December 1997

FUTURE POPULATION GROWTH AND POLICY OPTIONS

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The modern expansion of human numbers started in the late 18th century with a long-term decline in the death rate in Europe and Northern America. This reduction in mortality was the consequence of a lower incidence of epidemics and famines and improvements in standards of living, levels of nutrition and basic public health measures. By the year 1900 the world's population had risen to about 1.6 billion, and in 1950 the total stood at 2.5 billion. Since the middle of this century, a huge new spurt of growth has occurred in Africa, Asia, and Latin America, again the consequence of a rapid decline in mortality. As a result, more people have been added since 1950 than were alive in that year, and in 1995 the world's population reached 5.7 billion. The acceleration in growth is well demonstrated by the shortening of time intervals to add successive billions to the world's population. The first billion was reached around 1800, the second billion took 125 years, the third 35 years, the fourth 14 years, and the fifth (between 1974 and 1987) just 13 years. If current projections turn out to be accurate, the next few billions will be added at the same rapid pace.

This paper reviews population projections for the world and its major regions until the year 2050. A brief summary of the latest United Nations projections and their underlying assumptions is presented first. This is followed by a discussion of the implications of the changes in the age composition that accompanies the demographic transition. The concluding section outlines policy options for slowing population growth.

FUTURE POPULATION TRENDS

According to the most recent UN medium projections (UN 1996), the population of the world will continue to grow at least until 2050, when the total is expected to reach 9.4 billion. This represents an increase of 3.7 billion over the 1995 population of 5.7 billion. Nearly all of this future growth will occur in the "South"--i.e., Africa, Asia (excluding Japan, Australia, and New Zealand), and Latin America--where population size is projected to increase from 4.5 to 8.2 billion between 1995 and 2050 (see Table 1). In contrast, in the "North" (Europe, Northern America, Japan, and Australia/New Zealand), population size is forecast to remain virtually stable, growing very slowly from 1.17 to 1.22 billion between 1995 and 2025, followed by a modest decline to 1.16 in 2050.

The plot of world population size over time in Figure 1 indicates that we are now at the steepest part of this curve. Figure 2a presents the trend in annual increments in population size. After rising steadily over the past several decades, annual increments in the world's population peaked at 87 million per year in the late 1980s and since then they have dropped slightly to 81 million per year in 1995–2000. This high level of growth will remain virtually unchanged through the first two decades of the 21st

century before beginning a significant decline. After the year 2025, additions to the South will exceed those of the world as a whole because the North's population is projected to experience an absolute decline.

The trend in the world's annual growth rate (measured in percent per year) also rises and falls over the one-century period from 1950 to 2050 (see Figure 2b). However, its peak occurred in the late 1960s, before the maximum in the annual absolute growth. Between the late 1960s and the late 1980s, the world's growth rate declined while absolute annual growth rose. These trends are consistent with each other because the growth rate is applied to a rapidly expanding population base to yield the annual increments. The growth rate of the South exceeds that of the world as a whole and that of the North throughout the period 1950 to 2050.

Projected population trends vary widely among world regions (see Table 1). In 1995, Asia had a population of 3.47 billion, more than half of the world total, and its population is expected to grow by more than half to 5.35 billion by 2050. Africa, with 0.72 billion inhabitants in 1995, is likely to experience by far the most rapid expansion, nearly tripling in size by 2050. Latin America, with 0.48 billion in 1995, was the smallest of the regions of the South; this is expected to continue with a growth pattern similar to Asia's. Trends for the two principal regions in the North are expected to diverge between 1995 and 2050: an increase from 0.30 to 0.38 billion in Northern America, but a decline from 0.73 to 0.64 billion in Europe. One consequence of the wide diversity of regional growth rates is that the regional distribution of population will shift significantly over time. While Asia's (60.9 percent) and Latin America's (8.4 percent) shares of the world total remain virtually unchanged, Europe's declines by half (from 12.8 to 6.8 percent) and Africa's rises (from 12.7 to 21.8 percent). Between 1995 and 2050, the North's share is expected to decline from 20.6 to 12.4 percent.

Population sizes for the ten largest countries in 1995 and in 2050 are presented in Table 2. In 1995, China (1.22 billion) and India (0.93 billion) were by far the largest countries, together accounting for about half the South's total. The top ten included six Asian countries and only one country each in Latin America and Africa. By 2050, the ranking is expected to have shifted substantially: India's population will exceed China's, and Ethiopia and Zaire will have risen into the top ten, replacing Japan and the Russian Federation.

ASSUMPTIONS UNDERLYING THE PROJECTIONS

The population of the world now increases every year because the global birth rate exceeds the death rate. For example, in the early 1990s population size increased at a rate of 1.5% per year, the difference between a birth rate of 2.4% and a death rate of 0.9%. At the country level, population growth is also affected by migration, but for the regional aggregates of population used in this analysis, migration is usually a minor factor, and it will therefore not be discussed in detail.

The annual birth and death rates of populations are in turn primarily determined by levels of fertility and mortality experienced by individuals. The most widely used fertility indicator is the total fertility rate (TFR), which equals the number of births a woman would have by the end of her reproductive years if she experienced the age-specific fertility rates prevailing in a give year. Mortality is usually measured by the life expectancy at birth (LE), which equals the average number of years a newborn would live if subjected to a given set of age-specific mortality rates. In order to make long-range population projections, assumptions have to be made about the future trajectories of fertility and mortality.

