

## **Demographic transition: the predicament of sub-Saharan Africa**



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Sub-Saharan Africa consists of countries regarded as underdeveloped or developing and is part of the so-called Third World. Third World countries share many characteristics but at the continental level they are not the same. For instance, sub-Saharan Africa is sparsely populated, in contrast to South and East Asia, and it is much less urbanized than Latin America. It stands out among the other major regions of the Third World as having the slowest rate of economic growth in recent years: an average annual growth rate of gross domestic product of 2.4 per cent between 1980 and 1990 compared to 3.0 per cent in South Asia, 4.3 in Middle East and North Africa and 3.1 per cent in Latin America during the same period; its population growth is outstripping that of food production and also it is politically Balkanized, consisting of a large number of countries most of which are small and at an early stage of development. There are 50 of them, including South Africa and British Indian Ocean Territory. The latter is excluded from the discussion for lack of demographic information while the former will not figure much for a number of reasons. We know more about the demographic profiles of the other countries of the region than we do about South Africa. Reports on the methodology of studies conducted in South Africa are not published and major questions on coverage, sampling methods, response rates and other factors remain unanswered (Caldwell and Caldwell 1993).

Sub-Saharan Africa emerged from the second World War with a total estimated population of 181 million in 1950, and an annual growth rate of 2.2 per cent. The population doubled within the following 27 years (1950-1977) and the annual growth rate climbed to 3.0 per cent. The expansion of the population has continued unabated, reaching 531 million in 1990 and it is estimated to rise to 739 million by the end of the century with the doubling period reduced to 23 years and the rate of growth increasing to 3.4 per cent per year. The third doubling of the population will occur within the next 18 years with an estimated number of 1.5 billion people and a growth rate of 3.8 per cent per year. Except for South Africa, Mauritius, Guinea Bissau, Chad and war-torn countries such as Angola, Somalia and Mozambique, the populations of most of the countries accelerated at average annual rates of 2.6 per cent and over between 1980 and 1992. Among the countries with such high rates of growth are Botswana (3.4), Kenya (3.6), Congo (3.4), Zambia (3.8), Cameroon (3.5), C'te d'Ivoire (3.8), Zaïre (3.3), Tanzania (3.0), Comoros (3.7), Nigeria (3.3), Niger (3.3), Uganda (3.0), Mali (3.2), Zimbabwe (3.3), Ethiopia (3.1) and Togo (3.3) (World Bank 1994). Over the past two decades the number of countries growing at rates of 3.0 per cent and over increased from seven to 16.

Why are the growth rates so high? Since World War I, medical and public health technologies have been made available to virtually all countries in the subcontinent whatever the level of economic development. With the introduction of antibiotics, antimalarial spraying and increased use of vaccination, the decline in mortality accelerated in the 1950s and spread to all countries. Driven by falling mortality and continued high fertility, the growth rate rose from two per cent per annum in the 1950s to three per cent per annum in 1994. The current population growth in sub-Saharan Africa is a phenomenon for which the economic and

demographic history of mankind offers no real precedent. Birth rates are above 40 per thousand and have changed very little or not at all. The total fertility rates range from between four and five in Zimbabwe and Botswana to six or more children per woman in the remainder of the countries. On the other hand, all the countries in the subcontinent have experienced significant declines in their death rates over the past 35 years except for Malawi, Sierra Leone, Guinea, Guinea Bissau and Mozambique where the rates are estimated to be 20 or more deaths per thousand population.

**Table 1**  
**Population growth in 29 sub-Saharan African countries: 1980 to 1980-1992**

Average annual rate of growth (per cent)	Number of countries	
	1980	1992
<2	1	1
2.0-2.4	8	3
2.5-2.9	13	9
3.0-3.5	3	14
>3	4	2
Total	29	29

Source: World Bank 1994

In this process of change demographic transition theory may be used to simplify the complex relationships between population growth and economic development. The theory consists of a generally accepted body of concepts about how the world or a country behaves demographically. It attempts to explain why all contemporary developed countries have more or less passed through the same three stages of demographic change over time. According to the original version of the theory, each population passes through three broad stages: Pre-industrial, Transitional and Industrial-urbanized. The pre-industrial stage is characterized by a regime of high mortality and high fertility while the transitional stage is one with low mortality and high fertility. Because the decline of mortality precedes the decline in fertility, there is a period during which population grows rapidly. As time goes by, however, fertility begins to decline and the reduction in the level of fertility continues until the country's population growth stabilizes at low levels of fertility and mortality. Although no two countries behave alike, none appears to become urban-industrial without passing through or at least entering the demographic transition.

The classic model, which may be labelled Demographic Transition Type 1, was closely associated with the Industrial Revolution and was essentially completed by the end of World War I followed by the Type 2 model. This is characteristic of countries moving through the entire trajectory much more rapidly than did the older industrial countries. The drop in mortality is more abrupt, and the fall in fertility, beginning from a higher level, is faster once it gets under way. As a result, the growth of population is two to three times what it was historically in Type 1.

As a model for predicting the future, the demographic transition has undeniable limitations and it is therefore less satisfactory for making population projections. However, for purposes of understanding what is going on, the theory of demographic transition still offers the best starting point. At the end of World War I, a group of Asian countries, Japan, Hong Kong, Singapore, South Korea and Taiwan, faced a bleak future. Their economies had traditionally been heavily dependent on agriculture, yet land was very scarce. Consequently, their population density was extremely high. Japan managed to move through most of its

demographic transition while other countries struggled with labour intensive activity that supported high numbers of people at or near the subsistence level. These countries, however, developed with incredible speed. On the demographic side, their total fertility rate fell from between five and seven children per woman to below replacement level within a relatively short period of 35 years, from 1950 to 1985 (see Leete and Alam 1993:20). If these countries could quickly reach a fertility rate of less than two children per woman, can others do it too, despite the starting conditions? Will they serve as a model for the rest of the developing world? Or will it prove impossible for many poor countries, particularly in sub-Saharan Africa, to travel that path?

Nearly all the countries are at the second stage of the demographic transition with high population growth rates well over 2.5 per cent per year. Notwithstanding, most countries are experiencing high infant and child and general death rates because of the persistence of widespread poverty and low levels of living. The latter are also perpetuating high birth rates and general population growth rates remain relatively high. Even in countries such as Kenya, Zimbabwe and Botswana where fertility is reported to be on the decline, the current levels of fertility are fairly high and population growth rates are high, 3.4 per cent in Botswana, 3.6 per cent in Kenya and 3.3 per cent in Zimbabwe (World Bank 1994). As we progress towards the end of the twentieth century, an important question is when and under what conditions are the African countries likely to experience significant mortality and fertility declines and slow population growth?

No one knows the answer, but from the demographic point of view the options are few. The rapid expansion of population in the subcontinent may have to stop somehow. It may stop because of a return to high mortality due to malnutrition, famine and poverty, conflicts (especially over land and resources) or other disaster perhaps stemming from the 'Tragedy of the Commons' or AIDS. Or it may be stopped as a result of a continuous decline in fertility to a low level, a condition possibly brought on by unbearable costs of childbearing due to the economic crisis. In what follows an attempt is made to assess the two major components of the demographic transition, mortality and fertility.

### **Mortality transition**

As noted earlier on, medical and health technologies accelerated the decline in mortality during the 1950s and 1960s. The mortality rate for children under the age of five has been cut by half and life expectancy increased by more than a decade between 1956 and 1980. Infant mortality dropped to below 100 per thousand live births between 1970 and 1992 in fewer than half of the countries for which data are available (see Table 3). It is still relatively high in all countries except Botswana, Zimbabwe and Lesotho.

During the mid-1950s only one in seven Africans had access to safe drinking water, but 25 years later about half of the African population was obtaining drinking water from a safe source. By the end of the 1980s nearly half of all Africans could reach a modern health care facility within two hours.

Despite these achievements, however, life expectancy in Africa was only 52 years in 1992 compared with 64 years for all developing countries and 77 years for industrialized countries (UNDP 1993). The persistence of high mortality is reflected in figures presented in Table 2. In three-quarters of the countries, life expectancy at birth is less than 56 years and only three countries, South Africa, Lesotho, and Botswana, have average life expectancy of more than 60 years.

