The Effects of Population Factors on Social and Economic Development

Prepared under the direction of the Federal Ministry of Health and the National Population Bureau.

The Futures Group, under contract to the United States Agency for International Development, is supporting analyses for a number of countries regarding the relationship between population factors and the efforts of these countries to achieve their social and economic goals. The overall project is known as RAPID, an acronym for Resources for the Awareness of Population Impacts on Development. In Nigeria, the RAPID project is sponsored by the Federal Ministry of Health and the National Population Bureau.

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Introduction

The population of Nigeria is now probably close to 100 million persons and is growing at more than 3 percent per year. Should birth rates remain near present levels, the Nigerian population would increase by about 2.8 times its present size over the next 30 years, reaching more than 280 million persons by 2015. The prospects of such rapid growth and such a large population have made demographic change very important to the social and economic development effort in Nigeria.

This study examines the population dynamics and the social and economic development objectives of Nigeria and explores the impact of varying rates of population growth on national development. Data is taken from national sources, including the *Fourth National Development Plan, 1981-85*, and from reports compiled by international organizations such as the World Bank and the United Nations.

Nigerian Goals for National Development

The Government of Nigeria is now approaching the end of the Fourth Five-Year Plan, and is in the process of formulating the Fifth Plan. The Fourth Plan period (1981-1985) was intended to be one of consolidation and increased self-reliance as public sector investments were to be stabilized at a sustainable level and the economy restructured to stimulate the growth of domestic agriculture and industry. These policies were to lay the foundation for balanced and diversified long-term economic development, thus reducing overdependence on the petroleum sector.

The following were among the specific goals of the Fourth Plan:

- Increase the real income of the average citizen;
- Achieve a more even distribution of income among individuals and socio-economic groups;
- Increase productivity and decrease the level of unemployment and underemployment;
- Increase the supply of skilled manpower and improve access to quality education;
- Increase agricultural production to achieve food self-sufficiency and support agro-based industries;
- Develop the rural areas to stem the movement of the population from the countryside into the cities;
- Improve the provision of health services; and
- Develop the housing sector to make quality shelter more readily available.

Although changes in the world petroleum situation contributed to a general economic malaise over the plan period and many of the objectives of the Fourth Plan were not achieved, these fundamental goals are likely to remain part of the Fifth Plan.

This analysis is an inquiry into the relationship between demographic trends in Nigeria and the ability of the country to achieve these social and economic development goals. This issue is explored by looking at the effects of different rates of population growth on the following:

Agricultural Development
Wood Resources
The Petroleum Sector
Gross Domestic Product
and Gross Domestic Product Per Capita
Labor Force and Child Dependency
Education
School Leavers and Modern Sector Jobs
Health
Urban Growth and Housing

Population Dynamics

Birth Rates, Death Rates, Population Growth and Migration

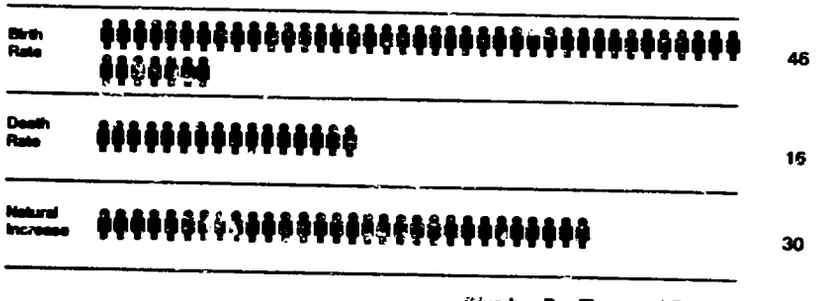
The present population of Nigeria is probably between 90 and 100 million persons and perhaps even larger. No one knows for certain. There has not been a reliable census since 1963 and even then there may have been an overcount. The National Population Bureau in Lagos took the 1963 population and projected it forward at a constant rate of growth of 2.5 percent per year, arriving at a 1980 population of 84.7 million. This number represents the official population estimate. The United Nations Population Division used a lower starting point but indicated that the Nigerian population was growing by more than 3 percent per year between 1960 and 1980. The United Nations gave the estimated 1980 population at 80.6 million, not much different than the National Population Bureau estimate. Whatever the exact number, Nigeria is the most populous country in Africa by a large margin and among the 15 largest countries in the world.

Fertility: Similarly, estimates of fertility levels in Nigeria have varied. Population projections prepared by both the World Bank and the United Nations have assumed that the present fertility rate, a close proxy for the average number of children per woman, is close to 7. In 1981 and 1982, fieldworkers gathered information for the Nigerian Fertility Survey. Subsequent analysis showed a fertility rate of 6.34 children per woman, a number which is used in the present study. Equally as important, the Nigerian Fertility Survey has not revealed any evidence that fertility has declined historically.

Estimates also indicate that the birth rate, the number of births per 1000 population each year, has been high over the past 30 years. The fertility rate of 6.34 from the Nigerian Fertility Survey implies a birth rate of around 46 and sustains this view.

Mortality: While birth rates have remained high in Nigeria, death rates have come down. Life expectancy at birth rose from about 36 years in 1950 to closer to 48 years in 1980. The death rate, the number of deaths each year for each 1000 persons in the population, fell from 27 to about 17 over the same period of time.

NIGERIA, 1985



(Number Per Thousand Population)

Population Growth: The combination of historically high birth rates and declining death rates has meant that the rate of population growth in Nigeria has increased over time. During the early 1950s, the population was probably growing by between 2.0 and 2.5 percent per year. At present, the population is most likely increasing by more than 3 percent per year. At that rate, the population would double about every 23 years. Given a continuation of high birth rates, Nigeria would have a population of almost 163 million persons in 2000 and 281 million persons in 2015.

Migration and Distribution: International migration, though historically significant, may be less important to the demographic future of the country. During the 1970s, Nigeria openly received refugees from the drought stricken Sahelian countries to the north. Over the 1973-1983 decade, large numbers of West Africans came looking for employment in the oil-driven economy of Nigeria. Many were Ghanaians seeking opportunity outside their own depressed economy. In view of declining world oil prices and its own recession, Nigeria expelled about 2 million illegal workers in 1983, about half from Ghana and half from other neighboring West African countries.

Internal migration, especially from rural to urban areas, has been one of the important demographic themes of modern Nigeria. The urban population of the country rose from between 3 and 4 million city residents in 1950 to close to 17 million in 1980. By the latter year, over 20 percent of the population lived in urban areas.

The distribution of the population is characterized by areas of high density in the southeast, southwest, and the north central parts of the country. Other parts are less densely inhabited.

Age Distribution and Child Dependency

As is typical in countries where fertility has been high for a long period of time, Nigeria has a very young population. Population projections indicate that in 1985 over 47 percent of the population is under the age of 15. Consequently, Nigeria has a high child dependency ratio which is the proportion of children under 15 to adults in the economically productive ages, 15 to 64.

For every 100 adults, there are about 94 children to be supported and educated, or close to one child for each adult.

By contrast, a developed country typically has two or three adults in the economically productive ages for each dependent child. (Such nations do have a larger proportion of dependent elderly persons; however, the overall dependency ratio is still much lower than in the developing countries.)

In a traditional economy, a large number of children may be to the economic advantage of the rural family by increasing the number of available workers, even though in most cases children do not increase production by as much as they consume until they reach the age of 10 to 15. As a nation develops socially and economically, a high dependency ratio may strain the resources of individual households as children must be supported until they complete their education and secure employment. Social and economic development programs may also be affected because, with a large dependent population, a disproportionate share of public and private resources must be devoted to the needs of the young. A significant reduction in the child dependency ratio could potentially release resources for investment in other development programs.

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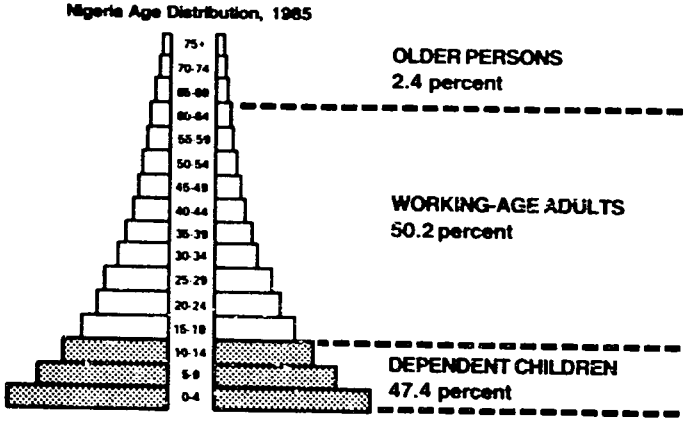
Age Distribution and Child Dependency



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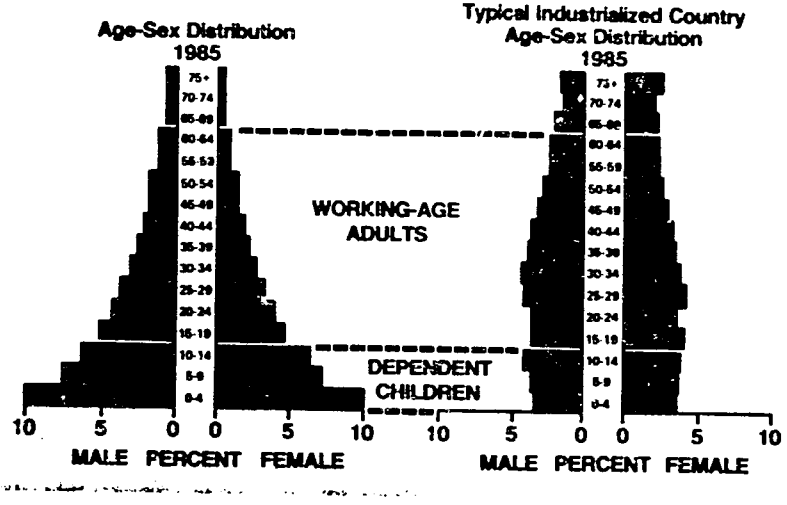
Age Distribution and Child Dependency



For each dependent child in Nigeria, there is only one working-age adult.
For each dependent child in most industrialized countries, there are 2 to 3 working-age adults.

Inevitable Growth: Replacement Level Fertility and Population Momentum

Before the population of Nigeria could stop growing, the fertility rate of about 6.3 births per woman would have to drop to slightly over 2 births per woman or what is termed replacement level fertility. During the time interval that would be required for this decline to take place, the population would still be growing.

Even should fertility decline to replacement levels, the population would still continue to grow for several decades afterwards. Limiting the number of births to two children per woman means that eventually the population will reach a zero growth rate; however, a long delay exists between the time women begin averaging two children and the time population growth stops.

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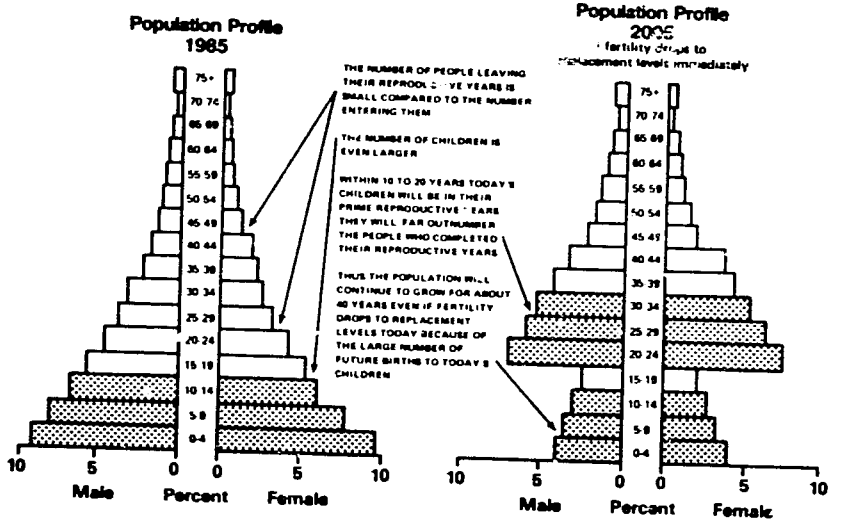
Momentum of Population Growth



This lag of about 40 to 50 years is due to the age composition of the population. Where fertility has been high, as in Nigeria, the population is composed of a proportionately large number of young people and a proportionately smaller number of older persons. Consequently, each year the number of young women entering their reproductive years exceeds the number moving out of their reproductive years. Even if young women have only two children each, there will be so many young women that more births will occur than deaths for at least 40 years, and the population will continue to grow until the disproportion in the number of young people disappears. Thus, an irresistible momentum for future growth is built into the age structure of the population.

The graphic below illustrates these two ideas. If the fertility rate were to drop to replacement levels over the 30 year period between 1985 and 2015, the population of Nigeria would grow from an estimated 98 million persons in 1985 to 195 million in 2015. The population would then grow further to 270 million persons due to the inoult momentum.

The population of Nigeria is going to be much larger in the future than today no matter what happens to the birth rate in coming years. Even in this illustrative case with very dramatic fertility decline, Nigeria ends up with a population of 270 million persons.

