

SECOND EDITION

Global Problems and the Culture of Capitalism

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CHAPTER

5

The Problem of Population Growth

America and other rich nations have a clear choice today. They can continue to ignore the population problem and their own massive contributions to it. Then they will be trapped in a downward spiral that may well lead to the end of civilization in a few decades. More frequent droughts, more damaged crops and famines, more dying forests, more smog, more international conflicts, more epidemics, more gridlock, more drugs, more crime, more sewage swimming, and other extreme unpleasantness will mark our course. It is a route already traveled by too many of our less fortunate fellow human beings.

—Paul Ehrlich and Anne Ehrlich, *The Population Explosion*

So why did the policies concerning population and family planning programs change so drastically in the last [few] decade[s]? As in late eighteenth century Britain, population has been growing rapidly. The expanding numbers of third world people, who are no longer dutiful subjects toiling in their mines and fields are not consumers either for an ever-expanding flow of manufactured products, have become a burden for the industrial powers. They are not only a burden, but also a threat, for, as in the time of Malthus, a great revolution is taking place.

—Steven Polgar, *Birth Planning*

Some modern research on the genetic structure of human populations suggests that we are all descended from a relatively small number of individuals, and no more than a few families, who lived in Central Africa as recently as 100,000–200,000 years ago. By 15,000 years ago their progeny numbered 15 million (the present population of Mexico City). The world population at the time of Christ had increased to about 250 million (a little less than the present population of the United States) and on the eve of the Industrial Revolution had tripled to about 700 million (about twice the size of the current population of Indonesia). In the following two centuries the population increased at an annual growth rate of 6 per 1,000, reaching 2.5 billion by 1950. In the following five decades it has more than doubled, at a growth rate of 18 per 1,000, to reach over 6 billion in 2000. In spite of signs that the growth rate is slowing, barring some demographic catastrophe, the world population will reach 8

to 10 billion by the year 2030 (Livi-Bacci 1992:31–32). Growth in world population is summarized in Table 5.1.

Here are some interesting facts and projections about world population growth (see Table 5.2):

- The rate of population increase, now approximately 1.4 percent per year, is expected to decline to a little less than 1 percent sometime between 2020 and 2025.
- Since the rate of population increase applies to an increasing population, the actual increase will be 88–97 million people per year in 2000 before falling to 81 million per year in 2025.
- By 2045–2050, 56 countries will experience a negative population growth, including all European countries, Japan and China.
- The population of the more developed regions as a group is expected to reach a peak of 1,617 million in 2020, then it will start a gradual decline and by 2050 will be 2 percent smaller than in 1998. By contrast, the population of the less developed regions will increase by 64 percent, from 4,719 million in 1998 to 7,754 million in 2050.
- The fastest population growth will take place in Africa: its population will more than double during the first half of the twenty-first century; and Africa's share in the world population growth will increase from the current 22 percent to 55 percent in 2045–2050.
- AIDS will take a devastating toll with respect to mortality and population loss. In the twenty-nine African countries in which the impact of AIDS was studied, life expectancy at birth had decreased to 47 years in 2000 whereas it would have been expected to have reached 54 years, in the absence of the AIDS epidemic, a loss of 7 years.

The rate of population growth over the past century has prompted concern that the world is poised on the brink of disaster, that we are running out of enough food to sustain the growing population, and that population growth is responsible for poverty, environmental destruction, and social unrest. Moreover, so the argument goes, economic development in poor countries is impossible as long as populations continue to rise, because any increase in economic output must be used to sustain the increased population instead of being invested to create new jobs and wealth. These concerns have led to concerted

TABLE 5.1 Population, Annual Growth, Doubling Time, Projected Growth 10,000 B.C. to 2050 A.D.

Year	10,000 B.C.	0	1750	1950	2000	2025	2050
Population (millions)	16	252	771	2330	6100	7810	9039
Annual Growth	0.008	0.037	0.064	1.845	1.400	1.000	—
Doubling Time (years)	8369	1854	1083	116	51	70	—

From United Nations. 1998. *Revision of the World Population Estimates and Projections*. <http://www.popin.org/pop1998/>; Population Reference Bureau. 2000. *2000 World Population Data Sheet*. <http://www.prb.org/pubs/wpds2000/>.

TABLE 5.2 Population Information by Development Status

	Population mid-2000 (millions)	Births per 1,000 Population	Deaths per 1,000 Population	Natural Increase (annual, %)	Doubling Time in Years at Current Rate	Projected Population (millions), 2025	Projected Population (millions), 2050
World	6,067	22	9	1.4	51	7,810	9,039
More Developed	1,184	11	10	0.1	809	1,236	1,232
Less Developed	4,883	25	9	1.7	42	6,575	7,808
Less Developed (excluding China)	3,619	29	9	1.9	36	5,144	6,439

Source: Population Reference Bureau. 2000 (http://www.prb.org/pubs/wpds2000/wpds2000_Population2000-PopulationProjected.html)

efforts by international agencies and governments to control population growth, especially in peripheral countries where it is highest.

A number of people, however, seriously question whether population growth is a problem. Some economists argue that population growth is a positive factor in economic development; some environmentalists claim that environmental destruction is a result of rapid industrialization and capitalist consumption patterns, not population growth; and some religious authorities are opposed to any form of birth control.

In 1994 the United Nations sponsored a conference in Cairo to examine the problem of population growth and propose measures to control it. The Cairo conference debated several approaches to controlling fertility; these included promoting modern contraception, promoting economic development, improving survival rate of infants and children, improving women's status, educating men, and various combinations of these. Except for the religious objections to promoting decreased fertility, few people questioned that there was a population problem, that it was a problem primarily of the poor nations, and that the solution required women to limit their fertility. Yet few if any of the assumptions underlying the issue of population growth and control were seriously questioned or examined. Some of these assumptions are as follows.

- Population growth contributes to economic decline and stagnation in the periphery and thus is responsible for global poverty, hunger, environmental devastation, and political unrest.
- Population increase in the periphery historically resulted from decreased mortality (death) rates, especially of infants, attributable to medical advancements, better nutrition, and improved sanitation.
- Population stability before the rapid population growth beginning in the eighteenth century was solely the result of a high mortality rate balanced by a high fertility rate.
- Efforts to control population growth in the periphery are hampered by religious beliefs that promote large families and lack of education for women.
- The only way to slow the birth rate is through birth control techniques and educational programs developed in Western countries.

These assumptions constitute part of the ideology of the culture of capitalism, which assumes that the problem of population growth is a problem of the periphery. This ideology drives not only public perception of the issue of population growth but also the policies of governments and international agencies such as the United Nations. Population growth, so the ideology goes, is a problem in Latin America, Africa, and Asia, and if the problem is to be solved these countries are the ones that must do it. These assumptions are given legitimacy by "scientific" theories that purport to explain population growth. Furthermore, this ideology leads us to "blame the victim," to assume the people who suffer from the supposed evils of population growth—hunger, poverty, environmental devastation, and political unrest—are the ones who have caused the problem.

As we shall see, however, the situation is more complex than that. To understand better the demographic and ideological issues involved in the population debate, we need first to examine the major frameworks used to explain population growth, the Malthusian or neo-Malthusian position, and the framework provided by demographic transition theory. We will try to show how they are seriously flawed, ethnocentric, and self-serving for core nations. Then we examine some of the factors known to determine how many children are born and specifically examine what anthropology can contribute to the debate over population growth.

The Malthusians versus the Revisionists

Interest in the effects of increasing population date back at least as far as the Reverend Thomas Malthus's famous *Essay on the Principle of Population*, written in 1798, which outlines his well-known argument that while population "increases in a geometrical ratio," the resources for survival, especially food, "increase only in an arithmetical ratio" (see Livi-Bacci 1992:76). Without preventive checks to control fertility, such as "moral restraint" or "marriage postponement," argued Malthus, population will constantly increase, deplete resources, and bring into play "positive checks"—famine, disease, and war—that will return population to a balance with resources.

Malthus had some historical confirmation for his ideas. For example, he predicted that as population rose and the demand on resources increased, food prices (e.g., grain) would increase and result in increased mortality rates. Indeed, this seemed to have been the case in Europe in the seventeenth and eighteenth centuries. Likewise, he predicted that a decreased demand due to population decrease would result in lower prices, decreased mortality, and a subsequent rise in population, exactly as occurred in Europe after the plague epidemics of the fourteenth century.

Malthus predicted that disaster was imminent. What he failed to foresee was that in the face of increasing population, innovations in agricultural techniques would result in constantly increasing food production. Even though the world population today is at least six times what it was in 1800, there is still more than enough food produced worldwide to support the population.

