ditions; and information, education and counseling on human sexuality, reproductive health and responsible parenthood.

What is also important, the conference underscored the need for global cooperation, including financial assistance from rich to poor, in order to meet this goal of universal access, and put quite specific financial targets in place:

> The international community should strive for the fulfillment of the agreed target of 0.7 per cent of GNP for overall official development assistance (ODA) and endeavour to increase the share of funding for population and development programmes commensurate with the scope and scale of activities required to achieve the objectives and goals of the Programme of Action. . . . Given the magnitude of the financial resource needs for national population and development programmes, and assuming that recipient countries will be able to generate sufficient increases in domestically generated resources, the need for complementary resource flows from donor countries would be (in 1993 US dollars): in the order of $5.7 billion in 2000; $6.1 billion in 2005; $6.8 billion in 2010; and $7.2 billion in 2015.

The UN Millennium Project's special report on sexual and reproductive health (2006) came up with estimates of the scale of donor effort that would be needed to achieve the goal of comprehensive access to basic sexual and reproductive health in the poor countries, including safe childbirth, emergency obstetrical care, and family planning services. The estimate came to around $25 billion per year as of 2015, which would be roughly 0.06 percent of the income of the donor countries. This estimate would ensure broad coverage not only of contraception and family planning but also of safe childbirth, the key step in meeting the Millennium Development Goal of cutting maternal mortality by three fourths by 2015. Alas, to date, those financial goals have not yet been met. We now turn to reviving the global cooperation on family planning and fertility reduction.

Chapter 8

Completing the Demographic Transition

SINCE THE BEGINNING OF THIS DECADE, population policy has been hijacked by shortsighted ideology. Leaders of the U.S. religious right have called for ending U.S. support for family planning. While that has not happened entirely, the Bush administration has slashed aid to the UN Population Fund and recommended large cuts in direct U.S. funding of family planning services. It's hard to think of a single more misguided policy; it runs directly against American interests in the reduction of conflict and terror, as well as against the support of economic development and environmental sustainability more generally.

The future trend of the global population will be a matter of choice, not fate. If the rich countries, including the United States in the next administration, honor their commitments at Cairo to help the poor countries invest in family planning and reproductive health more generally, the world's population can be stabilized at around 8 billion. Table 8.1 sketches how this would be achieved. In the current medium-fertility UN forecast, the world's population rises to 9.2 billion by 2050 and is roughly stable thereafter. A plausible policy alternative is to assume a faster demographic transition in the developing countries, as presented in the UN's low-fertility forecast. This low-fertility scenario puts the TFR at 0.5 lower than in the medium forecast. This alternative results in the stablization of global population at roughly 8 billion, with almost half of the reduction from 9.2 billion to 8 billion resulting from lower populations in India and sub-Saharan Africa. Per capita economic growth in Africa and in other regions of current high fertility would be powerfully promoted. The Earth's environment, first and foremost in the poorest regions, and also globally, would be much better protected. If the United States persists in its war against family planning, or simply continues the cur-

Table 8.1: Global Population with Faster Demographic Transition (billions)

REGION	2005	2050 (MEDIUM FERTILITY)	2050 (LOW FERTILITY)
Developed	1.22	1.25	1.25
Less-developed	5.3	7.95	6.73
World	6.52	9.2	7.98
of which: India	1.13	1.66	1.39
Sub-Saharan Africa	0.77	1.76	1.52

Source: Data from the UN Population Division (2007). The low-fertility forecast is for the less-developed countries only. The developed-country population forecast uses the medium-fertility assumption in both columns.

rent neglect and underfunding of global efforts, we are much more likely to find ourselves in more real wars instead.

Continued rapid population growth has given an air of Malthusian inevitability to Africa's travails. Many people suppose that any help for Africa in the form of disease control or increased food production will simply be offset by increased mouths to feed. On countless occasions in recent years, somebody has approached me after a lecture and in a whisper asked a question they found deeply unsettling and even embarrassing: "If we save all those children, won't they simply starve as adults? Won't we be creating a population explosion?" These questions are reflecting deeply ingrained thinking but also flawed reasoning. There is nothing static or inevitable about high fertility rates in Africa or anyplace else. These questioners are usually relieved—indeed, very relieved—when I explain three points. First, fertility rates in Africa can be brought down, quickly and voluntarily, just as in other parts of the world. Second, saving children through increased access to public health services and nutrition is actually a major stimulus to reduced fertility. Parents will choose to have fewer children in the first place if they are assured that the children will survive. Third, any sensible development policy for Africa or any other high-fertility region should integrate aid for economic development (including health, agriculture, education, and infrastructure) with aid for family planning. We should view the fertility transition and the economic development takeoff as a package deal.