The UN's past estimates and projected future levels of fertility for the period from 1950 to 2050 are presented in Figure 3. The total fertility rate in the South was high and virtually stable at around 6 births per woman on average in the 1950s (the slight temporary decline in the late 1950s in Asia was due to a large famine in China). This level of fertility reflects a near absence of birth control, a condition that has prevailed for centuries before the middle of this century. In the late 1960s, a decline in fertility started nearly simultaneously in Asia and Latin America. The rate of decline since 1970 was most rapid in Asia, in large part due to an exceptionally sharp reduction in China. Africa has experienced only limited reproductive change, although Northern Africa has seen significant declines in fertility, and there are a few countries in sub-Saharan Africa (for example, Botswana, Kenya, Zimbabwe, and South Africa) where a fertility decline has begun. As a result of these divergent past trends, fertility levels in 1990-1995 differed widely among regions from a high of 5.7 births per woman (bpw) in Africa, to 2.8, and 2.9 bpw in Asia and Latin America, respectively. The average for the South in 1990-95 stood at 3.3 bpw. In contrast, the average in the North was already low (2.8 bpw) in the early 1950s and has since declined to 1.7 bpw in the early 1990s. Except in the 1970s, fertility levels in Europe have on average been below those of Northern America.

Future trends in fertility in the South are based on the assumption that the total fertility rate will eventually reach and then remain at the so-called "replacement" level in all regions. Replacement fertility is just above 2 bpw and it represents the level at which each generation just replaces the previous one,

thus leading to zero population growth. Below-replacement fertility produces, in the long run, population decline. As is evident from Figure 3, the total fertility rates in Asia and Latin America are expected to reach the replacement level around 2025. Africa is assumed to be on a trajectory toward replacement fertility, but this level is not expected to be reached until the middle of the next century. Europe now has below-replacement fertility and this is expected to remain so until 2050. Africa is the only region in which the future trend in fertility is sharply different from the past, and for this reason its projection must be considered the most speculative.

Mortality levels have also changed rapidly over the past few decades (see Figure 4). The South has experienced exceptional improvements in life expectancy from an average of 41 years in 1950-55 to 62 years today. By the early 1990s, Latin America had reached mortality levels similar to those prevailing in the North in the 1950s, and Asia was not far behind. Africa has had the highest mortality levels and the slowest rate of improvement. As a result its life expectancy, at 52 years in 1990-95, is still substantially below that of the other regions of the South. As expected, Europe and Northern America already had achieved relatively low levels of mortality by 1950, but they have nevertheless seen significant further improvements since then. Life expectancy in the North now stands at 74 years.

Projections of future life expectancies by the UN assume continued improvements over time in all regions. However, increments will be increasingly difficult to achieve as countries reach ever higher levels of life expectancy. Its maximum, to be reached in the 22nd century, is assumed to be 85 years. By 2025, mortality conditions in Asia and Latin America are expected to be similar to those that prevailed in the North in the 1970s. Africa will continue to lag, in part because the continent is most heavily affected by the AIDS epidemic.

It should be noted that the assumptions made by the UN about future trends in fertility and mortality are not based on a firm theoretical basis. Instead, the UN relies on empirical regularities in past trends in the now-developed countries, mostly in the North, where fertility declined to around the replacement level, and increases in life expectancy became smaller over time. This is a plausible approach that unfortunately leaves room for potential inaccuracies in projection results.

THE CHANGING AGE COMPOSITION

The declines in fertility and mortality that occur over the course of the demographic transition are accompanied by important changes in the composition of the population by age. In general, countries in the early stages of the transition (when fertility is high and population growth rapid) have a younger age structure than countries that have reached the end of the transition. In the South this trend over time is

illustrated in Figure 5 which presents the estimated distribution by age in 1975 and the projected distribution for 2000, 2025 and 2050. The proportion of the population under age 15 is expected to decline from 44.9% in 1975 to 24.3% in 2050, while the population over age 65 is projected to rise from 3.1% to 7.7% in 2050. These changes will have important social and economic consequences e.g. for the allocation of resources to education, health and social security (see later chapters in this volume). Here I comment briefly on two significant demographic consequences of this variation in the age structure.

a) The age dependency ratio

The age dependency ratio (ADR) of a population at a given point in time is defined as the ratio of the population in the ages below 15 (P_{15})and over 65 (P_{65}) to the population between ages 15 and 65 (P_{15-65}):

$$ADR=(P_{15}+P_{65})/P_{15-65}$$

This ratio aims to measure how many "dependents" there are for each person in the "productive" age group. Obviously, not every person below 15 and over 65 is a dependent and not every person between ages 15 and 65 is productive, but despite the crudeness of this indicator it is widely used to document broad trends in the age composition.

Over the course of a demographic transition the ADR shows a characteristic pattern of change. Figure 6 presents this pattern as estimated from 1950 to 1995 and projected from 1995 to 2050 for the South. Early in the transition the ADR typically first rises slightly as mortality declines and more births survive infancy and childhood. Next, the ADR falls sharply as the decline in fertility reduces the proportion of the population under age 15. Finally, at the end of the transition the ADR rises again as the proportion of the population over age 65 rises. These changes are clearly reflected in the corresponding trends in the youth dependency ratio (P_{15}/P_{15-65}) and the old age dependency ratio(P_{65}/P_{15-65}) which are also plotted in Figure 5.

b) Population momentum

At the end of the demographic transition natural population growth reaches zero once three conditions are met:

i. Fertility levels off at the replacement level of 2.1 births per woman (more precisely, the net reproduction rate should be 1). If fertility remains above replacement, population growth continues; if it is lower, population growth will turn negative.

ii. Mortality stops declining. This in practice is not likely to happen because improvements in medical technology and health care as well as changes in lifestyles etc. will probably insure continued increases in life-expectancy.
iii. The age-structure has adjusted to the post transitional levels of fertility and mortality.

