

# The New York Review of Books

VOLUME 41, NUMBER 15 · [SEPTEMBER 22, 1994](#)

## Population: Delusion and Reality

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### 1.

Few issues today are as divisive as what is called the "world population problem." With the approach this autumn of the International Conference on Population and Development in Cairo, organized by the United Nations, these divisions among experts are receiving enormous attention and generating considerable heat. There is a danger that in the confrontation between apocalyptic pessimism, on the one hand, and a dismissive smugness, on the other, a genuine understanding of the nature of the population problem may be lost.<sup>[1]</sup>

Visions of impending doom have been increasingly aired in recent years, often presenting the population problem as a "bomb" that has been planted and is about to "go off." These catastrophic images have encouraged a tendency to search for emergency solutions which treat the people involved not as reasonable beings, allies facing a common problem, but as impulsive and uncontrolled sources of great social harm, in need of strong discipline.

Such views have received serious attention in public discussions, not just in sensational headlines in the popular press, but also in seriously argued and widely read books. One of the most influential examples was Paul Ehrlich's *The Population Bomb*, the first three sections of which were headed "Too Many People," "Too Little Food," and "A Dying Planet."<sup>[2]</sup> A more recent example of a chilling diagnosis of imminent calamity is Garrett Hardin's *Living within Limits*.<sup>[3]</sup> The arguments on which these pessimistic visions are based deserve serious scrutiny.

If the propensity to foresee impending disaster from overpopulation is strong in some circles, so is the tendency, in others, to dismiss all worries about population size. Just as alarmism builds on the recognition of a real problem and then magnifies it, complacency may also start off from a reasonable belief about the history of population problems and fail to see how they may have changed by now. It is often pointed out, for example, that the world has coped well enough with fast increases in population in the past, even though alarmists had expected otherwise. Malthus anticipated terrible disasters resulting from population growth and consequent imbalance in "the proportion between the natural increase of population and food."<sup>[4]</sup> At a time when there were fewer than a billion people, he was quite convinced that "the period when the number of men surpass their means of subsistence has long since arrived." However, since Malthus first published his famous *Essay on Population* in 1798, the world population has grown nearly six times larger, while food output and consumption per person are considerably higher now, and there has been an unprecedented increase both in life expectancies and in general living standards.<sup>[5]</sup>

The fact that Malthus was mistaken in his diagnosis as well as his prognosis two hundred years ago does not, however, indicate that contemporary fears about population growth must be similarly erroneous. The increase in the world population has vastly accelerated over the last century. It took the world population millions of years to reach the first billion, then 123 years to get to the second, 33 years to the third, 14 years to the fourth, 13 years to the fifth billion, with a sixth billion to come, according to one

UN projection, in another 11 years.<sup>61</sup> During the last decade, between 1980 and 1990, the number of people on earth grew by about 923 million, an increase nearly the size of the total world population in Malthus's time. Whatever may be the proper response to alarmism about the future, complacency based on past success is no response at all. Immigration and Population

One current worry concerns the regional distribution of the increase in world population, about 90 percent of which is taking place in the developing countries. The percentage rate of population growth is fastest in Africa—3.1 percent per year over the last decade. But most of the large increases in population occur in regions other than Africa. The largest absolute increases in numbers are taking place in Asia, which is where most of the world's poorer people live, even though the rate of increase in population has been slowing significantly there. Of the worldwide increase of 923 million people in the 1980s, well over half occurred in Asia—517 million in fact (including 146 million in China and 166 million in India).

Beyond concerns about the well-being of these poor countries themselves, a more self-regarding worry causes panic in the richer countries of the world and has much to do with the current anxiety in the West about the "world population problem." This is founded on the belief that destitution caused by fast population growth in the third world is responsible for the severe pressure to emigrate to the developed countries of Europe and North America. In this view, people impoverished by overpopulation in the "South" flee to the "North." Some have claimed to find empirical support for this thesis in the fact that pressure to emigrate from the South has accelerated in recent decades, along with a rapid increase in the population there.

There are two distinct questions here: first, how great a threat of intolerable immigration pressure does the North face from the South, and second, is that pressure closely related to population growth in the South, rather than to other social and economic factors? There are reasons to doubt that population growth is the major force behind migratory pressures, and I shall concentrate here on that question. But I should note in passing that immigration is now severely controlled in Europe and North America, and insofar as Europe is concerned, most of the current immigrants from the third world are not "primary" immigrants but dependent relatives—mainly spouses and young children—of those who had come and settled earlier. The United States remains relatively more open to fresh immigration, but the requirements of "labor certification" as a necessary part of the immigration procedure tend to guarantee that the new entrants are relatively better educated and more skilled. There are, however, sizable flows of illegal immigrants, especially to the United States and to a lesser extent to southern Europe, though the numbers are hard to estimate.

What causes the current pressures to emigrate? The "job-worthy" people who get through the immigration process are hardly to be seen as impoverished and destitute migrants created by the sheer pressure of population. Even the illegal immigrants who manage to evade the rigors of border control are typically not starving wretches but those who can make use of work prospects in the North.

The explanation for the increased migratory pressure over the decades owes more to the dynamism of international capitalism than to just the growing size of the population of the third world countries. The immigrants have allies in potential employers, and this applies as much to illegal farm laborers in California as to the legally authorized "guest workers" in automobile factories in Germany. The economic incentive to emigrate to the North from the poorer Southern economies may well depend on differences in real income. But this gap is very large anyway, and even if it is presumed that population growth in the South is increasing the disparity with the North—a thesis I shall presently consider—it seems unlikely that this incentive would significantly change if the Northern income level were, say, twenty times that of the Southern as opposed to twenty-five times.

The growing demand for immigration to the North from the South is related to the "shrinking" of the

world (through revolutions in communication and transport), reduction in economic obstacles to labor movements (despite the increase in political barriers), and the growing reach and absorptive power of international capitalism (even as domestic politics in the North has turned more inward-looking and nationalistic). To try to explain the increase in immigration pressure by the growth rate of total population in the third world is to close one's eyes to the deep changes that have occurred—and are occurring—in the world in which we live, and the rapid internationalization of its cultures and economies that accompanies these changes. Fears of Being Engulfed

A closely related issue concerns what is perceived as a growing "imbalance" in the division of the world population, with a rapidly rising share belonging to the third world. That fear translates into worries of various kinds in the North, especially the sense of being overrun by the South. Many Northerners fear being engulfed by people from Asia and Africa, whose share of the world population increased from 63.7 percent in 1950 to 71.2 percent by 1990, and is expected, according to the estimates of the United Nations, to rise to 78.5 percent by 2050 AD.