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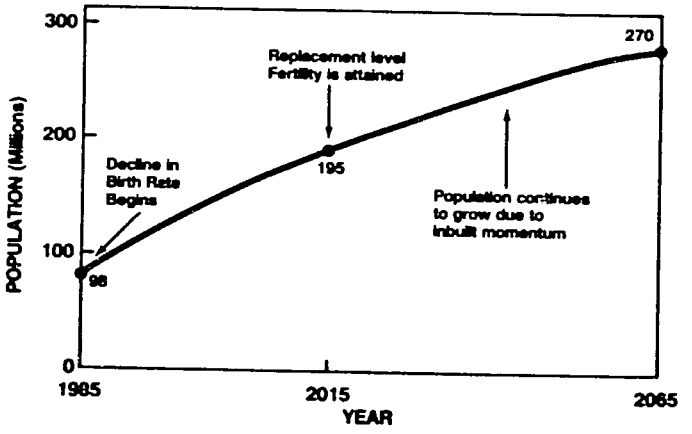
Momentum of Population Growth
(Assumes a decline to slightly over a 2 child per woman average in 30 years)



Population Growth Under Different Fertility Assumptions

Although growth of the Nigerian population is inevitable, the amount of growth depends on future fertility and mortality levels. Two population projections demonstrate this fact. Both assume an increase in life expectancy at birth to 58 years in 2005 and 65 years in 2025. What differs is the fertility level.

Projection A assumes that fertility continues near its present level of about 6.3 children per woman. With continued high fertility, the estimated 1985 population of 98.1 million would increase to 162.6 million by the end of the century, 280.7 million persons by 2015, and 501.4 million by 2030.

Projection B assumes that fertility begins to drop in 1985 and continues to decline gradually so that Nigeria would attain a 3-child per woman average by 2005. In this case, the population would grow to 145.9 million persons in 2000, 192.2 million in 2015, and 249.5 million in 2030.

These projections will be used throughout the discussion in considering the effects of a different rate of population growth on the ability of Nigeria to achieve its social and economic development objectives.

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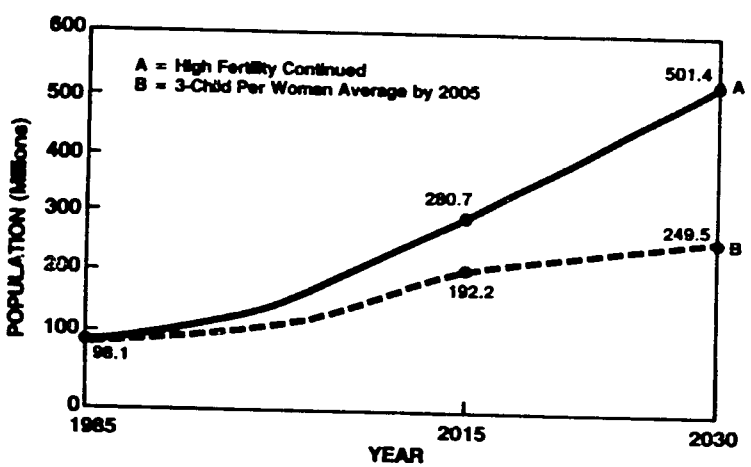
Population Growth Under Different Fertility Assumptions, 1985-2030



Population Factors and National Development

Agriculture

Agriculture remains the basis of life for most Nigerians. About 55 percent of the labor force is engaged in agriculture although about 80 percent of the population still lives in the rural areas. The sector has accounted for about 5 percent of total exports and about 70 percent of non-petroleum exports. In 1980, agricultural production equalled 22 percent of the Gross Domestic Product, down from 45 percent in 1970.

Growth in the agricultural sector has been slow, averaging less than 1 percent per year since 1970. In the 1960s, Nigeria was self-sufficient in food and was one of the world's leading exporters of cocoa, palm oil and kernels, and peanuts. Between 1973 and 1981, the World Bank reports, the value of agricultural exports fell from more than $1.5 billion to less than $0.3 billion. On the other hand, the value of agricultural imports increased fourfold between 1976 and 1980, and the proportion of required foodstuffs which had to be imported rose from about 7 percent to 15 percent.

The poor performance of this sector has affected the incomes of all Nigerians. The disparity between rural and urban earnings encourages migration to the already crowded cities. Nigerian households also have to commit an increasing share of income for food expenditures. In recent years, prices for foodstuffs have been increasing even faster than the overall inflation rate.

The oil boom itself may have contributed to low production in the agricultural sector. High rates of inflation, high costs of production, the diversion of private investment to trade, commerce, real estate and construction along with poor returns to smallholding producers all worked to discourage production. Regardless, the Government of Nigeria recognizes that diversification of the economy is critical to the future of the country and has indicated that revitalization of the agricultural sector be given highest priority. The Fourth Plan outlines an integrated rural development approach to improve the welfare of rural Nigerians and restore the positive contribution of this sector to the country's economic growth. The following are among the major objectives:

- increase food production in order to achieve food self-sufficiency;
- increase the production and processing of export crops in order to achieve the revival of cash crops;
- employment opportunities in rural areas to provide jobs for the rapidly expanding rural labor force and discourage migration to the urban centers.

The Fourth Plan set a target of 5 percent annual growth in the output of the agricultural sector, well above the historical growth rate. To date, as the country approaches the end of the plan, agricultural production actually appears to have declined over the plan period. Crop production, for example, was reportedly about 4 percent lower in 1983 than it had been in 1980.

Staple Food Production and Consumption: The population determinant will be one of many factors helping decide whether the Government of Nigeria achieves its agricultural goals. The production and consumption of staple foods, including cereals and roots and tubers, serves as an illustration.

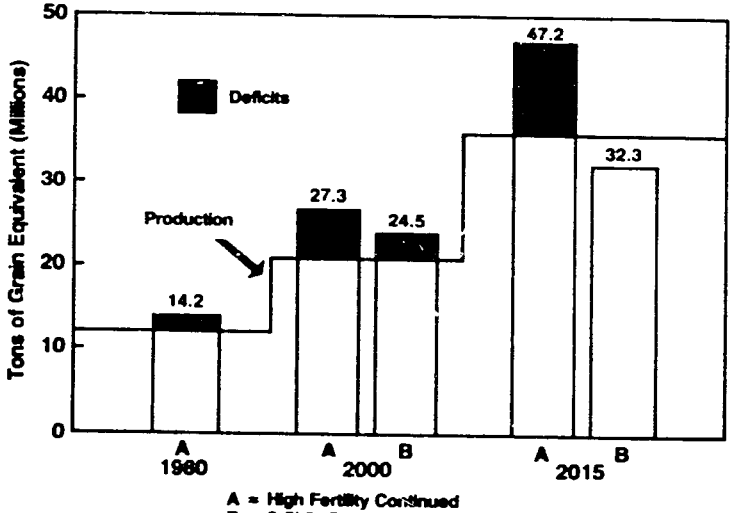
According to the Fourth Plan, Nigeria produced about 7.5 million tons of cereals and 18.5 million tons of roots and tubers in 1980, although the caloric value of the cereals was more than double that of the roots and tubers. Overall, domestic production of staples in 1980 converts into 12.1 million tons of grain equivalent, a conversion useful in balancing the relative caloric value of the different staple foods. Another 2.2 million tons of cereals (2.1 million tons grain equivalent) had to be imported.

Cereal production was anticipated to increase by about 4.3 percent per year over the course of the plan period and root and tuber production by about 3 percent per year. In fact, staple crop production was probably about 6 percent lower in 1983 than in 1980. The following projections assume no increase in staple food production between 1980 and 1985 and a 3.7 percent per year growth rate thereafter which is the average projected in the Fourth Plan. Values are expressed in grain equivalent terms.

Given high fertility continued, staple food deficits would rise from 2.1 million tons in 1980 to 6.4 million tons in 2000 and 11 million tons in 2015.

With a drop to a 3-child per woman average by 2005, deficits would rise from 2.1 million tons in 1980 to 3.6 million tons per year by 2000. By 2010, however, Nigeria would again be self-sufficient in basic food production.

Production and Consumption of Basic Foods, 1980-2015
(Assumes Production Increases by 3.7 Percent per Year)



A = High Fertility Continued
B = 3-Child Per Woman Average by 2005

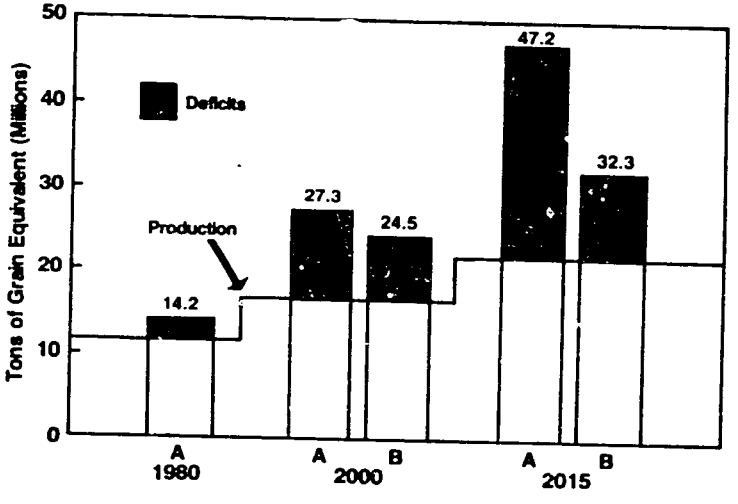
The 3.7 percent per year growth rate in staple food production is much higher than what has actually occurred historically in Nigeria. For example, according to Government of Nigeria reports, staple food production in 1982 equalled only about 74 percent of production in 1975. Thus, an alternative projection using an annual growth rate of 2 percent is used below, although even the 2 percent annual increase is far above the actual historical performance.

Assuming high fertility continued, annual deficits in staple food production would increase from 2.1 million tons in 1980 to 11 million tons in 2000 and 25 million tons in 2015.

Even with the drop in fertility to a 3-child per woman average by 2005, annual deficits would rise to 8.2 million tons in 2000 and 10 million tons in 2015.

The rapid growth of the population thus makes it imperative to reverse recent trends in the agricultural sector and increase production.

Production and Consumption of Basic Foods, 1980-2015
(Assumes Production Increases by 2.0 Percent per Year)



A = High Fertility Continued
B = 3-Child Per Woman Average by 2005

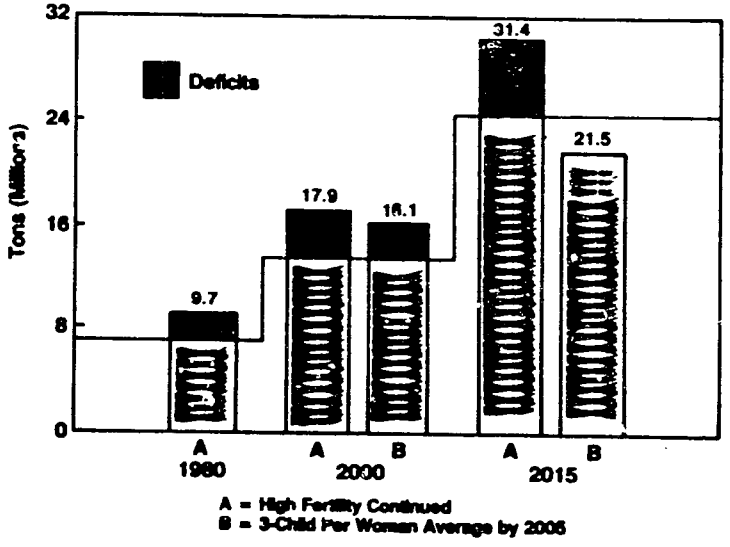
Cereal Production and Consumption: Projections of cereal production and consumption can be used to indicate potential imports and the foreign exchange implications of food deficits. In 1980, cereals accounted for almost half the foodstuffs consumed in Nigeria. At the same time, about 23 percent of cereal demand had to be met by importation, up from about 5 percent 10 years earlier.

The future demand for cereals will be affected by two factors. The rapid growth of the population will, of course, increase the overall demand for food. Also, as incomes rise, the per capita consumption of cereals also tends to increase. Based on estimates for West Africa, the following projections assume an income elasticity of 0.4 percent, or, more precisely, for every percentage point increase in the Gross Domestic Product per capita, the consumption of cereals per person will increase by 0.4 percent. Since, as will be discussed below, per capita incomes are likely to increase more rapidly with lower fertility, the demand for cereals resulting from higher incomes is also likely to be greater with the declining birth rate. This partially offsets the greater demand for food with the higher rate of population growth in Projection A.

If cereal production is projected at the optimistic rate of 4 percent per year after 1985, as suggested in the Fourth Plan, production would grow from 7.5 million tons in 1980 to 13.6 million tons in 2000 and 24.4 million tons in 2015.

With high fertility continued, cereal deficits would equal 4.4 million tons in 2000. At approximately N200 per ton for imported cereal, annual import costs would be N871.6 million at that point in time. By 2015 deficits would reach 7.0 million tons, which would equal an import value of N1.4 billion.

Cereal Production and Consumption, 1980-2015



With a drop to a 3-child per woman average by 2005, the cereal deficit in 2000 would be 2.5 million tons and imports would cost N502.6 million.

By 2015, Nigeria would be self-sufficient in basic cereal production and no imports would be required.

Besides health and nutritional considerations, continuing food deficits can also have important economic implications for the country.