The adjustment in the age structure at the end of the transition takes many decades to complete. A key implication of this slow adjustment process is that in countries with a young age structure population growth will continue for many years, even if fertility could immediately be brought down to the replacement level of two children per woman. The tendency of population size to increase for some time after a two-child family has been reached is referred to as population momentum; it is the consequence of a young population age structure.

The population momentum inherent in the age structure of a particular population at a given point in time can be estimated with a simple population projection. Specifically, a population projection is carried out in which future fertility is set to the replacement level, mortality is held constant and net migration is zero. The momentum is estimated as the increase in population size that occurs under these conditions, which in the long run lead to zero growth. Results of the application of this procedure are summarized for groups of countries in Table 3. As expected, population momentum in 1995 is much higher in the low and middle income countries in the South (40%) than in the high income countries in the North (9%). This finding implies that momentum is responsible for nearly half of the projected future population growth in the developing world. In the South the highest momentum is found in the Middle East (62%) and in sub-Saharan Africa (54%).

POLICY OPTIONS FOR REDUCING FUTURE POPULATION GROWTH

The already difficult task of reducing poverty and bringing about sustainable development in the developing world will, of course, be made even harder by the expected addition of several billion people by the middle of the next century. Efforts to slow this population expansion cannot include increases in mortality, and they therefore have to focus on reducing fertility. Three broad policy options for accelerating fertility decline can be pursued (Bongaarts 1994):

a) Reduce unwanted fertility and the unmet need for contraception by strengthening family planning programs

Approximately one in four births in the developing world (excluding China) is unwanted, and a larger proportion is unplanned. In addition, an estimated 25 million abortions are performed each year in less developed countries—many of them under unsafe conditions.

The main reason for this high rate of unwanted pregnancy is the existence of a partially unsatisfied demand for contraception. When questioned in recent surveys, a majority of married women in the developing world said that they did not want a pregnancy soon. Some of these women did not want any more children because they had already achieved their desired family size, while others wanted to wait before having the next wanted pregnancy. The proportion of married women who want to avoid an immediate pregnancy varies widely among countries and regions. It is lowest in sub-Saharan Africa (39 percent), where desired family size is relatively high, and it is highest in Asia (61 percent) and Latin America (67 percent), where the small-family norm has spread (Bongaarts and Bruce 1995). These numbers are growing over time as desired family size declines.

Ideally, all these women should be protected from the risk of pregnancy by practicing contraception (including sterilization). Unfortunately, this is not the case. Among women with a potential demand for contraception, the proportion that is actually using a method ranges from a low of 41 percent in sub-Saharan Africa to a high of 77 percent in Asia. The remaining women have a so-called unmet need or latent demand for contraception: they do not want to become pregnant but are not protected by contraception. On average, about one in six married women in the developing world (excluding China) has an unmet need for contraception; it is higher than average in sub-Saharan Africa (23 percent) and lower in Asia (14 percent). Among married women who are not seeking pregnancy, about 120 million have an unmet need for contraception (World Bank 1993). If sexually active unmarried women as well as unsatisfied users were added, these figures would rise considerably. The existence of this unmet need was first documented in the 1960s, and it convinced policy makers that family planning programs were needed and would be acceptable.

Why do apparently motivated individuals fail to practice contraception? The answer lies in a mixture of social and health service–related reasons. Lack of access to services or information was and remains a key obstacle. In addition, other factors—such as fear of side effects of contraceptive methods and overt or suspected disapproval of husbands/partners and other family members—are significant barriers to use in many societies. To be effective, programs must therefore go beyond the simple provision of services to address social and health concerns as well.

Despite considerable progress over the last several decades, the coverage and quality of family planning services remain less than satisfactory in many countries (Mensch, Miller, and Miller 1994). In addition, some countries have imposed demographic and provider targets on family planning programs, thus actively interfering with trust between clients and providers. To ensure that family planning programs appropriately assist individuals in reaching personal fertility goals, governments should offer family planning as a strictly voluntary service embedded within or linked with other reproductive health services. The quality of these programs can be improved by extending services to underserved populations, broadening the choice of methods available, assuring the technical competence of providers, emphasizing the shared responsibility of men for protection from unwanted fertility and disease and increasing public awareness of the value of and the means to fertility regulation (Bruce 1990; Bruce, Lloyd, and Leonard 1995; Jain 1989; Population Council 1995).

The most direct and convincing evidence of the value of well-designed family planning services attentive to related child and reproductive health needs is provided by an extensive experiment conducted in the Matlab district of rural Bangladesh since the mid-1970s (Cleland et al. 1994; Phillips et al. 1988). When the Matlab experiment began, Bangladesh was one of the poorest and least developed countries, and there was considerable skepticism that in such a setting reproductive behavior could be changed. The Matlab experiment's initial phase relied on a very simple design: traditional birth attendants were hired to visit households every three months to provide oral pills and condoms to couples who expressed an interest. By the second year of this intervention, contraceptive use was a modest 6 percent higher in the treatment than in the comparison area. This result demonstrated the existence of some demand, but its fragile nature clearly called for a more comprehensive approach to services, one which took into account in its design social, psychological, and health concerns limiting adoption of fertility regulation. In the second phase of the project, started in 1977, the choice of methods was expanded; the quality of backstopping, referral, and follow-up was greatly improved; a new cadre of better-trained and relatively well-educated younger women replaced the traditional birth attendants as service providers; and extensive management changes were undertaken to ensure that visitation was dependable and client problems were addressed promptly. The results of these improvements in the quality of services were immediate and pronounced. In the treatment area, contraceptive use rose to one-third of all married women within a year, while no such change was observed in the comparison area. The difference between these two areas has been maintained over time. The success of the Matlab experiment not only demonstrated that appropriately designed services could reduce latent demand even in very traditional settings, but it also provided an impetus to the

national family planning program of Bangladesh. Lessons learned from the experiment were used to redesign government services, and these changes were in turn instrumental in raising contraceptive use nationwide from a negligible level in the 1960s to nearly 50 percent in the early 1990s.