It is easy to understand the fears of relatively well-off people at the thought of being surrounded by a fast growing and increasingly impoverished Southern population. As I shall argue, the thesis of growing impoverishment does not stand up to much scrutiny; but it is important to address first the psychologically tense issue of racial balance in the world (even though racial composition as a consideration has only as much importance as we choose to give it). Here it is worth recollecting that the third world is right now going through the same kind of demo-graphic shift—a rapid expansion of population for a temporary but long stretch—that Europe and North America experienced during their industrial revolution. In 1650 the share of Asia and Africa in the world population is estimated to have been 78.4 percent, and it stayed around there even in 1750.<sup>[7]</sup> With the industrial revolution, the share of Asia and Africa diminished because of the rapid rise of population in Europe and North America; for example, during the nineteenth century while the inhabitants of Asia and Africa grew by about 4 percent per decade or less, the population of "the area of European settlement" grew by around 10 percent every decade.

Even now the combined share of Asia and Africa (71.2 percent) is considerably below what its share was in 1650 or 1750. If the United Nations' prediction that this share will rise to 78.5 percent by 2050 comes true, then the Asians and the Africans would return to being proportionately almost exactly as numerous as they were before the European industrial revolution. There is, of course, nothing sacrosanct about the distributions of population in the past; but the sense of a growing "imbalance" in the world, based only on recent trends, ignores history and implicitly presumes that the expansion of Europeans earlier on was natural, whereas the same process happening now to other populations unnaturally disturbs the "balance." Collaboration versus Override

Other worries involving the relation of population growth to food supplies, income levels, and the environment reflect more serious matters.<sup>[8]</sup> Before I take up those questions, a brief comment on the distinction between two rival approaches to dealing with the population problem may be useful. One involves voluntary choice and a collaborative solution, and the other overrides voluntarism through legal or economic coercion.

**A**larmist views of impending crises tend to produce a willingness to consider forceful measures for coercing people to have fewer children in the third world. Imposing birth control on unwilling people is no longer rejected as readily as it was until quite recently, and some activists have pointed to the ambiguities that exist in determining what is or is not "coercion."<sup>[9]</sup> Those who are willing to consider—or at least not fully reject—programs that would use some measure of force to reduce population growth often point to the success of China's "one child policy" in cutting down the national birth rate. Force can also take an indirect form, as when economic opportunities are changed so radically

by government regulations that people are left with very little choice except to behave in ways the government would approve. In China's case, the government may refuse to offer housing to families with too many children—thus penalizing the children as well as the dissenting adults.

In India the policy of compulsory birth control that was initiated during the "emergency period" declared by Mrs. Gandhi in the 1970s was decisively rejected by the voters in the general election in which it—along with civil rights—was a major issue. Even so, some public health clinics in the northern states (such as Uttar Pradesh) insist, in practice, on sterilization before providing normal medical attention to women and men beyond a certain age. The pressures to move in that direction seem to be strong, and they are reinforced by the rhetoric of "the population bomb."

I shall call this general approach the "override" view, since the family's personal decisions are overridden by some agency outside the family—typically by the government of the country in question (whether or not it has been pressed to do so by "outside" agencies, such as international organizations and pressure groups). In fact, overriding is not limited to an explicit use of legal coercion or economic compulsion, since people's own choices can also be effectively overridden by simply not offering them the opportunities for jobs or welfare that they can expect to get from a responsible government. Override can take many different forms and can be of varying intensity (with the Chinese "one child policy" being something of an extreme case of a more general approach).

A central issue here is the increasingly vocal demand by some activists concerned with population growth that the highest "priority" should be given in third world countries to family planning over other public commitments. This demand goes much beyond supporting family planning as a part of development. In fact, proposals for shifting international aid away from development in general to family planning in particular have lately been increasingly frequent. Such policies fit into the general approach of "override" as well, since they try to rely on manipulating people's choices through offering them only some opportunities (the means of family planning) while denying others, no matter what they would have themselves preferred. Insofar as they would have the effect of reducing health care and educational services, such shifts in public commitments will not only add to the misery of human lives, they may also have, I shall argue, exactly the opposite effect on family planning than the one intended, since education and health care have a significant part in the voluntary reduction of the birth rate.

The "override" approach contrasts with another, the "collaborative" approach, that relies not on legal or economic restrictions but on rational decisions of women and men, based on expanded choices and enhanced security, and encouraged by open dialogue and extensive public discussions. The difference between the two approaches does not lie in government's activism in the first case as opposed to passivity in the second. Even if solutions are sought through the decisions and actions of people themselves, the chance to take reasoned decisions with more knowledge and a greater sense of personal security can be increased by public policies, for example, through expanding educational facilities, health care, and economic well-being, along with providing better access to family planning. The central political and ethical issue concerning the "override" approach does not lie in its insistence on the need for public policy but in the ways it significantly reduces the choices open to parents. The Malthus-Condorcet Debate

Thomas Robert Malthus forcefully argued for a version of the "override" view. In fact, it was precisely this preference that distinguished Malthus from Condorcet, the eighteenth-century French mathematician and social scientist from whom Malthus had actually derived the analysis of how population could outgrow the means of living. The debate between Condorcet and Malthus in some ways marks the origin of the distinction between the "collaborative" and the "override" approaches, which still compete for attention.<sup>[10]</sup>

In his *Essay on Population*, published in 1798, Malthus quoted—extensively and with approval

—Condorcet's discussion, in 1795, of the possibility of overpopulation. However, true to the Enlightenment tradition, Condorcet was confident that this problem would be solved by reasoned human action: through increases in productivity, through better conservation and prevention of waste, and through education (especially female education) which would contribute to reducing the birth rate.<sup>[11]</sup> Voluntary family planning would be encouraged, in Condorcet's analysis, by increased understanding that if people "have a duty toward those who are not yet born, that duty is not to give them existence but to give them happiness." They would see the value of limiting family size "rather than foolishly... encumber the world with useless and wretched beings."<sup>[12]</sup>

