahfoud & Dejong 2008). Similarly, under-five mortality rate is highest in sub-Saharan Africa (Amouzou and Hill 2004), where in 2006 the rate was 160 per 1000 live births, which was more than double of the worldwide rate of 72 per 1000 (UNICEF 2007). Nigeria is thus among the countries that contribute substantially to these infant mortality statistics (Nwokocha & Awomoyi 2009).

Factors affecting mortality

Age: is an important factor affecting mortality. Ordinarily, this variable is related to degeneration discussed earlier under causes of death. However, deterioration of

excessive exposure to certain types of food, cigarette and alcohol among others. Sex: the connection between gender and mortality is well established. Identifiable disparities between males and females are usually related to cultural beliefs and practices that unwittingly expose a group to more dangers than another. Literature, for instance, shows that females live longer than males (PRB 2011; 2012) due largely to stress arising from strenuous activities experienced in pursuit of economic survival of the family. In some instances, women are prevented, by their spouses, from engaging in paid jobs thereby undertaking the entire responsibility of fending for the family. Yet, others due to limited education are not eligible for any type of formal employment. Moreover, females hardly partake in wars, communal clashes and sundry civil unrests. Without maternal mortality which is exclusive to women, the gap in male-female death ratio would have been wider than it is. Data from the Population Reference Bureau for some countries in 2012 show the differences in life expectancy at birth for each of the sexes: Nigeria 48, 54; Ghana 63, 65; Niger 56, 60; Cape Verde 69, 77; Egypt 70, 74; USA 76, 81; Canada 79, 83, UK 78, 82 (PRB 2012). We note that following these examples, women have higher life expectancy than men in the eight instances above.

Social class

Karl Marx identified two competing classes in society – the bourgeoisie and proletariat (Ritzer 2008). This distinction is more visible in some groups than others; in Nigeria for instance, the middle class hardly exists anymore, rather a polar society of rich and poor people (Nwokocha 2012b). The implications of poverty for nutrition, household environment, access and use of health facilities as they relate to mortality cannot be overstated (Nwokocha 2006),

Marital status

Emile Durkheim's study on suicide among different groups in society revealed that lack of integration is the main driving force for suicide (Ritzer 2008; Labinjoh 2002). As a corollary, high level of integration translates to social support, especially in the face of difficulties. Hence, all things being equal, married people are less vulnerable to engaging in suicide given that their frustrations are shared by spouses who are willing to extend hands of assistance, unlike in situations of singleness such as among the never-married, separated, divorced and widowed. The assumption is that singles are alone and that frustrations would likely lead to aggression including suicide, especially for altruistic purposes. We note, however, that there are instances where marriages have led to stress, frustration and aggression as observed by Aderinto, Nwokocha, Bankole and Obemeata (2006). Therefore, any of the statuses could be an indirect cause of death.

Residence

Examined in terms of rural and urban dichotomy, each has potentials to account for deaths. Studies show that rural communities in Nigeria are disproportionately disadvantaged in terms of infrastructures such as electricity, roads, health facilities and

access to portable water among others (Nwokocha 2009; 2012c). Although, these facilities are supposed to mark urban centres out from rural settings, these infrastructures have broken down in most Nigerian cities. Yet, rural to urban migration in Nigeria has remained persistently high. Consequently, these cities are overcrowded, with implications for human and vehicular congestion, high crime rate, pollution, road accidents and high rate of unemployment among others.

Cultural beliefs and practices

Cultural practices such as female genital cutting (FGC), widow-inheritance and body scarification account for vulnerability to HIV/AIDS which remains a major killer in Africa (Aderinto, Erinosho, Nwokocha & Adesanmi 2009). At the centre of African culture is patriarchy that embeds gender inequity exemplified in female subjugation and marginalization. Nwokocha in two separate studies (2007; 2012a) found that male domination in household decision-making processes including on reproductive health is one of the main factors responsible for high incidence of maternal mortality in Nigeria. As Allendorf (2007) noted, women who partake in decision-making, resource control among others have higher capacities at using health care and family planning services, taking care of their children and engaging in healthier practices generally.

Mortality concepts and measures

We have selected some mortality concepts and their measurements for no specific reasons. They include crude death rate (CDR), age specific death rate (ASDR), cause specific death rate (CSDR), infant mortality rate (IMR) and maternal mortality rate (MMR).

Crude death rate (CDR)

This is the number of deaths per thousand in the population. This rate is obtained by dividing the number of deaths in the population at given time of the year by the total population at that period:

CDR= <u>Total number of deaths during a given period</u> x K Total mid-year population

The CDR is crude to the extent that all types of death are lumped together. It does not allow for contextual analysis of mortality by age, sex and causal variations. As such, important information is lost within the analytical corridor.