COMPLETING THE DEMOGRAPHIC TRANSITION

Family planning, a worldwide policy-led effort since the 1950s to empower households to reduce their fertility rates through access to contraception and health services generally, is one of the great success stories of modern times. Without that effort, our global population pressures would be vastly more stark than they are today. Through ample global experience and scholarship, we know a great deal about the strategies that can succeed in shifting the world from the medium or high trajectories to the low trajectory in the interest of ending poverty and strengthening global political stability. The targets of opportunity are those regions with continuing high TFRs, as shown in the map in Figure 8.1 (see insert). Fertility rates remain high (above 4) in sub-Saharan Africa, the landlocked countries of South America (Bolivia and Paraguay), several countries of the Persian Gulf other than Iran (more on that below), and some parts of South and Southeast Asia. Even within countries such as India, where the national average TFR is now around 3, the population growth rate remains rapid, and rural fertility rates are above 4.

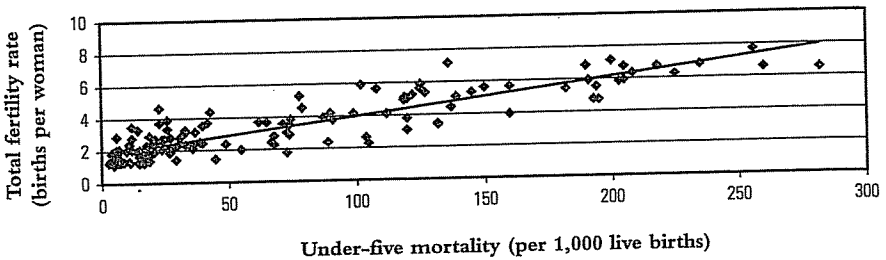
A rapid, voluntary reduction of fertility rates can be achieved through a package of efforts, some strictly within the family planning tool kit, such as free availability of contraception in the low-income countries, and some that are far more general, such as the promotion of child survival, the empowerment of women in the labor market, and the national leadership of politicians, celebrities, and the business community—all emphasizing that smaller families are a better economic investment for the parents (especially in the context of greatly improved child survival) and vastly better for the children.

Nine factors have proved time and again to be important in leading to a rapid or slow decline in fertility rates. Not all are needed, but each can contribute to a rapid voluntary reduction in the fertility rate.

Improving Child Survival

The decline in mortality rates of infants and young children is probably the single most important step in encouraging poor families to reduce fertility rates. When families have confidence that their children will survive, they are much more likely to choose quality over quantity in their family strategy. The

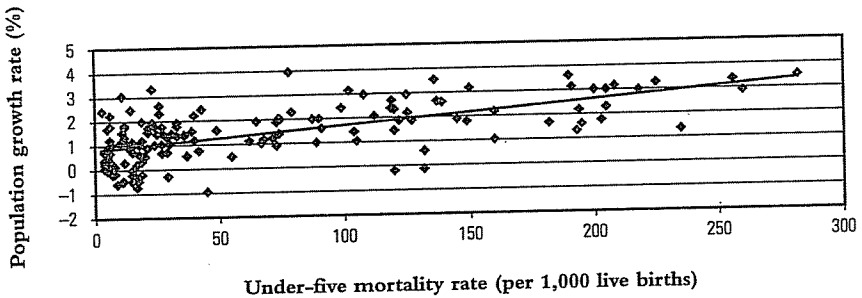
Figure 8.2(a): Child Mortality and Total Fertility Rates in 2005



Source: Data from World Bank (2007)

scatter plot of 150 countries in Figure 8.2(a) shows that lower rates of under-five mortality are associated with lower rates of total fertility. The scatter plot in Figure 8.2(b) shows that lower under-five mortality is associated with a lower overall rate of population growth, suggesting that the decline in mortality is more than offset by an accompanying decline in fertility. Correlation does not prove causation, but ample experience, and more sophisticated statistical testing, does. By saving children's lives, and reaping the benefits in lower fertility rates, societies not only save their children but also help to stabilize their populations at the same time.

Figure 8.2(b): Population Growth and Child Mortality Rates in 2005

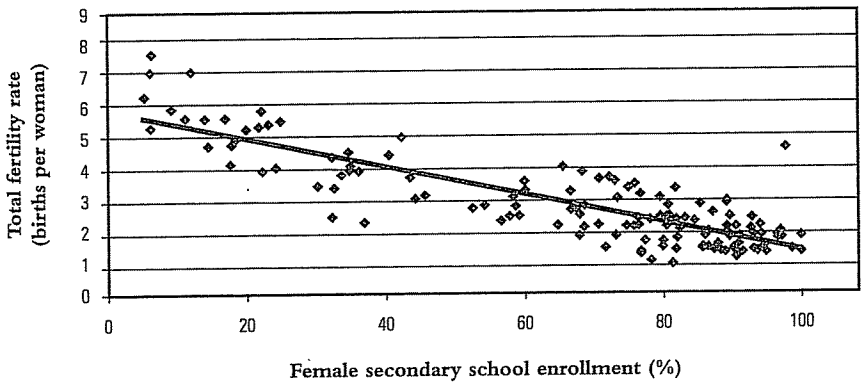


Source: Data from World Bank (2007)