Africa's infant mortality rate is 1.5 times higher than in all developing countries and eight times higher than in industrialized countries. Within the continent, mortality differentials between and within countries are no less striking: mortality of children under five ranges from 254 deaths per thousand live births in Malawi, Mali and Sierra Leone to below 100 in

Zimbabwe and Botswana. Adult mortality, the risk of dying between ages 15 and 60, has been estimated to range from 18 per cent in Northern Sudan to as high as 58 per cent in Sierra Leone. In many countries, more than 30 per cent of females and 40 per cent of males of working age will die before the age of 60 (UNDP 1993).

**Table 2**  
**Expectation of life at birth 1992**

Expectation of life at birth	Number of countries
<45	6
45-49	12
50-55	9
56-60	6
>60	3
Total	36

Source: World Bank 1994

**Table 3**  
**Decline in infant mortality rates (per 1,000 live births) in African countries-1992**

COUNTRY	1970	1992	DECLINE (%)	COUNTRY	1970	1992	DECLINE (%)
Botswana	101	35	65	Mauritania	165	117	29
Benin	155	110	29	Mauritius	79	53	33
Burundi	182	129	29	Malawi	193	134	31
Burkina Faso	178	132	26	Mozambique	156	162	4
Cameroon	126	61	52	Namibia	118	57	52
C.A.R.	139	105	24	Niger	170	123	28
Chad	171	122	29	Nigeria	139	84	40
Côte d'Ivoire	135	91	33	Rwanda	142	117	18
Congo	126	114	10	Sierra Leone	197	143	27
Ethiopia	158	122	23	Somalia	158	132	16
Gabon	138	94	54	South Africa	79	53	33
Ghana	111	81	27	Sudan	149	99	34
Guinea	181	133	27	Tanzania	132	92	30
Guinea Bissau	185	140	24	Uganda	109	122	12
Kenya	102	66	35	Zambia	106	107	1
Lesotho	134	46	66	Zimbabwe	96	47	51
Madagascar	181	93	49	Zaire	158	96	49
Mali	204	130	36				

Source: World Bank 1994

Mortality differentials within countries are strong indicators of the prevailing inequalities in health status between urban and rural residence and among socio-economic groups. In Zimbabwe, for example, childhood mortality of urban residents is 45 per cent below levels in rural areas, and among urban dwellers in the Sudan, Togo and Uganda it is up to 20 per cent below rural levels. Children of married women with secondary education are 25 - 50 per cent less likely to die than children of women who have no formal schooling. Ethnicity also ranks

as a strong correlate of infant and childhood mortality differentials, even after controlling for education and occupation. At all levels of statistical aggregation, therefore, huge gaps are apparent in key health indicators.

Perinatal conditions and infectious and parasitic diseases are responsible for 75 per cent of infant deaths. Infectious and parasitic diseases are further responsible for 71 per cent of the deaths of 1-4 year-olds, 62 per cent of the deaths of children aged 5-14 years, and 53 per cent of adult deaths. Among older adults, cancer and circulatory system diseases prevail among those aged 45-64 years, and 65 years and older (World Bank 1991). Maternal mortality in Africa is very high and health problems are compounded by lack of frequent gynaecological checkups and care, and delay in treatment when infections occur. Africa also has the highest adolescent pregnancy rate in the world. Childhood mortality and morbidity are of particular concern because children are among the most vulnerable groups. Childhood health in Africa is threatened mostly by infectious diseases, particularly diarrhoea, acute respiratory infections, malaria and measles.

The structure of the causes of death indicates the lack of profound structural changes in the African socio-medical systems. A significant shift in the existing structure would require substantial improvements in agricultural and infrastructural capacity: safe water supply, sanitation, nutrition and especially education, which appears to influence some aspects of social behaviour including child care and reproduction. In some Asian countries where infant mortality has declined substantially, changes have occurred not only in the medical and health systems, for example in child care, but also in the social and economic conditions such as nutrition, standard of education and the level and distribution of income. Health conditions are therefore closely interrelated with the levels of socio-economic development, with public health programs and also with cultural beliefs and attitudes towards illness.

#### ***Infrastructural facilities***

Access to clean water and sanitation significantly reduces mortality and morbidity. Many areas in sub-Saharan Africa, particularly the rural areas where the majority of the people live, are without safe water and are subject to insanitary surroundings with extremely limited transport and communication. Except in Botswana, South Africa, Zimbabwe, Cote d'Ivoire and Burkina Faso, less than 50 per cent of the sub-Saharan African population has access to safe water; the situation is even worse in the rural areas where more than 70 per cent of the population are unable to consume clean water (World Bank 1994). Most rural people depend on wells, rivers, streams, ponds and lakes as their source of drinking water. Available statistics also show that except for about four countries, most people have no access to adequate sanitation; in some countries, only between 2 and 20 per cent of the rural dwellers have access to sanitation. Access to power is also a major problem in the region. Less than one-half of the households have access to electricity sufficient for at least lighting except in a few countries, and in even in these countries electric supply breakdowns are frequent; ranging from six per cent in Botswana to 57 per cent in Nigeria. With the exception of South Africa (87) and Mauritius (56), the number of telephone exchange mainlines per thousand persons ranges from one in Niger, Chad and Mali to 13 in Zimbabwe and 21 in Botswana. Reported faults may rise to as high as 217 per 100 mainlines per year. With regard to roads the percentage paved and in good condition is relatively low in many countries and the World Bank estimates show that 'Timely maintenance expenditure of \$12 billion would have saved road reconstruction costs of \$45 billion in Africa in the past decade' (World Bank 1994). Thus, levels of infrastructure stocks in sub-Saharan Africa are woefully low in many countries. According to the recent World Bank study,

The per capita provision of infrastructure services has increased in all regions, the greatest improvements have been in East Asia and the smallest in sub-Saharan Africa; reflecting the strong association between economic growth and infrastructure (World Bank 1994).

This linkage is actually reflected in China's success story of rural enterprise that employs more than 18 per cent of the labour force and produces more than a third of national output. This success has been achieved with a minimum amount of transport, telecommunications and power at the village level.

In sub-Saharan Africa the levels of health infrastructure are also very low. The available information shows that 60 per cent of the region's population had access to health services during the 1987-1990 period; the corresponding figure for the urban areas was estimated to be 87 per cent (UNDP 1993). Most rural people lack basic health facilities. In many rapidly growing cities, expansion of health infrastructure is lagging behind population growth, which exerts great pressure on the existing facilities. High population growth rates have therefore contributed to the inability of African countries to expand, and, in some cases, even to maintain existing levels of health facilities. For example, in Burkina Faso, the number of health centres increased from 169 in 1980 to 860 in 1990; the number required in the year 2000 to maintain existing coverage, assuming one health centre serves 5,000 people, is 1,100 and to reach 60 per cent coverage is 1,400. In Mali the number needed to maintain the current low level of coverage in the year 2000 is nearly five times the increase of 52 health centres during the decade 1980-1990. Most countries face similar challenges and their population growth has led to a decline in health service coverage. In Nigeria, for example, one study found that in 1987 nearly 30 per cent of the equipment in health care institutions was not in service and in Ghana in the same year, only 167 out of 660 of Ministry of Health vehicles were roadworthy, 230 needed extensive repair, and 263 were worthless (UNDP/World Bank 1989). Hospital buildings in most African countries are in poor or unsatisfactory condition. Some hospitals, for example, Tres de Agosto Hospital in Guinea Bissau, declined beyond the point of repair (World Bank 1991) and in Angola, Mozambique, Somalia, Sudan, Liberia and Rwanda civil wars have damaged health infrastructures.

Regarding public health programs, most governments have not made much effort in translating the principles of primary health care (PHC) into a national policy. Community-based and intersectoral approaches to planning and operation of systems of health care have either not been successful or have not been vigorously pursued. The available information shows that in only five African countries have constraints in the enabling environment for health been addressed. Most governments have embarked on selective public health strategies, focusing on specific health problems such as immunization, tuberculosis and AIDS. Though these programs have had a positive effect, they have not been successful in providing quality care and promoting the use of specific interventions through social mobilization. The primary health care model has not therefore been applied on an extensive scale as an instrument of community development and as a result members of many communities have not been involved in the promotion of a healthier environment for the urban poor and rural dwellers (Gaisie 1989).