Even though Malthus borrowed from Condorcet his diagnosis of the possibility of overpopulation, he refused to accept Condorcet's solution. Indeed, Malthus's essay on population was partly a criticism of Condorcet's enlightenment reasoning, and even the full title of Malthus's famous essay specifically mentioned Condorcet. Malthus argued that

there is no reason whatever to suppose that anything beside the difficulty of procuring in adequate plenty the necessaries of life should either *indispose* this greater number of persons to marry early, or *disable* them from rearing in health the largest families.<sup>[13]</sup>

Malthus thus opposed public relief of poverty: he saw the "poor laws" in particular as contributing greatly to population growth.<sup>[14]</sup>

Malthus was not sure that any public policy would work, and whether "overriding" would in fact be possible: "The perpetual tendency in the race of man to increase beyond the means of subsistence is one of the great general laws of animated nature which we can have no reason to expect will change."<sup>[15]</sup> But insofar as any solution would be possible, it could not come from voluntary decisions of the people involved, or acting from a position of strength and economic security. It must come from overriding their preferences through the compulsions of economic necessity, since their poverty was the only thing that could "indispose the greater number of persons to marry early, or disable them from rearing in health the largest families."

### ***Development and Increased Choice***

The distinction between the "collaborative" approach and the "override" approach thus tends to correspond closely to the contrast between, on the one hand, treating economic and social development as the way to solve the population problem and, on the other, expecting little from development and using, instead, legal and economic pressures to reduce birth rates. Among recent writers, those such as Gerard Piel<sup>[16]</sup> who have persuasively emphasized our ability to solve problems through reasoned decisions and actions have tended—like Condorcet—to find the solution of the population problem in economic and social development. They advocate a broadly collaborative approach, in which governments and citizens would together produce economic and social conditions favoring slower population growth. In contrast, those who have been thoroughly skeptical of reasoned human action to limit population growth have tended to go in the direction of "override" in one form or another, rather than concentrate on development and voluntarism.

**H**as development, in fact, done much to reduce population growth? There can be little doubt that economic and social development, in general, has been associated with major reductions in birth rates and the emergence of smaller families as the norm. This is a pattern that was, of course, clearly observed in Europe and North America as they underwent industrialization, but that experience has been repeated in many other parts of the world.

In particular, conditions of economic security and affluence, wider availability of contraceptive methods,

expansion of education (particularly female education), and lower mortality rates have had—and are currently having—quite substantial effects in reducing birth rates in different parts of the world.<sup>[17]</sup> The rate of world population growth is certainly declining, and even over the last two decades its percentage growth rate has fallen from 2.2 percent per year between 1970 and 1980 to 1.7 percent between 1980 and 1992. This rate is expected to go steadily down until the size of the world's population becomes nearly stationary.<sup>[18]</sup>

There are important regional differences in demographic behavior; for example, the population growth rate in India peaked at 2.2 percent a year (in the 1970s) and has since started to diminish, whereas most Latin American countries peaked at much higher rates before coming down sharply, while many countries in Africa currently have growth rates between 3 and 4 percent, with an average for sub-Saharan Africa of 3.1 percent. Similarly, the different factors have varied in their respective influence from region to region. But there can be little dispute that economic and social development tends to reduce fertility rates. The regions of the third world that lag most in achieving economic and social development, such as many countries in Africa, are, in general, also the ones that have failed to reduce birth rates significantly. Malthus's fear that economic and social development could only encourage people to have more children has certainly proved to be radically wrong, and so have all the painful policy implications drawn from it.

This raises the following question: in view of the clear connection between development and lower fertility, why isn't the dispute over how to deal with population growth fully resolved already? Why don't we reinterpret the population problem simply as a problem of underdevelopment and seek a solution by encouraging economic and social development (even if we reject the oversimple slogan "development is the most reliable contraceptive")?

In the long run, this may indeed be exactly the right approach. The problem is more complex, however, because a "contraceptive" that is "reliable" in the long run may not act fast enough to meet the present threat. Even though development may dependably work to stabilize population if it is given enough time, there may not be, it is argued, time enough to give. The death rate often falls very fast with more widely available health care, better sanitation, and improved nutrition, while the birth rate may fall rather slowly. Much growth of population may meanwhile occur.

This is exactly the point at which apocalyptic prophecies add force to the "override" view. One claim, then, that needs examination is that the world is facing an imminent crisis, one so urgent that development is just too slow a process to deal with it. We must try right now, the argument goes, to cut down population growth by drastic and forceful means if necessary. The second claim that also needs scrutiny is the actual feasibility of adequately reducing population growth through these drastic means, without fostering social and economic development.

## 2.

### *Population and Income*

It is sometimes argued that signs of an imminent crisis can be found in the growing impoverishment of the South, with falling income per capita accompanying high population growth. In general, there is little evidence for this. As a matter of fact, the average population of "low-income" countries (as defined by the World Bank) has been not only enjoying a rising gross national product (GNP) per head, but a growth rate of GNP per capita (3.9 percent per year for 1980-1992) that is much faster than those for the "high-income" countries (2.4 percent) and for the "middle-income" ones (0 percent).<sup>[19]</sup>

The growth of per capita GNP of the population of low-income countries would have been even higher

had it not been for the negative growth rates of many countries in sub-Saharan Africa, one region in which a number of countries have been experiencing economic decline. But the main culprit causing this state of affairs is the terrible failure of economic production in sub-Saharan Africa (connected particularly with political disruption, including wars and military rule), rather than population growth, which is only a subsidiary factor. Sub-Saharan Africa does have high population growth, but its economic stagnation has contributed much more to the fall in its per-capita income.

With its average population growth rate of 3.1 percent per year, had sub-Saharan Africa suddenly matched China's low population growth of 1.4 percent (the lowest among the low-income countries), it would have gained roughly 1.7 percent in per-capita GNP growth. The real income per person would still have fallen, even with that minimal population growth, for many countries in the region. The growth of GNP per capita is *minus* 1.9 percent for Ethiopia, *minus* 1.8 percent for Togo, *minus* 3.6 percent for Mozambique, *minus* 4.3 percent for Niger, *minus* 4.7 percent for Ivory Coast, not to mention Somalia, Sudan, and Angola, where the political disruption has been so serious that no reliable GNP estimates even exist. A lower population growth rate could have reduced the magnitude of the fall in per capita GNP, but the main roots of Africa's economic decline lie elsewhere. The complex political factors underlying the troubles of Africa include, among other things, the subversion of democracy and the rise of combative military rulers, often encouraged by the cold war (with Africa providing "client states"—from Somalia and Ethiopia to Angola and Zaire—for the superpowers, particularly from the 1960s onward). The explanation of sub-Saharan Africa's problems has to be sought in these political troubles, which affect economic stability, agricultural and industrial incentives, public health arrangements, and social services—even family planning and population policy.<sup>[20]</sup>

There is indeed a very powerful case for reducing the rate of growth of population in Africa, but this problem cannot be dissociated from the rest of the continent's woes. Sub-Saharan Africa lags behind other developing regions in economic security, in health care, in life expectancy, in basic education, and in political and economic stability. It should be no great surprise that it lags behind in family planning as well. To dissociate the task of population control from the politics and economics of Africa would be a great mistake and would seriously mislead public policy.