Education of Girls

Girls' education has time and again been shown to be one of the decisive entry points into the demographic transition. Girls' education has multiple effects, all leading in the same direction: lower fertility (see Figure 8.3, which shows lower TFR in countries with higher girls' enrollment rates). There is the most direct effect: girls in school, notably in secondary school, are likely to remain unmarried until a later age and, therefore, are likely to begin child rearing much later than girls without schooling. Of course, the content of education matters as well. Girls can and should be educated about sexual and reproductive health, and about the options for contraception. They can learn to analyze the quality/quantity tradeoff in the size of families and thereby overcome preexisting cultural biases more easily. This is critical, since the cultural assumptions may have developed under a set of demographic conditions (for example, very high child mortality rates) that are no longer applicable. Girls' education will empower them as young women to negotiate more effectively with their spouses, including on the issue of family size. Last, and perhaps most important for the long term, education empowers women in the labor market, raising the value of their time by imparting labor-market skills. The more skilled the mother, the higher her value will be in the labor market

Figure 8.3: Female Secondary School Enrollment and Total Fertility Rates in 2005



Source: Data from World Bank (2007)
Note: Where 2005 data not available, most recent available year is used

and the higher the opportunity cost will be (or foregone market earnings) of the time devoted to child rearing. Women with a high market value, and thus a high opportunity cost of time spent in child rearing, on average choose to have fewer children.

There is very likely to be another more subtle effect. Female education will also raise the future market earnings of daughters. This, in turn, will reduce the preference for sons, which often prevails in low-income settings. When a household is aiming for three sons, it will need to have six children on average, half girls and half boys. If the household decides instead that it wants three children of *any* gender mix, it can reduce fertility by half and still achieve its objective. As son preference diminishes, therefore, the overall fertility rate will fall as well.

Empowerment of Women

Empowerment of women through legal protection (for example, against violence), property rights (land and inheritance), microfinance (lending for small businesses) and in the labor market (nondiscrimination) serves double duty. When women are empowered, they have greater opportunities in the labor market. This leads them to shift from quantity to quality in child rearing because of the much higher opportunity cost of the mother's time. Husbands are also much more likely to agree to fewer children when their wives are money earners in the labor market. This kind of empowerment is also likely to strengthen the mother's bargaining power vis-à-vis the husband in case of a difference of opinion between the spouses.

Access to Reproductive Health Services

Even when households would prefer to reduce fertility, they need reproductive health services, including family planning and contraception, in order to turn aspirations into reality. Yet in large parts of Africa and other very poor regions, health services do not reach the households. Families cannot afford contraception at the prices that are charged, and they lack access to clinics where the contraceptive services would be obtained. Social marketing schemes, in which poor households are granted access to contraception at subsidized prices, may work in some poor settings, but they often exclude the poorest of the poor, who have no money, even when the subsidized prices are quite low. Experience has shown, moreover, that while a clinic in a village can make a huge difference, additional door-to-door outreach to households by

trained community health workers can be decisive. Many women in poor societies are not empowered enough within their communities to travel to public clinics to seek health care. When outreach health workers come to them, however, they may be able to make critical choices within the privacy of their own households.

Green Revolution

A boost in farm productivity has two effects, one self-evident and the second a bit more subtle. The direct effect is to raise the value of the farmer's time (in most cases in Africa the farmer is the mother). The higher value of the mother's time in turn induces the household to shift to fewer children and higher investment per child, along the quality/quantity tradeoff. The second effect is to raise the economic benefits of keeping children in school for additional years. When farmer communities are working with improved technologies, they are more likely to benefit from extra schooling. Thus, when a community is introduced to Green Revolution technology, it benefits the community to keep the children in school for more education. Yet this extra schooling is costly for the parents, so they in turn will choose to have fewer children and to provide more education for each child. Once again, the household moves toward quality and away from quantity. India's Green Revolution was a spur to reduced fertility rates in the districts covered by the high-yield technologies. The same can and should happen in Africa.

Urbanization

One common observation is that urban households tend to have fewer children than rural households, holding constant other socioeconomic characteristics of the households. Children are economic assets in rural areas because they help with the farm chores from an early age. In the cities, however, children are generally a much greater net cost, with little compensating contribution to home production. While urbanization is not a policy target per se, the trend to urbanization is likely to be a factor in speeding the demographic transition.

Legal Abortion

Even with widespread contraception available, many pregnancies will be accidental and unwanted. Abortions will take place, legally or illegally, as has been found in all parts of the world. The mortal risks to the mother in the

case of illegal abortions are vast, and both these risks and costs will lead to many unwanted children being born as well as many women dying in botched abortions. In countries with legal abortion services, households have a lower-risk and lower-cost option, and there is strong evidence that the legalization of abortions reduces a country's TFR significantly, by as much as half a child on average, and also reduces maternal mortality.