In spite of his failed predictions, others have recently revived Malthus's message, arguing that while Malthus may have been wrong in his early projections no one could foresee the explosive growth of population in the past fifty years. Food production, they

(one province passed such a law but never enforced it). When that failed, the government attempted to convince women to use an intrauterine device, but this failed because of exaggerated rumors about the dangers of the devices. Oral contraceptives were never authorized for use in India. Consequently, the policy of population reduction has not been successful. While the birth rate fell from 5.97 children per woman in 1950 to 3.3 in 2000, increases in life expectancy decreased the population growth rate over the same period from 2.0 percent to only 1.8 percent per year.

China, our real-life Sterilia, embarked on a concerted effort to control population growth in 1970, twenty years after India. In 1980 they developed a program to ensure that their population of 996 million would not exceed 1.2 billion by the year 2000. The government instituted policies to raise the age at marriage, increase birth intervals, and limit to two the number of children couples could have. Provincial leaders were assigned birth quotas and groups were formed to encourage the use of contraceptives, sterilization, and abortion, which was widespread, free, and did not require the husband's consent. Later, a



A poster in India promoting birth control and family planning; the top figure represents a happy, Western-type nuclear family, while the bottom figure represents the alleged horrors befalling families with numerous children.

one-child policy was encouraged by providing incentives for those complying (higher wages, larger houses, priority for children's education, and free medical care) and penalties for those not complying (wage cuts, smaller houses, lower priorities for education and medical care).

In spite of public resistance and a population with a large number of women of reproductive age, China has succeeded where India failed. Population growth fell from 2.2 percent in 1970 to 1.4 percent in 1990 and to 0.877 in 2000. Whereas India's population in 2025 will be four times what it was in 1950, China's population will have increased by a factor of less than three. One would predict, therefore, that the rate of economic growth will be higher in China than in India.

But that hasn't happened. In fact, both countries are beginning to improve economically, China ranking sixty-sixth in one measure of economic development and India sixty-ninth. Moreover, if we compare economic growth and standard of living as measured by the gross domestic product (GDP) of poor countries in general to population growth in those countries, there is no relationship. If we measure progress, as some have suggested, by an index of social freedom, India ranks well above China (see Livi-Bacci 1992:186-187). There are still significant differences between India and China: China has done notably better in improving the quality of life of the bulk of its population, ranking ahead of India in areas such as literacy, health care, life expectancy, and nutrition. But the reasons for these improvements are largely attributed to China's social policies and seem to have little to do with the rate of population growth.

Economists and demographers who have examined the connection between economic development and population growth in other countries have discovered little evidence that population growth inhibits economic development. In fact, historically, population growth correlates with economic prosperity, while population decline or stability is generally associated with economic stagnation or decline. For example, from 1820 to 1987, the population of the four leading Western nations (Great Britain, France, Germany, and the United States) grew by a factor of 5.5, while their combined GDP (in constant prices) increased by 93.0. In other words, while population increased five times production increased seventeenfold. Demographer Massimo Livi-Bacci (1992:145), after reviewing studies that examine the relationship between demographic and economic growth, concluded that during the past two centuries population growth has not hindered economic development and quite possibly the reverse is true, with the countries that experienced the greatest population increase assuming the leading role in the global economy.

Does the real-life failure of the parable of Fertilia and Sterilia mean there is no connection between population growth and economic development? That's difficult to say, but it does suggest that the connection is obscured by factors that probably cancel each other out. It also means population growth has not been an insurmountable obstacle to economic development.

The question is, then, *why doesn't population growth inhibit economic growth?* There are several possible reasons. First, predictions of decline in resources accompanying population growth have not been borne out. Resources—foodstuffs, raw materials, energy, and so on—are neither more scarce nor more expensive, and the efficiency with which we use resources has clearly improved. For example, in 1850 production of \$1,000 worth of goods or services required the equivalent of 4.6 tons of petroleum equivalent; in

1900 this figure had dropped to 2.4 tons and in 1978 to 1.5 tons, a tripling of the ratio between cost and profit.

Second, neo-Malthusians tend to see people as consumers only; they fail to take into account that people also produce and that what they produce is often greater than what they consume. To some extent, they forget that human culture, unlike that of other animals, allows us to marshal additional energy sources.

To illustrate, economists at the United Nations developed a table based on the idea that people consume a certain amount of wealth and energy, that they also produce a certain amount, and that the amount produced and consumed varies by age. That is, at certain ages people consume more than they produce, while at others they produce more than they consume (see Table 5.3).

From birth to the age of twenty, and again beginning at age 65, people consume more than they produce. Between the ages of twenty and sixty-five, people produce more than they consume; that is, they contribute more to the economy than they detract from it. This means that as life expectancy of a population increases, the excess of production over consumption will also increase; that is, there is an excess in consumption when life expectancy is twenty or thirty years, while at a life expectancy of forty years output exceeds consumption. The table also suggests that societies whose members have life expectancies of fifty years or more produce the greatest excess of production over consumption, and this corresponds to the so-called economic take-off of several countries, including England, Wales, Sweden, and Japan (Omran 1971:532).

Of course, the table represents only a rough approximation of the relationship between life expectancy and productivity; productivity also varies according to available technology and the division of labor in a given society. In some areas of the world, for example, children contribute to household work or income as early as six or eight years old and are fully functioning members of the work force at thirteen. In those instances people are net economic contributors at earlier ages than in societies where members enter the work force in their twenties.

TABLE 5.3 Production and Consumption by Age

Age	Excesses in Consumption	Age	Excesses in Output
0-1	50	20-25	260
1-5	225	25-30	300
5-10	332	30-35	350
10-15	450	35-40	350
15-20	350	40-45	320
65-70	350	45-50	290
70-75	400	50-55	260
75-80	500	55-60	215
80+	650	60-65	85

See also A. Sauvy, *General Theory of Population*, New York: Basic Books, 1969.

The third reason why population increase may not lead to economic decline is because of economies of scale; that is, the benefits of a resource multiply by their use. For example, a road's usefulness is clearly related to how heavily it is traveled. Since its function is to help trade, increase communication, and create a larger market, the more people use it the more benefits it creates. Or if education is thought to stimulate growth, it follows that once schools are created, the more people attend them the more benefits will accrue. Thus increases in population may make existing resources such as roads, schools, factories, and hospitals more economically profitable.

Fourth, since the consumption of commodities is what drives a capitalist economy, the more people there are, the greater, theoretically, is the demand for goods and services.

Finally, agricultural economist Ester Boserup (1965) suggested that human population growth can serve as a stimulus to agricultural and technological innovation. For example, in agricultural societies, as population increases people will farm more territory, farm the same territory more often, and use new technology, such as a plow or irrigation, thus producing more food to support the growing population. This may require more work, but it will feed more people.

In sum, there is little evidence to indicate that economic growth is slowed by population increases. This does not necessarily mean there is no relationship, only that the evidence linking economic growth with population is far too tenuous to account for the alarms that Malthusians and neo-Malthusians have raised. *But isn't it possible that human beings are simply using up the space and resources allotted to them?*

The Issue of Carrying Capacity

Even if we accept the idea that population has not yet inhibited economic growth, *can we say, as many neo-Malthusians do, that while we haven't felt the impact yet, the reduced doubling time of the population will soon result in the human population exceeding the carrying capacity of the Earth?* Biologists use the term *carrying capacity* to denote the maximum number of organisms a given environment will support. For example, we can examine the types of food that sustain wolves in a specific environment and, by calculating how much of that food is available, estimate the number of wolves the environment will support. This is the kind of assumption Malthusians makes about the human population: given food and other resources on the planet, how many people can survive before those resources are depleted? For example, David Pimentel and his associates (1999) estimate that, because of declining fertile land, declining water resources for irrigation, and declining fertilizer usage, by the year 2100 the world will be able to support only a population of 2 billion people living at a standard half that of the United States in the 1990s.

However, the problem with applying the theory of carrying capacity to human beings is that our capacity for culture and symbolic thought enables us constantly to alter our diets and the way we exploit the environment for food. It is true, for example, that a given environment will support only so many people who live by gathering wild plants and hunting wild animals. But when a gathering and hunting people exceeded the population a given area could support and were restricted from migrating to another area, they could and did begin to plant and harvest their own plants and herd and breed their own animals. Later, when agricultural populations began to grow, they began to farm yet more

land using techniques that allowed them to grow more food on the same land. Human beings are capable of constantly changing the rules of subsistence by altering their resource base. In fact, estimates of the Earth's carrying capacity vary widely, from 7.5 billion to 147.0 billion, depending on the technology employed to produce food (Livi-Bacci 1992:207; Cohen 1995). It is consequently difficult if not impossible to predict when our ability to provide for additional people will end, if ever. And that is one of the major arguments between Malthusians and Revisionists.