The above noted levels of economic infrastructure and of the existing health infrastructure in most of the countries in the region show that the traditional African social structures have not as yet changed much. Pursuit of good health and management or treatment of illness therefore are difficult because they are intricately related to the socio-cultural and economic structure of the society. The biomedical system has not as yet permeated the African social fabric, nor has the ethnomedical system faded away: many Africans still heavily depend on it for diagnosis and treatment of all kinds of maladies. The two systems are yet to be integrated.

It is clear that a country's mortality level is determined by a complex network of factors ranging from the levels of infrastructure through standard of education to cultural beliefs and practices. Many of these factors are largely functions of a country's cultural and historical heritage. Mortality levels and trends are therefore not governed solely by technology but by a plethora of cultural and socio-economic factors. The experience of some Asian countries such as Japan, Hong Kong and Singapore is quite relevant here. Massive declines in mortality were intimately bound up with very rapid economic growth and even where economic growth has been slow but policies have been aimed at satisfying the basic needs of most of the people (e.g. in Sri Lanka and Cuba), declines in mortality have been impressive. Thus, increasing the income of the poor, and expanding schooling, especially for girls and women, contribute a great deal to general household well-being and better health. But most African health systems are riddled with problems such as financial constraints, misallocation of funds, inequality and inefficiency that have hampered progress. Economic recession and structural adjustment programs have also contributed to the slowing down of improvements in mortality levels and progress in health; in consequence the movements through both health and mortality transitions have also slowed down.

## **Fertility transition**

### ***Malthusian perspective and other demographic-economic models***

Nearly two hundred years ago, Malthus in the *Essay on the Principle of Population* invited his readers to accept the truth of two postulates: 'that food is necessary to the existence of man' and 'that the passion between the sexes is necessary and will remain nearly in its present state'.

These two laws, ever since we have had any knowledge of mankind, appear to have been fixed laws of our nature, and, as we have not until now seen any alteration in them, we have no right to conclude that they will ever cease to be what they now are, without an immediate act of power in that Being who first arranged the system of the universe, and for the advantage of his creatures, still executes, according to fixed laws, all its various operations (Malthus, ed. Flew 1970:70-71).

He proceeded to draw inferences from the postulates and the associated assumptions. Among the latter the most important was the inability of societies to increase food supply at more than an arithmetical rate in contrast to the tendency of population to expand at a geometrical rate unless checked. According to Malthus, poor countries would never be able to rise much above their subsistence levels of per capita income unless they initiated 'preventive' checks on their population growth. The only accepted means of preventing a birth was to exercise 'moral restraint' which was defined as abstinence from marriage, either for a time or permanently, from 'prudential' considerations, with a strictly moral conduct towards sex in the interval. This was the only acceptable behaviour for keeping population on a level with the means of subsistence and which was 'perfectly consistent with virtue and happiness'. All other checks resolved themselves into vice or misery. Thus, contraception, abortion and infanticide were viewed as vices.

In the absence of such preventive checks, positive checks which included 'all the causes which tend in any way prematurely to shorten the duration of human life' would inevitably provide the restraining force. Among the positive checks listed by Malthus were bad and insufficient food and clothing arising from poverty; bad nursing of children; a whole train of common diseases; epidemics, wars, plague and famine. The positive checks which appear to stem from the laws of nature he labelled 'misery' and those we bring upon ourselves such as

excess of all kinds, wars and many others that are within our power to avoid he referred to as 'vice' and their consequences were 'misery'. Malthus observed that a combination of some of these checks keep population within the realm of natural law. In the *Second Essay* he wrote:

The power of population being in every period so much superior, the increase of the human species can only be kept down to the level of the means of subsistence by the constant operation of the strong law of necessity, acting as a check upon the greater power (Malthus, ed. Flew 1970:250).

He believed that the cycle of increased food resources leading to population growth and then to too many people for available resources reverting to poverty was part of a natural law of population (the 'Malthusian Trap'). The only way to break the cycle was to change human behaviour, postpone marriage and sexual intercourse until a man was sure that he could support his family and by that avoid the miserable consequences of population growth.

In the Malthusian demographic-economic growth model therefore, population growth is seen as the dependent variable that is determined by technology as an autonomous factor in relation to population change. According to this theory, population expansion comes to a halt through increased mortality when the population reaches the subsistence limit of the newer technology.

In contrast to this theory is the Boserup model, which is the opposite of that of Malthus: population growth is here regarded as the independent variable that is a major determinant of agricultural development. By gradual change from agricultural systems where long fallow prevails to systems where no fallow is necessary, population within a given area can double several times without facing either starvation or lack of employment opportunities in agriculture. Boserup noted two mechanisms that are responsible for increase in output per man-hour both in agriculture and non-agricultural rural activities: intensification of agricultural activities may compel cultivators and agricultural labourers to work harder and more regularly and increasing population density facilitates the division of labour and the spread of communications and education (Boserup 1965). Thus, communities with sustained population growth stand a better chance of undertaking viable economic development than those with stationary or declining population. However, she added two caveats: (1) provided the necessary agricultural investments are made; and (2) this condition may not be fulfilled in densely populated communities, if the rates of population growth are high.

Boserup's model implies that population growth stimulates economic growth under certain conditions. Examination of the long historical processes of the changes in the relationship between population growth and technology led her to conclude that rising rates of population growth helped to accelerate the economic growth. Colin Clark (1957), the best known exponent of the idea that population growth is the trigger of economic development, points to the history of Europe in which industrial production and the increase in agricultural production were accompanied almost universally by population growth. Clark's argument is based on the thesis that population growth is the motivating force that brings about the clearing of uncultivated land, the draining of swamps, and the development of new crops, fertilizers and irrigation technologies in agriculture.

Julian Simon (1977) joined the group by formulating a thesis that a growing human population is the 'ultimate resource' for economic development. Inventiveness increases in proportion to the number of brains trying to solve problems. Coal replaced wood as a major source of energy only to be replaced by oil that may ultimately be replaced by solar or nuclear energy. To Simon, innovation moves *pari passu* with population growth, although moderate rather than rapid or very slow population growth is most conducive to an improvement in human welfare. In Europe, Japan and North America, there is a reasonable amount of evidence to suggest that population growth is beneficial to economic development.

### **Historical experience**

In the eighteenth and nineteenth centuries, the early phase of modern economic development in North Western Europe, population and income increases accelerated together. Declines in mortality and, in some areas, increases in marriage rates as a result of new economic opportunities, led to population growth. However, Europe's rate of population growth rose from 0.5 per cent to 1.5 per cent per annum and the natural increase seldom exceeded the latter figure. In England it climbed to 1.6 per cent in the 1820s and in France it never rose above one per cent during the nineteenth century. Furthermore, the natural increases were partly siphoned off by emigration.

A similar demographic regime prevailed in Japan in the eighteenth and nineteenth centuries. Population grew slowly and economic growth exceeded population growth so that living standards gradually rose. Compared with Europe and Japan, North America, rich in natural resources and with good economic opportunities, experienced fast population growth in the nineteenth century. Fertility was relatively high and mortality was low; these conditions together with heavy immigration from Europe led to a rate of population growth well above two per cent per annum in the early 1800s. But fertility began to decline earlier than in Europe so that the population growth rate fell below two per cent by the beginning of the twentieth century. About one-third of the total growth in population during 1850-1910 was attributed to immigration.

The European-American experience shows that population growth can be accommodated or contained up to a point. In other words, under certain conditions moderate population growth can be beneficial.

### **The developing world**

As for the developing world, many experts regard the rapid population growth rates now prevailing in much of Asia, Africa and Latin America as serious obstacles to efforts to develop national economies and improve the general well-being of most of the world's people. In general, income levels rise faster in countries where population growth is occurring moderately or slowly. Countries with rapid population growth must spend most of their national income on providing necessities rather than using it for more productive purposes. For instance, high growth rates increase the need and demand for all manners of public services: welfare, education and health facilities and employment opportunities, causing governments to divert capital to the provision of these services instead of investing it in more productive endeavours.