### ***Population and Food***

Malthus's exact thesis cannot, however, be disputed by quoting statistics of income per capita, for he was concerned specifically with food supply per capita, and he had concentrated on "the proportion between the natural increase of population and food." Many modern commentators, including Paul Ehrlich and Garrett Hardin, have said much about this, too. When Ehrlich says, in his *Population Bomb*, "too little food," he does not mean "too little income," but specifically a growing shortage of food.

Is population beginning to outrun food production? Even though such an impression is often given in public discussions, there is, in fact, no serious evidence that this is happening. While there are some year-to-year fluctuations in the growth of food output (typically inducing, whenever things slacken a bit, some excited remarks by those who anticipate an impending doom), the worldwide trend of food output per person has been firmly upward. Not only over the two centuries since Malthus's time, but also during recent decades, the rise in food output has been significantly and consistently outpacing the expansion of world population.<sup>[21]</sup>

**B**ut the total food supply in the world as a whole is not the only issue. What about the regional distribution of food? If it were to turn out that the rising ratio of food to population is mainly caused by increased production in richer countries (for example, if it appeared that US wheat output was feeding the third world, in which much of the population expansion is taking place), then the neo-Malthusian fears about "too many people" and "too little food" may have some plausibility. Is this

what is happening?

In fact, with one substantial exception, exactly the opposite is true. The largest increases in the production of food—not just in the aggregate but also per person—are actually taking place in the third world, particularly in the region that is having the largest absolute increases in the world population, that is, in Asia. The many millions of people who are added to the populations of India and China may be constantly cited by the terrorized—and terrorizing—advocates of the apocalyptic view, but it is precisely in these countries that the most rapid rates of growth in food output per capita are to be observed. For example, between the three-year averages of 1979-1981 and 1991-1993, food production per head in the world moved up by 3 percent, while it went up by only 2 percent in Europe and went down by nearly 5 percent in North America. In contrast, per capita food production jumped up by 22 percent in Asia generally, including 23 percent in India and 39 percent in China.<sup>[22]</sup> (See Table 1.)

### **Table 1**

During the same period, however, food production per capita went down by 6 percent in Africa, and even the absolute size of food output fell in some countries (such as Malawi and Somalia). Of course, many countries in the world—from Syria, Italy, and Sweden to Botswana in Africa—have had declining food production per head without experiencing hunger or starvation since their economies have prospered and grown; when the means are available, food can be easily bought in the international market if it is necessary to do so. For many countries in sub-Saharan Africa the problem arises from the fact that the decline in food production is an integral part of the story of overall economic decline, which I have discussed earlier.

Difficulties of food production in sub-Saharan Africa, like other problems of the national economy, are not only linked to wars, dictatorships, and political chaos. In addition, there is some evidence that climatic shifts have had unfavorable effects on parts of that continent. While some of the climatic problems may be caused partly by increases in human settlement and environmental neglect, that neglect is not unrelated to the political and economic chaos that has characterized sub-Saharan Africa during the last few decades. The food problem of Africa must be seen as one part of a wider political and economic problem of the region.<sup>[23]</sup>

### ***The Price of Food***

To return to "the balance between food and population," the rising food production per capita in the world as a whole, and in the third world in general, contradicts some of the pessimism that characterized the gloomy predictions of the past. Prophecies of imminent disaster during the last few decades have not proved any more accurate than Malthus's prognostication nearly two hundred years ago. As for new prophecies of doom, they cannot, of course, be contradicted until the future arrives. There was no way of refuting the theses of W. Paddock and P. Paddock's popular book *Famine—1975!*, published in 1968, which predicted a terrible cataclysm for the world as a whole by 1975 (writing off India, in particular, as a basket case), until 1975 actually arrived. The new prophets have learned not to attach specific dates to the crises they foresee, and past failures do not seem to have reduced the popular appetite for this creative genre.

However, after noting the rather dismal forecasting record of doom-sayers, we must also accept the general methodological point that present trends in output do not necessarily tell us much about the prospects of further expansion in the future. It could, for example, be argued that maintaining growth in food production may require proportionately increasing investments of capital, drawing them away from other kinds of production. This would tend to make food progressively more expensive if there are "diminishing returns" in shifting resources from other fields into food production. And, ultimately,

further expansion of food production may become so expensive that it would be hard to maintain the trend of increasing food production without reducing other outputs drastically.

**B**ut is food production really getting more and more expensive? There is, in fact, no evidence for that conclusion either. In fact, quite the contrary. Not only is food generally much cheaper to buy today, in constant dollars, than it was in Malthus's time, but it also has become cheaper during recent decades. As a matter of fact, there have been increasing complaints among food exporters, especially in the third world, that food prices have fallen in relation to other commodities. For example, in 1992 a United Nations report recorded a 38 percent fall in the relative prices of "basic foods" over the last decade.<sup>[24]</sup> This is entirely in line with the trend, during the last three decades, toward declining relative prices of particular food items, in relation to the prices of manufactured goods. The World Bank's adjusted estimates of the prices of particular food crops, between 1953-1955 and 1983-1985, show similarly steep declines for such staples as rice (42 percent), wheat (57 percent), sorghum (39 percent), and maize (37 percent).<sup>[25]</sup>

Not only is food getting less expensive, but we also have to bear in mind that the current increase in food production (substantial and well ahead of population growth, as it is) is itself being kept in check by the difficulties in selling food profitably, as the relative prices of food have fallen. Those neo-Malthusians who concede that food production is now growing faster than population often point out that it is growing "only a little faster than population," and they are inclined to interpret this as evidence that we are reaching the limits of what we can produce to keep pace with population growth.