Land Availability and Technological Advance: The most commonly quoted estimate is that between 40 and 45 percent of potentially arable land was actually being cultivated in the early 1980s. Such a statistic, however, can give a false impression of the agricultural resource base in Nigeria. First, the constraints of the land tenure system make full utilization of the land difficult. This system is characterized by:

Fragmentation of land holdings to give every member of the family access to some of each type of land;

Insecurity of land titles as any member of the family can claim use of any piece of family land not under cultivation.

These constraints, along with ethnic attachment, act to inhibit mobility. Thus, even though there may be adequate land in some parts of the country, other parts may have high population densities and pressures on the land. In the Onitsha-Owerri section of southern Nigeria, for example, cultivated land is limited to less than 0.06 hectares per person. The overcrowded farmers of the eastern states are not inclined to move to the uncultivated savannah areas because of strong cultural attachments. Consequently, rapid population growth in the rural areas will intensify local pressures on land for cultivation.

Even more importantly, smallholders using very traditional, manual methods of cultivation account for the overwhelming amount of agricultural production in Nigeria. Traditional farmers widely employ bush-fallow practices, a system whereby two or three hectares must lie fallow for every hectare under cultivation to permit soil fertility to regenerate under natural conditions. What this means is that the maximum amount of land which can be farmed under present technologies while still ensuring sustained soil fertility is already being cultivated. More land could be brought into cultivation at any given time, and this is undoubtedly being done, but only at the cost of permanently damaging the productive capacity of the soil.

The alternative, of course, is to increase agricultural productivity through the more widespread use of modern agricultural practices. Concepts borrowed from a recent study by the Food and Agriculture Organization of the United Nations entitled *Land Resources for Populations of the Future* illustrate these points. Given the potentially cultivable amount of land in Nigeria, the application of different technologies will help to determine the level of population which could be supported on a sustained, self-sufficient basis. Two of these technologies are: (1) subsistence level farming technologies which are those predominantly used in Nigeria at the present time; (2) intermediate level technologies which are the equivalent of those used on commercial farms in Latin America and Asia and include modern scientific inputs.

As depicted in the graphic, the *Land Resources for Populations of the Future* report indicates that the Nigerian population has already surpassed the potential carrying capacity of the land given a continuation of subsistence level farming technologies. The pressures which the demands of a rapidly growing population place on land resources will intensify over time under both population projections if subsistence methods continue to be the major way of farming.

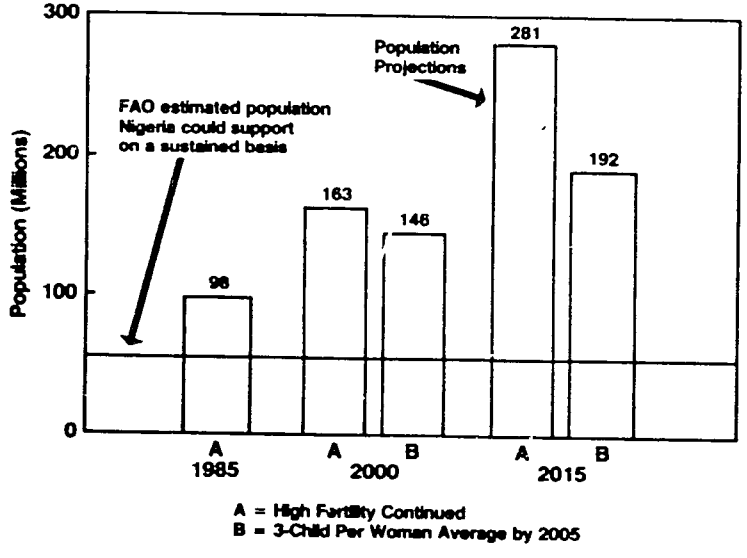
Were Nigeria able to achieve a major transformation in its agricultural sector over the next few decades so that intermediate level technologies were to predominate, a substantially greater number of persons could be supported through domestic production. Nonetheless, the growth of the population would continue to challenge Nigeria's ability to feed itself.

With high fertility continued, the population would again exceed the carrying capacity of the land by 2015 even with a transformation to intermediate level farming technologies.

With the drop in fertility in Projection B, Nigeria could continue to be self-sufficient in food production through 2015.

Without even discussing the problems inherent in transforming a traditional agriculture sector into a more modern one, one of the key issues is that as agriculture becomes more modern and scientific fewer workers are needed to work the land relative to the labor-intensive traditional methods. At the same time, the number of workers who would be looking for employment in the agricultural sector in the normal course of events would increase dramatically with the continued rapid growth of the population, even given that the proportion of the labor force engaged in agriculture continues to decline. This would, in turn, aggravate what only promises to be a very serious employment situation in the future.

Carrying Capacity
Subsistence Level Farming Technologies



In summary, the relationship between population growth and agricultural resources can be viewed from three levels, all of which in one form or another are applicable in Nigeria.

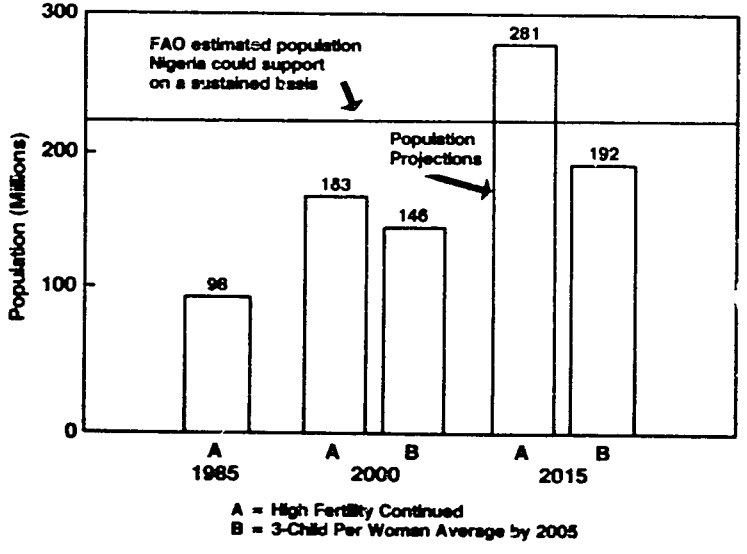
On one level, the land and resource base can be taxed to the point where it is not possible to achieve and sustain food self-sufficiency. This state has probably already been reached in Nigeria given a continuation of subsistence level farming technologies. Even with a transformation to intermediate level farming technologies, Nigeria's ability to feed itself will be constrained by the continued growth of the population.

On a second level, the question is not whether the resource base is theoretically adequate to support a larger population, but rather the question is whether it can be developed at a rate fast enough to offset the rapid growth of the population. As Nigeria moves towards the use of more modern farming technologies, this question will become more important. The historical record is that the agricultural sector, and especially food production, has not been developed fast enough to keep up with the rapid growth of the population.

On a third level, the question is not whether the resource base is potentially adequate, or even whether it can be developed fast enough to accommodate the rapid growth of the population, but rather the question becomes one of choice. Can Nigeria have a modern agricultural sector, a manageable rural to urban migration rate, a labor force with access to good employment opportunities, and rapid population growth all at the same time?

Whether and how the nation responds to the impact of rapid population growth on the agricultural resource base is undoubtedly one of the most important development issues facing Nigeria.

Carrying Capacity
Intermediate Level Farming Technologies



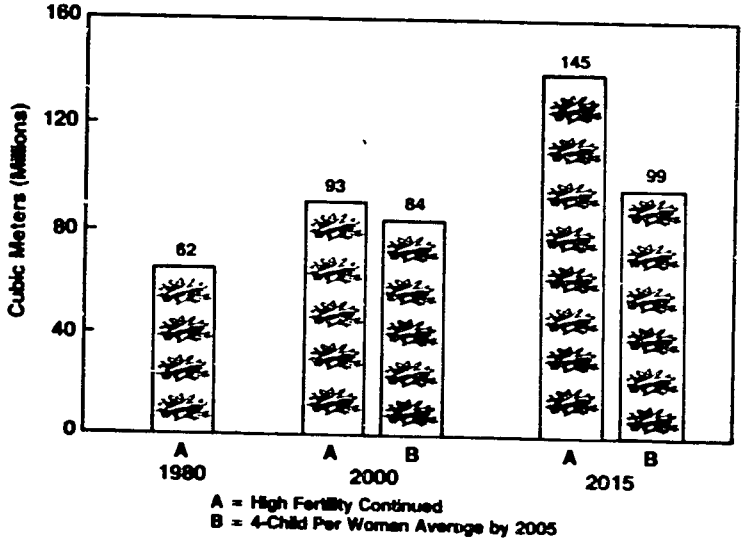
Wood Resources

Wood is the major source of energy for most of the rural population in Nigeria and for many urban residents as well, especially in the smaller and mid-sized cities. Altogether, about 85 percent of the population is dependent on fuelwood for cooking and heating. Where wood resources are growing scarce, crop residues are often burned as a substitute rather than being used as natural fertilizers.

Serious imbalances between the demand for wood and the supply are developing in many parts of Nigeria, leading to a permanent destruction of the forests. These imbalances are especially acute in the northern states which have savannah, arid, or semi-arid vegetation covers. Estimates for the early 1980s for the northern states indicate that the supply of fuelwood available from the forests each year was somewhere in the 10.5 million to 16.6 million cubic meters per year range, whereas annual demand was closer to 23 million cubic meters per year. For the state of Kano, the demand for fuelwood has been estimated to be outstripping supply at a ratio of 5 to 1, a situation which could lead to a depletion of Kano's forests in less than a decade. In the southern states, however, these imbalances in supply and demand are not so evident except in the major metropolitan centers where high transport and marketing costs make fuelwood expensive.

The following projections indicate the future demand for fuelwood under the different population alternatives. The assumptions are that per capita fuelwood consumption continues at an

Fuelwood Demand, 1985-2015



estimated 0.75 cubic meters per year and that the proportion of the population dependent on fuelwood declines over time from about 84 percent in 1985 to 69 percent in 2015.

With high fertility continued, the demand for fuelwood would increase from 62 million cubic meters per year in 1985 to 93 million cubic meters per year in 2000 and 145 million cubic meters per year in 2015.

With a drop in fertility to a 3-child per woman average by 2005, annual fuelwood demand would be 84 million cubic meters in 2000 and 99 million cubic meters in 2015. In that year, the demand for fuelwood would be 46 million fewer cubic meters than with continued high fertility.

A lack of information makes it difficult to project the potential supply of fuelwood in Nigeria in the future, but beyond doubt the ever-increasing demand for fuelwood accompanying the rapid growth of the population will place tremendous strains on the forest resources of the country, especially in the northern states.

The Petroleum Sector

In Nigeria, the petroleum sector is of exceptional importance to the economy. This sector has accounted for more than 20 percent of the Gross Domestic Product, between 90 and 95 percent of exports, and 80 percent of government revenue. High oil revenues subsequent to 1973-1974, a year in which petroleum prices quadrupled, enabled the Government of Nigeria to invest heavily to develop the country. Consequently, the Gross Domestic Product grew by more than 7 percent per year between 1973 and 1977.

With oil prices high, production reached 2.3 million barrels per day in 1974, dropped back to 1.8 million barrels per day in 1978, then surged upwards to 2.4 million barrels per day in 1979. As world demand weakened, production declined steadily. In 1982 and 1983, Nigeria turned out about 1.3 million barrels per day. The price per barrel rose from $2.82 in 1972 to $11.25 in 1974 and subsequently increased steadily to a peak of $38.90 per barrel in 1981. In late 1984, the asking price for Nigerian crude was $28 per barrel.

Were petroleum an unlimited resource, no financial constraints would exist to social and economic development in Nigeria. It is not. Best estimates are that Nigeria had 13 to 14 billion barrels of reserves at the end of 1981, with undiscovered reserves estimated at another 10 to 11 billion barrels.

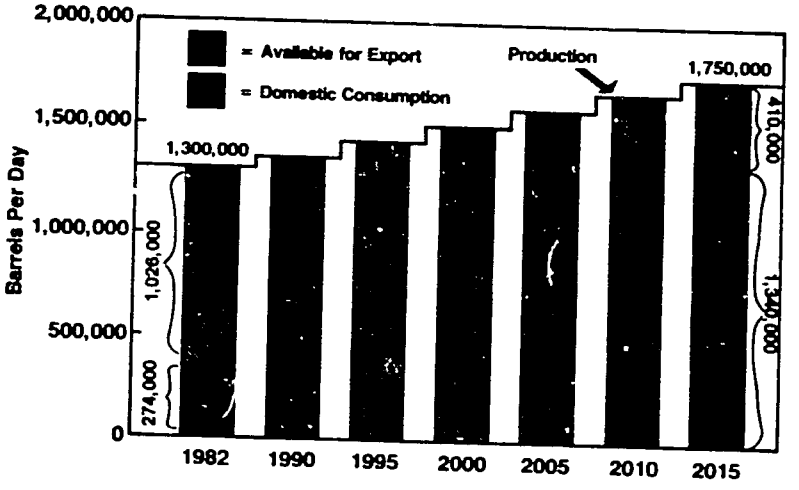
Domestic Production and Consumption: Petroleum is a wasting resource which must be used wisely to develop the country. Estimates of available reserves and future production levels tend to change dramatically over time. Nonetheless, according to present estimates, natural production declines may set in as early as the 1990s and the value of petroleum exports may drop even sooner. By some estimations, domestic consumption will use up virtually all domestic production by 2000.

