



Global Population Trends

The Prospects for Stabilization

by Warren C. Robinson

Fertility is declining worldwide. It now seems likely that global population will stabilize within the next century. But this outcome will depend on the choices couples make throughout the world, since humans now control their demographic destiny.

For the last several decades, world population growth has been a lively topic on the public agenda. For most of the seventies and eighties, a frankly neo-Malthusian "population bomb" view was in ascendancy, predicting massive, unchecked increases in world population leading to economic and ecological catastrophe. In recent years, a pronatalist "birth dearth" lobby has emerged, with predictions of sharp declines in world population leading to totally different but equally grave economic and social consequences. To this divergence of opinion has recently been added an emotionally charged debate on international migration.

The volatile mix has exploded into a torrent of books, scholarly articles, news stories, and op-ed pieces, presenting at least superficially plausible data and convincing arguments on all sides of every question. The debate is no arcane, academic exercise. Important issues of public policy are at stake. But given disagreement among the experts, policymakers may be forgiven for ending up confused about what they can or should do.

Uncertainty is inherent in projections based on economics, public health, and sociocultural attitudes. Whether world population will stabilize—and at what level—is something that no one knows for sure. Still, demographic experts have identified probable trends in world population growth and distribution over the next fifty to a hundred years. They have also identified some of the mechanisms and driving forces underlying present trends, how they might change, and how policy might shape them.

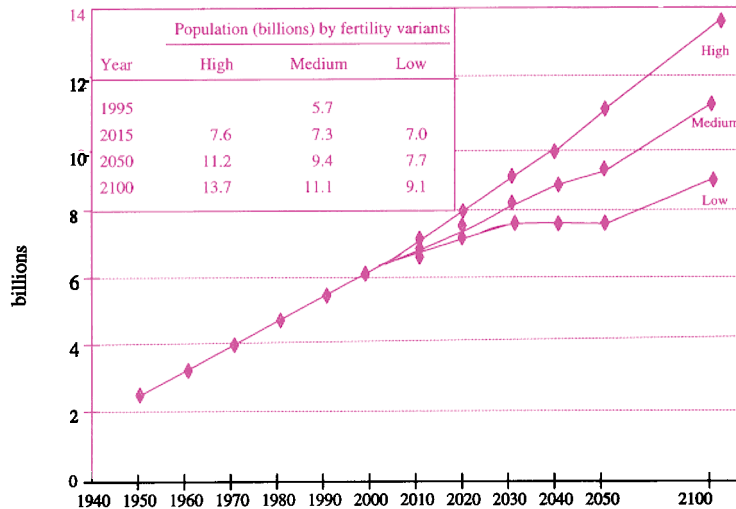
Trends in Growth

The United Nations Population Division makes varying assumptions about mortality and fertility to arrive at "high," "medium," and "low" estimates of future world population figures. The U.N. "medium" variant assumes mortality falling globally to life expectancies of 82.5 years for males and 87.5 for females between the years 2045–2050.

This estimate assumes that modest mortality declines will continue in the next few decades. By implication, food, water, and breathable air will not be scarce and we will hold our own against new health threats. It further assumes that policymakers will continue to support medical, scientific, and technological advances, and that such policies will continue to have about the same effect on mortality as they have had in the past. Thus average life spans will lengthen, but not dramatically.

During the same time frame, the U.N.'s medium projection shows the world's total fertility rate (TFR) leveling off to an average of 2.1 births per woman over her span of fecundity (ages 15–49). A TFR of 2.1 equals replacement fertility, meaning that each generation replaces itself and no more. Replacement fertility sustained for roughly seventy years (with no sharp changes in mortality) produces a constant population as well as a stable age distribution. This scenario describes true zero population growth and stabilization.

The medium projection shows replacement fertility being reached with a total world population of 9.8 billion. The annual growth rate would remain 1.0



World Population Growth, 1950-2100.
 (Estimates and medium-, high-, and low-fertility variants)
 Source: Adapted from *World Population Prospects* (The United Nations: 1997)

percent, falling to zero as total world population stabilized sometime after 2100 at just over 11 billion.