But that is surely the wrong conclusion to draw in view of the falling relative prices of food, and the current difficulties in selling food, since it ignores the effects of economic incentives that govern production. When we take into account the persistent cheapening of food prices, we have good grounds to suggest that food output is being held back by a lack of effective demand in the market. The imaginary crisis in food production, contradicted as it is by the upward trends of total and regional food output per head, is thus further debunked by an analysis of the economic incentives to produce more food.

### *Deprived Lives and Slums*

I have examined the alleged "food problem" associated with population growth in some detail because it has received so much attention both in the traditional Malthusian literature and in the recent writings of neo-Malthusians. In concentrating on his claim that growing populations would not have enough food, Malthus differed from Condorcet's broader presentation of the population question. Condorcet's own emphasis was on the possibility of "a continual diminution of happiness" as a result of population growth, a diminution that could occur in many different ways—not just through the deprivation of food, but through a decline in living conditions generally. That more extensive worry can remain even when Malthus's analysis of the food supply is rejected.

Indeed, average income and food production per head can go on increasing even as the wretchedly deprived living conditions of particular sections of the population get worse, as they have in many parts of the third world. The living conditions of backward regions and deprived classes can decline even when a country's economic growth is very rapid on the average. Brazil during the 1960s and 1970s provided an extreme example of this. The sense that there are just "too many people" around often arises from seeing the desperate lives of people in the large and rapidly growing urban slums—*bidonvilles*—in poor countries, sobering reminders that we should not take too much comfort from aggregate statistics of economic progress.

But in an essay addressed mainly to the population problem, what we have to ask is not whether things are just fine in the third world (they obviously are not), but whether population growth is the root cause

of the deprivations that people suffer. The question is whether the particular instances of deep poverty we observe derive mainly from population growth rather than from other factors that lead to unshared prosperity and persistent and possibly growing inequality. The tendency to see in population growth an explanation for every calamity that afflicts poor people is now fairly well established in some circles, and the message that gets transmitted constantly is the opposite of the old picture postcard: "Wish you weren't here."

To see in population growth the main reason for the growth of overcrowded and very poor slums in large cities, for example, is not empirically convincing. It does not help to explain why the slums of Calcutta and Bombay have grown worse at a faster rate than those of Karachi and Islamabad (India's population growth rate is 2.1 percent per year, Pakistan's 3.1), or why Jakarta has deteriorated faster than Ankara or Istanbul (Indonesian population growth is 1.8 percent, Turkey's 2.3), or why the slums of Mexico City have become worse more rapidly than those of San José (Mexico's population growth rate is 2.0, Costa Rica's 2.8), or why Harlem can seem more and more deprived when compared with the poorer districts of Singapore (US population growth rate is 1.0, Singapore's is 1.8). Many causal factors affect the degree of deprivation in particular parts of a country—rural as well as urban—and to try to see them all as resulting from overpopulation is the negation of social analysis.

This is not to deny that population growth may well have an effect on deprivation, but only to insist that any investigation of the effects of population growth must be part of the analysis of economic and political processes, including the effects of other variables. It is the isolationist view of population growth that should be rejected.

### *Threats to the Environment*

In his concern about "a continual diminution of happiness" from population growth, Condorcet was a pioneer in considering the possibility that natural raw materials might be used up, thereby making living conditions worse. In his characteristically rationalist solution, which relied partly on voluntary and reasoned measures to reduce the birth rate, Condorcet also envisaged the development of less improvident technology: "The manufacture of articles will be achieved with less wastage in raw materials and will make better use of them."<sup>126</sup>

The effects of a growing population on the environment could be a good deal more serious than the food problems that have received so much attention in the literature inspired by Malthus. If the environment is damaged by population pressures this obviously affects the kind of life we lead, and the possibilities of a "diminution in happiness" can be quite considerable. In dealing with this problem, we have to distinguish once again between the long and the short run. The short-run picture tends to be dominated by the fact that the per-capita consumption of food, fuel, and other goods by people in third world countries is often relatively low; consequently the impact of population growth in these countries is not, in relative terms, so damaging to the global environment. But the problems of the local environment can, of course, be serious in many developing economies. They vary from the "neighborhood pollution" created by unregulated industries to the pressure of denser populations on rural resources such as fields and woods.<sup>127</sup> (The Indian authorities had to close down several factories in and around Agra, since the façade of the Taj Mahal was turning pale as a result of chemical pollution from local factories.) But it remains true that one additional American typically has a larger negative impact on the ozone layer, global warmth, and other elements of the earth's environment than dozens of Indians and Zimbabweans put together. Those who argue for the immediate need for forceful population control in the third world to preserve the global environment must first recognize this elementary fact.

This does not imply, as is sometimes suggested, that as far as the global environment is concerned, population growth in the third world is nothing to worry about. The long-run impact on the global

environment of population growth in the developing countries can be expected to be large. As the Indians and the Zimbabweans develop economically, they too will consume a great deal more, and they will pose, in the future, a threat to the earth's environment similar to that of people in the rich countries today. The long-run threat of population to the environment is a real one.

### 3.

#### *Women's Deprivation and Power*

Since reducing the birth rate can be slow, this and other long-run problems should be addressed right now. Solutions will no doubt have to be found in the two directions to which, as it happens, Condorcet pointed: (1) developing new technology and new behavior patterns that would waste little and pollute less, and (2) fostering social and economic changes that would gradually bring down the growth rate of population.

On reducing birth rates, Condorcet's own solution not only included enhancing economic opportunity and security, but also stressed the importance of education, particularly female education. A better-educated population could have a more informed discussion of the kind of life we have reason to value; in particular it would reject the drudgery of a life of continuous child bearing and rearing that is routinely forced on many third world women. That drudgery, in some ways, is the most immediately adverse consequence of high fertility rates.

Central to reducing birth rates, then, is a close connection between women's well-being and their power to make their own decisions and bring about changes in the fertility pattern. Women in many third world countries are deprived by high birth frequency of the freedom to do other things in life, not to mention the medical dangers of repeated pregnancy and high maternal mortality, which are both characteristic of many developing countries. It is thus not surprising that reductions in birth rates have been typically associated with improvement of women's status and their ability to make their voices heard—often the result of expanded opportunities for schooling and political activity.<sup>[28]</sup>

There is nothing particularly exotic about declines in the birth rate occurring through a process of voluntary rational assessment, of which Condorcet spoke. It is what people do when they have some basic education, know about family planning methods and have access to them, do not readily accept a life of persistent drudgery, and are not deeply anxious about their economic security. It is also what they do when they are not forced by high infant and child mortality rates to be so worried that no child will survive to support them in their old age that they try to have many children. In country after country the birth rate has come down with more female education, the reduction of mortality rates, the expansion of economic means and security, and greater public discussion of ways of living.