Old-Age Security

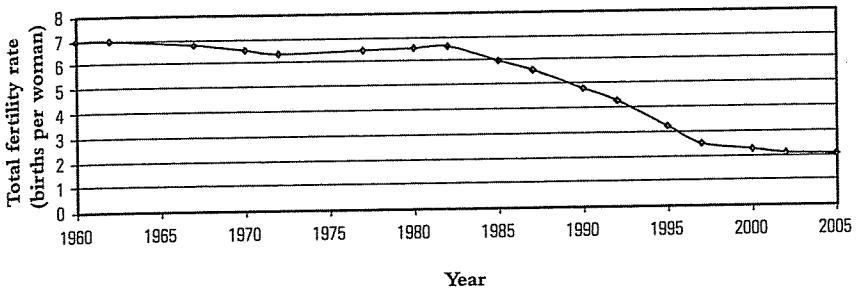
Government provision of social security for the elderly directly substitutes for one motivation for large families. Even poor countries can gradually provide pensions for the old and can give confidence to today's young generation that such pension coverage will rise over time with economic development.

Public Leadership

Fertility choices reflect not only individual tradeoffs in the marketplace but also community norms as to the "appropriate" behavior of young men and women. The age of marriage, the spacing of children, the appropriateness of choosing sterilization (for example, vasectomy or tubal ligation) as a long-term fertility-control method after the family size is complete, and public attitudes toward women in the workforce are all culturally conditioned. Public leadership by authority figures in favor of voluntary fertility reduction has played an important role in shifting cultural norms (for example, in accepting modern contraceptive use) and has emboldened women in tradition-bound rural areas to seek family planning services. On the other hand, where authority figures such as religious leaders oppose contraception and family planning, the fertility transition can be delayed.

THESE NINE FACTORS AFFECT FERTILITY DECISIONS, and when all of them point in the same direction of reducing the fertility rate, a country can achieve dramatic results of slowing the population growth through voluntary means in just a few years. Moreover, there are successes in all parts of the world and in all cultures and religions. The common claim, for example, that fertility declines will not occur in the Islamic world is belied by the experience in Iran after the 1979 Iranian revolution (Figure 8.4). In the 1970s, Iran began introducing family planning ideas and services, though with very low usage. Immediately after the Iranian revolution, the new ruling religious authorities

Figure 8.4: Iran's Demographic Transition



Source: Data from World Bank (2007)

embarked on a short-lived pronatalist position. This was exacerbated by the disastrous and bloody Iran-Iraq War, which further disrupted family planning and decreased the motivation to reduce fertility. The result was a slight increase in fertility rates until the mid-1980s. The TFR averaged 6.6 during 1980–85. Yet soon afterward, the attitude of the political and religious leadership reverted to family planning, and this time with far more energy and cultural legitimacy than before. The TFR actually plummeted from 6.6 in 1980–85 to an astounding 2.1 by 2000–05. Many factors played a role, including increased access to family planning services, a change in public attitudes, and urbanization. One of the major factors, interestingly, was the rising rate of girls' school enrollment. It seems that religiously conservative fathers were more likely to send their daughters to school after the revolution than before. With higher female enrollment and literacy came later marriages and a steep reduction in desired family size. It is ironic that the Bush administration's attitudes toward family planning are in many ways more fundamentalist than Iran's.

AFRICA'S PROSPECTS

Africa's fertility decline lags behind the rest of the world. The progress is real, but far too slow. Africa's TFR during 2000–05 averaged around 5, the highest of any region in the world. In the poorest countries of Africa, the fertility rates are even higher, often well above 6.0, with cases such as Chad, 6.5; Mali, 6.7;

Burkina Faso, 6.4; Sierra Leone, 6.5; and Niger, 7.5. These countries have every risk factor imaginable: very high child mortality rates, a high proportion of the population in rural areas, largely illiterate populations, lagging women's rights, very low agricultural productivity and hence low market value of a mother's time, low girls' attendance at school (and even when recorded enrollments are rising, actual attendance can remain extremely low), little or no access to formal health systems and contraception, and no social safety net.

In addition to these standard factors, there are other more subtle barriers that have contributed to the lag in Africa's demographic transition. First, since Africa has by far the highest disease burden in the world and the highest rates of mortality of infants and young children, the cultural norms for large families—to offset these extraordinary mortality rates—have been very powerful. African culture, traditionally, has been strongly pronatal, with nearly all girls getting married, onset of marriage and childbearing at a very young age, strong preference for sons leading to even larger demand for children, and religious rites of various sorts emphasizing the importance of large families and surviving sons (for example, to perform funerary rites). Second, during much of the twentieth century—though no longer—there was ample extra land to expand the number of farms in order to absorb burgeoning rural populations. Only in the past generation have farm sizes been dangerously squeezed by the rising rural population. Cultural practices of extended families, with the common fostering of children outside of their parental households, and communal land ownership, broke the direct link between the number of children and the family's cost of child rearing. The community (or extended family), rather than the nuclear household, bore the brunt of the added population, including in the allocation of land. And the common practice of polygamy in some regions further breaks the responsibility of the biological father for the financial costs of child rearing, which are assumed to be borne by the biological mother. The diminished responsibility for the father means he has less incentive to limit fertility, and the fact that these are often male-dominated societies means that the father may have the last word. Polygamy may also raise the bride price for girls (the amount the groom's family pays the bride's family), thereby leading to an indirect incentive for parents to increase their "supply" of marriageable girls.

Africa's special conditions also include the strong role of religious leaders from many religious affiliations that discourage public discussion of contraception and family planning, and in some cases oppose their use outright.