To put this projection in perspective, today's global TFR average is 3.3 children, with national variations ranging between 1.3 and 6.4 births per woman and a total world population of about 5.6 billion. For the year 2050, the U.N.'s "high" projection assumes a TFR of 2.60 children per woman and a total population of 11.9 billion. Should fertility remain constant at a TFR of 3.3, however, total population would be 16.1 billion by 2050. Neither of these high scenarios seems at all likely, however. Indeed the U.N.'s medium projection may even turn out to be on the high side.

The reason is that population growth rates and TFRs are declining nearly everywhere. Relatively speaking, fertility remains high in Africa, the South Asian subcontinent, and the Caribbean. These regions are growing as a share of the total world population and are also sending large streams of migrants to Europe, the United States, and less demographically vital areas. However, these movements are self-limiting since fertility is falling in the sending areas and migrants tend to be young persons, thus depleting the child-bearing bases there.

A Demographic Transition

Why is fertility declining? History shows that sustained economic development usually leads to smaller

family size in the long run. Consider what happened in Europe, for example, where commercial, agricultural, and industrial revolutions in the seventeenth and eighteenth centuries triggered sustained population growth. Once launched, this growth spurred continuous economic, social, and political transformations over the next two centuries. Gradual declines in mortality occurred through improvements in hygiene and nutrition. But fertility fell also, as income, urbanization, education, and health reached certain thresholds.

Generalized as a "demographic transition," this European experience of better living standards leading to smaller family size has been found to apply to the more recent experiences of Latin America, Asia, and Africa, which did not have their own population explosions until after World War II. In these later cases the transition has taken place much more rapidly, with public health programs and family planning playing key roles in lowering mortality and fertility. Rapid increases in female education have also played a major role. While it took Europe nearly a century to complete its transition, many Asian and Latin countries have gone from sustained growth to fertility plunge in one to two generations.

Decisions about family size are part of what economists call the "utility maximization" process. Children contribute to parental well-being in many ways, but also compete for time, attention, and household

Total fertility rates by region, 1994.

Geographic location	Total fertility rate
Western Europe	1.5
Japan, Australia, New Zealand	1.6
Eastern Europe	1.7
China	2.0
North America	2.0
South America	3.1
East/Southeast Asia	3.2
Central America	3.4
South Asia	4.2
West/Central Asia	4.4
North Africa	4.5
Sub-Saharan Africa	6.4
World average	3.2

Source: Population Reference Bureau World Data Sheet, 1994.

Those who predict a population "birth dearth" look at the present below-replacement fertility levels in Europe and some Asian countries and predict national and even global extinction.

Many demographers on the other hand see the present very low European rates as a temporary phenomenon as many women postpone—but do not forego—child-bearing. The TFR in the United States seems to be stabilizing at around 2.0 children per woman. Many non-Western populations have a long way to go before even approaching replacement levels.

In any case, there is nothing automatic about either replacement or below-replacement fertility. Population trends depend on the reproductive decisions that individuals make in the context of all sorts of considerations including social mores and environmental economics.

resources. Economic development changes parental aspirations and values, increases the cost of children, and creates competing sources of parental utility. Fertility declines because couples, weighing all these factors, decide they want fewer children. Family planning programs work because they help couples reach goals that they set for themselves.

The widespread desire for smaller families does not mean that family planning programs are redundant. Some 40 percent of the decline in Third World fertility in recent decades is attributed to family planning, and the success of these programs may be responsible for

the "ideational" demographic transition that we are also seeing today—the global shift toward the small-family norm even in countries that have not enjoyed sustained economic and social growth.

Of course in countries that have experienced rapid economic growth, fertility arguably would have fallen sooner or later even without family planning programs. But sooner is much better than later. Asia's rapid fertility reduction has meant a "softer landing" for these economies and an ultimate world population several billion lower than otherwise might have been the case.

Population Theories

The notion that there is a correlation between higher living standards and lower birth rates suggests a logic to the demographic changes that have taken place over the last two centuries. Yet it requires a leap of faith to assume that in a situation of complete free choice, replacement-level fertility (the two-child family) will be the average procreation goal of all couples in the world for generations to come. Clearly this is a sweeping assumption about future human values and behavior.