#### *Development versus Coercion*

There is little doubt that this process of social and economic change will over time cut down the birth rate. Indeed the growth rate of world population is already firmly declining—it came down from 2.2 percent in the 1970s to 1.7 percent between 1980 and 1992. Had imminent cataclysm been threatening, we might have had good reason to reject such gradual progress and consider more drastic means of population control, as some have advocated. But that apocalyptic view is empirically baseless. There is no imminent emergency that calls for a breathless response. What is called for is systematic support for people's own decisions to reduce family size through expanding education and health care, and through economic and social development.

It is often asked where the money needed for expanding education, health care, etc., would be found.

Education, health services, and many other means of improving the quality of life are typically highly labor-intensive and are thus relatively inexpensive in poor countries (because of low wages).<sup>[29]</sup> While poor countries have less money to spend, they also need less money to provide these services. For this reason many poor countries have indeed been able to expand educational and health services widely without waiting to become prosperous through the process of economic growth. Sri Lanka, Costa Rica, Indonesia, and Thailand are good examples, and there are many others. While the impact of these social services on the quality and length of life have been much studied, they are also major means of reducing the birth rate.

By contrast with such open and voluntary developments, coercive methods, such as the "one child policy" in some regions, have been tried in China, particularly since the reforms of 1979. Many commentators have pointed out that by 1992 the Chinese birth rate has fallen to 19 per 1,000, compared with 29 per 1,000 in India, and 37 per 1,000 for the average of poor countries other than China and India. China's total fertility rate (reflecting the number of children born per woman) is now at "the replacement level" of 2.0, compared with India's 3.6 and the weighted average of 4.9 for low-income countries other than China and India.<sup>[30]</sup> Hasn't China shown the way to "solve" the population problem in other developing countries as well?

#### 4.

##### *China's Population Policies*

The difficulties with this "solution" are of several kinds. First, if freedom is valued at all, the lack of freedom associated with this approach must be seen to be a social loss in itself. The importance of reproductive freedom has been persuasively emphasized by women's groups throughout the world.<sup>[31]</sup>

The loss of freedom is often dismissed on the grounds that because of cultural differences, authoritarian policies that would not be tolerated in the West are acceptable to Asians. While we often hear references to "despotic" Oriental traditions, such arguments are no more convincing than a claim that compulsion in the West is justified by the traditions of the Spanish Inquisition or of the Nazi concentration camps. Frequent references are also made to the emphasis on discipline in the "Confucian tradition"; but that is not the only tradition in the "East," nor is it easy to assess the implications of that tradition for modern Asia (even if we were able to show that discipline is more important for Confucius than it is for, say, Plato or Saint Augustine).

Only a democratic expression of opinion could reveal whether citizens would find a compulsory system acceptable. While such a test has not occurred in China, one did in fact take place in India during "the emergency period" in the 1970s, when Indira Gandhi's government imposed compulsory birth control and suspended various legal freedoms. In the general elections that followed, the politicians favoring the policy of coercion were overwhelmingly defeated. Furthermore, family planning experts in India have observed how the briefly applied programs of compulsory sterilization tended to discredit voluntary birth control programs generally, since people became deeply suspicious of the entire movement to control fertility.

Second, apart from the fundamental issue of whether people are willing to accept compulsory birth control, its specific consequences must also be considered. Insofar as coercion is effective, it works by making people do things they would not freely do. The social consequences of such compulsion, including the ways in which an unwilling population tends to react when it is coerced, can be appalling. For example, the demands of a "one-child family" can lead to the neglect—or worse—of a second child, thereby increasing the infant mortality rate. Moreover, in a country with a strong preference for male children—a preference shared by China and many other countries in Asia and North Africa—a policy of

allowing only one child per family can easily lead to the fatal neglect of a female child. There is much evidence that this is fairly widespread in China, with very adverse effects on infant mortality rates. There are reports that female children have been severely neglected as well as suggestions that female infanticide occurs with considerable frequency. Such consequences are hard to tolerate morally, and perhaps politically also, in the long run.

Third, what is also not clear is exactly how much additional reduction in the birth rate has been achieved through these coercive methods. Many of China's longstanding social and economic programs have been valuable in reducing fertility, including those that have expanded education for women as well as men, made health care more generally available, provided more job opportunities for women, and stimulated rapid economic growth. These factors would themselves have reduced the birth rates, and it is not clear how much "extra lowering" of fertility rates has been achieved in China through compulsion.

### Table2

For example, we can determine whether many of the countries that match (or outmatch) China in life expectancy, female literacy rates, and female participation in the labor force actually have a higher fertility rate than China. Of all the countries in the world for which data are given in the *World Development Report 1994*, there are only three such countries: Jamaica (2.7), Thailand (2.2), and Sweden (2.1)—and the fertility rates of two of these are close to China's (2.0). Thus the additional contribution of coercion to reducing fertility in China is by no means clear, since compulsion was superimposed on a society that was already reducing its birth rate and in which education and jobs outside the home were available to large numbers of women. In some regions of China the compulsory program needed little enforcement, whereas in other—more backward—regions, it had to be applied with much severity, with terrible consequences in infant mortality and discrimination against female children. While China may get too much credit for its authoritarian measures, it gets far too little credit for the other, more collaborative and participatory, policies it has followed, which have themselves helped to cut down the birth rate.