In 1980, petroleum accounted for about half of all energy use in Nigeria and about 80 percent of commercial use. Domestic consumption of petroleum products increased by about 19 percent per year between 1975 and 1981. Despite the economic slowdown, domestic consumption of petroleum has continued to increase, rising, according to Nigerian National Petroleum Corporation estimates, by 2 percent between 1981 and 1982 and by 8.8 percent between 1982 and 1983.

Analyses by the World Bank and the Nigerian National Petroleum Corporation incorporate projections which assume that domestic consumption increases by 7.6 percent per year until 1995 and 5.3 percent per year thereafter. Even these projections assume a successful conservation program and conversion to the use of natural gas, a resource which Nigeria has in enormous quantities, whenever possible. Using a more conservative assumption of a 5 percent per year increase, domestic consumption would then rise from about 274,000 barrels per day in 1982 to 645,000 barrels per day in 2000 and 1,340,000 barrels per day in 2015.

Were production to remain at 1.3 million barrels per day and were enough unexpected finds discovered to prevent anticipated natural declines in production, all production would still be used internally by 2015. Were enough oil found to prevent natural declines in production and raise productivity to 1.75 million barrels per day (equal to a 1 percent per year increase after 1985), domestic consumption would still account for 75 percent of production by 2015.

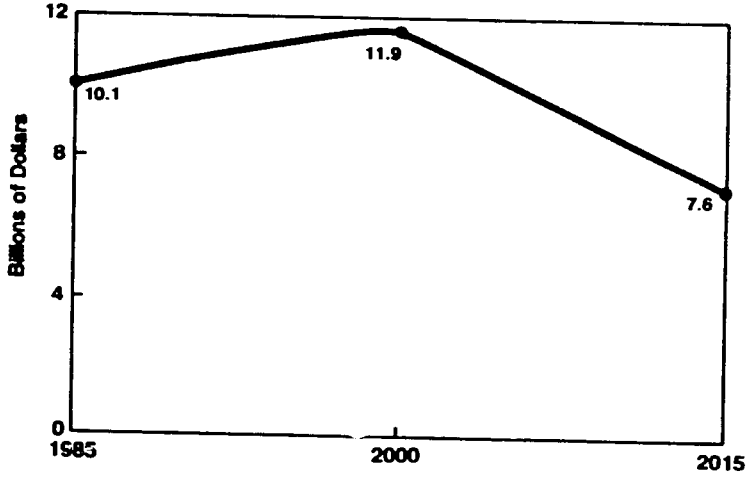
Petroleum Production and Domestic Consumption, 1982-2015



Petroleum Export Earnings and Investment: That petroleum not consumed domestically is available for export to earn foreign exchange. The Third Plan represented a major effort to maximize the value of oil resources for national development. The Fourth Plan called for reduced reliance on the petroleum sector to finance development programs. Nonetheless, petroleum remains the chief source of Nigeria's investible surplus for the foreseeable future.

The recent export price of petroleum has been about $28 per barrel. This price is assumed to increase at 2 percent per year in real terms after 1985 (derived from World Bank projections). Production is assumed to increase from 1.3 million barrels per day at present to 1.75 million barrels per day in 2015. This assumption is optimistic in that most forecasts anticipate natural declines in production before that time. Under these conditions, revenues from petroleum exports would nonetheless decline from $24.9 billion in 1980 to $11.9 billion in 2000 and $7.6 billion in 2015.

Projected Petroleum Export Revenues, 1985-2015



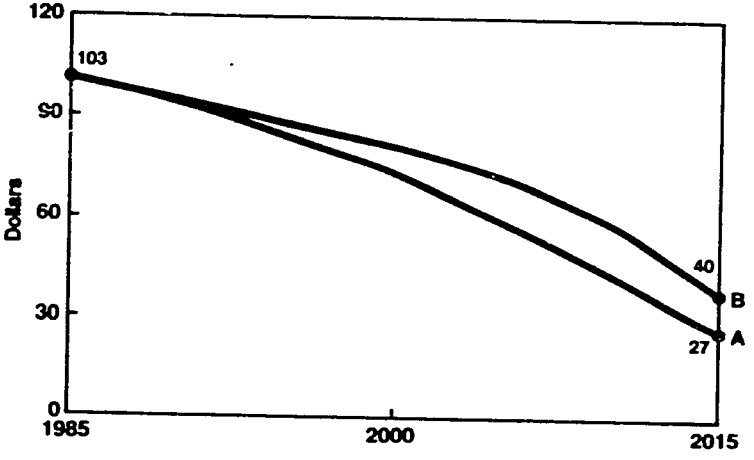
The value of petroleum exports per person under the different population projections—a rough indicator of potential levels of investment per capita—would be as follows:

With high fertility continued, the value of petroleum exports per person would drop from $294 in 1980 to $73 in 2000 and $27 in 2015.

By contrast, with a drop to a 3-child per woman average in 2005, the value of petroleum exports per person would decline more slowly from $294 in 1980 to $82 in 2000 and $40 in 2010.

During the oil boom, one implicit point of view appeared to be that petroleum would provide the revenues with which the country could cope with rapid population growth. Now, petroleum is more often seen as a wasting resource whose relative importance to the financing of the development effort is likely to decline over time. Petroleum revenues are consequently not regarded as a way in which Nigeria can indefinitely meet the social and economic needs of a rapidly growing population. Rather, with a slower rate of population growth, petroleum resources could potentially go further toward improving the lives of all Nigerians.

Potential Investment Per Capita, 1985-2015
(from Petroleum Revenues)



A = High Fertility Continued
B = 3-Child Per Woman Average by 2005

Gross Domestic Product and Product Per Capita

The Gross Domestic Product for Nigeria grew by about 3.1 percent per year in the 1960s, although the 1967-1970 Civil War disrupted much of the economic infrastructure. Then came the dramatic rise in world oil prices and the boom in petroleum exports. The Nigerian economy subsequently grew by an average of 7.4 percent per year between 1973 and 1978. Most of the growth came in services and construction as agriculture stagnated.

In 1978, the Gross Domestic Product fell by about 5.7 percent as world petroleum demand softened, then grew again the following year by about 5.7 percent. The economy was virtually stagnant in 1980 and declined each year between 1981 and 1983 with the continued glut in the world oil market.

In real terms, the Gross Domestic Product was about the same in 1981 as it had been in 1978 and about 22 percent greater than it had been in 1973. The Gross Domestic Product per capita, however, had dropped back to 1973 levels by 1981, so that GDP per capita was no higher in 1981 than it had been prior to the oil boom, in part due to the continued rapid growth of the population. This is not to say, of course, that the development of the petroleum sector has not been to the economic advantage of Nigeria. The economic infrastructure is much better developed now than it had been prior to 1973 and the prospects for developing a prosperous, diversified economy are improved. Most Nigerians, however, have not yet enjoyed the economic advantages accruing to the country from these developments. In 1978, a reported 55 percent of all rural households and 35 percent of all urban households were below the poverty line. In the North, 65 percent of rural households had incomes beneath the poverty line.

The Fourth Plan anticipated an annual average real growth in the Gross Domestic Product of 7.2 percent per year through 1985, but declines in the price and production of Nigeria's prime export commodity, petroleum, have meant that the Gross Domestic Product has actually declined over the Plan period. The World Bank has adopted as a reasonable estimate a real growth rate of between 3 and 5 percent per year subsequent to 1985. The projections below use the assumption of no growth between 1983 and 1985; a 3 percent per annum growth rate between 1985 and 1990; and 4 percent per annum thereafter.

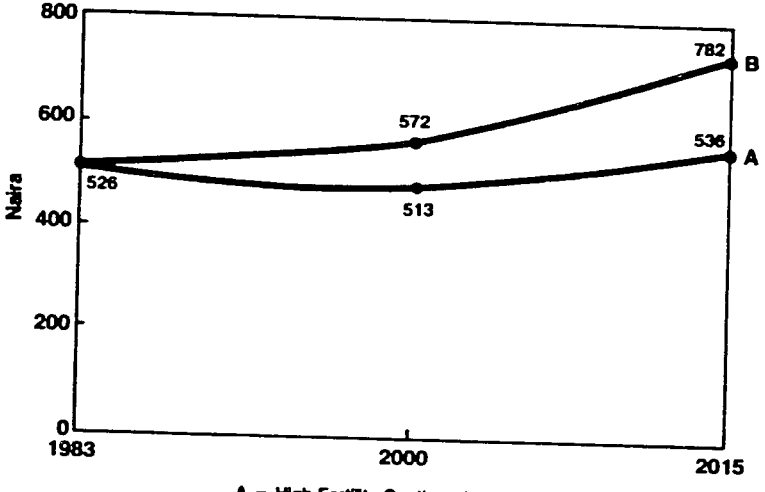
Under these circumstances, the level of Gross Domestic Product per capita will depend on the future growth of the population. All values are expressed in 1983 naira.

With continued high fertility, GNP per capita would drop from N526 in 1983 to N513 in 2000 and would then rise to N536 in 2015.

By contrast, with a drop in the fertility rate to a 3-child per woman average by 2005, GNP per capita would rise more rapidly to N572 in 2000 and N782 in 2015.

While an economy with a large petroleum export sector is subject to considerable fluctuations, the rate of growth of the population will continue to be one factor helping to determine the ability of Nigeria to raise the standard of living of its population.

Gross Domestic Product Per Capita, 1985-2015



A = High Fertility Continued
B = 3-Child Per Woman Average by 2005

Labor Force and Child Dependency

The Nigerian labor force, defined as 76 percent of the population aged 15 to 64, numbers about 37.5 million workers. According to the Fourth Plan, only about 3 million of these workers hold paid positions in the modern sector of the economy.

Because most new entrants into the labor force over the next 15 years are children who have already been born, the size of the labor force in 2000, a projected 62.1 million workers, will be the same under both population projections. Thereafter, declining fertility would affect the size of the labor force and by 2015 Nigeria would have 106 million workers with high fertility continued and 93.8 million with a drop to a 3-child per woman average by 2005. The latter number would still be two and one-half times the present size of the labor force.

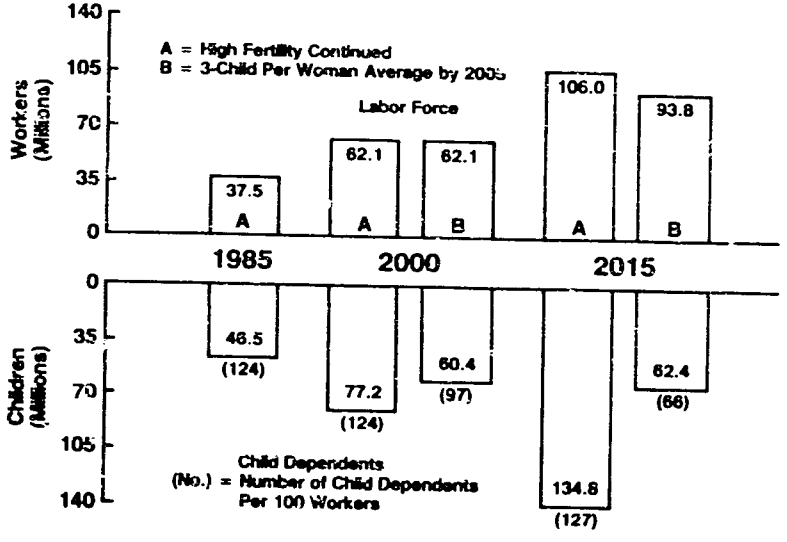
What changes more rapidly is the number of dependents who would have to be supported by the productive members of the labor force.

If fertility remained high, every 100 productive members of the labor force would have to support 124 child dependents in 1985; 124 in 2000; and 127 in 2015.

By contrast, if fertility dropped to a 3-child per woman average by 2005, every 100 productive workers would have to support 97 child dependents in 2000 and 66 in 2015.

The lower dependency ratio suggests that more resources, such as educational services, would be available for each child, and that potentially more investment could be made available to develop the productive sectors.

Labor Force and Child Dependents, 1985-2015



Education

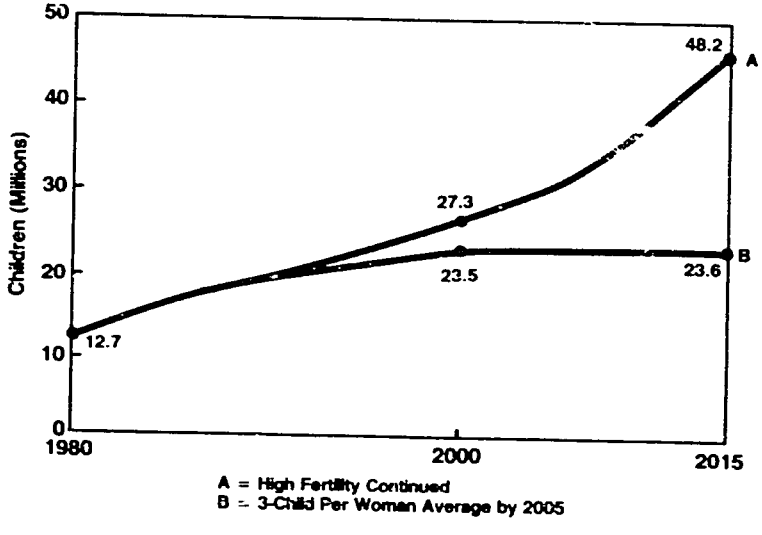
The Government of Nigeria has long recognized improved educational opportunities as critical to the development effort. Historically, the trend in school enrollments has been rapidly upwards, and in 1976 Nigeria adopted a national policy of Universal Primary Education which gave every child the right to free primary schooling. Primary enrollments increased from about 3.7 million primary students in 1970 to 12.7 million in 1980 and 14.8 million in 1982, though some states have reported level or declining enrollments in recent years. Efforts during the Fourth Plan period centered on permitting a reasonable growth in enrollment, providing qualitative improvements directed at the transmission of values and ideas through appropriate curricula and materials, and producing the trained manpower required by Nigeria's economy.