If we conclude that the alarms raised by neo-Malthusian arguments are unsubstantiated, it is fair to ask, *why do Malthusian alarms dominate the dialogue about the so-called problems of population growth?* More specifically, *why are their arguments so attractive to politicians and policy planners, and why do people so readily accept their assumptions?*

The Ideology of Malthusian Concerns

One of the important questions addressed by anthropologists concerns why people believe what they do about themselves and the world. That is, what social purpose or function does a particular belief serve? For example, if people believe that witches exist, and that they will punish people who harm others, the belief will serve to enforce proper social behavior. If people believe that gazing at someone with envy can harm that person, members of that society will be reluctant to flaunt their wealth, fearing it might attract an "evil eye." It is legitimate to examine the social function or purpose of any viewpoint, even those that are scientifically founded. Regardless of whether or not Malthusian assumptions are correct, it is legitimate to ask what social interests or purposes might be advanced by their acceptance (see Barnes 1974). Put another way, *do Malthusian arguments about population growth mask other concerns or social interests?*

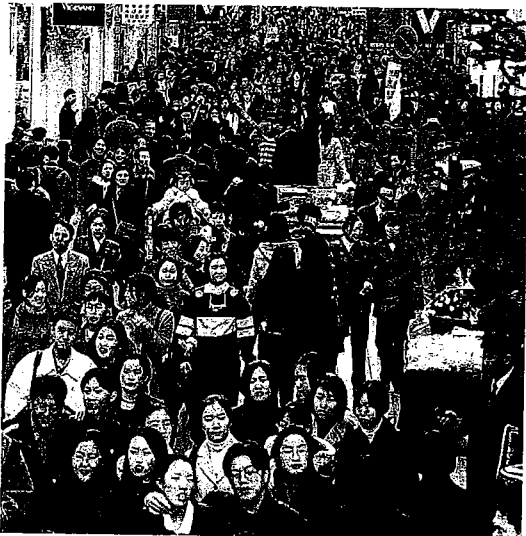
For example, population growth was not, for Thomas Malthus, the major issue. What concerned him was the rising number of poor in England, why they should exist, and what should be done about them. Poverty, according to Malthus, was not a consequence of expanding industrialism, enclosure laws that evicted people from common lands, or the need of manufacturers for a source of inexpensive labor, but it arose from the laws of nature, the discrepancy between the powers of reproduction and the ability to expand food production. People were poor because there were too many of them, and because they kept having children in spite of their poverty. Providing relief to the poor, argued Malthus, would simply encourage them to have more children. Instead, they should be forced to delay marriage (Malthus was opposed to all forms of birth control). In 1834, encouraged to a large extent by Malthus's writings, the British government revised the so-called Poor Law, repealing various forms of relief that had been in place for centuries and leaving the destitute to decide whether their condition required their access to public shelters that were deliberately made into places of horror (Polgar 1975:86).

The Malthusian position assumes that if poverty exists it must be because of overpopulation, which is the fault of those people who, because of a lack of moral standards, refuse to change their reproductive behavior. There also may have been in the Malthusian position a fear that the army of the poor gathering in cities such as London would stimulate revolution, much as it did in France in 1787.

Malthus's ideas did not go unchallenged during the nineteenth century. Karl Marx, as we examined earlier, saw poverty not as a consequence of excess population but as a condition produced by the capitalist mode of production, which required a surplus of labor, an "industrial reserve army" condemned to compete for wages, with the losers doomed to unemployment and underemployment. It is their exclusion or partial exclusion from the economy and their dependence on wage labor, not their numbers, said Marx, that determined their impoverished condition.

Malthusian explanations for poverty and demographic theory were resurrected by neo-Malthusians after World War II. In his 1968 book *The Population Bomb*, biologist Paul Ehrlich, whose work is among the most influential in reviving Malthusian theory, described how he came to discover the significance of the population problem. It dawned on him, he said, "one stinking hot night in Delhi."

As we crawled through the city [in a taxi], we entered a crowded slum area. The temperature was well over 100 degrees and the air was a haze of dust and smoke. The streets seemed alive with people. People eating, people washing, people sleeping. People visiting, people arguing and screaming. People thrust their hands through the taxi window, begging. People defecating and urinating. People clinging to buses. People herding animals. People, people, people, people. As we moved slowly through the mob, hand horn squawking, the dust, noise, heat, and cooking fires gave the scene a hellish aspect. Would we ever get to our hotel? All three of us were, frankly, frightened... since that night I've known the feel of overpopulation. (Erich 1968:15)



Whether a place is perceived as "overpopulated" or not often depends on its degree of opulence; while these crowded streets of Seoul, South Korea are packed, few would see a "population problem." The poverty represented by this beggar's line in Varanasi, India, would more likely create concerns about "overpopulation."

As Indian sociologist Mahmood Mamdani (1972) pointed out, had Ehrlich been in Times Square in New York or Picadilly Circus in London he would have been in the midst of an even larger population, but those situations would not likely have led Ehrlich to fear overpopulation. Ehrlich was disturbed not by the number of people but by their poverty and the physical threat posed by a poor and potentially unruly populace.

In addition to those who blamed the poor for their poverty and targeted them for population reduction, Malthusian demographic and social theory also appealed to eugenicists, those who saw poverty as a consequence of faulty genes rather than national social or economic policy. Eugenic theory is rooted incorrectly in Charles Darwin's ideas about natural selection and "fitness." Eugenicists reason that Darwin's ideas can be applied to human populations, and that if people with defective genetic endowments had more offspring than those with superior genetic endowments, the quality of the human race (or German "race" or British "race") would decline. Consequently, for eugenicists it makes sense to promote policies that discourage or prevent people with defective genes to reproduce, while encouraging people with superior genes to have as many offspring as possible. Clearly, they reason, people are poor because they have a faulty heredity.

Eugenics has long been discredited by most scientists, although it sometimes appears in modified forms, as it has recently in the debate over the inheritance of intelligence and IQ (see Cohen 1998; Robbins 1997:171ff). But in the heyday of eugenics in the 1920s, groups such as the Committee to Study and Report on the Best Means of Cutting Off the Defective Germ-Plasm of the United States concluded that "Society must look upon the germ-plasm as belonging to society and not merely to the individual who carries it" (cited Polgar 1975:189).

Another advocate of Malthusian demography, Garrett Hardin would write:

How can we reduce reproduction?... But in the long run a purely voluntary system selects for its own failure: non cooperators outbreed cooperators. So what restraints shall we employ? A policeman under every bed?... We need not titillate our minds with such horrors, for we already have at hand an acceptable technology—sterilization.... If parenthood is only a privilege, and if parents see themselves as trustees of the germ plasm and guardians of the rights of future generations, then there is hope for mankind. (cited Polgar 1975:190)

We will probably never know how many women in the world or in the United States were sterilized by those who felt they were ridding the population of "defective" genes. Allan Chase, in *The Legacy of Malthus* (1977), estimated that up to 1975 half of the one million sterilizations performed yearly in the United States were involuntary.

It should be apparent that it is difficult historically to separate advocates of birth control from racist and eugenic agendas. In the past, and perhaps today, programs to control or reduce population have often masked racist and sexist policies aimed at controlling the poor. Early concerns about population growth were directed at the poor in the core—the urban poor of England, Blacks and Native Americans in the United States, immigrants, and the rural poor. It was not until the 1950s that Western nations began to concern themselves with the fertility of people in the periphery. One question is, *why, in the 1950s and 1960s, did population growth in the periphery begin to concern Western governments?*

One reason may be the same as that for concern over poor populations in the core: it cost money to try to help them. Malthusians such as Paul Ehrlich embraced ideas such

as those advocated by William and Paul Paddock, who in their 1967 book *Famine—1975* advocated using the military triage policy for food aid. The Paddocks recommended that the United States use its excess food production to halt starvation only in those countries that would submit to its power:

During the coming Age of Food that nation which has the most food will be, if it uses that food as a source of power, the strongest nation. This will be, then, clearly an era which the United States can dominate—if the United States picks up the challenge. (Paddock and Paddock 1967:232)