### ***China and India***

A useful contrast can be drawn between China and India, the two most populous countries in the world. If we look only at the national averages, it is easy to see that China with its low fertility rate of 2.0 has achieved much more than India has with its average fertility rate of 3.6. To what extent this contrast can be attributed to the effectiveness of the coercive policies used in China is not clear, since we would expect the fertility rate to be much lower in China in view of its higher percentage of female literacy (almost twice as high), higher life expectancy (almost ten years more), larger female involvement (by three quarters) in the labor force, and so on. But India is a country of great diversity, whose different states have very unequal achievements in literacy, health care, and economic and social development. Most states in India are far behind the Chinese provinces in educational achievement (with the exception of Tibet, which has the lowest literacy rate of any Chinese or Indian state), and the same applies to other factors that affect fertility. However, the state of Kerala in southern India provides an interesting comparison with China, since it too has high levels of basic education, health care, and so on. Kerala is a state within a country, but with its 29 million people, it is larger than most countries in the world (including Canada). Kerala's birth rate of 18 per 1,000 is actually lower than China's 19 per 1,000, and its fertility rate is 1.8 for 1991, compared with China's 2.0 for 1992. These low rates have been achieved without any state coercion.<sup>[32]</sup>

The roots of Kerala's success are to be found in the kinds of social progress Condorcet hoped for, including among others, a high female literacy rate (86 percent, which is substantially higher than China's 68 percent). The rural literacy rate is in fact higher in Kerala—for women as well as men—than

in every single province in China. Male and female life expectancies at birth in China are respectively 67 and 71 years; the provisional 1991 figures for men and women in Kerala are 71 and 74 years. Women have been active in Kerala's economic and political life for a long time. A high proportion do skilled and semi-skilled work and a large number have taken part in educational movements.<sup>[33]</sup> It is perhaps of symbolic importance that the first public pronouncement of the need for widespread elementary education in any part of India was made in 1817 by Rani Gouri Parvathi Bai, the young queen of the princely state of Travancore, which makes up a substantial part of modern Kerala. For a long time public discussions in Kerala have centered on women's rights and the undesirability of couples marrying when very young.

This political process has been voluntary and collaborative, rather than coercive, and the adverse reactions that have been observed in China, such as infant mortality, have not occurred in Kerala. Kerala's low fertility rate has been achieved along with an infant mortality rate of 16.5 per 1,000 live births (17 for boys and 16 for girls), compared with China's 31 (28 for boys and 33 for girls). And as a result of greater gender equality in Kerala, women have not suffered from higher mortality rates than men in Kerala, as they have in the rest of India and in China. Even the ratio of females to males in the total population in Kerala (above 1.03) is quite close to that of the current ratios in Europe and America (reflecting the usual pattern of lower female mortality whenever women and men receive similar care). By contrast, the average female to male ratio in China is 0.94 and in India as a whole 0.93.<sup>[34]</sup> Anyone drawn to the Chinese experience of compulsory birth control must take note of these facts.

The temptation to use the "override" approach arises at least partly from impatience with the allegedly slow process of fertility reduction through collaborative, rather than coercive, attempts. Yet Kerala's birth rate has fallen from 44 per 1,000 in the 1950s to 18 by 1991—not a sluggish decline. Nor is Kerala unique in this respect. Other societies, such as those of Sri Lanka, South Korea, and Thailand, which have relied on expanding education and reducing mortality rates—instead of on coercion—have also achieved sharp declines in fertility and birth rates.

It is also interesting to compare the time required for reducing fertility in China with that in the two states in India, Kerala and Tamil Nadu, which have done most to encourage voluntary and collaborative reduction in birth rates (even though Tamil Nadu is well behind Kerala in each respect).<sup>[35]</sup> Table 2 shows the fertility rates both in 1979, when the one-child policy and related programs were introduced in China, and in 1991. Despite China's one-child policy and other coercive measures, its fertility rate seems to have fallen much less sharply than those of Kerala and Tamil Nadu. The "override" view is very hard to defend on the basis of the Chinese experience, the only systematic and sustained attempt to impose such a policy that has so far been made.

### ***Family Planning***

Even those who do not advocate legal or economic coercion sometimes suggest a variant of the "override" approach—the view, which has been getting increasing support, that the highest priority should be given simply to family planning, even if this means diverting resources from education and health care as well as other activities associated with development. We often hear claims that enormous declines in birth rates have been accomplished through making family planning services available, without waiting for improvements in education and health care.

The experience of Bangladesh is sometimes cited as an example of such success. Indeed, even though the female literacy rate in Bangladesh is only around 22 percent and life expectancy at birth no higher than 55 years, fertility rates have been substantially reduced there through the greater availability of family planning services, including counseling.<sup>[36]</sup> We have to examine carefully what lessons can, in fact, be drawn from this evidence.

First, it is certainly significant that Bangladesh has been able to cut its fertility rate from 7.0 to 4.5 during the short period between 1975 and 1990, an achievement that discredits the view that people will not voluntarily embrace family planning in the poorest countries. But we have to ask further whether family planning efforts may themselves be sufficient to make fertility come down to really low levels, without providing for female education and the other features of a fuller collaborative approach. The fertility rate of 4.5 in Bangladesh is still quite high—considerably higher than even India's average rate of 3.6. To begin stabilizing the population, the fertility rates would have to come down closer to the "replacement level" of 2.0, as has happened in Kerala and Tamil Nadu, and in many other places outside the Indian subcontinent. Female education and the other social developments connected with lowering the birth rate would still be much needed.

Contrasts between the records of Indian states offer some substantial lessons here. While Kerala, and to a smaller extent Tamil Nadu, have surged ahead in achieving radically reduced fertility rates, other states in India in the so-called "northern heartland" (such as Uttar Pradesh, Bihar, Madhya Pradesh, and Rajasthan), have very low levels of education, especially female education, and of general health care (often combined with pressure on the poor to accept birth control measures, including sterilization, as a qualifying condition for medical attention and other public services). These states all have high fertility rates—between 4.4 and 5.1. The regional contrasts within India strongly argue for the collaborative approach, including active and educated participation of women.

The threat of an impending population crisis tempts many international observers to suggest that priority be given to family planning arrangements in the third world countries over other commitments such as education and health care, a redirection of public efforts that is often recommended by policy-makers and at international conferences. Not only will this shift have negative effects on people's well-being and reduce their freedoms, it can also be self-defeating if the goal is to stabilize population.

The appeal of such slogans as "family planning first" rests partly on misconceptions about what is needed to reduce fertility rates, but also on mistaken beliefs about the excessive costs of social development, including education and health care. As has been discussed, both these activities are highly labor intensive, and thus relatively inexpensive even in very poor economies. In fact, Kerala, India's star performer in expanding education and reducing both death rates and birth rates, is among the poorer Indian states. Its domestically produced income is quite low—lower indeed in per capita terms than even the Indian average—even if this is somewhat deceptive, for the greatest expansion of Kerala's earnings derives from citizens who work outside the state. Kerala's ability to finance adequately both educational expansion and health coverage depends on both activities being labor-intensive; they can be made available even in a low-income economy when there is the political will to use them. Despite its economic backwardness, an issue which Kerala will undoubtedly have to address before long (perhaps by reducing bureaucratic controls over agriculture and industry, which have stagnated), its level of social development has been remarkable, and that has turned out to be crucial in reducing fertility rates. Kerala's fertility rate of 1.8 not only compares well with China's 2.0, but also with the US's and Sweden's 2.1, Canada's 1.9, and Britain's and France's 1.8.