The most acute economic crisis is encountered in sub-Saharan Africa. The consequences of rapid population growth are compounded by economic crisis and environmental degradation. Fall in per capita incomes, rapid increases in population, loss of export revenues, curtailment of foreign investments, destruction of the fragile ecosystem and inability of many countries even to feed their people and provide basic human needs lie at the heart of the African dilemma. The available economic and social indicators show that the region has been experiencing economic disasters for more than a decade and the prospects for the 1990s are very bleak (see Table 4). The average annual growth rate of GDP of 3.6 per cent in the 1970s declined to 1.8 per cent in 1992. With the exception of seven out of the 28 countries listed in Table 4, population growth outstripped economic growth during the 1980s. The World Bank's estimates indicate that the GDP will be increasing at a rate between 0.3 and 0.5 (World Bank 1991). It is the only region where the World Bank projections indicate that the percentage of the population living in absolute

**Table 4**  
**Population and economic growth in sub-Saharan Africa, 1970-1992**

Country	1970 - 1980		1980 - 1992	
	Average annual population growth rate (%)	Average annual growth rate of GDP (%)	Average annual population growth rate (%)	Average annual growth rate of GDP (%)
sub-Saharan				
Africa	2.8	3.6	3.0	1.8
Botswana	3.7	14.5	3.4	10.1
Benin	2.7	2.2	3.1	2.4
Burkina Faso	2.1	4.4	2.6	3.9
Cameroon	2.9	7.2	2.8	1.0
C.A.R.	2.2	2.4	2.6	1.1
Chad	2.0	0.1	2.4	5.3
Côte d'Ivoire	4.0	6.8	3.8	0.0
Congo	2.8	5.8	3.1	2.4
Ethiopia	2.6	1.9	3.1	1.2
Gabon	4.6	9.0	3.4	0.5
Ghana	2.2	-0.1	3.2	3.4
Kenya	3.7	6.4	3.6	4.0
Lesotho	2.3	8.6	2.7	5.4
Mali	2.1	4.9	2.6	2.9
Mauritania	2.4	1.3	2.4	1.9
Mauritius	1.5	6.8	1.1	6.2
Malawi	3.1	5.8	3.2	2.9
Niger	2.9	0.6	3.3	-0.7
Nigeria	2.9	4.6	3.0	2.3
Rwanda	3.3	4.7	2.9	1.4
Sierra Leone	2.1	1.6	2.4	1.3
Somalia	2.9	4.8	3.1	2.4
South Africa	2.7	3.0	2.5	1.1
Sudan	2.9	5.6	2.7	-
Tanzania	2.9	3.0	3.0	3.1
Zambia	3.0	1.4	3.2	0.8
Zimbabwe	2.9	1.6	3.3	2.8

Source: World Bank 1994

poverty will rise from 47.8 per cent (216 million) in 1990 to nearly half of the total population (49.7 per cent or 309 million) in the year 2000 (World Bank 1992:30). The most threatening of the problems noted above is the inability to feed ourselves in the face of abundant natural capital, i.e. natural stocks that yield flows of natural resources and services, land and labour being the crucial ones in food production. The food problems faced by sub-Saharan Africa have been dramatized in three major food emergencies since the late 1960s: the Sahel drought, 1968-1972; East and Southern Africa, 1970-1980; and Southern and East Africa in 1983-1984. The 1983-1984 food emergency affected as many as 24 countries which experienced serious food problems. This was followed by another major food emergency in 1984-1985, affecting some 20 countries. The 24 countries include some that were affected by

the 1991-1992 drought: Benin, Botswana, Cape Verde, Chad, Ethiopia, Gambia, Ivory Coast, Lesotho, Mauritania, Mozambique, Rwanda, South Africa, Senegal, Swaziland, Togo, Zambia, and Zimbabwe, and also countries with more chronic food problems such as Angola, Somalia and Tanzania. In 1984-1985, food emergency countries were: Burkina Faso, Cape Verde, Chad, Mali, Mauritania, Niger, Senegal, Burundi, Ethiopia, Kenya, Rwanda, Somalia, Sudan, Tanzania, Angola, Botswana, Lesotho, Mozambique, Zambia and Zimbabwe. These emergencies highlight Africa's precarious agricultural situation.

Agricultural production has completely stagnated since the 1960s: the average annual growth rate of agricultural production has been two per cent since 1965. Ethiopia (-0.1), Rwanda (-1.5), Lesotho (-0.7), Angola (-0.5), Namibia (-1.0) and Botswana (-4.0) experienced negative growth rates during the decade 1980-1990 (World Bank 1992) while the growth rates declined in most countries in sub-Saharan Africa.

The weak performance in food production has major implications for most African countries, given high population growth rates of three per cent and above, and high urbanization rates. Yet it appears it is on agricultural development, as it interacts with fertility, mortality and rural-urban migration, that prospects of movement from the second into the third stage of the demographic transition will largely depend.

### **Regulation of population growth**

In his later writings, Malthus somewhat modified his stance on population response. He had always recognized that 'misery' could be avoided, not just by undesirable 'vice' but by 'restraint', especially delayed marriage. Whilst Malthus-prescribed regulation of population growth is located at the beginning of the reproductive period as 'starting patterns' such as postponement of first sexual union and celibacy, regulation in African societies is situated in the middle as 'spacing patterns' and the end as 'stopping patterns'. These include the duration of the non-susceptible period, duration of postpartum abstinence and early terminal abstinence. These patterns of preventive checks are linked to patterns of kinship organization and agricultural production. In traditional sub-Saharan societies women perform two crucial functions; they are simultaneously major agricultural producers and procreators on behalf of the corporate kinship groups. This dual function is institutionalized through normative prescriptions relating to behaviour. The reproductive function is so crucial to both individual women and their kinship groups that the status of adulthood for women is also completely contingent on motherhood and the last instalment of bridewealth (*lobola*, *bogadi*) is often transferred upon the birth of the first child. Among the Bemba and Luvale in Zambia, for example, marriage is regarded as a means by which a woman's fertility may be tapped for the benefit of her matrilineage; fertility is emphasized in their rituals as a source of new members for the matrilineage. Among the Tswana 'It is her duty to bear and nourish children for him' (Schapera 1966). Such was the typical institutional arrangement for reproduction.

Various combinations of nuptiality and child-spacing patterns have given rise to different levels of fertility: total fertility rates of between six and seven are a common feature of West African societies, and rates between five and eight in several parts of Tanzania and Kenya Rift Valley are the outcome of shorter non-susceptible periods. In Southern Africa, a combination of long postpartum non-susceptible periods, relatively late marriage and low rates of remarriage with a fairly low proportion of childlessness has produced total fertility rates that are low by African standards. Swaziland's high estimated total fertility rate of seven is attributed to less emigration by men and therefore less loss of exposure to pregnancy (Lesthaeghe 1986).

### ***Weakening of old preventive checks***

The information collected in the various fertility surveys including the recent Demographic and Health Surveys in sub-Saharan Africa shows that the components of general exposure and child-spacing have undergone some transformation. A pattern has emerged of reduced postpartum non-susceptible period because of increases in the individual and contextual levels of education. For instance, the 1979-1980 Ghana fertility survey data show that the rural areas experience the longest durations of breastfeeding, postpartum abstinence, postpartum amenorrhoea and the overall postpartum non-susceptible period, followed by the urban areas and the cities. There is an inverse relationship between mean durations of postpartum variables and the number of years the mother spent in school. For instance, the postpartum non-susceptible period among women with no formal education is four months longer than among primary and middle school leavers and seven months longer than among secondary and tertiary graduates. The average durations of breastfeeding range from 21 months among the women with no formal schooling to 18, 16 and 12 months among the primary, middle, and secondary and over groups respectively (see Gaisie 1984).

In Zambia, a comparatively long non-susceptible period is noted among rural women and those with no formal education while a second pattern of relatively moderate duration of non-susceptibility and little use of modern and effective contraceptives is depicted by the data for women with primary education and resident in the less urbanized provinces such as Eastern, Central and Northern Provinces.

The third pattern of relatively short non-susceptible period is noted among urban women with secondary or higher education and resident in the most urbanized provinces, Lusaka and Copperbelt. The same patterns are noted among Tswana women. Durations of breastfeeding, amenorrhoea, abstinence and non-susceptible periods are longer in the rural areas than in the urban areas (Botswana 1989:17).