b) Reduce the demand for large families through investments in human development

Although family planning programs claim most of the attention of population policy makers and of the resources at their disposal, their potential effect is largely limited to reducing the unmet need for contraception. Since such programs are voluntary, they cannot reduce fertility below the level wanted by couples and they cannot bring about population stabilization in countries where on average the desired number of children still exceeds two.

Many individuals and couples continue to want and have large families, in part because of fears of infant and child mortality as well as the need for children to assist them in family enterprises and to support them in old age. In most of the developing world, desired fertility still exceeds two surviving children; in some areas, such as sub-Saharan Africa, desired family size is typically above five children (Bankole and Westoff 1995). In many societies, sons are valued more than daughters because families feel they cannot rely on daughters for their future security; larger numbers of births are therefore needed to ensure the survival of sons. Since population stabilization cannot occur until well after fertility has reached a level of just two surviving children per couple, high demand for children remains a fundamental cause of population growth.

Early population stabilization therefore requires measures that reduce the demand for large families through affirmative social and economic policies. Their objective is to change the costs and benefits of child rearing so that more parents will recognize the value of smaller families, while simultaneously increasing the investment in children. The following variables have substantial effects on desired family size, as well as on the ability of individuals to regulate their fertility:

- *Education.* Among the socioeconomic variables that have been studied for their potential effect on fertility and desired family size, education stands out as the most consistent (Jejeebhoy 1995). Compared with their uneducated counterparts, educated parents rely less on children for income and social survival, in particular in old age, and their childrearing costs—both economic and time—are higher. Educated women are more able to make independent reproductive decisions and to engage in innovative contraceptive behavior. Mass education lowers the labor value of children by requiring attendance in school, and raises the costs of children, thus leading

to smaller desired families. It also lowers fertility by promoting and facilitating the spread of nontraditional behaviors, roles, and values (Caldwell 1980).

- *Child survival*. A high death rate among children encourages high fertility in several ways (Lloyd 1988): (1) it requires excess births to insure that at least the desired number of children will survive to adulthood; (2) it discourages investments in children's health and education; and (3) it makes the planning of families difficult because the number and timing of future deaths are unpredictable; it thus contributes to fatalism. All these effects can be counteracted by implementing public health measures to reduce infant and child mortality. The potentially important role of this variable has been demonstrated empirically in different societies, and no population in the developing world has experienced a sustained fertility reduction without first having gone through a major decline in infant and child mortality (Montgomery and Cohen, forthcoming).
- *Investments in women*. Improvements in the economic, social, and legal status of girls and women can reduce desired fertility in several ways. Increasing women's educational levels and economic prospects decrease their reliance on children for status and security. Empowering women is also likely to lead to reductions in the dominance of husbands (or other household members) over women, the societal preference for male offspring, and the value of (and thus need for) children as insurance against adversity (for example in old age) and as securers of women's positions in families. Although the precise role of each of these effects varies among and within societies, there is little doubt that the overall effect of increasing gender equality significantly influences reproductive behavior (Mason 1987; Population Council 1996).

Most governments already pursue these socially desirable objectives independent of their potential role in lowering the rate of childbearing. The demographic benefits simply strengthen the rationale for intensifying these social policies.

c) Address the momentum of population growth

While a young age structure-- the key force behind population momentum --is not amenable to modification, an option to reduce momentum is available that has received little attention in past policy debates. Further reductions in population growth can be achieved if the average age at which women begin childbearing rises (by delaying the first birth) and through wider spacing between births. Previous research has clearly demonstrated that fertility levels in any given year are significantly affected by shifts

in the timing of births (Ryder 1980). If successive age cohorts of women start their childbearing earlier and space their births closer together, for example, fertility for that period rises temporarily. Conversely, a delay in the onset of childbearing and wider spacing of births leads to a decline in fertility and hence in the population growth rate.

Young women often have little choice about whether or not to have sexual relations, when or whom to marry, and whether to defer childbearing. Short intervals between generations are often a result of the pressures on young women to marry and to bear children early as a means of finding social acceptance and long-term economic security. The early onset of fertility and the close spacing of births present health risks to girls and young women, limit their education and livelihood possibilities, Delaying the onset of childbearing will therefore not only reduce population growth, it also significantly improves personal well being and the quality of family life, especially for women.

Governments that wish to encourage later childbearing have several options at their disposal. National legislation to raise the age at marriage has been moderately effective in a few countries, such as Tunisia and China. However, legislation has the drawback that it attempts to force rather than encourage changes in social customs that involve not only the young people but also their families. Indirect approaches are likely to be more effective. A greater investment in the education of girls, particularly at the secondary level, is the most obvious example. The longer girls stay in school, the later they marry and the greater the delay in childbearing. In general, supportive measures that enhance adolescents reproductive health, educational levels, and income-generating potential will lead to more rapid human capital development, to increased productivity, and it offsets population momentum.