Primary Enrollments: Because of high birth rates and the momentum of population growth, the number of children in the population will increase at a rapid pace. In 1980, primary school enrollments equalled about 89 percent of the 6 to 12 year old age group (though some students were older than 12 and younger than 6). The following projections assume 100 percent of the primary school age group is enrolled by 1990.

With continued high fertility, the number of primary school students would increase from over 12.7 million in 1980 to 27.3 million in 2000 and 48.2 million in 2015.

With a drop in fertility as in Projection B, the number of primary students would increase rapidly to 23.5 million in 2000, but then would stay at about the same level for the ensuing 15 years.

Primary School Enrollments, 1980-2015



By 2015, Nigeria would have 24.6 million fewer primary students with the decline to a 3-child per woman average by 2005.

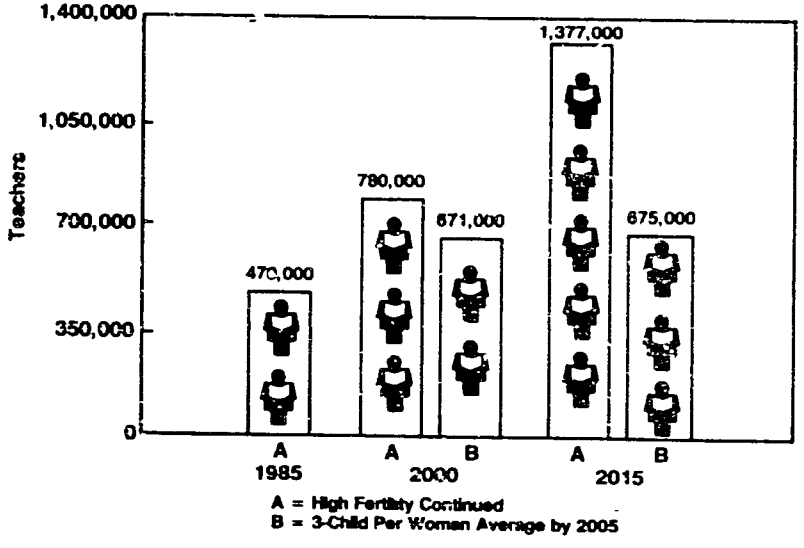
Primary Teachers: Using the above projections and a desired student-teacher ratio of 35, the required number of primary school teachers can be examined.

If high fertility were to continue, the number of primary teachers required in Nigeria would rise from 470,000 in 1985 to 780,000 in 2000 and 1,380,000 in 2015.

If fertility were to drop to a 3-child per woman average by 2005, the required number of teachers would be 670,000 in 2000 and 675,000 in 2015.

By 2015, Nigeria would need 705,000 fewer primary teachers with the drop in fertility in Projection B.

Primary School Teacher Requirements, 1985-2015



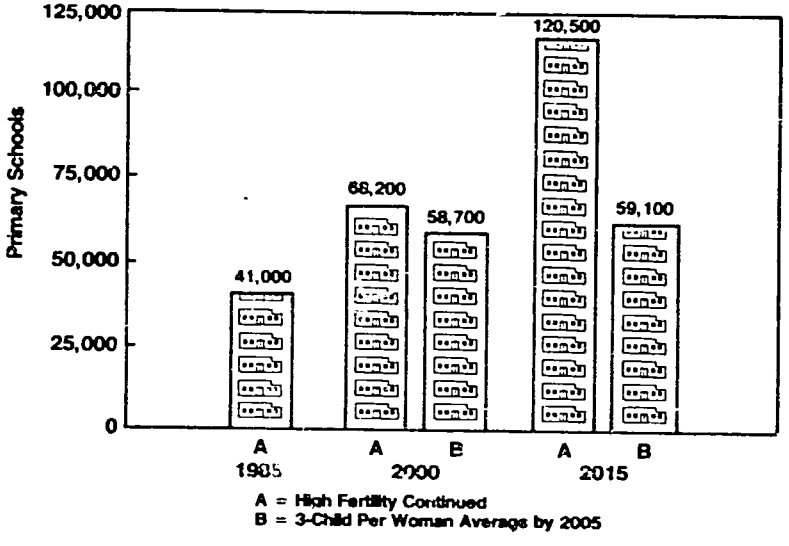
Primary Schools: Similarly, the required number of primary schools can be examined. Here, the projections use the assumption of an average of 400 students for each primary school, the actual number for 1981/82.

Under Projection A, the required number of primary schools would increase from 41,000 in 1985 to 68,200 in 2000 and 120,500 in 2015.

Under Projection B, the required number of schools would rise from 41,000 in 1985 to 58,700 in 2000 and 59,100 in 2015.

By 2015, about 72,000 fewer schools would be needed with the drop in fertility in Projection B, a difference which is about one and one-half times the number of schools which actually exist at the present time.

Primary Schools Required, 1985-2015



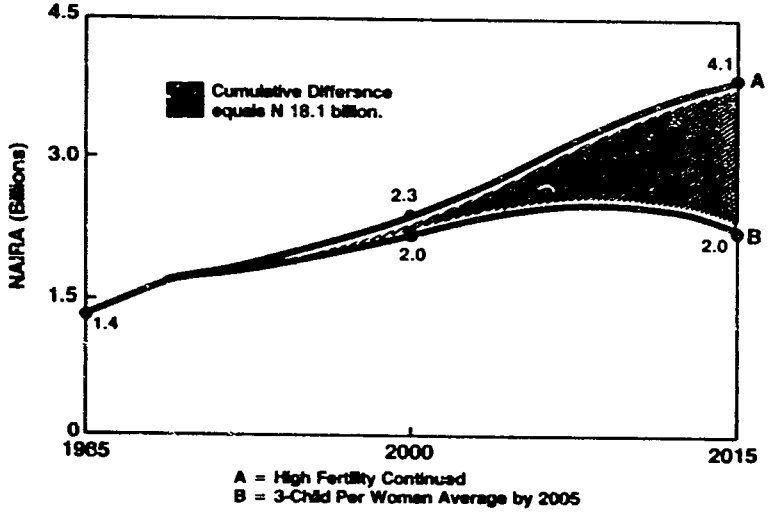
Primary School Recurrent Expenditures: In 1980, the federal and state governments collectively spent about N86 per primary student for recurrent costs. Simply continuing that level of expenditure would have the following budget implications.

Assuming high fertility continued, the budget would increase to N2.3 billion in 2000 and N4.1 billion in 2015 (in 1980 naira).

Assuming a drop to a 3-child per woman average by 2005, the recurrent budget for primary education would reach N2.0 billion by 2000 and would be virtually the same in 2015.

Over the 1985-2015 period, the cumulative difference in recurrent expenditures between Projection A and Projection B would equal N18.1 billion.

Recurrent Costs For Primary Education, 1985-2015
(1980 NAIRA)



A = High Fertility Continued
B = 3-Child Per Women Average by 2005

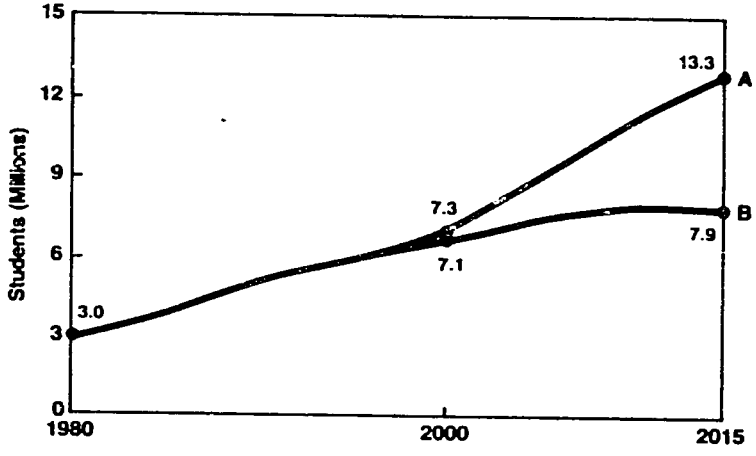
Secondary School Enrollments: Although much emphasis has been placed on reaching the goal of universal primary education, Nigeria has also achieved one of the highest secondary enrollment rates in the region with approximately 31 percent of the secondary school age group enrolled in 1980. The established goal is to achieve a 40 percent transition rate from primary to secondary schools, and the following projections assume a 40 percent secondary school enrollment rate by 2000. In that case:

With high fertility continued, the number of secondary students would rise from about 3.0 million in 1980 to 7.3 million in 2000 and 13.3 million in 2015.

With a 3-child per woman average by 2005, the number of secondary students would be 7.1 million in 2000 and 7.9 million in 2015.

The rapid rise in secondary enrollments will be significant for many reasons, but among the most important will be the increased demand for employment opportunities in the modern sector of the economy.

Secondary School Enrollments, 1980-2015



A = High Fertility Continued
B = 3-Child Per Woman Average by 2005

Secondary School Leavers and Modern Sector Jobs

One of the most important development issues facing Nigeria is that of employment creation, especially in the modern sector of the economy. The Fourth Plan reported that Nigeria had about 3,000,000 modern sector jobs in 1980, and projected that these would increase in number by about 5 percent per year over the plan period. In reality, although the Federal Government freeze on employment was lifted in 1982, retrenchment in the private sector most likely means that formal sector employment is now no higher than it was at the beginning of the plan period.

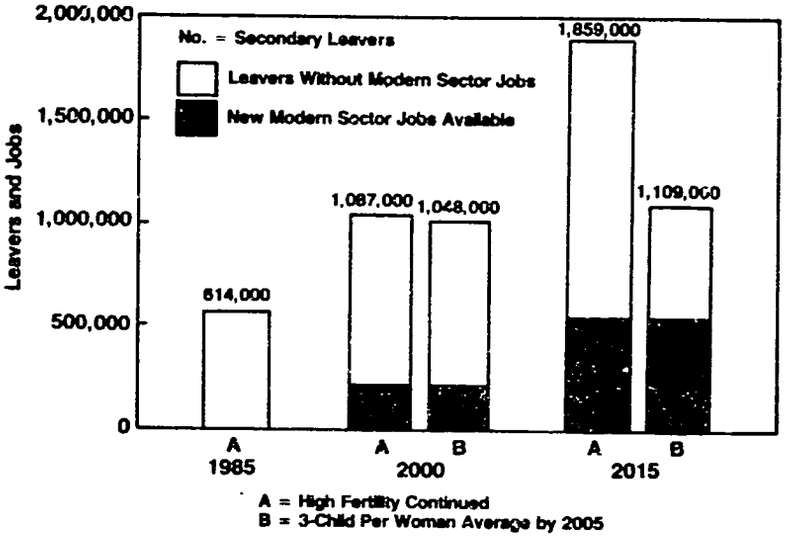
At the same time, the number of school leavers, all of whom anticipate employment in the modern part of the economy, continues to expand. The following projections compare just the number of secondary leavers with the availability of jobs in the modern sector. The projections use the assumptions that formal sector employment does not increase at all between 1980 and 1985, then increases by 3 percent per year between 1985 and 1990 and 5 percent per year thereafter. The assumption is also used that 70 to 80 percent of the secondary leavers in each year need new jobs as some do not enter the labor force immediately and others take positions vacated by other workers.

With high fertility continued, 1,087,000 secondary leavers would need employment in 2000 as compared with an availability of 245,000 new formal sector jobs. This would leave an annual gap of 842,000 secondary leavers without access to employment in the modern part of the Nigerian economy. By 2015, the gap would have widened further as the number of leavers needing new positions would be 1,859,000 while the number of new jobs would be 510,000, an annual difference of 1,349,000.

With a drop to a 3-child per woman average by 2005, the gap between the number of secondary school leavers and the number of new employment opportunities in the modern sector of the economy would be 803,000 in 2000 and 599,000 in 2015.

The gravity of this situation is underscored when one considers that the 60 percent of primary school leavers not expected to make the transition to secondary school are not taken into account in these projections, although many primary leavers anticipate that even a primary education entitles them to modern sector employment.