Furthermore, advocates of population control share a concern for mass migration of the poor to their countries as well as for social unrest that could upset economic and political stability in the countries of the periphery. For example, a National Security Study memorandum produced in 1974 by the National Security Council at the request of U.S. Secretary of State Henry Kissinger (*Africa 2000*) concluded that population growth in the periphery is a threat to U.S. national security for four reasons: because larger nations will gain greater political power; because populous nations may deny the United States access to needed strategic materials; because a growing population will include a large number of young people who may be more likely to challenge global power structures; and because the growing population may threaten U.S. investors in those countries. The memorandum targets India, Brazil, Egypt, Nigeria, Indonesia, the Philippines, Bangladesh, Pakistan, Mexico, Thailand, Turkey, Ethiopia, and Colombia as the countries of greatest concern.¹

Thus, as Steven Polgar (1972, 1975) suggested, U.S. foreign policy was driven less by a concern for overpopulation than by a concern that increasing population in the periphery hindered the possibility of raising the income level (and purchasing power) of people in the periphery and a concern that increased populations might represent a political and economic threat to the United States. Polgar said that population concerns in core countries stem not from a fear of overpopulation but from a change in the role of exploited countries. People in the periphery were needed at first for labor and later for markets. In fact, until the 1940s core countries not only were unconcerned with population growth in the periphery, but they complained it was too slow. Once the need for certain raw materials declined as synthetics were developed, and as the poverty of these people precluded their being turned into consumers, they ceased being useful, especially since they became potential revolutionaries, migrants, and criminals. "The subjects," as Polgar (1972:197) put it, "have become burdens."

Not everyone who believes there is a population problem or that poverty is a consequence of overpopulation is a racist or an imperialist. But people have been far too ready to accept the basic Malthusian assumptions without question. The consequence is that Malthusian explanations for poverty, environmental destruction, disease, and social unrest may mask other, more pertinent, reasons for these problems and divert our attention from them. But it is not only Malthusian assumptions that have dominated the public discussions about population.

¹The original memorandum is available online at *Africa 2000* at <http://www.africa2000.com/INDX/nssm200.htm>. A link can also be found at the Web site for this book at http://www.plattsburgh.edu/legacy/Population_Resources.htm.

Demographic Transition Theory

The other framework that dominates discussions of the population problem is *the theory of demographic transition* (see Table 5.4). According to this theory, world population growth increased only very slowly from human beginnings to around 1750. This relatively steady state of population growth was maintained largely because high birth rates were offset by high death rates. Toward the end of the eighteenth century and the beginning of the nineteenth, mortality began to decline in developed countries because of advances in medicine and sanitation, while birth rates remained the same; consequently, population rose rapidly. Then, because of population pressures and the availability of contraception, birth rates declined to close to “replacement levels” and the rate of population growth stabilized, at least in the developed countries (see Coale 1974).

The population rise in the periphery came later, beginning in the mid-twentieth century, but was particularly explosive because mortality rates were reduced much more quickly than in core countries, especially among children. Fertility rates in the periphery, according to demographic transition theory, are only now beginning to decline in response to population growth. This occurs when the increasing costs of education and child care in modernizing societies, along with the availability of modern forms of contraception, provide the incentives and means for people to reduce their family size.

The demographic transition model shares assumptions with neo-Malthusian theory: it, too, links lowered fertility with economic development. However, instead of arguing that economic development requires lower fertility, demographic transition theorists suggest that lowered fertility will result from economic development. The problem with this model is that it makes some decidedly ethnocentric assumptions.

First, it assumes that throughout history fertility rates have always been uniformly high. High fertility rates were necessary, reason demographic transition theorists, to balance the number of deaths that occurred because of the harsh living conditions of preindustrial peoples. Yet there was clearly an ethnocentric bias in this assumption; while demographic theorists recognized that fertility rates among preindustrial Europeans did vary depending on the age at which marriage occurred, as we’ll see below, they assumed that preindustrial non-Europeans would not or could not control their fertility rates.

Second, the demographic transition model assumes that the only way of stabilizing population growth is to make available Western methods of birth control and contraception. As we shall see, the model significantly ignores variations in fertility that are due to various economic and social factors as well as the fact that preindustrial populations were significantly healthier than we give them credit for.

TABLE 5.4 Stages of Demographic Transition

	Birth Rate	Mortality Rate	Population Growth
Stage 1	High	High	Stable
Stage 2	High	Low	Accelerated
Stage 3	Low	Low	Stable

Third, it assumes that the resistance of people in poor countries to adopt Western standards of fertility is the result of irrational thinking, outmoded religious values, or traditional or fatalistic worldviews. Fertility control, in contrast, is consistently viewed as rational and modern (Caldwell 1982:119).

Finally, some claim that demographic transition theory has its own ideological bias, that its goal is to provide an alternative to Marx's idea of a surplus reserve of workers. As we noted earlier, Marx saw capitalism as creating a surplus population because competition for scarce jobs would allow merchants, manufacturers, and governments to keep wages as low as possible. If labor were scarce, on the other hand, employers would have to compete for laborers and wages would increase. If Marx were correct, one would have expected colonial governments to encourage population growth in the periphery, rather than restrict it. In fact, that is exactly what happened. In the early twentieth century, colonial governments in Africa worried about the low population and subsequent lack of laborers and did everything they could to increase the birth rate.

Demographic transition theorists blame high population growth in the periphery on the people themselves, arguing that capitalist expansion, rather than causing the problem of population growth, can cure it. In other words, demographic transition models see economic development as an answer to the problem; Marx viewed economic development as a cause (O'Brien 1994).

Demographic transition theorists generally ignore the fact that human populations have consistently adjusted fertility rates to local economic and social conditions. Moreover, if that is so we can assume that high fertility in peripheral countries is not solely the result of a lack of ability to control births and that it is not, given the context of people's lives, irrational. That is, high fertility rates are not the result of ignorance, outmoded religious values, or lack of education but the result of social or economic factors that people, largely women, react to in order to adjust the size of their families. However, to understand how populations regulate their size without having access to modern means of birth control, we need to answer the question, *how have human societies historically controlled the size of their population?*

A Primer on the Determinants of Population Growth and Decline

At its simplest, worldwide population growth is a factor of only two things—births and deaths. If the rate of death is lower than the rate of birth, population increases. If deaths exceed births, population declines. In regional populations migration also contributes to population increases or declines, but for now let's focus on natural increases or decreases. The question is, *what economic, social, and cultural factors dictate birth and death rates?*

Fertility. Birth rates are a factor of the number of children born in a given population; this is determined by biological and social factors including the frequency of births during a woman's fecund period and the portion of the fecund period—between puberty and menopause—used for reproduction.

Frequency of births—the interval between births—is determined by a number of factors, including the following.

- Period of infertility after birth: There is a period after birth when ovulation does not occur.
- Time between ovulation and conception: While some women may conceive during the first ovulation after giving birth, others do not. The average is five to ten months.
- Average length of pregnancy (nine months).
- Fetal mortality: About one in five recognized pregnancies ends in miscarriage. (The actual percentage of interrupted pregnancies, including those that are unrecognized, may approach 80 percent.)
- Presence or absence of birth control techniques.

Of these factors, the length of time between births and the presence or absence of birth control techniques provide for most of the variation in birth rates. Length of time between births can be influenced by various cultural factors. For example, breast-feeding suppresses ovulation. In societies in which children are not weaned until the age of three, four, or five years, breast-feeding leads to greater intervals between births. Attitudes toward breast-feeding vary significantly: In some societies it is encouraged and expected; in others it is discouraged, perhaps because of concerns about body image or because it has sexual connotations.

Economic and consumption patterns may also influence breast-feeding. For example, breast-feeding in the periphery has markedly decreased in the past thirty to forty years because of increased advertising and sales of powdered infant formula. Thus, cultural or social factors that inhibit breast-feeding, especially in the absence of modern birth control methods, may result in shorter spacing between births and an increase in fertility and population growth.

Many societies practice a postpartum sexual taboo, a rule that women should not have sexual intercourse for a set period of time after the birth of a child. The period can vary from a few months to a few years, but regardless of the length, the taboo is likely to increase birth spacing.

Thus, even leaving aside the influence of modern birth control techniques, the spacing of births through so-called natural means may vary from eighteen to forty-five months (1.5–3.5 years).

A second major factor in fertility is the fecund period used for reproduction, or the number of years in which a woman can conceive. This, too, can vary considerably because of cultural, social, or economic factors. Biological fecundity is the period shortly after the onset of menses until the onset of menopause; this can range from eleven years of age to over fifty years of age, although the average is fifteen years of age to forty years of age. More important, however, is cultural fecundity, the age at which a woman becomes sexually active. This is determined in most societies by age at marriage, which varies, on the average, from fifteen to twenty-five years of age.