The African populations are therefore gradually passing through a first phase in the modernization of their reproductive regimes as reflected by the changes in the levels of the proximate determinants of fertility, a gradual weakening of the old preventive checks (i.e. child-spacing) but this is not fully compensated for by the new checks of late marriage and greater use of contraception. The only places where there is sufficient compensation for the diminishing old checks are urban concentrations with high average education and better educated zones located in the regional or provincial capitals. A decline in fertility usually occurs among women with at least some secondary schooling while an education below that level tends to produce more of an increase in lifetime fertility. All indications point to a delayed second phase of the fertility transition, a phase characterized by falling general fertility.

***Social change and incipient fertility decline: the pace setters***

Besides the need for significant changes in the fertility components themselves, certain aspects of the social organization are likely to militate against early onset of the second phase of the fertility transition. An important basic feature of the modernization of social groups in Africa is the persistence and recrystallization of the various traditional structures. In consequence, traditional or ethnic frameworks become the most important determinants of the degree of adjustment to modern conditions including changes in reproductive behaviour. For instance, aspirations towards higher standard of living and rising costs of childbearing are compelling urban women in Lomé, the capital of Togo, to limit their family size to four living children. But many of these women use spacing and traditional methods such as periodic or prolonged abstinence rather than stopping or modern contraceptives to achieve the preferred family size. The emergence of alternative living arrangements under which the spouses live in separate residences or compounds is another example of adaptive behaviour in changing social and economic conditions (Ekouevi 1994:133-134). Rural Sierra Leoneans 'adjust the

timing or spacing of their births, rather than preventing births' and families use diverting and adaptive ways of managing the costs of childbearing rather than reducing fertility (see Bledsoe 1994:130). There are various paths to social change and they are largely determined by historical and socio-cultural factors (see Ekouevi 1994; McNicoll 1994).

In Botswana, labour migration, missionary activities and contacts with European traders engendered many changes in the Tswana family. The closely knit co-operative socio-economic unit was made economically less self-sufficient and was judicially and administratively dismembered (Schapera 1947). Among the various factors labour migration was the most devastating. Though it contributed to the general welfare of the people, it undoubtedly weakened the family structure; most married migrants left their wives behind and as a result migration led to a long period of separation of husband and wife. Young women had to wait for several years after puberty before they were married. Labour migration also spread infectious diseases and loosened sexual morals. Domestic control broke down with the prolonged absence of the father in the mines; children tended to do much as they liked and took little notice of their mother, especially if she had a lover. Schapera observed that 'It is possible however... that even more children would be born were it not for migration' (Schapera 1947:129).

The disorganization of the family and associated changes in sexual and reproductive behaviour contributed a great deal to the breakdown of the institution of marriage. According to the 1991 Botswana Census results, 66 per cent of women aged between 20 and 44 years had never been married; the corresponding figure for males between 25 and 54 was 59 per cent. The proportion of women who had never married ranged from 88 per cent among the 20-24 year-olds to 39 per cent among the 40-44 year-olds. In the age group 30-34 years, seven out of ten males had never married and nearly one-third of those in their mid-forties were single.

Changes in the traditional family structure also led to the creation of a sizable proportion of female-headed households. In 1991, 47 per cent of the households were headed by women and 46 per cent of the female headed households had no cash earning members in the family, only 43 per cent receiving money remittances from within and outside the country. The proportion of the households in the urban districts headed by women ranged from 32 per cent in Selibe-Phikwe to 41 per cent in Francis Town and the proportions with no cash earning members ranged from eight per cent in Gaborone to 17 per cent in Francis Town and Lobatse.

The rural districts have the highest proportions of female-headed households. In Ngwaketse district, 55 per cent of the households are headed by women and 60 per cent of them have no cash earning members with only 24 per cent receiving remittances. In settlements such as Lesenepole and Kalamare nearly seven out of ten households are headed by women and between six and seven out of ten of these households have no cash earning members.

The effect of economic development is manifest in various aspects of life. The per capita GDP has increased by seven times since independence; rising from 578 Pula in 1966 to 4,115 Pula in 1988/1989 (Republic of Botswana 1991:13). The per capita GNP nearly quadrupled between 1980 and 1992; increasing from US \$792 to US \$2,790 at an annual growth rate of 6.1 per cent (UNDP and World Bank 1989; World Bank 1994), the highest in Africa besides Gabon.

Since the attainment of political independence, the government has been investing millions of Pula a year in infrastructure. The result has been a substantial increase in roads, power, water, telecommunications, sanitation, transport, education and health services.

Female schooling is an important feature of the Tswana society: nearly three-quarters of the pupils enrolled in the schools in the 1940s were girls. The system of cattle management under which boys had to spend a greater part of their youth at cattleposts was largely

responsible for the wide gender gap in formal education (Schapera 1947). The proportion of males aged five years and over who had left school increased from 16 per cent in 1971 to 28 per cent in 1981 and 36 per cent in 1991. The corresponding figures for the females are 22, 35 and 41 per cent. However, the gender gap with respect to the educational level attained has been rapidly closed over the past two decades. The proportion of males completing secondary education increased from nine per cent in 1971 to 22 per cent in 1991 and that of females rose from eight per cent to 23 per cent during the same period. In 1981 only 0.4 per cent of females progressed beyond the secondary level compared with 1.3 per cent of males but the 1991 census figures show that the gap has been substantially bridged with proportions now at 3.8 per cent for males and 2.0 per cent for females.

Data on average parity at different levels of educational attainment show that fertility is negatively related to level of education. A reported completed family size of between 6 and 6.6 children among women with between one and four years of schooling and those without any formal education declines monotonically to 2.7 among the women with higher or tertiary education. Such fertility differentials are characteristic of early stages of fertility decline and, with the rapid expansion of female schooling in Botswana, a sustained reduction in fertility is imminent.

The socio-economic development has been accompanied by movement of women from occupational groups with little motivation to groups with strong motivation for family limitation. The proportion of professionals among the women climbed from 7.4 per cent in 1981 to 13.4 per cent in 1991 and the proportion of administrators increased from 0.2 to 1.4 per cent. The proportion of clerical workers also rose from 4.6 to 9.6 per cent while sales and service workers dropped from 19.4 to 12.6 per cent and those engaged in agricultural activities from 62 per cent to 52 per cent. It is the change in the occupational structure and not the increase in income that motivates a reduction of fertility. Motivation for family limitation is much stronger among employed women than among the unemployed (Gaisie 1995:23).

In 1990, about 80 per cent of the rural villages had access to potable water and about 85 per cent of the rural population was within 15 kilometres of a health facility. The ratio of doctors to population increased from 1:20,000 in 1965 to 1:5,804 in 1989 and that of nurses to population from 1:17,000 to 1:554 during the same period. By 1989, the school enrolment rates for primary and secondary school had risen to 90 and 30 per cent respectively. The 20km of tarred roads in 1965 increased to 2,664km in 1990 and there were 8,328km of national roads in that year. The number of telephone subscribers increased from 11,000 in 1985/1986 to 22,000 in 1989/1990 (Republic of Botswana 1991).

Besides providing infrastructure, the government also adopted various measures that have facilitated the achievement of individual demographic goals though it does not have an explicit population policy at the time of writing. Nonetheless, Botswana's family planning program is rated the strongest in Africa and one of the strongest among the developing countries, ranking eighth after China, Republic of Korea, Taiwan, Thailand, Sri Lanka, Indonesia and Mexico (Ross 1992:80).

Family planning services were offered as far back as 1973 on a relatively small scale and it was not until 1980 that a concerted effort was made by the Ministry of Health to extend integrated Mother and Child Health-Family Planning (MCH-FP) services on a daily basis at clinics in all parts of the country. By 1988, 77 per cent of the clinics were providing these services. In the second half of the 1980s training of health and family planning personnel intensified, with the development of family planning guidelines, service standards and manuals for family planning (see CSO 1984, 1988) It is therefore not surprising that a significant decline in fertility began in the 1980s. The MCH-FP program made a substantial contribution to the fertility decline. It facilitated changes in reproductive behaviour by engendering a significant shift from traditional to modern methods of contraception. The

proportion of all women who had ever used at least one modern method increased from 34 per cent in 1984 to 54 per cent in 1988; the corresponding figures for women in unions are 37 and 60 per cent. During the same period the proportion of women currently using modern methods rose from 16 per cent to 29 per cent. An explicit population policy and active involvement of the government in the national family planning program would help to sustain the decline.