Age specific death rate (ASDR)

This is a more refined measure of death rate. It shows the number of registered deaths for a particular age in a given year divided by the total number of deaths among people of the same age per thousand:

ASDR = <u>Total no of registered deaths among people age 75 at a given period</u> x K Total population of people age 75 Introduction to demography and population studies

Cause specific death rate (CSDR)

It is a measure that indicates the specific cause of death per thousand population by the total population:

CSDR= <u>Total number of deaths from malaria</u> x K Total mid-year population

Infant mortality rate (IMR)

This focuses on deaths of infants under age one. Both neo-natal and post neo-natal deaths are included here. It is measured thus:

IMR= <u>Total number of deaths among infants</u> x K Total number of live-birth

The Population Reference Bureau (2012) reveals IMR for countries: Nigeria 77, Ghana 47, Niger 81, Cape Verde 24, Egypt 24, South Africa 38, Afghanistan 129, USA 6, Canada 5, UK 4, Sweden 2 among others. On the average, IMR for the most developed countries is 5 compared to 72 for the least developed regions of the world particularly sub-Saharan Africa.

Maternal mortality ratio (MMR)

This is a measure of deaths related to pregnancy and child-bearing divided by the number of women of child-bearing age (15-49 years):

MMR= <u>Total number of maternal deaths</u> x K Total number of women age 15-49

In this case 'K' equals 100,000 unlike in other instances where it represented 1000. The reason is that such deaths are not as high as in other cases, thus using a smaller figure will not result in meaningful data. Thus, ratio is used.

Migration

Migration is the geographic movement of people across a specific political boundary for the purpose of establishing a new permanent or semi-permanent residence (Kammeyer & Ginn 1986; Jhingan *et al.* 2006). Therefore moving from one location to another does not necessarily translate to migration insofar as such a movement was not with the intent of residing in the new location for some period of time. Length of time in this case is relative to societies and periods, but most times a six-month duration is legally approved. It is important that we clarify four basic migration concepts – in-migration, out-migration, immigration and emigration.

Both in-migration and out-migration relate to internal or local migration. The former implies entry into a new location and the latter indicates movement out of a place for another destination. For instance, a migrant that leaves Benin City for Lagos would be considered an in-migrant in Lagos, while at the same time described as an out-migrant at origin. At the international level, immigration is the entry into a country other than the place of birth or location of residence. Emigration means the departure from a migrant's place of abode for another location. Similar to the earlier example, a Nigerian entering the United States for instance will become an immigrant as far as the new location (destination) is concerned. The same migrant will be known as an emigrant in Nigeria (Origin).

Types of migration

Two types are easily identifiable – voluntary and forced migrations. While voluntary/free migration derives from individual choice having considered the likely merits and demerits of the decision. We illustrate these two types of migration diagrammatically.

Voluntary migration



The above diagram shows that for voluntary-migrants, perception of the possibility of migration translates to decision to act which eventually leads to action (migration). It suggests that between perception and decision, the prospective migrant experiences some level of crises due to the uncertainty about the future at destination. The waves represent the psychological disposition of the intending migrant – some times, she or he conjures a mental picture of a bright future, but at other instances low morale is experienced due to factors like thought of losing friends and networks built over time, property and positions among other likely worries. At each low stage in the wavy-corridor, the actor adduces justifications to sustain the quest for planned relocation. This back-and-forth emotional dilemma continues until the point that the decision is made. The waves then disappear because these two points (B and C) are not characterized by tension. We note that for the most part, the crisis of migration is latent and only explainable by the would-be migrant.

Forced Migration

In this case, the migrant is compelled to depart his/her location as a result of unforeseen circumstances such as wars and conflicts, natural disasters like earthquakes, famine and so on.



In such situations the perception of the feasibility to migrate is natural and a short interval exists between that perception and the decision to act, and the eventual migratory action. Due to the dangers inherent in not moving including death, battery, injuries and assault among others, the prospective migrant maintains a stable psychological disposition towards intended migration throughout the contemplative period.

Patterns of migration

In this section we discuss horizontal and vertical patterns of migration. When migration is described as horizontal, it means that the migrant would not have a significantly different experience at destination from what exists at place of origin. As such, the level of development, particularly infrastructure, between origin and destination would not be markedly different. Thus, she or he can cope and/or adjust quickly to the new location and the question of culture shock will not arise. Rural to rural and urban to urban migrations are examples of such migration.