Combining the minimum and maximum period between births attributable to natural factors with the minimum and maximum age at marriage produces two very different population growth scenarios (see Livi-Bacci 1992:13). Assuming a fifteen-year reproductive period (fecundity lasting from age twenty-five to age forty) with a maximum interval between births produces a fertility rate of 4.3 children per woman:

$$\frac{15\text{-year reproductive period}}{3.5\text{-year birth interval}} = 4.3 \text{ children}$$

However, assuming a reproductive period of twenty-five years (fecundity lasting from age fifteen to age forty) and minimum birth spacing of 1.5 years produces a fertility rate of 16.7 children per woman:

$$\frac{25\text{-year reproductive period}}{1.5\text{-year birth interval}} = 16.7 \text{ children}$$

The latter condition is not likely to be realized because it does not account for the increased risk of death or pathological conditions resulting from childbearing that may lower fecundity; in fact, the highest fertility rates recorded range from eleven to twelve children per woman. The aforementioned projections provide, however, some idea of the possible range of differences in fertility rates based solely on cultural factors such as age at marriage and age of weaning, independent of the availability and use of modern contraceptive techniques.

Anthropologists have also examined the extent to which other cultural practices, such as polygamy and monogamy, affect birth rates. For example, some predict that polygyny—the practice of a man having more than one wife—might lower birth rates, since the frequency of intercourse with each wife would be lower than in a monogamous marriage. Studies, however, have been inconclusive. Frequency of sexual intercourse itself is another culturally determined variable that may affect fertility rates but which also has not been shown to influence fertility rates significantly (see Nag 1975).

Death. A second major determinant of population growth is death, particularly the average life expectancy in a population. Most important is the percentage of the reproductive period realized in the life expectancy ranges. For example, in a population with a life expectancy of twenty years, the number of women who live through their full reproductive period is far less than in a population with a life expectancy of sixty years. In fact, demographers have calculated that with a life expectancy at birth of twenty years, only 29.2 percent of the potential reproductive period is lived, while with a life expectancy of eighty years, 98.2 percent of the potential fecund period is lived (Livi-Bacci 1992:19).

Most demographers have assumed that mortality rates in preindustrial societies were consistently high, but, as we shall see, that is probably mistaken. It seems we have consistently underestimated the general health levels of preindustrial societies.

The other major mortality factor in population growth is infant mortality, especially because this is where the greatest variation in life expectancy rates occur. It is also an area in which control on population growth can be exercised with the practice of infanticide and abortion. For example, one factor in death rates may be preference for male or female children, a preference that may be determined by economic needs. In societies that practice traditional agriculture there is evidence that boys and girls are equally valued as farm workers. In early industrial society, however, when wage labor began to be more prevalent, there was a preference for boys, a preference that gradually began to subside as women entered the factory work force (Harris and Ross 1987a:156).

Migration. Migration is another factor in population growth rates. While migration may not appear to influence world population, it can influence regional patterns of population growth and decline (and, consequently, influence global population) (see Manning 1990). For example, migration can affect reproductive rates: A population in which many people migrate may feel reduced population pressure, which may result in earlier marriages and rising birth rates. If more men migrate, fewer women may marry, causing the birth rate to decline. Migration rates may in turn be affected by cultural factors: In agricultural areas that practice impartible inheritance, in which land is passed on undivided to an older or younger child, those who do not inherit are more likely to migrate out; in agricultural societies that practice partible inheritance, in which land is divided among some or all children, people are less likely to leave.

Other factors can influence the rate of population growth, such as the percentage of a population of childbearing age and factors relating to environmental constraints. But what is important, and sometimes ignored by demographic transition theorists, is that populations have in the past been able to maintain population stability without modern methods of birth control; dramatic increases in population growth have sometimes occurred because of economic or social factors, not because modern health or sanitation practices reduced death rates. Since this is critical for understanding some of biases in alarmist projections of population growth, let's examine a few historic cases of demographic transitions.

Some Examples of Demographic Change

To illustrate how the cultural and social factors outlined above can influence rates of population growth independent of modern birth control methods, let's look briefly at three cases of demographic change: the case of prehistoric gathering and hunting societies, the story of French Canadian fertility, and demographic changes in Ireland in the late eighteenth and early nineteenth centuries. We will see, as Marvin Harris and Eric Ross (1987a) noted, that historic populations did adjust their fertility rates to fit local economic and environmental conditions.

The First Demographic Transition. One of the assumptions of demographic transition theorists is that preagricultural peoples suffered from high mortality that was balanced by correspondingly high fertility to keep the population from dying out. Let's examine the first great demographic transition of 10,000–12,000 years ago, when human populations began to switch from gathering and hunting to agriculture.

We know from archeological evidence and research among gatherers and hunters that population growth rates before 10,000 B.C. were slow. However, chemical and anthropometric analysis of skeletal remains and ethnographic studies reveal that gatherers and hunters had fewer health problems than later agricultural and industrial peoples, and that the rate of infant mortality was comparable to or well below that of European rates up to the nineteenth century and below those of peripheral countries through the mid-twentieth century (Cohen 1994: 281–282). Moreover, life expectancy was relatively high, around thirty years—higher than some nineteenth century Western countries and higher than that in many peripheral countries until recently. If infant mortality was lower than many have

assumed and life expectancy was higher yet the rate of population growth was low, then there must have been other means of controlling population size.

Assuming life expectancy varied from twenty-five to thirty-five years and that a woman's reproductive period extended from ages fourteen to twenty-nine, with birth spacing of twenty-three months, we would expect six births per woman; if three of these children survived, there would be a 50 percent increase in population for each generation. Since we know this did not occur, there must have been some limit placed on population growth. War and conflict between groups, given what we know about conflict among gatherers and hunters, cannot account for that much population loss, and episodic disasters would not have occurred with the frequency required to check population at that level.

The only other way population growth could have been limited is through a check on fertility. Research among contemporary gatherers and hunters, such as the Ju/wasi of Namibia studied by Nancy Howell (1979) shows that they have on average 4.7 children, well below the average in the periphery of six to eight. Howell suggested that the leanness characteristic of these populations is associated with late menarche, irregular ovulation, long postpartum amenorrhea (suppression of ovulation), and early menopause. She also suggested that an active physical life stimulated the contraceptive hormone prolactin in gathering and hunting populations, as does exercise in contemporary female athletes. Probably of greater influence is prolonged breast-feeding, which would have suppressed ovulation and resulted in greater birth spacing. Moreover, it is likely that abortion and infanticide played a major role in keeping population growth levels at near zero (Polgar 1972; Cohen 1994).

Regardless of the reason, gatherers and hunters do have lower fertility rates than sedentary neighbors, and research shows that their fertility levels increase when they settle. In other words, gathering and hunting peoples were able to control fertility and adjust it to changing conditions.

The French Canadians. People have not only been able to maintain low fertility levels when conditions required it, they have also been able to increase their rate of growth. French Canadians represent a classic case of demographic success. In the seventeenth century 15,000 people migrated from France to what is now Quebec; some of these moved on, and in 1680 the population was about 10,000 people. In one hundred years, from 1684 to 1784, the population grew from 12,000 to 132,000—an elevenfold increase representing an annual growth rate of 2.4 percent. Since only approximately one-third of the original settlers established families, it is estimated that the vast majority of the current 8 million French Canadians are descended from some 1,425 women.

The demographic success of French Canadians was due not to declining death rates but to high birth rates resulting from early marriages. Probably because of a higher proportion of males in the population, women married at ages fifteen to sixteen; moreover, unlike women in France, widows in Quebec had little trouble remarrying and consequently giving birth to more children. Thus, women in Quebec averaged only 25 months between pregnancies, compared to 29 months in France. Finally, there was a lower mortality rate and a life expectancy five years greater in Quebec than in France, perhaps because low population density kept down the spread of disease. Of the Quebec pioneers who began a family, each couple had 6.3 children, of whom 4.2 married; consequently, the population doubled in

thirty years. The 4.2 children of each family in turn produced an average of 34 offspring. That is, each original couple had more than 50 children and grandchildren. Moreover, daughters of pioneers had even higher fertility rates than their mothers and grandmothers, those marrying between fifteen and nineteen years of age having an average of 11.4 offspring, compared to 10.1 for the original pioneers marrying between the ages of fifteen and nineteen (which contrasted with 9.5 in northwest France, where most of the pioneers came from). Table 5.5 compares the number of offspring of women in the area from which the pioneers migrated with that for pioneer women and their offspring.