Public discussions about sexuality have traditionally been taboo. Abortion is illegal throughout most of sub-Saharan Africa. Then, to top off the problems, the structural adjustment era of the IMF and World Bank, during the period from 1980 to around 2000, led to a cutback on public health initiatives, including family planning. The Washington-imposed policies of that era led to the dismantling of public health services and the imposition of user fees at public health facilities, at a time when the poorest countries needed greatly improved access to public health services.

Yet now all of this can and should change quickly. African leaders are recognizing that population policies are needed. Structural adjustment cutbacks in the health sector are being reversed, and public health is being scaled up. Many young African women are seeking contraception if they can obtain it inexpensively and discreetly. On just about every cultural, political, and economic level, the pendulum is now swinging toward a chance for rapid voluntary fertility reduction, if Africa grabs the opportunity and the world helps it to do so. Nonetheless, African countries will need an integrated strategy backed by global support to bring down the fertility rates in impoverished rural areas, since there are so many risk factors conducive to a prolongation of high rates.

There are three key changes now under way. First, the topics of sexuality and fertility are no longer taboo in the age of AIDS. Issues of family formation, sexual activity, polygamy, and access to contraception have become the fare of daily discussion. With rising population pressures, a squeeze on farm sizes, and increasing rates of urbanization, African leaders are poised to take up the population challenge in ways they've ducked in the past. Because Africa's continuing higher fertility rates are now sorely the exception on a global basis, Africa's leaders have a much clearer sense of the continent's unfortunate "exceptional" situation, and they are also aware of the possibility for rapid and voluntary reductions in fertility in view of the successes achieved elsewhere in the developing world. They are also painfully aware that several generations of rapid population growth have filled the countryside and now pose dangerous threats to farm sizes and environmental sustainability.

Second, for the first time in a generation, there is the movement and confidence to launch comprehensive development strategies that embrace the crosscutting and synergistic challenges of disease control, family planning and reproductive health services, girls' education, and farm productivity. The Millennium Development Goals foster precisely the kind of comprehensive

approach that is so vital for success in voluntary fertility reduction. Model approaches such as the Millennium Villages, described in Chapter 10, will demonstrate the feasibility of implementing such packages of interventions, and the fertility trends within the Millennium Villages will likely provide a demonstration of the possibility of the rapid and voluntary reduction of fertility rates in rural Africa. Even in the first year of operation, many of the Millennium Villages experienced a dramatic increase in the use of modern contraception, once the contraceptives became widely available within the village.

Third, we have learned many important specific lessons for program implementation, which should help speed the effort in Africa. One of the most important is the need for outreach to women by community health workers in circumstances where cultural norms make it difficult for women to attend family planning clinics. John C. Caldwell and Pat Caldwell stress the importance of privacy to women's use of contraception in Africa. Community health worker visits to households would seem to be crucial under those circumstances. Yet ironically, donor cutbacks in funding have forced the curtailment of such programs just as their efficacy was being established. Caldwell and Caldwell also emphasize the need for family planning programs to cater to the needs of adolescents as well as to married households. Indeed, these great demographers provide a list of seven requirements to enable family planning programs to accelerate the decline in fertility:

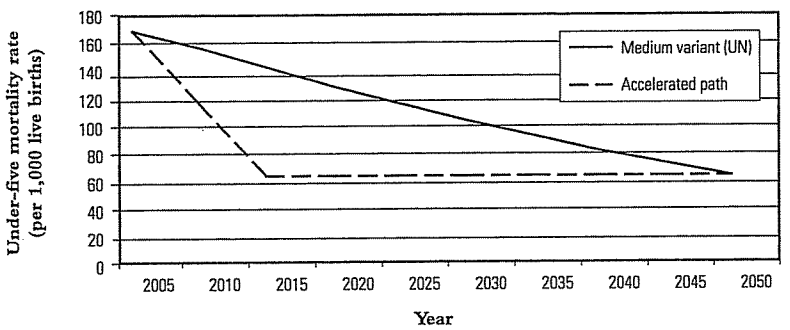
- Heads of state should support the programs.
- International aid should be maintained or increased.
- Family planning service-delivery points should be densely located.
- A range of alternatives should be provided.
- Contraceptives should be available without prescription (to protect privacy).
- Additional mechanisms should meet the needs of adolescents, men, and unmarried people of either sex.
- Abortion should be legalized.

Several African countries, some with a TFR of around 6 today, are likely to adopt bold fertility objectives, such as a reduction of the TFR to 3 or below during 2015–20. Let's look at what such a bold policy would accomplish when combined with an equally bold MDG-based effort to reduce infant and child mortality rates.