CONCLUSION

The unprecedented speed with which the world's population has grown over the last four decades has resulted in a more than doubling of the number of inhabitants, bringing the total to 5.7 billion by 1995. Despite substantial and partially successful efforts to reduce growth in the less developed countries, this expansion of human members is expected to continue at a rapid pace over the next decades. Current projections suggest that the world population will continue to grow, reaching 9.4 billion in 2050, with nearly all of this growth occurring in Africa, Asia, and Latin America. Longer-range projections to the end of the next century estimate totals of over 10 billion (UN 1996).

Three strategies are available to governments that consider current and expected future population growth rates higher than desirable:

-Strengthen family planning programs to provide women with the knowledge and means to regulate their fertility. These programs can lower fertility if they successfully provide a broad clientele with high quality services, because there is still a substantial unmet need for contraception and abortion. Meeting this need will reduce unwanted pregnancies which now account for about one in four births (outside China).
-Emphasize "human development," in particular education, gender equality and child health. Improvements in these areas are instrumental in reducing desired family size. Since desired family size is still above two in much of the developing world, population stabilization cannot be achieved until fertility preferences decline further.
- Encourage delays in childbearing. This is a relatively new but potentially effective population policy option aimed at reducing population momentum. One of the more desirable ways to achieve childbearing delays is by raising investments in education, especially of girls, because it is associated with later marriage and onset of childbearing.

To be effective in addressing the expected population expansion policies should include but also go beyond the provision of services. Voluntary fertility reduction as a societal development goal is best achieved through mutually reinforcing investments in family planning, reproductive health, and a range of socioeconomic measures. Such policies operate beneficially at both the macro and micro levels; the same measures that slow population growth improve individual health and welfare.

Notes

The first part of this paper is based in part on a presentation prepared for the United Nations University Conference on the Sustainable Future of the Global System, Tokyo, Japan, 16–18 October 1995.

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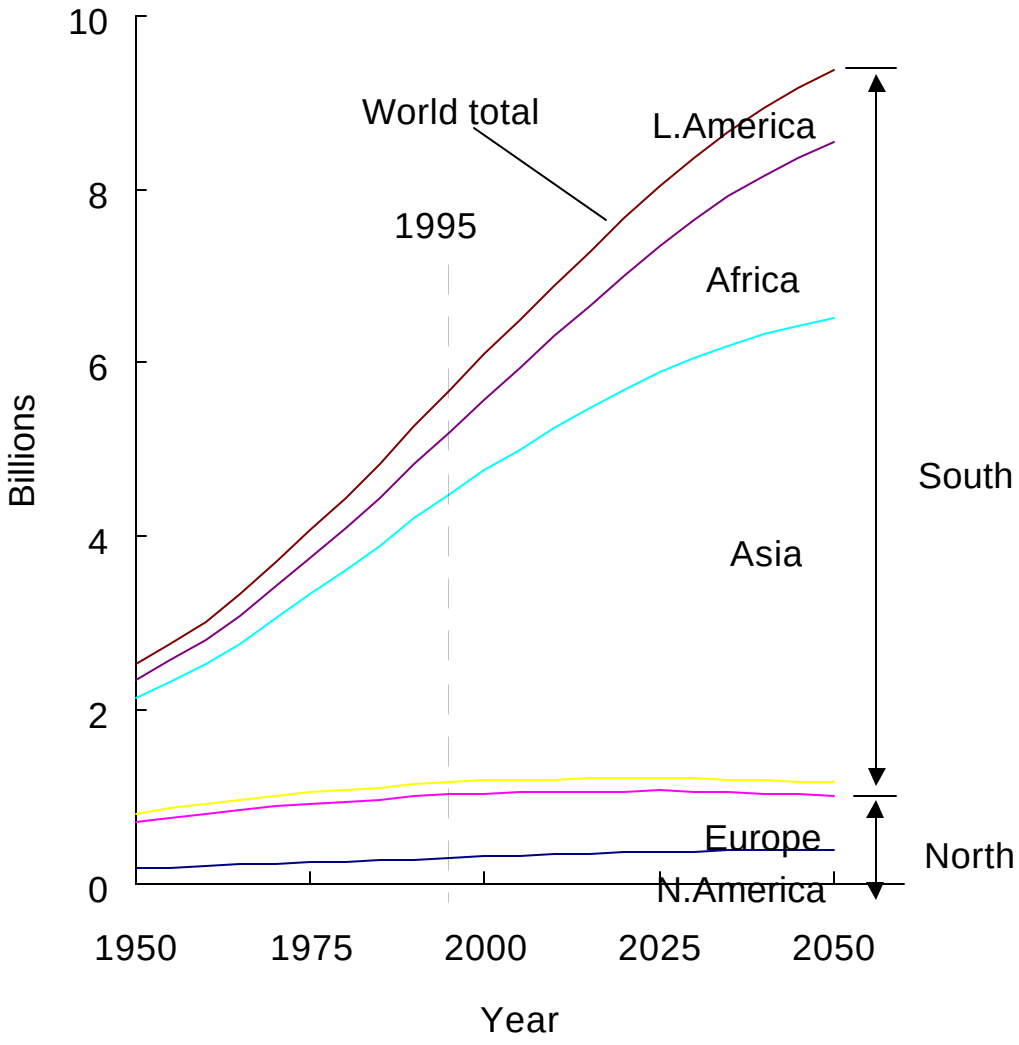
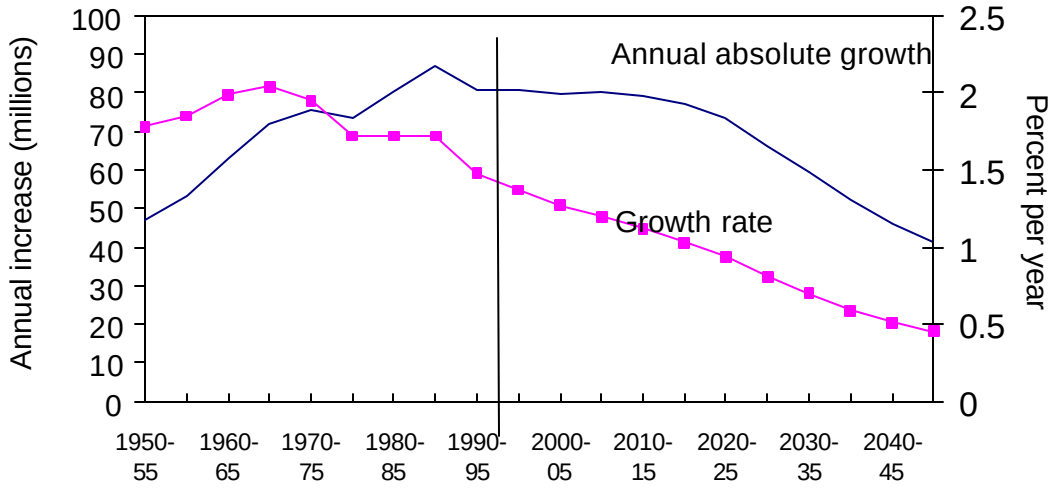
Figure 1: Total population by major region, estimates, (1950-1995) and projections (1995 to 2050)