The fertility rate of French Canadians in the eighteenth century is among the highest ever recorded. Finally, some people assume religion was a factor in the fertility of Quebec women; however, today, with Catholicism still the dominant religion in Quebec, as it was in the seventeenth and eighteenth centuries, the province has one of the lowest birth rates in the world.

The Case of Ireland. The case of Ireland reveals some of the mechanisms through which people can raise their fertility levels in response to local economic conditions and demands of colonial powers. At the beginning of the eighteenth century population growth in Ireland was relatively low. People married later, reducing the fecund period, and mortality was high, life expectancy generally being under thirty years. Then from 1780 to 1840 the population doubled, from 4 million to over 8 million. There seems little doubt that the reason was that women began to marry earlier, between ages fifteen and twenty, and in some areas even younger (Connell 1965:425). The question is, *why were Irish women marrying earlier?*

Marriages in Ireland were arranged but only when the prospective bride and groom had access to land to farm. Before the late eighteenth century marriage was at a relatively late age—between twenty and twenty-five years for women—because there was not enough land to support early marriage. Two things happened that increased the availability of land and encouraged earlier marriages. Virtually all the farms in Ireland were owned by British landlords, who extracted rents from the tenants. Their profits rose when a new landholding was created, so they had a vested interest in increasing the number of farms. In addition, population was rising in England in the late eighteenth century, increasing the demand for food, particularly corn. Landlords who increased their number of

TABLE 5.5 Fertility Rates of Women in Northwest France Compared to Pioneer Women in Quebec and Their Offspring

Age at Marriage	No. of Offspring, NW France	No. of Offspring, Pioneer Women, Quebec	No. of Offspring, Daughters of Pioneers
15–19	9.5	10.1	11.4
20–24	7.6	8.1	9.5
25–29	5.6	5.7	6.3

See also Massimi Livi-Bacci, *A Concise History of World Population*. Cambridge: Blackwell, 1992.

farms and the amount of land devoted to corn production could therefore realize greater profits. As a result, landlords subdivided farms into smaller and smaller plots, reclaimed swamps and extended farming into mountainous areas.

Families were able to subsist on smaller plots of land than before because of the potato. Introduced to Ireland in the sixteenth century, the potato had become the staple subsistence crop of the Irish farmer. Potato cultivation is very productive: an acre of potatoes can feed a family of six, including their livestock. A barrel of 280 pounds of potatoes can feed a family of five for a week at a daily consumption rate of eight pounds per person. Estimates are that people ate about 10 pounds a day, which, along with a liter of milk, would provide some 3800 calories along with all necessary nutrients. This allowed landlords to divide land into smaller parcels, providing a greater number of farms.

Thus from 1791 to 1831, the amount of agricultural land increased while the size of individual farming plots became smaller. The result was an increase in the number of farming plots, which permitted people to marry earlier, resulting in a rate of population increase of greater than 1 percent per year.

In 1845, a potato fungus struck, destroying the harvest of 1846 entirely and leading to the great famine of 1846–1847. This and epidemics resulted in 1.1–1.5 million deaths and an exodus from Ireland of 200,000 people per year. The average age at marriage increased from twenty-three to twenty-four in 1831–1841 to twenty-seven to twenty-eight by 1900, while one-fifth of the population never married. As a result, the population of Ireland decreased from 8.2 million in 1841 to 4.5 million in 1901.

In sum, the cases of the gatherers and hunters, Quebec pioneers, and Irish peasants reveal that, contrary to the assumptions of demographic transition theory, populations historically adjusted their fertility rates when they needed to adapt to local social and economic conditions, and they did so without the benefits of modern contraception. This raises the question *why are populations in the periphery not, for the most part, lowering their fertility rates in the face of increasing population and supposedly declining economic resources?*

Population Growth in the Periphery

Traditional demographic transition theory, and most public policy and government analysts, suggest that the rapid rise in population in the poor nations is due to lowered mortality, due itself to the importation of Western medical technology and public health measures. There is no question that life expectancy has increased remarkably in the periphery since 1950, and that a reduction in child mortality is the biggest factor in mortality decline.

Population growth in the periphery, however, began “exploding” well before the introduction of Western medicine and public health measures. Egyptian population grew in the nineteenth century from 2.5 million to 9.0 million, while the Mexican population grew from 5.8 million to 16.5 million. Cuba’s population rose from 550,000 in 1800 to 5.8 million in 1953 (Wolf 1969:281). Furthermore, we saw how in Ireland the population increased not because of improvements in health but as a consequence of the economic demands of English landlords. The question is, *how and why did the economic expansion of the world capitalist economy change reproductive behaviors?*

The case of Java in the nineteenth century offers some clues. In 1830 the Dutch introduced into Indonesia the "Culture System" of colonial exploitation, requiring peasants to devote one-fifth of their land to Dutch-owned export crops (e.g., sugar, indigo, tea, tobacco) or to work sixty-six days on government-owned plantations or estates. In addition, as the Dutch demanded more land to produce export crops, thus taking land once used to grow subsistence crops, the remaining subsistence land had to be worked more intensively or subsistence production had to be extended to less productive land.

The introduction of the Culture System correlated closely with a rapid population increase in Java. In 1830 there were about 7 million people on Java; in 1840, 8.7 million; in 1850, 9.6 million; in 1860 12.7 million; in 1870, 16.2 million; in 1880, 19.5 million; in 1890, 23.6 million; and in 1900, 28.4 million—an average annual increase of approximately 2 percent for seventy years. It was during the era of the Culture System that people in Java began talking about the Dutch growing in wealth and the Javanese in number (Geertz 1963:70). Suggestions that these population increases can be attributed to better public health and sanitation facilities introduced by Europeans make little sense given the life expectancies of nineteenth century European urban dwellers; life expectancy in Amsterdam in 1800 was 25 years and for men in Manchester in the mid-nineteenth century was 24 years (Cohen 1989:202). Benjamin White (1973:224) suggested that the demand by Dutch colonialists for labor on Dutch estates or state projects removed men from subsistence agriculture, creating a labor shortage in the subsistence sector of the economy. Furthermore, subsistence production on less productive land required more work. Since the extended family unit both worked together to earn a living and controlled population growth, it was natural for them to react to the labor shortage by increasing family size.

Even when men began to be compensated for their labor with wages, according to White, it made sense to have more children. When the income of a production unit, in this case the family, depends on the wages brought in by each member, it makes good sense to maximize the size of the production unit. And this, apparently, is what the Javanese did. Moreover, the areas of Java that were most influenced by Dutch colonial policies were the areas with the greatest population increases (White 1973).

Other anthropologists, such as Carol R. Ember (1983), suggest that in general fertility increases with the intensification of agricultural activities (as occurred in Java and elsewhere). Ember pointed to evidence that women reduce birth spacing as agricultural activities intensify, partly to compensate for the increased domestic work for women when men increase their agricultural labors.

Thus it should be no surprise that populations grew under colonialism. As long as the production of commodities for export was essential to economic growth in the core, and as long as profits exceeded the costs of maintaining the colonies, policies that led to increases in the labor force served colonial aims (Polgar 1972:207). If there was any concern about population on the part of colonial rulers, it was too low. One Frenchman complained in 1911 that Equatorial Africa lacked labor for its development (Cordell 1994:137). Women in Africa, like women in Java, responded to colonial economic pressures by increasing their fertility rates. For example, in villages in the Sudan, after the British established cotton growing in the 1920s to produce raw materials for its textile mills and increased the need for workers either to grow cotton or to replace those removed

from subsistence agriculture, women began to wean their children earlier so they could become pregnant again (O'Brien 1994).

Wealth Flows Theory

It is clear, then, that people, particularly women, can and do adjust fertility in response to local economic and social conditions, and they do so without the assistance of Western methods of contraception. Yet fertility rates, while dropping in some countries, remain high in most. The question is, *why does the demand for children in developing countries remain high?* Among the reasons generally given are the following:

- The cost of raising children in rural areas is low, and in terms of cost children may represent a net gain economically.
- For security in old age. Surveys in Indonesia, the Koreas, Thailand, Turkey, and the Philippines reveal that 80–90 percent of parents expect economic assistance from children in their old age.
- Cultural factors encourage people to see children as an affirmation of family values, a guarantee of family continuity, and the expression of religious principles.

Demographer John Caldwell (1982), beginning with the idea that people in some societies resist attempts to limit fertility because of the economic benefits of children, formulated the *wealth flows theory* to explain the reproductive decisions made by families.



Family form has much to do with family reproductive strategies. The many children in the extended Nigerian family pictured are expected to contribute to its wealth, whereas the small number of dependents of the typical Western nuclear family, as this one in Boston, are expected to be a drain on family resources.