Vertical migration on the other hand is such that the migrant will have a significantly different experience between former and new locations. The likelihood of culture shock is high, especially in terms of development. Rural to urban and urban to rural migrations are typical examples of this type of migration. On one hand, it will take most typical rural dwellers some time to adjust to cities like Abuja, Lagos, Calabar and Kaduna among others. On the other, moving back from these urban centres to rural communities (return-migration) also poses a great challenge for the migrant who may find it quite difficult to adjust to rural life.

Migration measures

Unlike fertility and mortality, few measures exist for migration analysis. Three are easily identifiable:

Immigration rate (IR) is arrived at by dividing the number of immigrants with the total population at destination per thousand:

IR= <u>Number of immigrants</u> x K Total population at destination

Emigration rate (ER) is calculated by dividing the number of emigrants with the total population at origin multiplied by a thousand:

ER= <u>Number of emigrants</u> x K Total population at origin

Net migration rate (NMR) entails subtracting the number of immigrants from the number of emigrants divided by the total population, per thousand:

NMR= <u>Number of immigrants – number of emigrants</u> x K Total population

Causes of migration

People migrate as a response to *push* and *pull* factors that in turn shape perception, decision and action as earlier discussed. We conceive push factors as those things that

make individuals quite uncomfortable in their places of abode to the extent of contemplating relocation to another location (Kammeyer & Ginn 1986). It is important to note that these factors are relative to individuals and times, especially given that motivations, goals, aspirations, taste and fashion are usually different among persons and periods. Push factors include but not limited to harsh economic environment, poor infrastructure, insecurity, boredom, war, natural disasters among others. To be sure, one or a combination of factors could become push factors for a migrant; the same factors may be regarded as normal by another individual.

Pull factors on the other hand are those things that attract a prospective migrant to a new location. Again, these factors are relative, however, what makes an individual uncomfortable in a place ought to be remedied by the potential intended destination. If for instance the single push factor is insecurity, it would be irrational for a migrant to relocate to another destination characterized by the same problem. Rather, she or he is expected to identify a location where migrant's security is or will be guaranteed (Kammeyer & Ginn 1986; Jhingan *et al.* 2006).

Sources of population data

There are several means through which population data can be collected. We shall restrict our discussion to census, vital registration, population registers and sample survey.

Census

The UN (2001), defines population census as the total process of collecting, compiling, evaluating, analysing and publishing or otherwise disseminating demographic, economic and social data pertaining, at a specified time, to all persons in a country or in a well delimited part of a country. Normally, population census should take place every ten years, but due to the huge cost implications the exercise is not as regular. For instance, the Nigerian census that preceded the 1991 headcount took place in 1973 (18 years after) and the last census exercise till date was that of 2006 (15 years later).

There are two known methods of census taking - *de facto* and *de jure*. When the *De facto* method of enumeration is adopted, individuals are meant to be counted anywhere they are found within the census period irrespective whether these people are found in their known places of residence or not. While the major advantage of this system is high coverage of the population, its major demerit is the likelihood of double or multiple counting. Diversely, using the *de jure* method requires that individuals are counted only at their original places of abode. Thus, persons outside their primary areas of residence are excluded from the exercise. For instance, if for any reason a Lagos resident travels to Sokoto during the census period, she or he would be excluded. The main advantage of this method is that it limits the likelihood of double or multiple counting; the major demerit, however, is the danger of low coverage resulting from ineligibility of people outside their residential communities. We note that none of the two methods of enumeration is better than the other; the choice, therefore, should be dependent on the situation on hand at a particular period.

Vital registration

This involves registration of vital events such as births, deaths, migration, marriages, divorce and other important occurrences in society. Through this registration vital statistics are generated for population analysis. It is not a substitute for censuses but rather used to complement census data, especially in a society like Nigeria where several factors affect validity and reliability of figures derived from censuses. The major limitation of this method of data collection is that some of these vital events are not recorded. For instance, some women give birth with the aid of Traditional Birth Attendants (TBAs), in religious centres and their homes and hardly report such event for recording. In addition, many deaths take place in unorthodox facilities and are not recorded; divorce cases are handled by communities among other examples.

Population registers

Very much like vital registration documents which contain information on all persons involved in vital events, population register involves the keeping of a register/document for each member of the population for the purpose of recording names, age, sex, addresses among other data on every citizen. For the purposes of vital registration, just one document will contain all the births recorded in a facility, another for deaths that occur and yet another for marriages activities. However, population registers are individualized documents keep for each citizen. Where this is appropriately maintained, data are readily available on request and the issue of waiting for ten years, as is the case with census, for an update does not arise. Countries that like Switzerland, Sweden, Israel, and Belgium among others maintain population registers.