How will Africa's population, on balance, evolve if both mortality and fertility rates are sharply reduced within the context of a bold development program? To be specific, let us suppose that the African countries succeed in reducing the child mortality rate by two thirds as of 2015 compared with the 1990 baseline, as called for by the MDGs. Specifically, instead of a business-as-usual (BAU) gradual decline of under-five mortality from 167 per 1,000 in 2005 to 141 per 1,000 in 2015, let us assume an accelerated decline to 63 per 1,000 in 2015, as shown in Figure 8.5. We then assume (for purposes of illustration rather than realism), that the under-five rate remains level till 2050, when the business-as-usual gradual decline of mortality rate would finally catch up with the mortality rate of the accelerated track. We also assume that the TFR will decline sharply as well, from the current average of 5.5 in 2005 to 2.9 in 2015. Again, for purposes of specificity rather than forecast, we then assume that the TFR remains constant at the lower level till around 2040, when the BAU path would actually reduce the TFR still further. After 2040, we then follow the BAU path. The alternative paths for the TFR are shown in Figure 8.6.

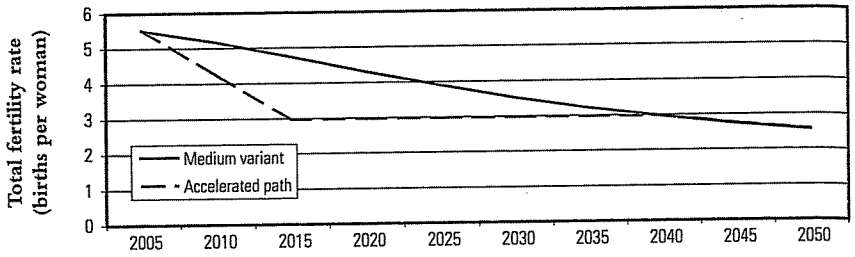
Let us assume, as I believe to be the case, that the rapid declines in both mortality and fertility can be achieved with bold policies. The question for us

Figure 8.5: Projected Child Mortality Rates in Sub-Saharan Africa from 2005 to 2050



Source: Data from UN Population Division (2007) and author's calculations

Figure 8.6: Projected Total Fertility Rates in Sub-Saharan Africa from 2005 to 2050



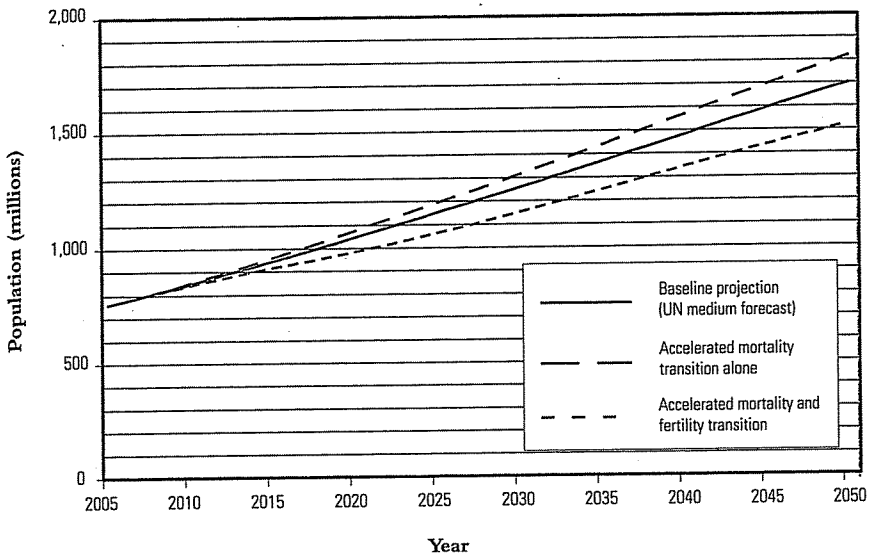
Source: Data from UN Population Division (2007) and author's calculations

here is the net balance of results: will population growth rise or fall when a steep reduction in child mortality is combined with a rapid decline in the fertility rate? The effect of the fertility decline is greater in the sense that Africa's population at midcentury will be lower if Africa puts in place a joint program of mortality and fertility reduction, in comparison with a continuation on the BAU path (Figure 8.7). The bold intervention program would reduce Africa's population by roughly 300 million people as of 2050 compared with the BAU trajectory. Africa's population still increases significantly, even with the rapid TFR decline, because population momentum in Africa is enormous, but by much less than it would if the BAU trajectory remained in place. Our finding is broadly similar to the comparison between the UN Population Division's low-fertility versus medium-fertility scenario, where the low-fertility projection implies a 2050 population that is 280 million lower than in the medium forecast.

Note that if Africa were to introduce a child-survival program alone, without the accelerating decline in the TFR, the population increase would be faster than the BAU path. To achieve a reduction of population, it is necessary to combine fertility decline and mortality decline. Fortunately, the evidence is overwhelming that mortality decline is a major success factor for achieving the needed fertility decline.