Secondary School Leavers and Modern Sector Jobs, 1985-2015



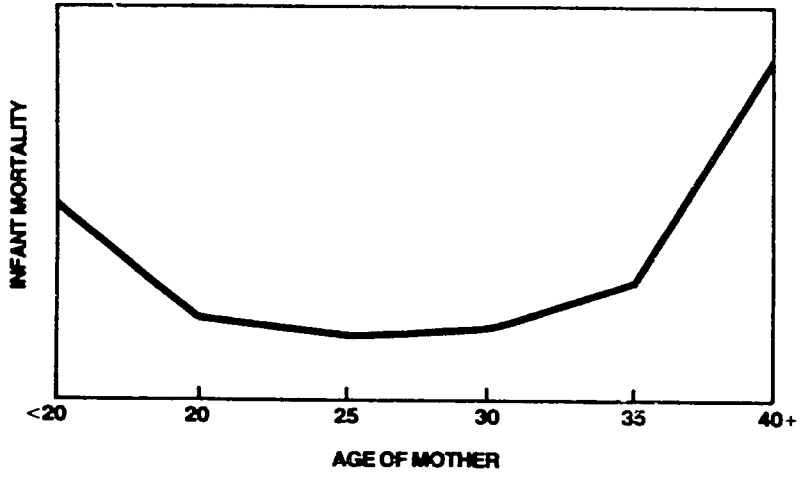
Health

An important development goal of Nigeria is to provide adequate health care to the population primarily through a National Basic Health Services Scheme. The basic objective stated in the *Fourth National Development Plan* was to provide adequate and effective primary health care to 80 percent of the population by 1985 and the entire population by 2000.

Rapid population growth can affect attainment of goals in the health sector in at least three ways. First, high fertility itself tends to be related to high rates of sickness and death among women and young children. Second, the level of fertility helps determine the number of women in their reproductive years and the number of children under the age of 5, the segments of the population at greatest risk of death and disease and consequently the most likely to require health services. Third, the rapid growth of the population makes it increasingly costly to develop the health infrastructure—to build enough facilities, train enough personnel and provide enough funds to meet the health needs of the country.

Infant Mortality and Age of Mother: As depicted in the graph, the age of the mother at times of births, especially the first birth, materially affects the level of infant mortality. While the degree varies from country to country depending on the overall infant mortality rate, the pattern tends to remain the same. Pregnancies to women under the age of 20 and over the age of 35, especially if repeated at short intervals, increase the risk to both mother and child. The risk is further aggravated by poor health conditions, malnutrition, or lack of access to medical care. In Nigeria, perhaps 36 percent of all births are to women under the age of 20 and over the age of 35. With a lower fertility rate, the opportunity to space children for the better health of both mother and child would be greater.

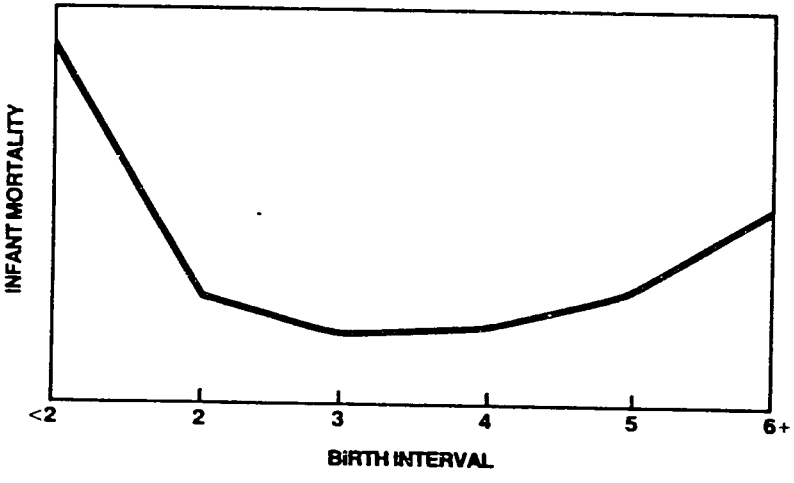
Infant Mortality and Mother's Age
(International Data)



Infant Mortality and the Spacing of Pregnancies: International studies indicate that the interval of time between pregnancies is also very important to the health of the mother and the child. Chances of fetal loss, still birth, prematurity and early childhood death are very high for intervals of less than 1 year and, to a lesser degree, intervals between 1 and 2 years. Longer intervals are needed for the mother to recover from pregnancy and childbirth and to build up strength in preparation for another pregnancy. When mothers are young and birth intervals are short at the same time, the risks to the child are even greater.

With fertility high in Nigeria, birth intervals are frequently short, thus raising the health risk for both mother and child. Longer birth intervals could potentially be to the health benefit of both women and children.

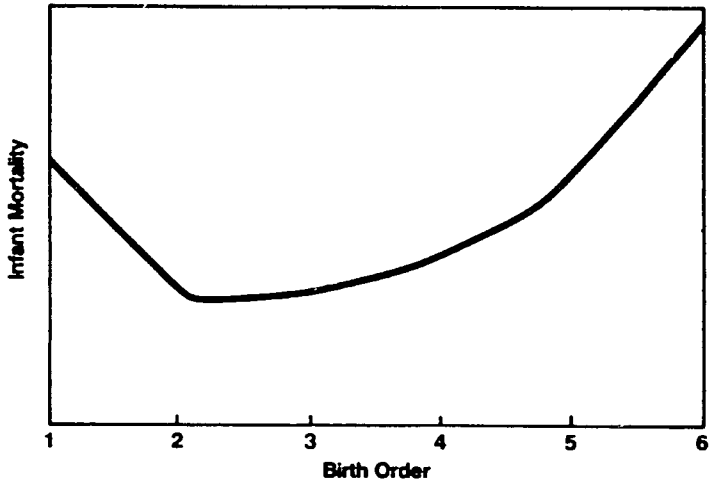
Infant Mortality and Interval Between Births
(International Data)



Infant Mortality and Previous Number of Births: Similarly, as indicated in the graphic below, the relative level of infant mortality can be related to the birth order, or the previous number of births. Infant mortality is high for the first birth, a pattern associated with the fact that first births are often to very young mothers, especially in countries such as Nigeria. Infant mortality is then much lower when the birth is the second, third or fourth to the mother, but rises steeply after the fifth birth, a not uncommon number for women in Nigeria.

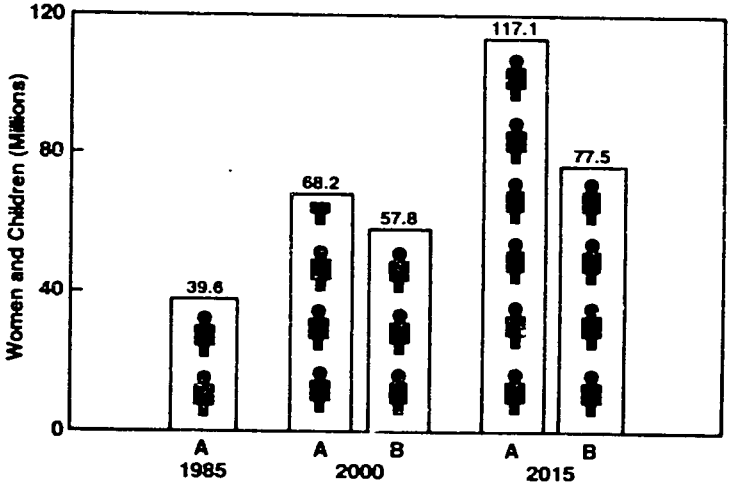
This relationship between high fertility and high rates of sickness and death for young children appears to be especially strong in poorer economic and social settings, and may not be so strong in regions where incomes are much higher.

Infant Mortality and Birth Order
(International Data)



Population at Highest Risk of Death and Sickness: Two groups of the Nigerian population are regarded as the most vulnerable to debilitating and death-causing diseases: young children (under 5 years) and women of childbearing age. In 1985, these groups totalled 39.6 million persons out of an estimated population of 98.1 million. With high fertility continued, the size of these groups would increase further to 68.2 million persons in 2000 and 117.1 million in 2015, an indication of the great demand which will exist for additional health services in Nigeria in the future. In contrast, with the decline in the fertility rate to a 3-child per woman average by 2005, the size of these groups at greatest risk of disease and death would be 57.8 million in 2000 and 77.5 million in 2015. By 2015, about 40 million fewer persons would be in the high risk group with the fertility drop in Projection B and the requirements for health services for them would be similarly reduced.

Population at High Health Risk, 1985-2015
(Women in Reproductive Years and Children Under Five)



A = High Fertility Continued
B = 3-Child Per Woman Average by 2005

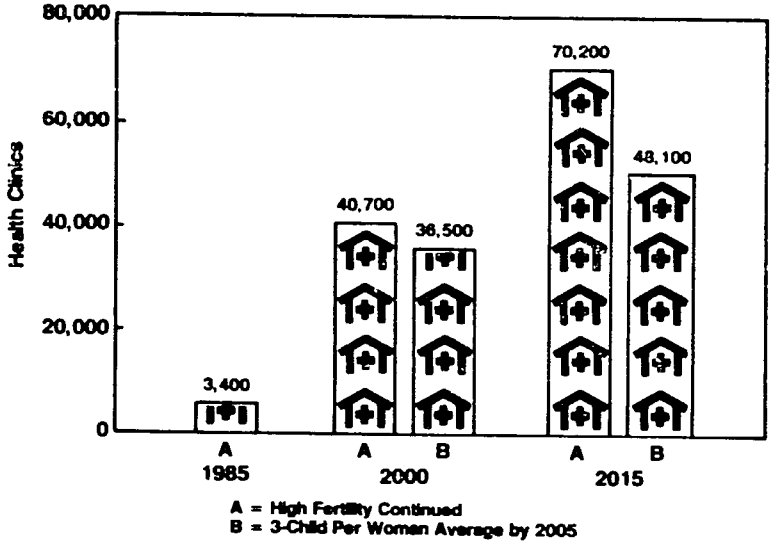
Health Clinics: Besides the immediate health implications of high fertility, rapid population growth also affects the ability of the country to develop adequate and comprehensive health services. Health clinics serve as an example. The clinics are intended to be the primary unit in the Basic Health Services Scheme with each one serving a population of 2,000 to 5,000 persons. However, in 1980, only one primary dispensing unit was in operation for each 25,000 Nigerians. Assuming an improvement so that, on average, one health clinic would be in service for every 4,000 persons by the year 2000, the required number of health clinics would be as follows:

If fertility remains high, the number of health clinics would have to rise from about 3,400 in 1980 to 40,700 in 2000 and 70,200 in 2015.

If fertility were to drop to a 3-child per woman average by 2005, the required number of health clinics would be 36,500 in 2000 and 48,100 in 2015.

The increased demand for health care will be considerable under any circumstances if Nigeria is to achieve its goal of basic and effective health services for all by the year 2000, but, as evidenced by requirements for health clinics, a slower rate of population growth could make health objectives more attainable.

Health Clinics Required, 1985-2015
(To Meet Target of Basic Health Services Scheme)



Health Personnel: According to health manpower statistics from the Ministry of Health, the number of registered medical practitioners (physicians) rose from 8,037 in 1980 to 11,294 in 1983; the number of registered nurses from 27,941 to 37,112; and the number of registered midwives from 27,983 to 36,921. Collectively, about 85,000 physicians, registered nurses and registered midwives were working in Nigeria in 1983, or one health practitioner for every 1,100 persons in the population. (The distribution of health services is uneven, however, with both facilities and personnel tending to be concentrated in the urban centers).

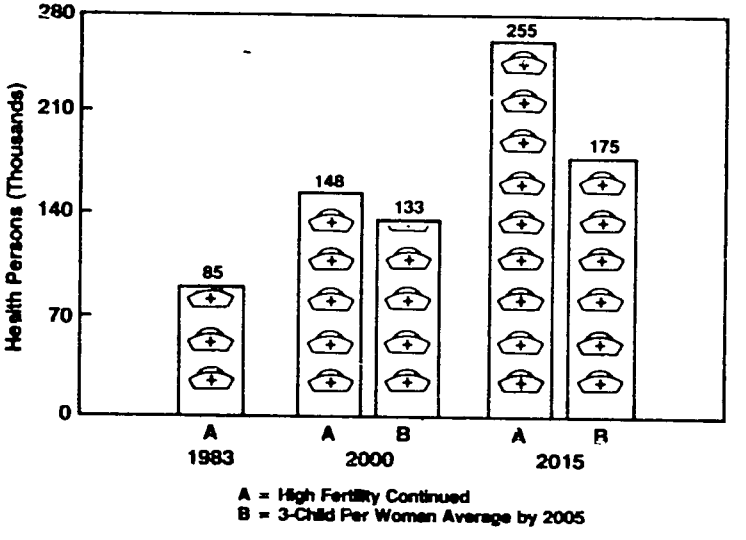
Assuming one health person for every 1,100 persons, the following projections indicate future health personnel requirements.

With high fertility continued, the required number of health persons would rise from about 85,000 in 1983 to 148,000 in 2000 and 255,000 in 2015.

With a decline to a 3-child per woman average by 2005, the number of health persons needed to maintain the same level of coverage as in 1983 would be 133,000 in 2000 and 175,000 in 2015.

Although these projections do not differentiate among skill levels, they do give a general notion of health personnel needs with different levels of population growth.