Sample survey

Due to the limitations related to finance, research personnel and time, population scientists and indeed researchers in other humanistic disciplines, undertake sample surveys to represent a population. Thus, a sample is a sub-set or microcosm of a particular population or universe usually selected through the sampling process. The procedure involves the adoption of probability or non-probability techniques or a combination of the two. Triangulation of methods of data collection has become increasingly fashionable in social science research due to the complexity of Phenomena in a changing society (Jhingan *et al.* 2006).

Theories of population

A few population theories are examined in this section. They include malthusianism, neo-malthusianism, Marxism and demographic transition theory.

Malthusianism

Malthusianism is named after Reverend Thomas Malthus that propounded it. His thesis was based on a pessimistic observation of the imbalance between population and resources. He noted that population was doubling while food production was at the same time, just increasing arithmetically. His findings were basically rooted in the laws of diminishing returns wherein agricultural yield keep depreciating as times rolled by. His apprehension, therefore, was that if nothing was done, humans will starve to death.

He identified preventive and positive checks as two factors that could account for decrease in population. By preventive checks, he meant those activities that derive from conscious human actions targeted at reducing population size such as Moral restraint, delayed marriage, celibacy and vices which included abortion and contraception. His view is that couples ought to bear the number of children they would be able to cater for sufficiently; it is thus immoral to give birth to a number beyond couples' carrying capacity (Jhingan *et al.* 2006). It is important to note that Rev. Malthus never supported the use of vices for reducing population given his calling. But as a researcher he needed to reveal his findings completely.

The positive checks are natural disasters and calamities that humans do not have much control over (if any) such as earthquakes, famine. Tsunami, pestilence, hurricanes and epidemics among others. Although Malthusianism was criticised as pessimistic and not to have timeless validity due to the influence of technology that led to increase in agricultural yield, the theory has remained valid, especially among less industrialized societies (Newman & Matzke 1984).

Neo-malthusianism

Scholar of this tradition were as pessimistic as Malthus about the dangers of geometrical population growth without a corresponding improvement in food supply. They also agreed that something needed to be done, a point of view that characterizes these two groups of theorists as anti-natalists. However, the issue of divergence between the two perspectives was at the point that the Neo-Malthusians supported the use of vices as a population reduction strategy probably because they were not clergy men and women (Kammeyer & Ginn 1986; Jhingan *et al.* 2006).

Marxism

Karl Marx, who was classified as a Pro-natalist, as always saw the call for population reduction as one of the ploys of the bourgeoisie to cut down the number of potential protester that could challenge their domination, alienation and subjugation. For him, it is easier for more people in the population to form an army for revolution than with fewer individuals who would hardly go beyond a class-in-itself. He argued that resources are sufficient to go round the populace but that the seeming scarcity of these resources is artificial to the extent that very few individuals control the wealth of the nation through surplus values generated through rugged exploitation. He noted for instance that population growth is not the cause of poverty but rather the internal logic of capitalism (Ritzer 2008; Hughes & Kroehler 2008).

Demographic transition theory (DTT)

Focuses on the interaction of fertility and mortality in determining the population situation of a given society. It identifies three stages of transition among communities – pre-modern, beginning of modernization and modern.

Pre-modern

This stage was characterized by high fertility and high mortality rates resulting in a relatively stable population. Indeed, lack of awareness about family planning and high

illiteracy levels accounted for lack of fertility control measures in relevant societies (Hughes & Kroehler 2008). Moreover, as predominantly subsistent farmers, parents needed to have large numbers of children to enable them undertake massive cultivation of farmlands. Mortality was high due to poor medical technology that could not lead to prevention and/or treatment of the many diseases that afflicted humans.

Beginning of modernization

At this stage of the transition, fertility remained fairly high while mortality declined as a result of improvement in housing, nutrition, sanitation, and above all medical science. This decrease in death rate was mostly attributed to reduction in infant mortality rate (Hughes & Kroehler 2008). The interaction of fertility and mortality dynamics at this stage resulted in marked increase in the rate of population growth (Newman & Matzke 1984).

Modern

Both fertility and mortality declined. With availability, awareness and use of birth control measures and the assurance that infants will survive, parents were encouraged to bear fewer children. Moreover, medical science and technology led to the discovery of vaccines, antibiotics and immunization therapies to take care of diseases that hitherto accounted for increase in mortality rate (Kammeyer & Ginn 1986; Jhingan *et al.* 2006). This stage was characterized by a fairly stable population size (Hughes & Kroehler 2008).