The bottom line is clear: it is possible to save children's lives and to reduce Africa's overall population at the same time. *Indeed, saving children's lives is a precondition for success in voluntary fertility reduction!* We can therefore go boldly forward in disease control and improved food production without fear of being overtaken by Malthusian disaster if the African governments and

Figure 8.7: Projected African Population from 2005 to 2050



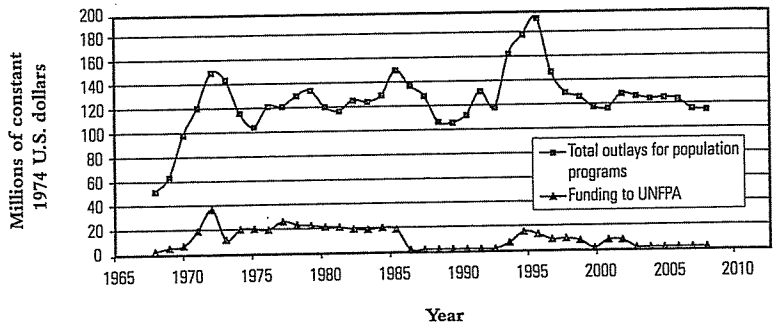
Source: Data from UN Population Division (2007) and author's calculations

their development partners follow through on their commitments to family planning.

THE BUSH ADMINISTRATION'S WAR ON FAMILY PLANNING

Such commitments, alas, are bigger ifs today than they should be. U.S. financial support for family planning services in low-income countries has been hamstrung in the past twenty-five years by the U.S. religious right, which has stymied overall funding for planning services, slashed support for the UN Population Fund, and instituted a so-called gag rule against support for any organizations that receive funding from any other source for legal abortion or for counseling on the option of abortion (even where legal). In Figure 8.8 we see that in constant dollars, correcting for inflation, the level of population assistance spending has, despite ups and downs, remained the same since 1970. Given the 2.5-fold increase in the population of the least developed countries, and the persistence of very high fertility rates in those countries,

Figure 8.8: U.S. Official Development Assistance for Population Programs



Source: Data from Population Action International (2007)

the freeze on overall aid represents a sharp cut on a per capita basis for the populations most in need. Total population assistance is currently about $450 million ($120 million in 1974 dollars), which represents around 60 cents per person in the least developed countries. Of course, only part of the 60 cents is available for local services and commodities in any event, since much is absorbed in overhead. In its 2008 budget request, the Bush administration called for a 25 percent cut in this budget line.

The U.S. government's assault on the UN Population Fund (UNFPA) has been particularly vindictive, as is also evident in Figure 8.8. It began with assaults during the Reagan and Bush Sr. presidencies and has continued with the Bush Jr. presidency, after a slight recovery during the Clinton years. The current Bush administration wrongly accused UNFPA of aiding China in coercive measures and cut off all U.S. funding for UNFPA. The U.S. State Department investigated and in 2002 recommended that funding be restored, but it did not succeed in overturning a White House political move. Narrow politics prevailed over America's foreign policy interests.

U.S. policy neglect is especially surprising in view of the our concerns over the threats of failed states. The youth bulge of high-fertility countries—measured as the share of youth (aged fifteen to twenty-four) in the entire adult population (aged fifteen and above)—should be a matter of national concern. The evidence, summarized in powerful reports by Population Action International (PAI) and by the demographer Henrik Urdal, is that a *youth bulge significantly raises the likelihood of civil conflict*, presumably by raising the ratio of those who would engage in violence relative to those who would mediate disputes. Most directly, unemployed young men become prime fodder for militias, raiding parties, terrorist groups, and armies. In PAI's analysis, three kinds of demographic stressors are related to the likelihood of civil conflict: the youth bulge, the shortage of arable land per capita, and the rapid growth of urban areas. All, of course, are related to the persistence of high total fertility rates.

Urdal summarizes the results of his own research on civil unrest as follows:

> The results of my internal armed models suggest that the presence of youth bulges increases the risk of conflict outbreak significantly. The statistical relationship holds even when controlling for a number of other factors—such as the level of development, democracy, and conflict history—and is also robust to a variety of technical specifications. For each percentage point increase of youth in the adult population, the risk of conflict increases by more than 4 percent. When youth make up more than 35 percent of the adult population, which they do in many developing countries, the risk of armed conflict is 150 percent higher than in countries with an age structure similar to most developed countries.

He also notes that microdata, based on interviews of young soldiers, validates the macro results: "A recent study based on interviews with young soldiers presents strong micro-level support for the expectation that poverty, a lack of schooling, and low alternative income opportunities are important reasons for joining a rebel group."

It is illustrative to compare the youth share in a number of countries. In Afghanistan, youth make up 37 percent of the population. In Iraq and Somalia, 34 percent, and in Pakistan, 35 percent. In the UN's grouping of more developed (high-income) countries, including mainly the United States, Western Europe, and Japan, the youth cohort is a mere 16 percent of the adult population.