Recent estimates show that the fertility level appears to have remained fairly constant during the 1970s with a Total Fertility Rate of 6.5 (see CSO 1972:175). The downward trend began in the late 1970s and continued in the 1980s with the TFR dropping to 5.7 in 1988 and 5.2 in 1991. These estimates suggest that fertility declined by 11 per cent between 1981 and 1988 and by 8.8 per cent between 1988 and 1991 or a decline of about 19 per cent during the decade (see Gaisie 1995); this figure is higher than the 10 per cent decline that is now 'conventionally accepted as indicating an onset of irreversible fertility transition' (Caldwell, Orubuloye and Caldwell 1992:211).

Although Kenya adopted an explicit policy to reduce rapid population growth in 1967, the country had to wait for two decades before beginning a fertility decline. The decline has been attributed to 'the increased use of contraception to control births' (Brass and Jolly 1993), a simplistic explanation that ignores completely other equally important factors in the historical and cultural heritage as well as in government policies and programs which transformed social and economic conditions in Kenya during the two decades following the attainment of independence. The massive investment in physical infrastructure — roads, transport, water, sanitation, communications — and in human capital such as education and health was fundamental in creating the conditions that started the decline in fertility. Once there are solid social and economic reasons for controlling births, people will use any methods available. Economic reversal is a new candidate and should not be presented as the major determinant of fertility decline (Mback, 1994). Transitory behaviour may change with improvements in the economic performance.

In Zimbabwe, the significant social change that the traditional social system has undergone mostly began as a response to the oppressive pre-independence conditions and the organizational structure of the liberation struggle. The armed struggle, for instance, demanded the use of contraceptives in the bush.

We have adopted what we want from Western culture into our revolution and we are aware of the fact that people have sexual feelings in spite of the dangers of the struggle. It was possible for us to get abortions. We had to face reality of the conditions we were in (Davies 1983).

The motivated women advised their male comrades that it was 'necessary to use contraceptives, and that to be sent back to Mozambique for five months to have a baby was a set back to the war'. The young boys (*mujibhus*) and girls (*chimbwidos*) who acted as eyes and ears for the freedom fighters and performed a network of secret functions for the guerilla forces were also exposed to the changing environment.

The returning fighters had the onerous task of convincing their mothers and grandmothers that the changed attitudes towards contraception and abortion were in the interest of the young generation who had to spend a good part of their reproductive lives in the bush. The liberation war also eroded some of the props of the low status of a female in the traditional society: 'The position of women has really changed through the armed struggle because now we have equal positions and equal education' (Davies 1983).

The organizational capacity developed during the war was also used in establishing a variety of women's clubs and co-operatives that were concerned, among other things, with adult literacy, income generating and traditional 'home economics' activities. The Women's Bureau and Ministry of Community Development and Women's Affairs provided the structural framework for articulation and resolution of women's social, economic and political

issues (Mazur and Mhloyi 1994). Thus, shifts in the traditional social system because of the effect of external forces, development of organizational capacity and a very strong political will made a major contribution to the incipient fertility decline in Zimbabwe.

A rigorous analysis of the Zimbabwean data shows that there has been a modest decline in fertility, from about 7.1 children per woman in 1985 to 6.5 in 1987/1988 (Udjo 1993:107). A life table analysis of birth intervals shows that the decline is mainly in high-order births: fifth to sixth and sixth to seventh births. Udjo also noted that in view of the 'ineffective use of contraceptive by single women that is evident from the high proportion of premarital births' and the fact that a sizable proportion of women in the 'reproductive age group never use contraception (nor marry), any emphasis on *currently married women* in examining contraceptive use is misleading and inappropriate'. Thus, the pattern of contraceptive use during the family building process in Zimbabwe is consistent with the modest decline in fertility (Udjo 1993:108).

However, the most important observation in the three countries is that the decline in fertility has been, to a large extent, started by institutional changes that affect the reproductive behaviour.

### **Integrated approach**

The interrelationship between mortality and fertility as reflected in the demographic and socio-economic developments in Botswana, Zimbabwe and Kenya suggests the desirability of an integrated approach to the study of demographic trends in sub-Saharan Africa.

Mortality transition appears to have stalled and fertility transition is being delayed by lack of substantial internal structural transformations. High mortality and high fertility are causally linked in many ways. Durations of breastfeeding and postpartum abstinence, and the need to replace children who have died in infancy all depend, to a large extent, on how long the infant survives. Thus, when mortality declines the desired number of children also falls, but the adjustment does not occur immediately because it takes some time before many people become aware of the prevailing level of infant mortality. On the other hand, short birth intervals, very early and very late childbearing, high birth order and large family size are some of the factors that influence the probability of survival: mother's and child's health, demands on mother's time and that of her relatives are all associated with fertility levels. High infant mortality and high fertility therefore interact with each other in many ways within socio-economic and institutional contexts. An integrated assessment of mortality and fertility processes throws much more light on the demographic transition as an aspect of the general socio-economic development in sub-Saharan Africa.

European experience shows that profound political and economic changes, such as industrialization, international trade and increase in the real value of wages, preceded and, as it were, prepared the ground for the demographic transition of the last quarter of the nineteenth century. There is a general observation also from European history that the pre-industrial homoeostatic demographic regime was dislocated by a mortality decline and that a decline in mortality is a necessary precondition of fertility decline (Chesnais 1992:399). Furthermore, mortality decline appears to have been often, if not always, associated with the spread of education, particularly among females. In sub-Saharan Africa, demographic trends in Botswana and Zimbabwe as outlined above attest to the fact that developing basic infrastructure and investing in the key social sectors such as health and education are necessary conditions for declines in both mortality, especially infant mortality, and fertility. The prevailing socio-economic conditions in most African countries make it extremely difficult to critically assess the timing and the pace of sustainable demographic transition, including even the movement through the mortality transition.

Female primary school enrolment in the area increased from 44 per cent in 1970 to 58 per cent in 1991. In the same period female secondary enrolment trebled from 5 per cent to 16 per cent. The proportions of female primary school enrolment ranged from 93-121 per cent in Botswana, Lesotho, Kenya and Cameroon to 21-24 per cent in Mali, Ethiopia, Guinea and Burkina Faso in 1991. Universal primary education will be far beyond the reach of many African countries for many years to come. In 1991, except in Botswana (57 per cent), Zimbabwe (45 per cent), Uganda (35 per cent), Kenya (25 per cent), Lesotho (30 per cent) and Ghana (29 per cent), less than one-quarter of girls of secondary school age (12-17 years) had access to secondary education (World Bank 1994). Enrolment rates stagnated or fell in the 1980s in some countries that had been doing well. For example, gross enrolment rates fell from 93 per cent in 1980 to 63 per cent in 1987 in Tanzania, and from 94 per cent to 76 per cent in Zaire. Among women, only one in three in the subcontinent is literate. Massive investment in human capital is therefore a major challenge in the years ahead.

As noted above, levels of health infrastructure stocks are low and declines in the existing ones are slowing the mortality transition. The available data show that education and health programs have come under severe financial pressure in the past decade. Although the share of education and health expenditures in GDP increased slightly for the subcontinent as a whole, in more than half of the countries for which data are available, public expenditure for education and health as a percentage of GDP fell between 1980 and 1985. Besides limited institutional and organizational capacity for delivery of education and health services as well as other social services, the financial constraint is so severe that it would be difficult for most countries in sub-Saharan Africa to provide these services without external assistance. The implications for demographic transition are obvious.

### **Influence of development strategies**

Governments in the Third World tend to influence fertility partly through programs designed to promote or reduce fertility, and partly by their choice of development strategies. Most countries in the South and East Asia region promoted both industrialization and agricultural development. Consequently, they experienced large structural changes in both the urban and the rural labour markets.