Why do people have children at all? To the economic theory of fertility some analysts add that children provide a unique type of satisfaction, irreplaceable by other goods or services, explaining why most people continue to want them, albeit in greater or smaller numbers, regardless of changing economic and social values.

Are humans like other creatures whom nature has endowed with reproductive "strategies"? Sociobiologists contrast the "K" reproductive strategy, under which a species reproduces as fast as possible to ensure that at least a few of the offspring live to maturity, with an "r" strategy, under which only a small number of offspring are produced and then carefully nurtured so as to arrive at maturity in better condition. Which strategy is more appropriate depends on the species and on environmental conditions. It also appears that some species show an ability to switch from one strategy to another as environmental conditions change.

It is tempting to apply this idea to the human situation. But are fertility goals really genetically encoded? What seems more likely is that societies have usually adopted fertility norms aimed at ensuring survival of the clan or group, which are then communicated to the individual and become as powerful as

genetic drives. The presumed innate feminine “desire” for children may well represent only social conditioning of young women by societies anxious to ensure their own long-run survival.

Latter-day social concerns may have nudged fertility norms in the opposite direction. Several decades of intense public discussions over the population threat to “spaceship Earth” may have left their mark, so that microdemographic behavior is conforming to perceptions about macro-environmental consequences. Perhaps we have for the last several decades been pushing our young men and women to something akin to an “r” strategy of reproduction.

Future Policy

The U.N. goal of stabilization and zero population growth by the end of the next century may turn out to be the final stage in a demographic transition set in motion several centuries ago. But however difficult to quarrel with, it is a goal that could change—and not necessarily with dire consequences.

Suppose, for example, that through a new wave of technological advances the world does succeed in coming to grips with the ecological and environmental problems that threaten it. Couples might perceive their surrounding environment as more benign, even supportive. A new demographic growth cycle might well emerge, taking the world to a higher population total, consistent with the improved global economic and ecological carrying capacity.

This homeostatic view of demographic, economic, and environmental interaction assumes feedback linkages and a long-run, self-regulating mechanism that influences individual behavior via social perceptions and institutions. The very long-run population equilibrium of the globe may well be several times the presently projected zero population growth total of some 11 to 12 billion, although that seems inconceivable now.

Suppose, on the other hand, that the “birth dearth” model (see sidebar) turns out to be right and fertility falls below replacement and threatens to stay there. Can policy raise the desired and actual level of fertility? Science fiction writers foresee a future society with well-paid professional “breeders” ensuring the continuation of the species. A variety of less-colorful measures has been used in Europe to encourage child-bearing by middle-class working women—paid

maternity (and paternity) leaves, easier access to child-care, and even outright baby bonuses.

The results of these pronatalist policies, however, are sobering. Only modest marginal effects on completed family size can be detected. It appears easier for policy to lower fertility than to raise it. But, in all honesty, we cannot be sure of what a vigorous, comprehensive, and sustained pronatalist policy could achieve, because one has yet to be developed and implemented under favorable conditions.

Is there any sure policy bet? What we do know is that effective family planning policy measures can help couples attain their desired fertility goals, since this is the way things have worked thus far. Indeed continued active promotion of family planning is built into U.N. projections of the world's TFR falling to replacement levels by 2030 or thereabout.

Such programs will help couples reach their ideal family sizes sooner and more easily. Without them, stabilization may well occur anyway, but will take longer and the ultimate world population will be considerably larger.

Other social factors are in flux now, also, that policy may influence. The first egalitarian gender system may be emerging, and couples now have procreative options not available before. The human species is on the verge of gaining a humane, voluntary control of its own demographic destiny for the first time in its history. The future population of the globe will be what couples decide it should be—an important factor often overlooked in the population debate.

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Further Reading

John B. Casterline, Ronald D. Lee, and Karen Foote (eds.), *Fertility in the United States*. (New York: The Population Council, 1997).

Wolfgang Lutz (ed.), *Future Demographic Trends in Europe and North America*. (New York: Academic Press, 1991).

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