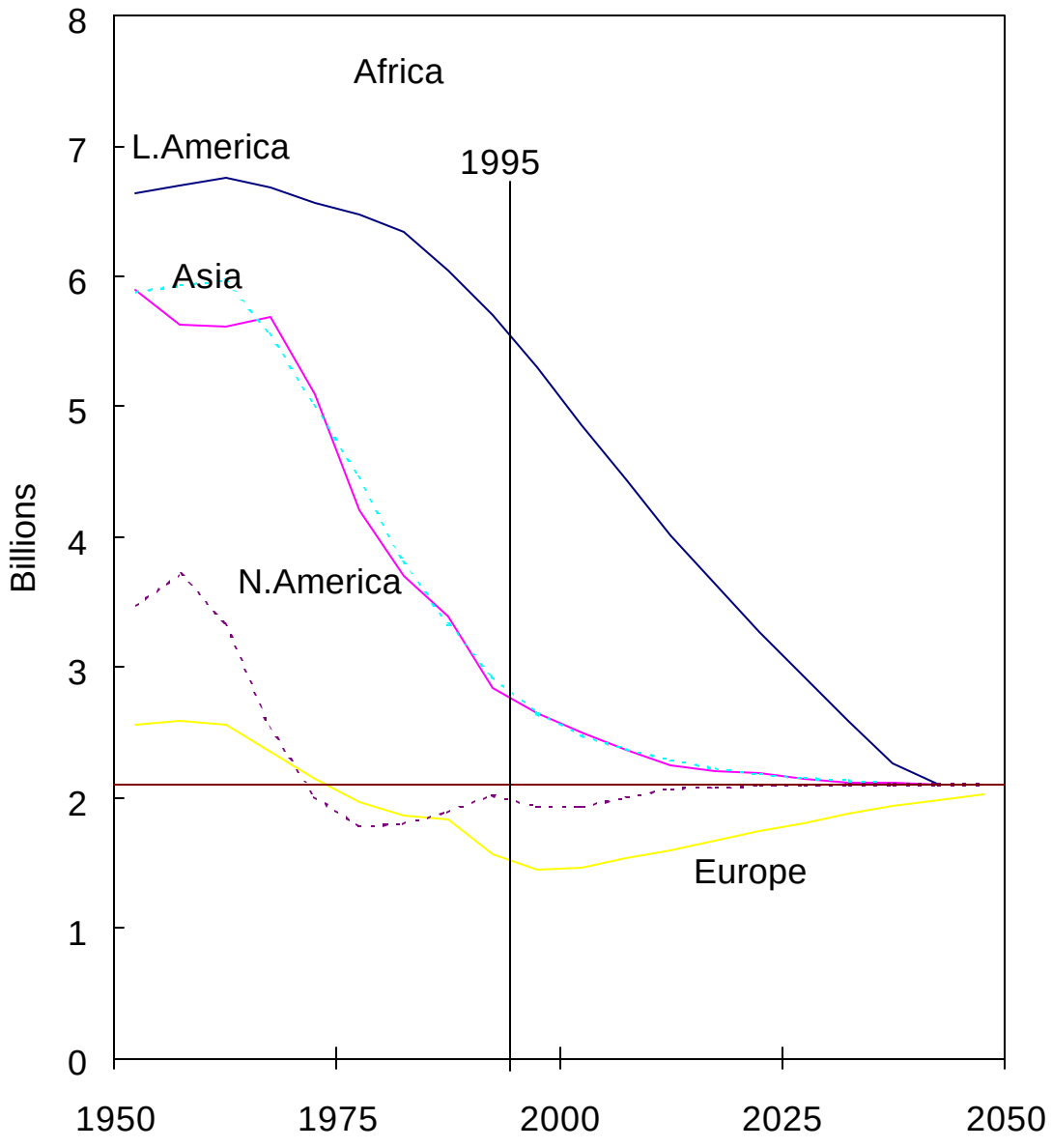
Source: United Nations 1996

Figure 2: Annual absolute population growth and population growth rate for the world, estimated (1950-1995) and projected (1995-2050)