In some Asian countries therefore, including Malaysia and Thailand, economic change, increase in age at marriage and improvements in female status led to large declines in fertility (Jones 1981); particularly in the urban formal sector. Asian countries pursued policies for the resolution of problems of high population densities and high pressure of population on land. When population growth accelerated in the period after World War II, governments became concerned about how to achieve an adequate increase in food supply. Almost all of them, therefore, promoted rural development and technological change in agriculture by provision of credit facilities, subsidies and direct investments. The Asian type of agricultural development places emphasis on irrigation, multi-cropping and labour-intensive methods and as a result output per hectare increased and so did the demand for labour. Furthermore, a number of Asian governments including India transformed tenants into owners and organized settlement schemes in areas of relatively low population density. Though there was some replacement of female and child labour by chemical and mechanical inputs, there is still a demand for labour in small-scale agriculture. In Asia, occupational changes in the urban market and rapid increase in the proportion of population living in large cities have been the major causes of fertility reduction within the urban industrial enclaves. At the same time, government promotion of rural development and fertility control motivated many peasants to use family planning, including late marriage. Development strategies of most Asian governments therefore contributed a great deal both to the reduction of fertility and mitigation of the effects of increasing population on resources.

African governments have also been interested in industrialization, but because of lack of adequate capital, management problems and poor infrastructural facilities, efforts at industrialization have not been successful. As a result only small proportions of their populations have experienced structural changes such as shifts in occupational structure in the urban areas. The African traditional system has undergone substantial changes, especially since World War II. There have been, for example, structural transformations with respect to land tenure and tendency towards private ownership, cash crop production, monetization of the economy, modernization of technology, legal reforms and rapid urbanization. All these modern transformations have been grafted upon a highly diversified set of older institutional arrangements in kinship and economic organization and cultural systems. In this long process of change, our farmers have not been particularly well integrated into the cash economy. They cultivate crops destined for remote markets and make some use of purchased tools, chemicals and wage labour. At the same time they continue to grow their own food supplies and organize their work around hoe and cutlass technology and inherited kinship systems. Most of the farmers are still engaged in subsistence agriculture, but with reduced fallowing and increased fragmentation. Governments' agricultural development programs often have a poor record and have not managed to close the gap between food production and population growth or to generate sufficient earnings to finance food imports. Technological progress in improving staple food production has been limited. Production is predominantly rainfed so it is difficult to cultivate improved seed varieties which have been developed predominantly for irrigated areas. Local specific factors such as diseases, and soil types have limited the transfer of improved varieties. Production is labour intensive, and labour is frequently the limiting factor of production. Research and other institutions are ill-placed to supply effective small holder technologies. The rapid population growth coupled with uneasy transition of resource management from local communities (i.e. kin, lineage etc.) and chiefs to individuals or governments, have increased the pressure to over-exploit grazing land. The difficult transition from past subsistence farming to enhanced market orientation underpins, to a large extent, the slow mortality transition and high fertility levels.

### **Development and population policies revisited**

The rapid expansion of population in sub-Saharan Africa will have to stop somehow. We have, at least, two options. It may stop as a result of return to high mortality due to malnutrition, famine and poverty, or other disasters, perhaps stemming from the 'tragedy of the commons'. Or it may be stopped by the prevailing economic crises in many parts of the subcontinent that will force families to accept family planning. The first possibility appears to have been temporarily prevented by heavily subsidized food exports and food aid from industrialized countries. The United Nations Food and Agriculture Organization (1994) figures show that in 1993, most countries in sub-Saharan Africa obtained most of their cereal requirements as commercial imports and food aid: the proportions range from 44 per cent in the Sahelian countries to 98 per cent in Southern Africa. In Eastern and Southern African countries, about two-thirds of the requirements were acquired in food aid. Nearly one-half of the Sahelian requirement was met with food aid. Food aid is, at best, a temporary measure and can, at worst, be used as a political weapon. Food aid is somewhat similar to the poor laws of England during the eighteenth century, which Malthus believed had the tendency to

increase population without increasing the food for its support... they may be said therefore in some measure to create the poor which they maintain... A poor man may marry with little or no prospect of being able to support a family in independence (Malthus ed. Flew 1970:97).

Roman state charity fed thousands of underemployed citizens on imported grain; a policy that undermined Italian agriculture and kept a large population on the edge of subsistence, thus promoting 'disease, corrupt manners and concubinage'.

In the face of widespread poverty, malnutrition and high infant and child mortality in the subcontinent, it cannot be denied that Malthusian positive checks are, to some extent, operating. The forced acceptance of family planning is the second option that the subcontinent may have to adopt in order to extricate itself from the Malthusian trap. Societies everywhere at all times have provided distinctive solutions to the dilemma of population by manipulating their moral and political economies and in the process largely avoided misery and abject poverty. Africa appears to fit the Malthusian formulation better than the optimism of the demographic transition model. And the region does not exemplify the Boserupian type of technological adaptation generated by population pressure.

For the elimination of positive checks, that is, a return to high mortality because of poverty, famine and malnutrition, and forced acceptance of family planning, a variety of conditions must be fulfilled, two of which are the building of basic infrastructure and rural development.

New development and population policies are therefore required. On the development side, there is a need for a 180° turn in our choice of the required development strategy: towards a pursuit of viable and sustainable rural development. Two broad policies are required to attack the underlying causes of poverty, famine, and low status of women; neither policy will be sufficient on its own. First, urban-industrial development and rural development must be positively linked by correcting the lopsided or urban-biased industrial development strategy, improving access to resources and technology, and promising equitable income growth.

The more important policy relates to reduction of poverty: not only is attacking poverty a moral imperative, but it is also essential for population management. The strong and growing evidence of the links between poverty reduction and fertility makes a compelling case for programs to reduce poverty and population growth. Policies justified on economic grounds can deliver substantial demographic benefits. With prudent macro-economic policies that promote balanced development in both urban and rural areas and equity in income distribution, it is easier to change demographic behaviour. Expanding the access of poor people to health and family planning facilities will help reduce population growth. And better educated people can more readily adopt reliable and complicated family planning techniques.

Thus, strong macro-economic policies complement and reinforce population management. But these policies are not enough to ensure sustainable development; strong public institutions for implementation are also essential. Culture, religion, law and politics affect institutions and these in turn affect the economy and in consequence stifle demographic transition. Recent research suggests that the superior performance of Japanese manufacturing stems partly from norms of behaviour that promote the flow of information between workers and supervisors. Policy reforms and institutional changes are therefore required to bring about accelerated balanced development and better population management. We should not, however, underestimate the effect on Africa's development of the international economic order and its associated adverse effects.

There are policies targeted at specific development problems: diversification of rural employment or economic opportunities to generate incomes for the rural poor households; provision of infrastructural facilities including production and marketing incentives. A rural development policy must seek a compromise between the labour-intensive and appropriate modern input technologies in order to ensure sustained increase in employment opportunities and rural per capita income.

There is a need for an explicit and comprehensive population policy and strong family planning and reproductive health programs. A recent study of the strength of the programs in the region shows that out of 38 countries, only Botswana and Mauritius have strong programs and five (South Africa, Kenya, Zimbabwe, Ghana and Zambia) have moderate programs. The majority of them have weak programs and the remainder have very weak programs or none at all (Ross 1992). The failure of most of these programs to achieve their targets has been attributed to a number of factors relating to supply and demand aspects of family planning services, management constraints and lack of strong political commitment. The importance of the role of culture in programs is either regarded as residual or not mentioned at all in most evaluation studies undertaken by international organizations or individual scholars. But lessons drawn from the Asian experience show quite unequivocally that culture affects nearly all aspects of fertility and family planning.

One important aspect of the link between kinship and fertility is the area of relations within the family. How much is the value of children to parents changing? In situations where economic insecurity is widespread children may be the best insurance against risk; providing among other things, substantial support to parents in their old age, stabilizing marriage, assisting in production of food crops and determining the woman's status in the society: her prestige and power largely depend on the number of children she has borne. Such unfavourable economic conditions make it difficult to implement a family planning program, since women are unwilling to refrain from having large families under such conditions. In rural Sierra Leone

It is less the case, then, that people are poor because they have many children; rather, because people's economic and political situations are so unstable, they need numerous children (Bledsoe 1994:130).