The DTT although insightful in explaining population situations of societies was criticised as unable to present a complete picture of population dynamics due to its non-inclusion of the migration factor. It is also said to be mechanical based on the assumption that every society will experience the transition through the stages religiously. To be sure, there is also a possibility for a society to move from stage one to stage three without experiencing stage two. In addition, some groups may begin their transition from stage two without having to experience stage one and yet, some others may never get to stage three.



This diagram illustrates the stages of demographic transition

Challenges of studying population in Africa

Undertaking population studies in Africa particularly Nigeria is characterized by difficulties. The limitations impinge on validity and reliability of data collected for population analysis which in turn undermine development planning. Where reliable demographic information is lacking, governmental programmes and activities would be based on baseless projections that hardly reflect the reality of the context. We present some of the difficulties and limitations of studying population among African societies.

High rate of illiteracy/lack of awareness

High rate of illiteracy, especially among rural dwellers, who constitute a large majority of the African population has implications for the study of population in the continent. Data indicate that 39 per cent of people in Africa reside in urban centres, and in sub-Saharan Africa, only 37 per cent (PRB 2012). The immediate consequence of low literacy levels and lack of awareness of population issues is the inability of a sizeable number of individuals to give informed responses to population related matters. Thus, demographic data are subjected to various forms of manipulations.

Ethnicity

According to Otite (2000), Nigeria is made up of over 380 ethnic groups. Hence, ethnic rivalry is a constant feature of the socio-political landscape which continues to give impetus to what Ekeh (1983) described in his 'Two Publics' as primordial and

Apathy

We discuss indifference here at two levels. First, as a result of high level of frustration occasioned by the inability to realize inherent potentials in the midst of plenty, a lot of people in the continent and Nigeria in particular are apathetic towards government programmes. In extreme cases, these frustrations crystallize into sabotage of government programmes including those that relate to population issues such as not partaking in census exercise, vital registration among others. Second, as noted earlier, many higher institutions in Nigeria are yet to prioritize population studies as a sub-discipline; it is rather taught as an elective course and in some cases not included in the curricula.

Cultural beliefs and practices

Customs and traditions of some African societies prohibit divulgence of certain information pertaining specific cultural traits. Therefore, collecting demographic data on certain events are extremely challenging and at times unachievable. Extending the principle of anonymity to certain ways of life of a people is usually undertaken when viewed as sacrosanct and needed not to be distorted by intrusions and unnecessary diffusion (Nwokocha 2012b).

Religious factors

The influence of religion on population studies cannot be overstated. Related to belief system, religion like culture not only prescribes the way of life for adherents but also proscribes what must be avoided. If for instance, a religious programme coincides with a population activity, most people would likely forgo the latter in order not to incur the wrath of God. The consequence of the alternative forgone is that population data will lack robustness that makes for comprehensive analysis and recommendation.

Poverty

A large majority of people in sub-Saharan Africa are extremely poor. In Nigeria for instance, despite the abundance of human and material resources, several individuals live on less than two Dollars per day. Consequently, corruption, fraud and criminality have becomes pervasively normative; rugged individualism and the quest to survive at all cost are institutionalized. It is thus easy to buy false data, from unsuspecting dubious Field Assistants that do not reflect the population situations in relevant contexts.

Politically based data manipulation

Desperate politicians exploit the poverty scenario of African communities to manipulate demographic data for their selfish political ends. Unfortunately, these data are usually not reversed after the political process. Thus, the problem of false and inconsistent data is critical in understanding the dilemma of undertaking population analysis in Africa.

Conclusion

This work has clearly established that population studies are central to planning and development of societies and that apathy towards prioritizing it is embedded in ignorance. Indeed, considering the importance that its awareness holds for individuals and groups, it is recommended that critical population issues be fused into family socialization packages to make it an integral part of the growth process. We are persuaded to also suggest that primary demography be introduced into the secondary school curricula not only to bolster young people's interest in the subject but also to complement efforts of parents at young people's home-orientation in this study area.

The above strategy will make for mass education and community acceptance of a paradigm shift that will in the long-run reverse the adverse African demographic landscape. It is only a demographic transition from high to moderate fertility and low mortality and migration rates that will resituate sub-Saharan Africa and Nigeria in particular on the right side of development. Achieving a moderate population will entail appreciable drop in poverty levels, improvement in the employment situation and attainment of sustainable development. Without a deliberate effort at prioritizing population knowledge at micro-household and macro-society levels, being listed among the twenty largest economies by year 2020 will remain a tall order.

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