There are, according to Caldwell, only two types of reproductive strategies that families can adopt: one occurs where there is no economic gain to restricting fertility; the other occurs when there is an economic gain. Furthermore, where it is beneficial to have children people will maximize family size; where it is not economically beneficial people will minimize family size. In other words, when children contribute wealth to the family, when wealth flows from children to parents, parents will maximize the number of children they produce; when wealth flows from parents to children, parents will minimize family size. Caldwell defined "wealth" in broad terms to include not only money or wages but also economic security, labor assistance, prestige, the expansion of social and political networks, and so on.

The Yoruba of Nigeria, for example, desire large families because they increase the size of the security system in times of need, increase the number of cooperating individuals in less serious situations, and expand the range of economic and political contacts of family members. They also increase the number of political allies and the number of relatives who attend family ceremonies, both of which enhance prestige and status. For both urban and traditional Yoruba, family numbers are taken as signs of political strength and affluence. Moreover, a large family provides a springboard for success in the modern economy by supplying funds for education or personal connections to aid in finding jobs (Caldwell 1982:136). Children perform services not only by producing goods but by providing services that adults regard as children's work—carrying water, collecting fuel, messages, and goods, sweeping, looking after siblings, and caring for animals. Adult children help with labor and gifts and assist in making family contributions to community ceremonies, funerals, and birth ceremonies. Adult children also care for aging parents and contribute to farms and businesses in such a way that aged parents can still participate. Finally, parents can invest in training or education of children to maximize later returns. When surveyed, 80 percent of Yoruba said that children are better than wealth, and even that children are wealth. Only 6 percent said that children consume wealth.

In Core countries, on the other hand, children clearly consume wealth. For example, the U.S. Department of Agriculture estimates that in the United States a middle-income family will spend for each child \$160,140 over seventeen years for food, housing, and other basic necessities. Lower income families raising a child can expect to spend \$117,390, and upper income families will likely pay \$233,850 per child (USDA 1999).

As a result of his research, Caldwell (1982:140) concluded:

The key issue here, and, I will argue, the fundamental issue in demographic transition, is the direction and magnitude of intergenerational wealth flows or the net balance of the two flows—one from parents to children and the other from children to parents—over the period from when people become parents until they die.

Furthermore, said Caldwell, for intergenerational wealth flow to change there must be a fundamental change in family structure; programs that simply emphasize family planning or increase the availability of contraception will not provide incentives to reduce fertility. Given these conclusions, the questions are, *what kinds of changes are required in family structure to reduce fertility, and if in some circumstances fertility decline is desirable, under what economic and social circumstances will families be motivated to have fewer children?*

The Social Implications of Wealth Flows Theory

Wealth flows theory highlights an area of research that demographers have tended to neglect—the relationship between family structure and fertility. Anthropologists have been traditionally concerned with kinship and family relations, because in small-scale and preindustrial societies kinship more than any other factor tends to define a person's relationship to everyone else. In small villages and towns, for example, it is not unusual for everyone to be related in some way to everyone else and for everyone to know exactly what those relations are. In fact, in many societies, in the absence of kin a person is viewed with suspicion and hostility. Many anthropologists who have lived and done fieldwork in such communities have had the experience of being assigned some fictional kinship designation—the sister, brother, daughter, or son of someone in the community.

One of the major distinctions that anthropologists make about different types of families is the distinction between the so-called *nuclear family* and the so-called *extended family*. The nuclear family consists of a father, mother, and children. This is the standard family unit in most Western countries and (although not the most common) in the United States. In other societies, extended families consisting of mothers and/or fathers and brothers, sisters, parents, grandparents, and others are the norm. Extended family structure can also vary considerably depending, for example, on whether a person is considered to be more strongly tied to his or her father and his kin (*patrilineal descent*), his or her mother and her kin (*matrilineal descent*), or equally to both (*bilateral descent*).

Whether a society emphasizes nuclear family ties or extended family ties can obviously have great significance on patterns of family relations. In nuclear families, for example, parents or siblings are clearly responsible for the care of children; in extended families, children may be cared for by parents, siblings, members of the mother's or father's family, grandparents, and so on. In nuclear families resources (income, possessions, etc.) are shared among mother, father, and children; in extended families resources may be shared and distributed among a far greater number of individuals.

Furthermore, emotional ties may vary considerably. In a patrilineal extended family a man may have closer ties to his brother than to his wife, or a woman closer ties to a brother or sister than to her husband. In nuclear families the main tie is between husband and wife, and their main obligation is to their children. The question is, *what implications do population control programs have for family structure and relations?*

If wealth flow is the main determinant of fertility in a society, then fertility behavior will change only if there is a shift from extended family structures, in which wealth almost always flows from children to parents, to nuclear family structures, in which wealth almost always flows from parents to children. In Nigeria, for example, government efforts at reducing fertility have met with almost no success, even among modernized urban families. This is because the extended family, even in the cities, remains the norm. In the few instances of so-called demographic innovators—those who have changed their fertility behavior—there has been a marked change in attitudes toward family and children to the emotional and economic patterns that resemble those found in nuclear families. These people have withdrawn emotionally from ancestors and extended family relatives and become more involved with their children and their children's future. They give more emotion and wealth to their children than they expect to get back. Caldwell

(1982:149) speculated that those couples who have adopted the Western form of family, and consequently Western notions of family size, have probably done so not because of population control and family programs but because of the long-standing attempt by missionaries, colonial administrators, and educational authorities to persuade people to abandon their traditional family structure and adopt a Western family ideal.

To the extent that such efforts are successful and that population control and family planning programs contribute to these efforts, we will see a loss of extended families along with the patterns of emotional, economic, and social ties that characterize them, and the adoption of emotional, economic, and social characteristics of the Western family. In other words, fertility change requires a nucleation of obligations, expenditures, and emotions in which conjugal family ties take precedence over all external relationships and that foster the belief that what parents owe their children is more important than what children owe their parents. The Western nuclear family is also marked by a greater emphasis on the rights of individuals to act independently of the family by, for example, choosing a spouse on the basis of mutual attraction, choosing a residence independent from one's parents, choosing a career, and making decisions together with a spouse about family size.

The Question of Gender and Power

In its report, *The State of the World's Population, 2000*, the United Nations Population Fund (UNPF 2000:2) concludes that the status of women is one of the prime determinants of fertility and population growth. They conclude that if

... women had the power to make decisions about sexual activity and its consequences, they could avoid many of the 80 million unwanted pregnancies each year, 20 million unsafe abortions, some 500,000 maternal deaths (including 78,000 as a result of unsafe abortion), and many times that number of infections and injuries. They could also avoid many of the 333 million new sexually transmitted infections contracted each year.

Anthropologists suggest also that relations between husbands and wives may be as important as the influences of extended and nuclear family structure in influencing fertility. In situations where there is high unemployment, where women have limited access to economic resources and must depend on men and children for economic contributions or economic security, fertility will be high. This is clearly revealed in the research of W. Penn Handwerker (1989) in Barbados.

In the 1950s, according to Handwerker, the West Indian family was characterized by weak conjugal bonds, a relative absence of stable nuclear units, weak bonds between fathers and children, and strong bonds between mothers and children. Family interactions among men, women, and children tended to take place in visiting relationships, consensual cohabitation, and legal marriage, which tended to occur late if at all. Consequently 80 percent of births occurred outside of marriage.

Historically, marriage patterns were a function of sugar production and the demand for sugar on the world market. The British freed their Barbados slaves in 1833, but the freed slaves were still dependent on wage labor in the sugarcane fields. Furthermore, to replace slaves who left, the British encouraged the migration of thousands of indentured laborers from India and the East Indies. As a result, the population of Barbados increased

in the nineteenth century from 60,000 to 200,000. Since the sugar growers controlled the economy, and since there was a more than adequate work force competing for available jobs, wages were low. To get a job, a laborer often needed the patronage of someone connected to the sugar growers. As a result, living conditions for the bulk of the Black laborers were among the worst in the British West Indies. Infant mortality, for example, was 25 percent in the early 1900s and remained as high as 15 percent into the 1950s.

Handwerker claimed that the scarcity of jobs created severe competition among the poor for available work, such that men and women could optimize their resources only by exploiting each others' weaknesses. Since only men were employed on the sugar plantations, they earned most of the money, money they used to gain sexual conquests, rum, and unquestioned authority. Meanwhile, women exploited men's desire for sex, their absence from the home, and their distance from children to attach the children emotionally to themselves and distance them from their fathers.