Furthermore, lack of substantial change in family structures in respect of financial management and decision-making, even among the urban middle class, is bound to affect the implementation of family planning programs. It is perhaps important to reiterate that there has not been any fundamental transformation of the economies of Africa, the pace of change in family relations tends to be slow, kinship systems have proved resilient in their adaptation to change and they have sustained people in new and critical life situations in towns and cities. Family planning programs in sub-Saharan Africa have been influenced by this pattern of social change. Modern contraceptives are a facilitating agent; they are not structural agents of social change, and as observed by McNicoll, 'means of contraception and ways of delivery are secondary issues' in fertility reduction enterprises (McNicoll 1994:218).

### **The challenges ahead**

The demographic trends in Africa should be assessed from the perspective of its historical and cultural heritage and international economic environment and their continuing effects. With deep-rooted structural deficiencies, limited institutional and organizational capacity, limited financial resources, inadequate economic infrastructure, underdeveloped human resource base, low levels of health and education infrastructure stocks and heavily urban-industrial based development strategies, movement through the demographic transition is a difficult task. Mortality declines have been stalled by economic crises and attendant structural adjustment programs have increased rather than decreased the number of Africans living in abject poverty. Massive declines in mortality will be brought about by rapid economic development and policies designed to satisfy the basic needs of the greater number of the people. The region therefore needs substantial investment in the key social sectors such as health and education. Restructuring of health systems to enable health for all is needed for

rapid movement through the mortality transition; tempo and period of completion are not easy to forecast under the existing health and economic conditions.

Regarding fertility transition the unknown quantities in the equation are many. It is quite evident from history that fertility decline is a matter of motivation. Fertility had declined in certain societies without the use of modern contraceptives. Fertility decline can therefore occur without family planning but it cannot occur without socio-economic development. A World Bank study shows that the effectiveness of birth control programs is determined by factors preceding program efforts, and not by the particular methods used (Faruquee 1979). Motivation to use contraceptives is determined mainly by the extent to which the advantages of large family size are eroded by transformation in the socio-economic structures.

In those countries where the fertility rate is reported to be falling, overall population growth rates are relatively high; indicating that fertility rate is still high and in consequence the balancing of the demographic 'deficit' will take some time. Total fertility rates in Botswana, Zimbabwe and Kenya are around four children per woman. The fertility declines in these countries are still too recent to provide any basis for establishing an African pattern or determining the general duration of transition. The Tunisian case shows it is necessary to be cautious about assessing fertility transition in Africa. Though fertility has declined as a result of technological and economic change, the 'strength of the traditional cultural value of the family has prevented the realization of a completed fertility transition' (Stamm and Tsui 1986). The prevailing socio-economic structures still influence reproductive behaviour in many ways. Fertility is governed by many different factors and its decline in different societies may be started by a differing combination of factors. The types of demographic transition in sub-Saharan Africa in the twenty-first century or beyond are likely to be associated with different patterns of socio-economic development, about which we are still ignorant.

### **Theoretical frameworks and social science research.**

The theoretical frameworks within which the policies and programs are conceived are woefully inappropriate. Most accounts of African societies written by social scientists are incomplete and inadequate to explain the nature of social change in Africa. Admittedly, the range of assumptions made about the cultural realities has been extended and, in some cases, modified, but little effort has been made to develop theories that clarify the roots of African social systems. Even studies supposed to be of theoretical interest tend to be out of touch with African realities. For example, the application of 'modernization' and 'dependency' theories to the African situation encounters a number of analytical problems. Both theories focus on a generalized linear model of socio-economic development which does not sufficiently incorporate the interaction between local and national forces. But the role played by local forces in the process of social change is very important to the development of theories that incorporate the fact that African social structures are complex entities comprising 'traditional' and 'modern' sectors.

Our inadequate understanding of the nature of the African societies as they are today shows the weakness of the existing theoretical frameworks. Similarly demographic transition theory is inadequate to explain social change and offer guidelines for monitoring and understanding future structural change in the African social systems. This then leads me to the relevance of social science research in the subcontinent. The neglect of anthropological and, to some extent, sociological research methodologies in the 1960s in favour of quantitative methodology gave rise to ill-founded optimism concerning demand for family planning services in Africa south of the Sahara. The data on which were based the reports recommending family planning programs to governments did not reflect the major and essential features of the social systems including different types of household arrangements,

and people's real attitudes and reproductive behaviour. Demographers and other social scientists have over the past few years realized the importance of combining quantitative and qualitative research methods to provide not only quantitative parameters but also explanation of the relationships between these parameters. The combined approach enables the researcher to understand not only the patterns but also the process of change; it yields accurate information on behaviour and a meaningful interpretation of what lies behind the behaviour. We know that there is strong correlation between education and fertility or between the education of the mother and infant and child mortality, but we do not have much information about the mechanisms through which education exercises such a profound influence.

Another example is the transition from poor to good health. We need to understand how the use of particular medical technology, such as prenatal care, affects health outcomes. This is critical in determining the efficiency and cost-effectiveness of possible interventions designed to improve health. We also have to analyse the reasons why people decide to use these interventions. Studying the determinants of behaviour is essential in evaluating the effectiveness of policies designed to get people to use the interventions effectively. Such an investigation takes us into the realm of social, cultural and behavioural determinants of health; beliefs and practices that account for illness and poor health as well as good health. The micro-approach is an effective instrument for explaining the links between variables, and for capturing the nature of socio-economic change. Furthermore, the approach enables us to explain the persistence of certain traditional structures and the emergence of new patterns of differentiations and social inequality. Many dimensions of pluralism together with cultural conservatism and resilience make African societies more complex and diverse than those in other parts of the world. This is why studies on Africa conducted on the basis of concepts and definitions derived from the study of other societies have not yielded useful results (Aryee 1994; Bledsoe 1994).

African universities and research institutions therefore have a major role to play in the collection and analysis of the needed data for assessing demographic trends and their entangled relationships with social and economic development. Unfortunately, an assessment of human resources development programs in Africa shows that training of future researchers is far from satisfactory. For instance, the United Nations Regional Institute for Population Studies (RIPS) which recruits students from about 20 member countries has produced only 28 M.Phil. and four Ph.D graduates during its 21 years of existence. The Francophone equivalent, IFORD, has no Ph.D program and the Cairo Demographic Training Centre which serves mainly North African countries has just started one. The situation is no better in the universities concentrating on undergraduate programs. For example, the University of Ghana, one of the oldest universities on the continent, produced 14 Ph.D and 31 M.Phil. graduates between 1986 and 1992 (Aryee 1994). Though research institutes such as the Institute of Statistical, Social and Economic Research (University of Ghana), Nigeria Institute of Social and Economic Research (University of Ibadan), and National Institute of Research (University of Botswana) have successfully undertaken a number of valuable research projects, their capacities for multidisciplinary social science research need to be improved. These research-oriented institutions do not seem to have had any significant effect on socio-economic development because of inadequate funding, weak institutional linkages and the absence of clear national policy guidelines. And as Aryee points out, one major handicap of these institutions is lack of

A comprehensive national policy or programme... imperative in directing attention to the most relevant issues, coordinating and monitoring research activities, and ensuring maximisation of scarce resources. It may also act as a central information management centre compiling directories or inventories of all on-going research and disseminating such information (Aryee 1994:48).

Lack of funding for research activities has constrained the development of social science in the region. The problem has been examined by Aryee:

The problem of inadequate funding can be ameliorated in part by strengthening and widening the range of institutional linkages between research institutions and the private sector, industry, non-governmental organizations etc. many of whom have a direct interest in applied research. There must also be more collaboration and coordination between the national research institutions themselves, many of whom tend to work in relative isolation or independence (Aryee 1994:55).

It is high time however, that the organizations interested in population and sustainable development issues and therefore funding population activities in Africa take local research much more seriously. Small research grants to local universities to conduct relevant and needed research on national demographic and socio-economic issues would enhance our knowledge about the demographic developments in sub-Saharan Africa.

### **Conclusion**

This paper has stated that sub-Saharan Africa is not only an economically but also a demographically challenging region. At the theoretical level it is still struggling to develop appropriate paradigms; it is necessary to reorientate research strategies, redesign effective research instruments, and guide and streamline research activities by comprehensive national research policies. Strengthening human resource development programs and broadening the base of funding from both external and internal sources are also major issues.

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