Health Persons Required, 1983-2015



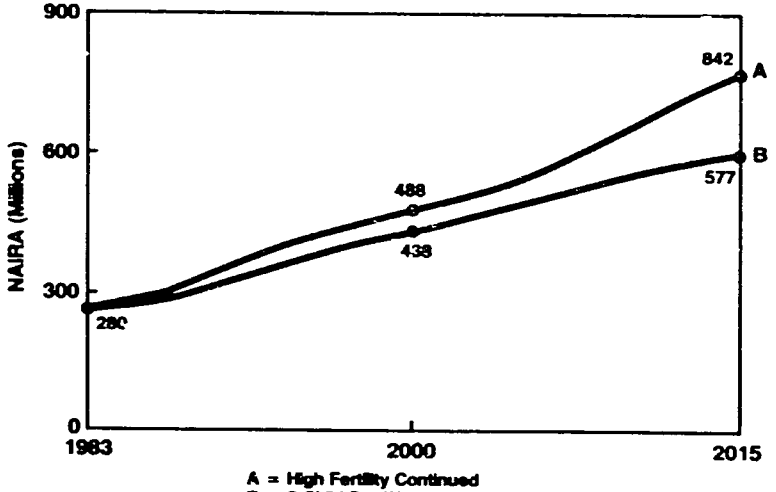
Health Expenditures: Finally, in terms of the demands which rapid population growth places on the health infrastructure, health expenditures provide a useful example. Approved budget estimates for the Federal Government for 1983 were N143.6 million for recurrent health expenditures and N136.0 million for capital expenditures (down from provisional capital expenditures of N304.4 million in 1981). This translates into a per capita recurrent expenditure of N1.55 and a per capita capital expenditure of N1.47, or a total health expenditure of N3.0 per person for the Federal Government. Using that level of expenditure:

Under Projection A, federal health expenditures would rise from about N280 million in 1983 to N488 million in 2000 and N842 million in 2015.

Under Projection B, federal health costs would increase more slowly from N280 million in 1983 to N438 million in 2000 and N577 million in 2015.

Over the 30 years from 1985 to 2015, the cumulative savings in health expenditures with the lower fertility rate would be N2.4 billion.

Federal Health Expenditures, 1983-2015



A = High Fertility Continued
B = 3-Child Per Woman Average by 2005

Urbanization

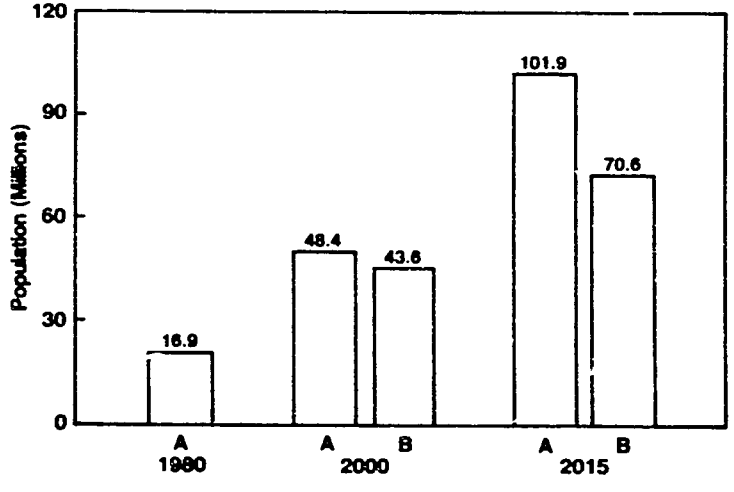
Nigeria is experiencing rapid urban growth. In 1960, only two urban centers, Lagos and Ibadan, had more than 500,000 residents; by 1980, 9 cities had more than 1/2 million persons. Between 1960 and 1970, the urban population grew by 4.7 percent per year, and between 1970 and 1982 the population of the cities grew by 4.9 percent per year. By 1980, about 20 percent of the population of Nigeria lived in the urban centers. Rapid urbanization has contributed to poor housing conditions, inadequate water supply and waste disposal, congestion, high rates of unemployment and underemployment, crime and other social problems. In view of this situation, the Fourth Plan called for programs to develop the rural areas to lessen the movement of the population from the countryside into the cities.

Urban Growth: Regardless, the urban population is likely to grow rapidly in the future under any circumstances, although that growth will be slower given a reduction in the rate of population increase. Assuming just a continuation of recent rural to urban migration patterns, the urban population of Nigeria would grow as follows under the different population projections.

If fertility were to remain high, the population of Nigerian cities would increase from approximately 16.9 million persons in 1980 to 48.4 million in 2000 and 101.9 million in 2015. By that time, the urban population would be greater than the entire population of the country at present.

If fertility were to drop to a 3-child per woman average by 2005, the urban population would rise to 43.6 million persons in 2000 and 70.6 million in 2015.

Size of the Urban Population, 1980-2015



A = High Fertility Continued
B = 3-Child Per Woman Average by 2005

Even with a reduction in the fertility rate, the urban population is likely to more than quadruple in size over the 35 years between 1980 and 2015. Nonetheless, by 2015, the urban areas would have more than 31 million fewer persons with the drop in fertility in the second projection.

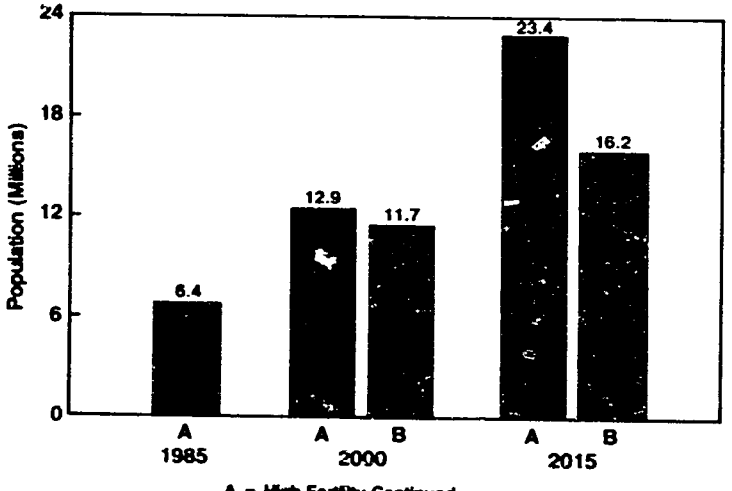
Lagos: The Lagos metropolitan area has experienced especially rapid growth. As recently as 1952, the greater Lagos area had about 329,000 residents. By 1963, that number had risen to 1,090,000, or a growth rate of over 11 percent per year between 1952 and 1963. The Lagos area population continued to grow by 8 to 9 percent per year, reaching a total of 4,133,000 persons in 1979. Projections prepared by the Lagos State Government indicated that, even given the successful move of the federal capital to Abuja, the population of the metropolitan region would increase to 6.4 million persons by 1985.

Assuming high fertility continued, the population of greater Lagos would grow from 6.4 million persons in 1985 to 12.9 million persons in 2000 and 23.4 million in 2015.

Assuming a drop to a 3-child per woman average by 2005, the population of metropolitan Lagos would nonetheless increase to 11.7 million residents in 2000 and 16.2 million in 2015.

Birth rates have remained persistently high in the cities of Nigeria, including the major urban centers such as Lagos. By 2015, the lower fertility rate, which would lessen both the rate of natural increase and the pressures to migrate from the smaller urban areas and the countryside, would mean that 7.2 million fewer persons would reside in Lagos than with high fertility continued.

Size of Metropolitan Lagos, 1985-2015



A = High Fertility Continued
B = 3-Child Per Woman Average by 2005

New Job Requirements in Lagos: People move to Lagos and the other cities and towns in search of economic opportunities. Unemployment and underemployment are a growing problem in the urban areas; the Lagos Master Plan estimated that in 1978 over 30 percent of the labor force was either unemployed or underemployed and projected that the proportion would rise to 40 percent by 1985. More than 55 percent of the labor force works in the low paying, low productivity informal sector.

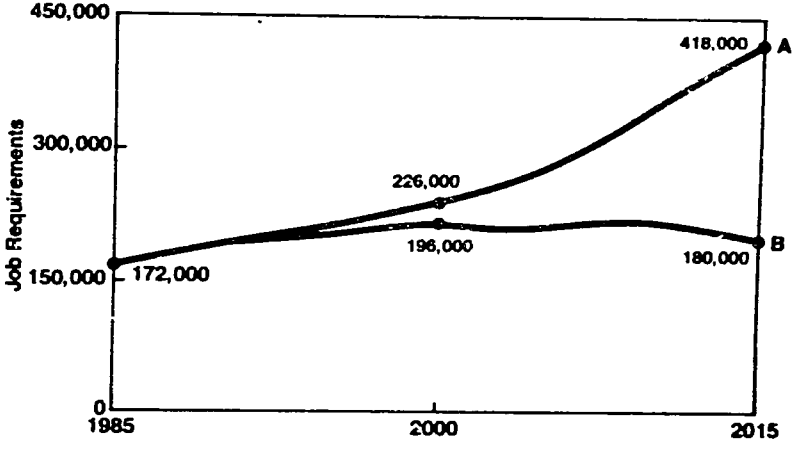
Future population growth will help determine both the number of resident young people entering the urban labor market and the number coming into Lagos from the rural areas and smaller towns in search of work. Both projections assume an urban labor force participation rate of 70 percent of the population aged 10 to 64, and are based on the Lagos Master Plan estimates of labor force growth to the year 2000.

Under Projection A, the number of new jobs required each year in Lagos would rise from 172,000 in 1985 to 226,000 in 2000 and 418,000 in 2015.

Under Projection B, annual new job requirements would increase from 172,000 in 1985 to 196,000 in 2000, then drop back to 180,000 in 2015.

By 2015, the Lagos economy would have to create 238,000 fewer new jobs each year to accommodate the growth of the population if fertility were to decline as in Projection B.

Annual New Job Requirements in Lagos, 1985-2015



A = High Fertility Continued
B = 3-Child Per Woman Average by 2005

Housing Requirements in Lagos: Housing is expensive and difficult to find in many urban areas of Nigeria, particularly the capital. Construction has not kept pace with Lagos' rapidly expanding population, leading to severe overcrowding. The average number of persons per "residential structure" increased from 33 to 37 between 1975 and 1980, and by the latter year there were 5.2 persons per room. The Lagos Master Plan also estimated a deficiency of 48,000 housing units.

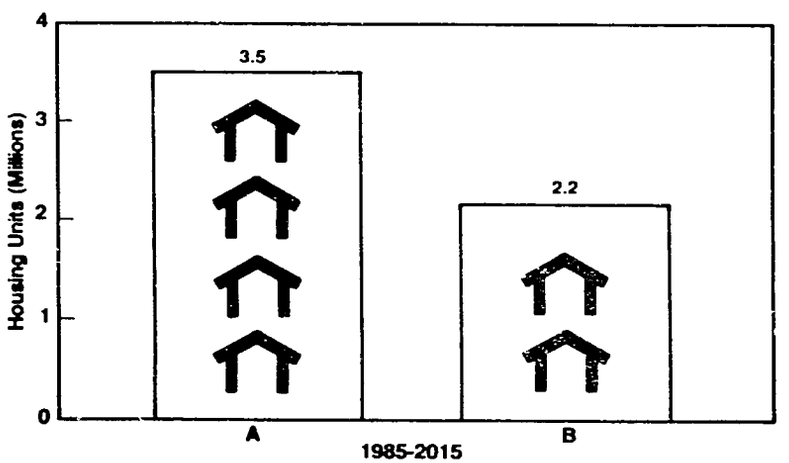
The following projections, again based on the Master Plan, assume an average of 6.3 persons per household, falling to 5.5 persons in 2015.

With high fertility continued, about 1.6 million new housing units would be required between 1985 and 2000 simply to accommodate the growth of the population. Another 1.9 million units would be needed between 2000 and 2015, for a total of 3.5 million new units over the 1985-2015 period.

With declining fertility, 2.2 million new units would be needed over the same 30 years, a difference of 1.3 million fewer units when compared with the first projection.

These projections take into account only the requirements for new housing to meet the needs created by population growth and do not take into consideration present deficits or the future depletion of current housing stock.

New Housing Requirements in Lagos, 1985-2015



A = High Fertility Continued
B = 3-Child Per Woman Average by 2005

Low Income Housing Costs: In recent years, about 25 percent of households requiring new housing in Lagos have been able to obtain housing through private markets, while the other 75 percent are low income households unable to obtain adequate housing with their own resources. Therefore, the public sector has to assist in the provision of low income housing. Assuming an approximate expenditure of N15,000 per basic unit in Lagos, a notion of potential costs can be obtained from the projections.

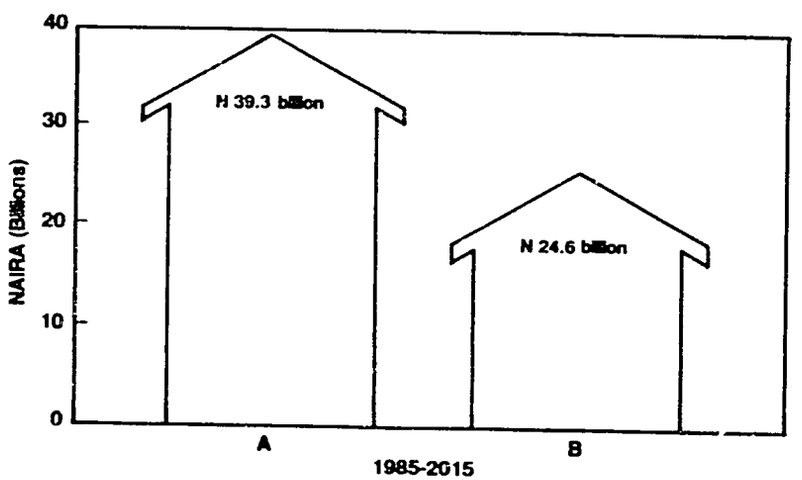
Given high fertility continued, expenditures would equal N39.3 billion over the thirty years from 1985 to 2015.