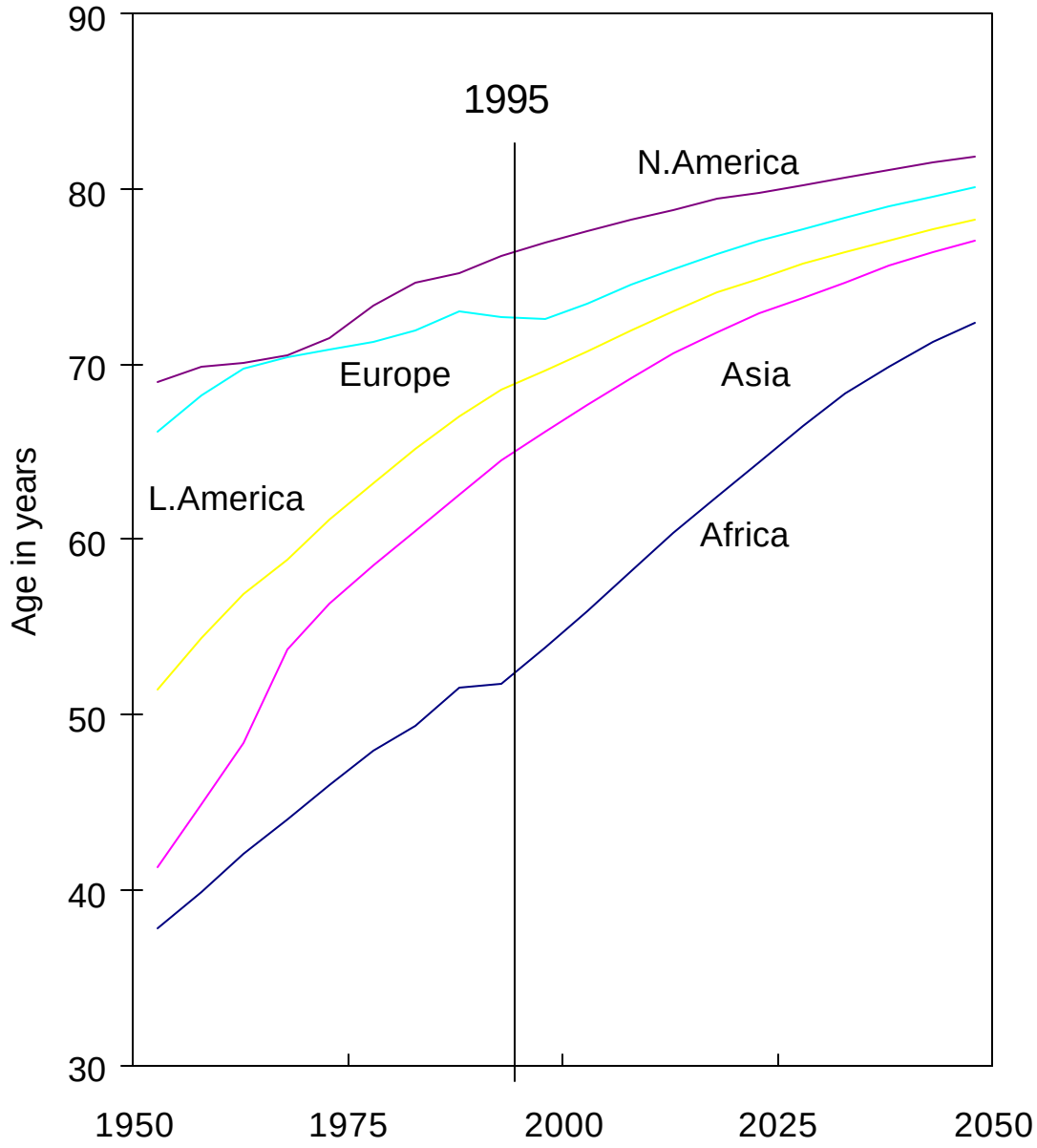
Source: United Nations 1996

Figure 3: Total fertility rate by region, estimates (1950-1995) and projections (1995-2050)



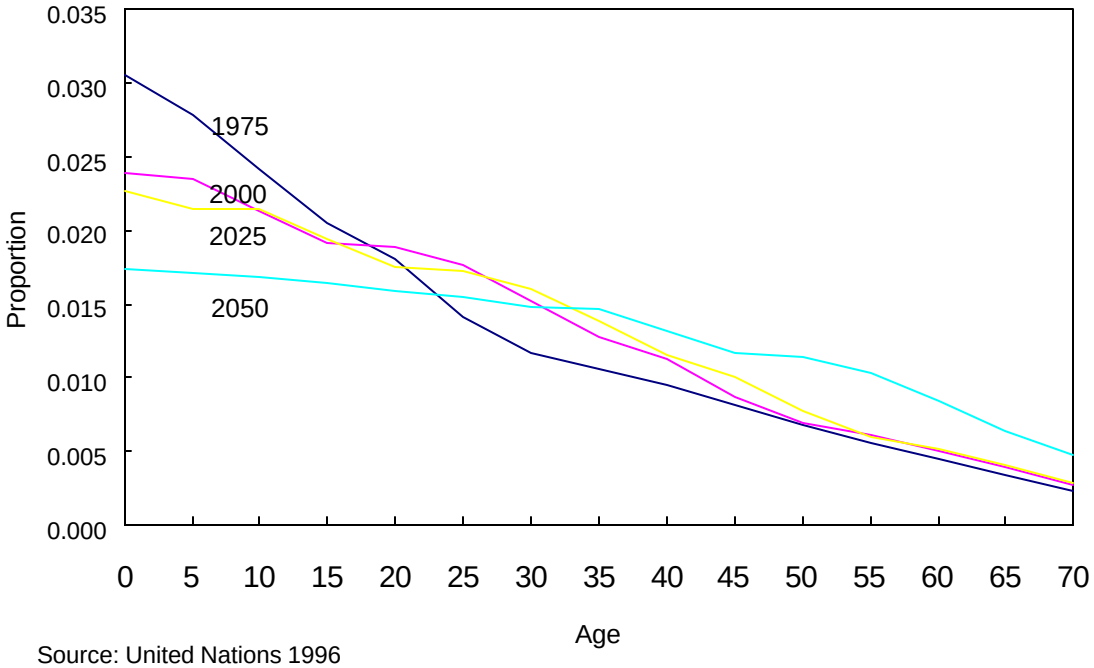
Source: United Nations (1996)