This does not mean women didn't have jobs—60 percent worked from age fifteen to age fifty-five. Their work was low-paying manufacturing work, or they worked as seamstresses, domestics, and petty traders. Wages were so low that one woman commented, "You are lucky if a daughter can earn enough to help herself, let alone help you" (Handwerker 1989:77). To survive, a woman needed to supplement her income with that of a man.

These patterns of male-female relations resulted in a family pattern in which women attracted men as cohabitants, boyfriends, and, later, husbands in a unit in which men sought to dominate and control women. Men continued to meet their social obligations by working long hours, often at several jobs, providing an adequate material base for their wives and children; they exercised absolute authority in the home and spent free time with either men or other women. Women, needing men for economic support, submitted reluctantly, often complaining that their husbands or coresidents simply wanted a slave and expressing a desire to be treated as equals. Yet because of the pattern of outmigration of men, and the resulting greater number of women, men were able and expected to have extramarital affairs.

The result was a family in which men had minimal emotional attachments to their wives and children while women worked to maintain close ties to their children. Women used sex to cement the tie to men, and children, according to Handwerker's informants, were byproducts of the exchange. Moreover, older children were expected to help support their mothers and even to protect them from their fathers or stepfathers. As Handwerker (1989:88) said:

Women could optimize or improve their resource control only by unrestricted childbearing. Getting pregnant and bearing children tended to be viewed as both a woman's duty and as her goal, and mothers generally took the view that their children owed them support for bringing the children into the world.

Even the belief system worked to enhance high fertility. Women believed that abstinence from sex was unhealthy and that a woman who failed to bear all the children she was capable of bearing would suffer from high blood pressure and other diseases. "You have children until you can have no more," as one woman in her fifties put it. Thus patterns of economic exploitation created a family form in which women, acting according to the logic of their social and economic conditions, maximized the number of children they would have.

Beginning in the 1960s, however, family structure slowly began to change in response to changing economic conditions. The colonial sugar economy declined to the point that sugar represented only about 6 percent of domestic output and 10 percent of employment. Manufacturing and tourism grew, and with it the importance of education for access to jobs. Connections to people of influence mattered less. More important, women gained access to jobs unavailable to them before.

As a consequence, the Barbadian family of the 1980s was very different from the family of the 1960s and earlier. Women expect their husbands to be companions, and there have been equivalent expectations on the part of husbands. Although women still suffer from job discrimination, education provides them with access to better paying jobs as technical specialists, secretaries, receptionists, business executives, university employees, and lawyers. From 1950 to 1980 the percentage of women working in manufacturing increased from less than 15 percent to more than 50 percent. The competition for resources between men and women lessened, and the exploitative pattern of relations decreased. Marriages came to resemble more the so-called companionate marriages that emerged in England in the nineteenth century (Stone 1976); men began to enjoy their families, and their lives began to center more on their wives and children.

This did not occur without conflict, however. Since the stronger emotional ties within the nuclear family required weakening to some extent ties outside the family, especially between sons and mothers, relations between wives and mothers-in-law became strained as they competed for the affections of husbands. Regardless, the family of the 1980s came to resemble the idealized Western nuclear family. Women viewed children as a cost rather than as a future resource, and young Barbadian women explicitly denied owing anything to their parents.

With the change in family patterns there has been a dramatic decrease in fertility, from a birth rate of around 5.0 per woman in the 1950s to a low of about 2.0 in the 1980s. Handwerker (1989:210) concluded that changes in patterns of family relations, not large-scale population control programs of the sort advocated by the Cairo Population Conference, will determine fertility. It is not knowledge of contraceptive techniques or a population problem per se that inhibits women from having smaller families but an issue of power relations. Family planning programs, said Handwerker:

...should not be expected to bring about fertility transition because they can neither create the jobs, nor provide the education necessary for many jobs that would permit women to achieve meaningful control over their own lives. The "right" to have a small family is not a real option for women who are dependent for basic material well-being on their children.

Problems and Prospects

Does all of the foregoing mean there is no population problem or that there should be a more concerted attempt to change family patterns in the periphery to a nuclear family type, to encourage reduced fertility, and to promote greater gender equality?

Whether there is a population problem remains a moot question at best and clearly depends at least as much on the economic and social pressure put on the earth's resources by an existing population than on the total number of people. There is little doubt, for ex-

ample, that if over two billion people in India and China were to choose to live as the slightly over one billion in the Core, we could pass well over the limits of our planet's sustainability. There is no evidence, however, that population increases in the periphery inhibit economic development, or that population increases are the major cause of poverty and environmental devastation. Poverty clearly is related to colonialism and the expansion of the capitalist world economy, and, as we shall see, population growth in the periphery is at best a minor factor in global pollution. This does not mean population regulation is universally undesirable, but it does mean fertility decisions are best made by women and men together based on local economic and social conditions, not by central planners whose ulterior motives may not be in the best interest of the people involved. It is foolhardy at best to expect a woman to have fewer children if they are her major source of economic security. And it is foolish to force families to reduce their size if the family's economic well-being depends on the size of the family production unit and its ability to supply labor or bring in additional wages.

Yet it is clear that smaller families can confer benefits. Research suggests, for example, that educational opportunities for children, particularly women, decline in larger families. Thus if education is a condition for economic independence, limiting fertility is likely to be desirable (Birdsall 1994). Research also reveals that it is desirable to space births at least two years apart to limit the risk of infant death (Lloyd 1994:183). Thus in some situations, controlling the number and spacing of births is clearly beneficial.

Can we assume, then, that promoting the adoption of a Western-style nuclear family is desirable because it promotes greater equality of women? Possibly, although, as we shall see in Chapter 11, many researchers associate the nuclear family with the exploitation of women. Furthermore, extended families offer protection and security, so much so that in poor areas of the United States people "create" extended families through fictive or invented kinship ties to others and form reciprocal supportive relationships (see Stack 1974). Moreover, it is quite possible to have extended family relations in which women exercise as much power and authority as men, if not more.

In addition, few researchers have considered the negative features of nuclear family arrangements. Setting aside the obvious issues of broken families and concern and care for children and the elderly, we may be in danger of exporting the consumption patterns of Western families in addition to the social patterns. Nuclear family structure may tend to maximize consumption in various ways. For example, we noted in Chapter 1 how in the late 1940s and 1950s the American economy grew as a result of a home-building boom and a boom in the consumption of all those items that go with home ownership—furniture, appliances, automobiles, and so on. *Will the nucleation of the extended family in peripheral countries result in similar patterns of consumption? Will that create an economic boom as in the United States? Will it result in increased environmental pollution and waste?*

Nuclear family structure, especially to the extent that it requires a reversal of wealth flow from children to parents, to parents to children, has created, again since the 1950s, a whole new class of consumers—twelve- to twenty-year-olds, with their own supply of wealth and their own consumer desires (and culture). *Will that create new markets and economic growth, or will it bring with it the same social problems that the so-called youth culture creates in our own society?* Obviously it is difficult to predict, yet there has been

virtually no discussion of the implications of changes in family structure that are required if we continue to promote fertility decline.

Conclusion

Western scientific and popular discussions of population growth have been dominated by two frameworks. The Malthusian perspective predicts that population growth threatens the world with starvation, poverty, environmental destruction, and social unrest. Demographic transition theory, while sharing the Malthusian concern over population growth, predicts that, as in the wealthy countries, population in poor countries will eventually stabilize if they adopt Western programs of economic development designed to bring them into the modern world. From an anthropological perspective, both views are faulty, both in their assumptions about the connections between population growth and economic development and in their ethnocentric assumptions about the reasons for population rise and decline in premodern societies. Furthermore, the Malthusian position has a clear class and perhaps ethnic bias in its tendency to blame the victims of poverty and environmental decline for their economic, social, and ecological state, ignoring the effects of the historical expansion of capitalism. The ethnocentrism of demographic transition theory is evident in its assumptions that modernization will result in lowered fertility because, somehow, modernity encourages rationality in choices about family size. However, as we have seen, there is nothing irrational about large families in societies where the family is a major source of economic support and security, and where the wealth received from children throughout one's life far exceeds the wealth that flows to children.

We examined the relationship between fertility and family structure, describing John Caldwell's intergenerational wealth flows theory, and demonstrated that lowering fertility requires a change in family structure from an extended family pattern to a nuclear family pattern. We also noted that unless women also gain access to economic resources, it remains in their interest to maximize fertility. Yet, if fertility decline is a major priority for international agencies and countries, and if, as anthropological research indicates, such a decline requires the adoption of the Western nuclear family along with its values, attitudes, and consumption patterns, we need to examine the consequences of such a change. In particular we need to consider whether the social and economic effects of such a change are worth whatever might be gained by slowing population growth.