Recent undermining of family planning efforts in the developing world by the United States is all the more ironic given U.S. leadership in mobilizing aid for family planning early on, beginning in the early 1960s. Led by USAID, the Ford Foundation and the Population Council, family planning at the national level led to tremendous successes in countries such as Brazil and

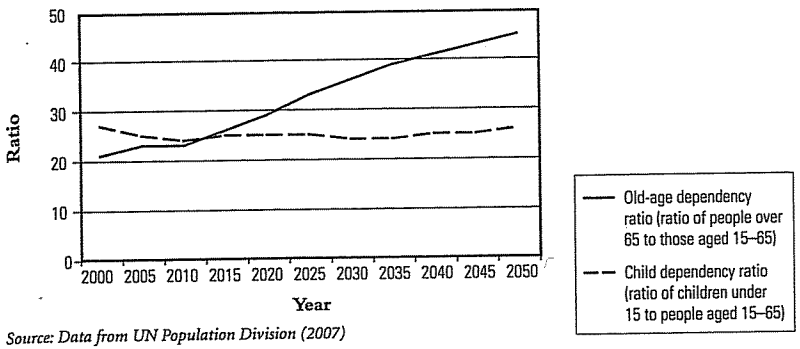
Bangladesh, which had drastic fertility reductions within one generation. Brazil, for example, saw its TFR go from 6 births per woman in 1960–65 to 2.5 in 1990–95. Despite desperate rural poverty, Bangladesh achieved similar results, with its TFR declining from roughly 7 in 1970 to 3.4 in 1993. Throughout Asia and Latin America, comprehensive family planning programs have led to decisive reductions in TFR and slowing of population growth rates, and have done so in Christian, Muslim, Buddhist, and other religious and cultural settings. Crucially, these changes in fertility were *voluntary*—they were achieved without compromising freedom of choice.

IS A BABY BUST A RISK FOR THE RICH WORLD?

With all of the urgency of reducing the fertility rates in the poorest countries before we add another 2.5 billion more people to the planet by midcentury, it is perhaps paradoxical to hear calls for pronatalist policies in the rich world. With fertility rates below replacement levels, there is some prospect for a modest decline of populations in the rich countries, especially in Europe and Japan. In the United States, the TFR remains at the replacement level rather than below, and in-migration remains very high, so the U.S. population is primed to continue to grow even as many European countries and Japan decline in population. On the UN's medium forecast, Europe's population (including both Western and Eastern Europe as well as Russia, Ukraine, and Moldova, of the former Soviet Union) is set to decline from around 731 million to 664 million in 2050. It's true that if extrapolated for the long term, below-replacement fertility rates can be startling. If Italy holds its current TFR of 1.3 till 2300, the UN calculates that the population would decline from 58 million to 600,000! It might not be all bad: an estate and vineyard for all. But it's also very unlikely to happen in that way.

The most widespread concern is that the social security systems of the rich world will go bust as more retirees live longer and have fewer and fewer workers to support them. There is some truth to the message. The ratio of those older than sixty-five to those aged fifteen to sixty-five, called the old-age dependency ratio, will indeed take a big surge in the high-income world, as shown in Figure 8.9. The ratio basically doubles from around 23 percent to

Figure 8.9: Old-Age Dependency and Child Dependency Ratios in the High-Income World from 2000 to 2050

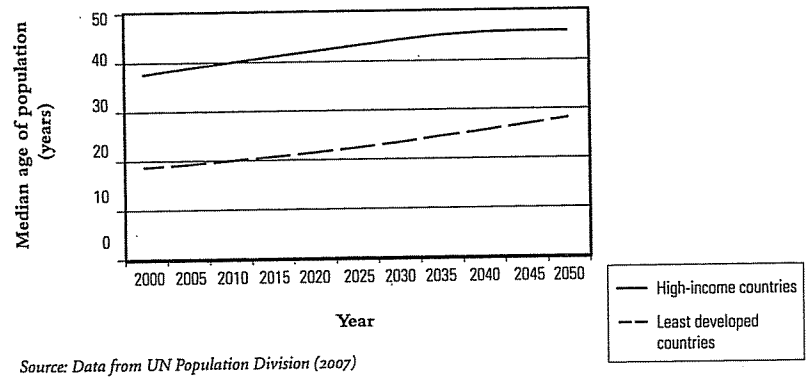


Source: Data from UN Population Division (2007)

around 46 percent, while the child dependency ratio (children under fifteen relative to the fifteen-to-sixty-five cohort) declines slightly.

It is true that these changes will impose stresses on pension systems, but it is simply not true that the costs are likely to be large. First, with slower population growth or even outright decline, society will not need to invest in major infrastructure (roads, power, and the like) merely to keep up with population growth. This marks an enormous social saving. Second, it is likely that

Figure 8.10: Median Age of High-Income Countries and Least Developed Countries from 2000 to 2050



Source: Data from UN Population Division (2007)

retirement ages will rise, probably with more flexible work times. We are, mercifully, not only living longer but living better, with more healthy life years. If sixty is the new forty-five, in terms of stamina and productivity, then who knows what seventy-five will bring in a few decades? Retirement ages will likely rise gradually by a few years. Of course, continued improvements in overall economic productivity may mean that we can work less in total and capture some of the advances in productivity through greater leisure time. There is one point on which we can be confident: we will be older in the future (Figure 8.10). The median age of the rich world is projected to rise from thirty-eight in 2005 to forty-six in 2050, and in the least developed countries from nineteen to twenty-eight in the medium-fertility forecast. In the low-fertility variant, the median age rises from nineteen to thirty-one. Older and wiser has a nice ring to it. Let us hope.

PART FOUR

Prosperity for All