Figure 4: Life expectancy by region, past estimates and projections



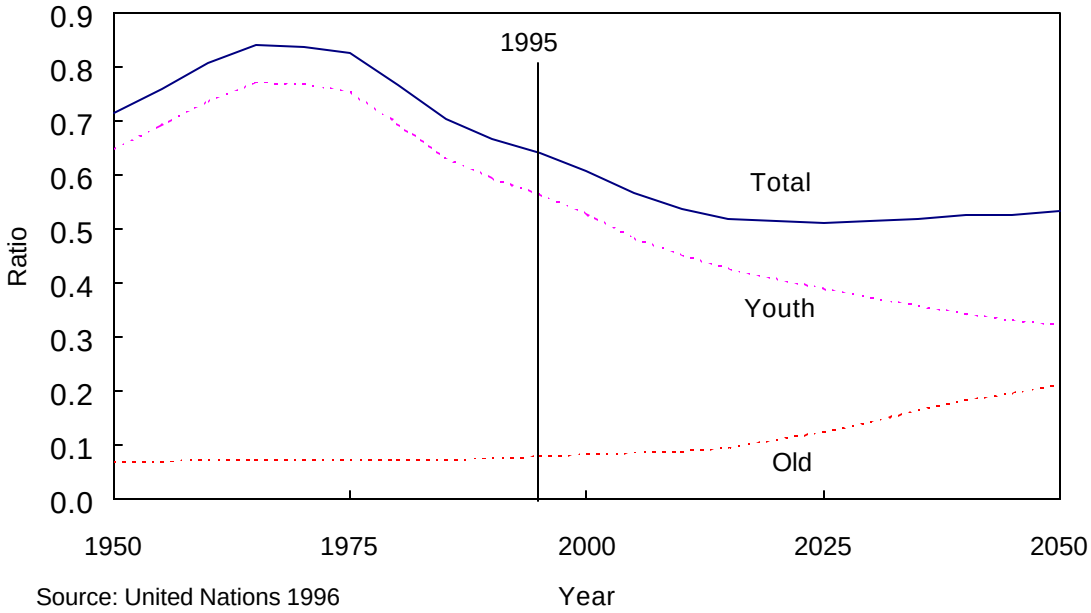
Source: United Nations (1996)

Figure 5: Distribution by age of the population of the developing world, estimated 1975, projected 2000-2050



Source: United Nations 1996

Figure 6: Age dependency ratio for the developing world, estimated (1950-1995), and projected (1950-2050)



Source: United Nations 1996

Table 1 Total population estimates (1950–1995) and projections (1995–2050), by region

	Population (billions)					Percent Distribution			Percent Increase	
	1950	1995	2000	2025	2050	1950	1995	2050	1950-1995	1995-2050
Africa	0.22	0.72	0.82	1.45	2.05	8.9	12.7	21.8	221	184
Asia[a]	1.32	3.47	3.57	4.68	5.35	56.0	60.9	58.6	145	58
Latin America	0.17	0.48	0.51	0.69	0.81	6.6	8.4	8.7	187	70
Europe	0.55	0.73	0.73	0.70	0.64	21.7	12.8	6.8	33	-12
Northern America	0.17	0.30	0.31	0.37	0.38	6.8	5.2	4.1	73	29
South	1.71	4.52	4.90	6.82	8.21	67.8	79.4	87.6	164	82
North	0.81	1.17	1.19	1.22	1.16	32.2	20.6	12.4	44	-0.8
World	2.52	5.69	6.09	8.04	9.37	100.0	100.0	100.0	125	65

[a] includes Oceania

Source: United Nations (1996)

Table 2 Ten largest countries by population size in 1995 (estimate) and 2050 (medium projection)

	1995		2050	
Rank	Country	Population size (millions)	Country	Projected population size (millions)
1	China	1,220	India	1,533
2	India	929	China	1,517
3	United States	267	Pakistan	357
4	Indonesia	197	United States	348
5	Brazil	159	Nigeria	339
6	Russian Federation	148	Indonesia	318
7	Japan	125	Brazil	243
8	Pakistan	136	Bangladesh	218
9	Bangladesh	118	Ethiopia	213
10	Nigeria	112	Zaire	165

Source: United Nations (1996)

Table 3 Estimates of population momentum in 1995 by region

	Percent increase 1995 to 2100
South (Low and middle-income countries)	40
East Asia & Pacific	35
Latin America & Caribbean	54
Middle East & North Africa	62
South Asia	44
Sub-Saharan Africa	54
North (High-income)	09

Source: World Bank, 1997