With declining fertility, expenditures would be N24.6 billion over the same time, or N14.7 billion less than with continued high fertility.

As a point of reference, the Federal Government allocated N1.6 billion to the housing sector for the Fourth Plan period. Because the potential costs for low income housing in Lagos and the other urban areas are so great, the Fourth Plan called for creative efforts to mobilize financing of low income shelter from both private and public resources and for self-help programs to enable low income households to assist in the development of their own housing.

Nor, as is observed in the Fourth Plan, is housing just the shell of a building. Other essential services such as electricity, water supply, access roads, sewage and refuse disposal facilities must be provided. Many of these services are inadequate in Lagos and the other cities and rapid urban growth only promises to aggravate further already serious problems.

Low Income Housing Costs in Lagos, 1985-2015



A = High Fertility Continued
B = 3-Child Per Woman Average by 2005

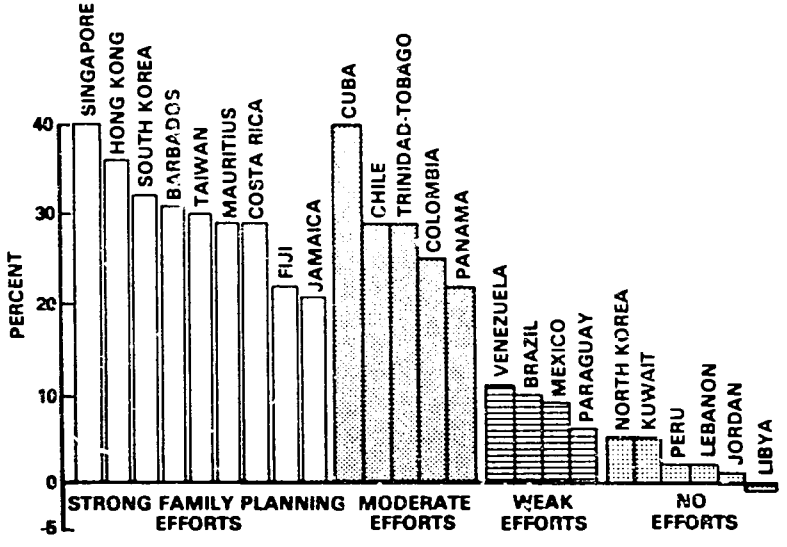
The Impact of Population Programs on Fertility Decline

Will a continuation of rapid population growth in Nigeria hinder the country's ability to achieve its social and economic development objectives? If so, an equally important question may then be asked: Is it possible for a population program to reduce fertility, or is fertility decline itself the consequence of social and economic development?

Population programs should appropriately be regarded only as part of a broader development effort. Experience in other countries suggests that the most effective way to reduce fertility is to combine rapid social and economic development with a strong population planning effort. Population/family planning programs, however, are important. One study of 94 countries showed that among developing nations with relatively advanced social and economic development programs, birth rates declined an average of 19 percent between 1965 and 1975. However, birth rates declined an average of 29 to 30 percent in countries with moderate or strong population/family planning programs; 9 percent in countries with weak population/family planning efforts; and only 3 percent in countries with no population programs.

Effects of Population/Family Planning Efforts on Birth Rates

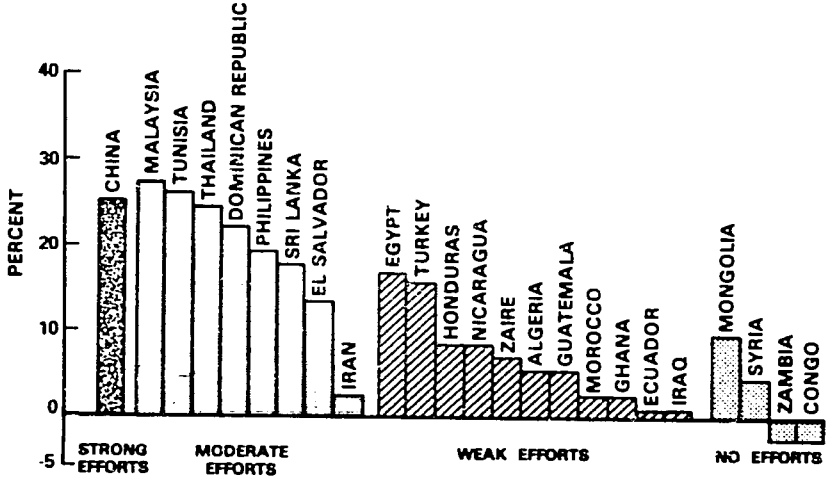
Decline in the Birth Rate from 1965 to 1975 Among Developing Countries with Relatively Advanced Economic and Social Settings



The same pattern prevailed among countries with a more moderate social and economic setting. While birth rates declined 10 percent between 1965 and 1975, they dropped an average of 19 percent in nations with a strong or moderate family planning program; 6 percent in nations with a weak program; and 2 percent in countries with no program. In brief, population/family planning programs appear to have an independent effect on fertility reduction, though they are most effective when they exist in tandem with a strong social and economic development effort.

Effects of Population/Family Planning Efforts on Birth Rates

Decline in the Birth Rate from 1965 to 1975 Among Developing Countries with Moderate Economic and Social Settings



The Effects of a Delay in Reducing Fertility

The population dynamics operating in Nigeria today are changing the country so quickly that it is useful to conclude by looking again at these factors. In particular, because the population is growing so rapidly and because of the irresistible momentum of population growth, any delay which occurs before fertility begins to decline will have an important impact on the future size of the Nigerian population. To illustrate this idea, the following projections each incorporate the assumption that fertility declines from its present level to slightly over a 2-child per woman average (replacement level fertility) over a 30 year period. What differs in each case is the point in time at which the decline begins.

If the 30 year fertility decline began in 1985, the population would still grow to 195 million persons in 2015 and 231 million in 2030. The size of the population would eventually level off at 270 million persons.

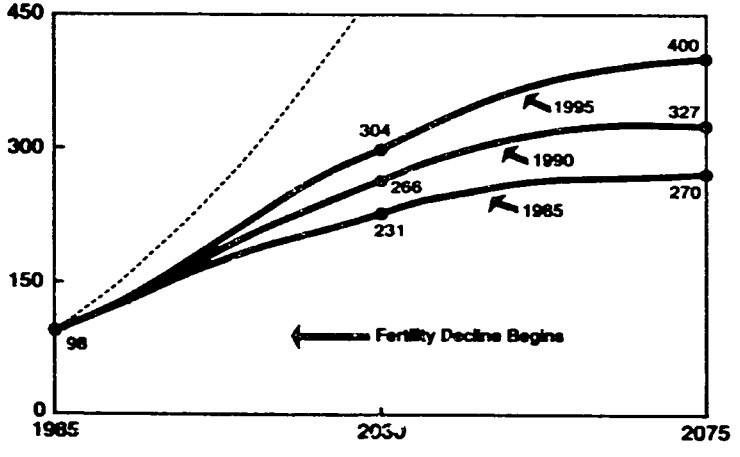
If the assumed fertility decline began in 1990, the population would be 219 million persons in 2015 and 266 million in 2030, and it would not stop growing until it reached over 327 million persons.

If the fertility drop commenced in 1995, the population would be 239 million in 2015 and 304 million in 2030, and would continue to grow until it reached 400 million persons. A delay of only 10 years would make a difference of 130 million persons in the size of Nigeria's population.

As shown, the timing and degree of any fertility decline will have an important influence on the future population characteristics of Nigeria.

Effects of a Delay in Reducing Fertility

(Fertility Decline to Slightly Over a 2-Child Per Woman Average in 30 Years)



Conclusion

The Government of Nigeria is planning for development in the future through wise use of petroleum resources, expansion of agricultural production, and integrated rural and urban development programs. However, the rapid growth of the population is affecting the ability of the country to achieve its social and economic development goals, including efforts to:

- Develop the agricultural sector, achieve food self-sufficiency, and alleviate rural poverty;
- Conserve forest resources and develop alternative energy sources;
- Achieve a high rate of economic growth and increase the Gross Domestic Product per capita;
- Achieve and maintain a quality system of universal primary education and expand secondary school opportunities;
- Provide a sufficient number of new jobs for the rapidly growing labor force, especially modern sector jobs for the increasing number of school leavers;
- Provide adequate and effective health services to the entire population;
- Ensure adequate services, especially housing, to the rapidly expanding urban population.

The information and projections presented in this analysis are thus intended to contribute to the discussion of the importance of population factors to the ability of Nigeria to achieve its social and economic development objectives.

Selected Sources

1. Adepoju, Aderanti. *Population Growth and Urbanization.* Review paper presented at the NISER/BATTELLE Symposium on Population and Development Policy in Nigeria, Conference Centre, University of Ibadan, 25-28 July, 1982.
2. Agunbiade, A.O. *Population Growth and Housing.* Review paper presented at the NISER/BATTELLE Symposium on Population and Development Policy in Nigeria, Conference Centre, University of Ibadan, 25-28 July, 1982.
3. Arowolo, O.O. *Population Change and Labour Force Supply.* Review paper presented at the NISER/BATTELLE Symposium on Population and Development Policy in Nigeria, Conference Centre, University of Ibadan, 25-28 July, 1982.
4. Central Bank of Nigeria. *Annual Report and Statement of Accounts for the year ended 31st December, 1983.*
5. Claore, G.O. *Population Growth and Environmental Sanitation.* Review paper presented at the NISER/BATTELLE Symposium on Population and Development Policy in Nigeria, Conference Centre, University of Ibadan, 25-28 July, 1982.
6. *Economic and Social Statistics Bulletin (Special Series).* Lagos: Federal Office of Statistics, 1984.
7. Fadayomi, T.O. *Population and Educational Planning in Nigeria.* Review paper presented at the NISER/BATTELLE Symposium on Population and Development Policy in Nigeria, Conference Centre, University of Ibadan, 25-28 July, 1982.
8. Falodun, Chief F.J. *The Major Findings of the Nigeria Fertility Survey, 1981-82.* Keynote address delivered by Chief F.J. Falodun, Director, National Population Bureau at the Inaugural Session of the National Meeting on the Nigeria Fertility Survey, September 19-21, 1984.
9. Fapohunda, Olanrewaju J. et al. *Lagos: Urban Development and Employment.* Geneva International Labour Office, 1978.
10. Federal Republic of Nigeria. *Fourth National Development Plan, 1981-85, I. Lagos: The National Planning Office, Federal Ministry of National Planning, 1981.*
11. Federal Republic of Nigeria. Outline of the Fourth National Development Plan, 1981-85. *Lagos: The Federal Ministry of Planning, 1981.*
12. Higgins, G.M. et al. *Potential Population Supporting Capacities of Lands in the Developing World.* Technical report of project *Land Resources for Populations of the Future* by Food and Agricultural Organization of the United Nations, United Nations Fund for Population Activities, and International Institute for Applied Systems Analysis. Rome: Food and Agriculture Organization, 1982.
13. Igben, M.S. *Land Tenure and Food Production in Nigeria.* Review paper presented at the NISER/BATTELLE Symposium on Population and Development Policy in Nigeria, Conference Centre, University of Ibadan, 25-28 July, 1982.
14. Lagos State Government. *Lagos State Interim Regional Plan, 1980-2000.* Ikeja: Lagos State Secretariat, 1980.
15. National Population Commission. World Fertility Survey. *Nigeria Fertility Survey (1981-1982): Preliminary Report, 1983.*
16. *Nigeria: Issues and Options in the Energy Sector. Report of the Joint UNDP/World Bank Energy Sector Assessment Program. United Nations Development Program and the World Bank, 1983.*

17. Mbanefoh, Gini F. *Population Growth, Government Recurrent Expenditure, Savings and Investments.* Review paper presented at the NISER/BATTELLE Symposium on Population and Development Policy in Nigeria, Conference Centre, University of Ibadan, 25-28 July, 1982.
18. Okeneye, O.Y. *Population Growth and Health Planning in Nigeria.* Review paper presented at the NISER/BATTELLE Symposium on Population and Development Policy in Nigeria, Conference Centre, University of Ibadan, 25-28 July, 1982.
19. Okorafor, A.E. *Population and Income Distribution.* Review paper presented at the NISER/BATTELLE Symposium on Population and Development Policy in Nigeria, Conference Centre, University of Ibadan, 25-28 July, 1982.
20. Orubuloye, I.O. *An Overview of the Demographic Situation and National Policy on Population in Nigeria.* Review paper presented at the NISER/BATTELLE Symposium on Population and Development Policy in Nigeria, Conference Centre, University of Ibadan, 25-28 July, 1982.
21. "Survey Nigeria." *World Business Weekly* (November 24, 1980), 25-40.
22. United Nations Fund for Population Activities. *Nigeria: Report of Mission on Needs Assessment for Population Assistance.* New York: United Nations Fund for Population Activities, 1980.
23. Wilber Smith and Associates and Lagos State Government. *Master Plan for Metropolitan Lagos, I, Summary.* (Lagos, 1981).
24. World Bank. *Nigeria: Basic Economic Report.* Washington: The World Bank, 1981.
25. World Bank. *Nigeria Country Economic Memorandum.* Washington: The World Bank, 1981.
26. World Bank. *Nigeria: Macro-Economic Policies for Structural Change.* Washington: The World Bank, 1983.
27. World Bank. *Nigeria: Non-Oil Export Prospects. Washington: The World Bank, 1982.*