The population problem is serious, certainly, but neither because of "the proportion between the natural increase of population and food" nor because of some impending apocalypse. There are reasons for worry about the long-term effects of population growth on the environment; and there are strong reasons for concern about the adverse effects of high birth rates on the quality of life, especially of women. With greater opportunities for education (especially female education), reduction of mortality rates (especially of children), improvement in economic security (especially in old age), and greater participation of women in employment and in political action, fast reductions in birth rates can be expected to result through the decisions and actions of those whose lives depend on them.

This is happening right now in many parts of the world, and the result has been a considerable slowing

down of world population growth. The best way of dealing with the population problem is to help to spread these processes elsewhere. In contrast, the emergency mentality based on false beliefs in imminent cataclysms leads to breathless responses that are deeply counterproductive, preventing the development of rational and sustainable family planning. Coercive policies of forced birth control involve terrible social sacrifices, and there is little evidence that they are more effective in reducing birth rates than serious programs of collaborative action.

## Notes

<sup>[1]</sup> This paper draws on my lecture arranged by the "Eminent Citizens Committee for Cairo '94" at the United Nations in New York on April 18, 1994, and also on research supported by the National Science Foundation.

<sup>[2]</sup> Paul Ehrlich, *The Population Bomb* (Ballantine, 1968). More recently Paul Ehrlich and Anne H. Ehrlich have written *The Population Explosion* (Simon and Schuster, 1990).

<sup>[3]</sup> Garrett Hardin, *Living within Limits* (Oxford University Press, 1993).

<sup>[4]</sup> Thomas Robert Malthus, *Essay on the Principle of Population As It Affects the Future Improvement of Society with Remarks on the Speculation of Mr. Godwin, M. Condorcet, and Other Writers* (London: J. Johnson, 1798), Chapter 8; in the Penguin classics edition, *An Essay on the Principle of Population* (1982), p. 123.

<sup>[5]</sup> See Simon Kuznets, *Modern Economic Growth* (Yale University Press, 1966).

<sup>[6]</sup> Note by the Secretary-General of the United Nations to the Preparatory Committee for the International Conference on Population and Development, Third Session, A/Conf.171/PC/5, February 18, 1994, p. 30.

<sup>[7]</sup> Philip Morris Hauser's estimates are presented in the National Academy of Sciences publication *Rapid Population Growth: Consequences and Policy Implications*, Vol. 1 (Johns Hopkins University Press, 1971). See also Simon Kuznets, *Modern Economic Growth*, Chapter 2.

<sup>[8]</sup> For an important collection of papers on these and related issues see Sir Francis Graham-Smith, F.R.S., editor, *Population—The Complex Reality: A Report of the Population Summit of the World's Scientific Academies*, issued by the Royal Society and published in the US by North American Press, Golden, Colorado. See also D. Gale Johnson and Ronald D. Lee, editors, *Population Growth and Economic Development, Issues and Evidence* (University of Wisconsin Press, 1987).

<sup>[9]</sup> Garrett Hardin, *Living within Limits*, p. 274.

<sup>[10]</sup> Paul Kennedy, who has discussed important problems in the distinctly "social" aspects of population growth, has pointed out that this debate "has, in one form or another, been with us since then," and "it is even more pertinent today than when Malthus composed his *Essay*," in *Preparing for the Twenty-first Century* (Random House, 1993), pp. 5-6.

<sup>[11]</sup> On the importance of "enlightenment" traditions in Condorcet's thinking, see Emma Rothschild, "Condorcet and the Conflict of Values," forthcoming in *The Historical Journal*.

<sup>[12]</sup> Marie Jean Antoine Nicholas de Caritat Marquis de Condorcet's *Esquisse d'un Tableau Historique des Progrès de l'Esprit Humain*, Xe Epoque (1795). English translation by June Barraclough, *Sketch for*

*a Historical Picture of the Progress of the Human Mind*, with an introduction by Stuart Hampshire (Weidenfeld and Nicolson, 1955), pp. 187-192.

<sup>[13]</sup> T.R. Malthus, *A Summary View of the Principle of Population* (London: John Murray, 1830); in the Penguin classics edition (1982), p. 243; italics added.

<sup>[14]</sup> On practical policies, including criticism of poverty relief and charitable hospitals, advocated for Britain by Malthus and his followers, see William St. Clair, *The Godwins and the Shelleys: A Biography of a Family* (Norton, 1989).

<sup>[15]</sup> Malthus, *Essay on the Principle of Population*, Chapter 17; in the Penguin classics edition, *An Essay on the Principle of Population*, pp. 198-199. Malthus showed some signs of weakening in this belief as he grew older.

<sup>[16]</sup> Gerard Piel, *Only One World: Our Own to Make and to Keep* (Freeman, 1992).

<sup>[17]</sup> For discussions of these empirical connections, see R.A. Easterlin, editor, *Population and Economic Change in Developing Countries* (University of Chicago Press, 1980); T.P. Schultz, *Economics of Population* (Addison-Wesley, 1981); J.C. Caldwell, *Theory of Fertility Decline* (Academic Press, 1982); E. King and M.A. Hill, editors, *Women's Education in Developing Countries* (Johns Hopkins University Press, 1992); Nancy Birdsall, "Economic Approaches to Population Growth" in *The Handbook of Development Economics*, edited by H.B. Chenery and T.N. Srinivasan (Amsterdam: North Holland, 1988); Robert Cassen, et. al., *Population and Development: Old Debates, New Conclusions* (New Brunswick: Overseas Development Council/Transaction Publishers, 1994).

<sup>[18]</sup> World Bank, *World Development Report 1994* (Oxford University Press, 1994), Table 25, pp. 210-211.

<sup>[19]</sup> World Bank, *World Development Report 1994*, Table 2.

<sup>[20]</sup> These issues are discussed in my joint book with Jean Drèze, *Hunger and Public Action* (Oxford University Press, 1989), and the three volumes edited by us, *The Political Economy of Hunger* (Oxford University Press, 1990), and also in my paper "Economic Regress: Concepts and Features," *Proceedings of the World Bank Annual Conference on Development Economics 1993* (World Bank, 1994).

<sup>[21]</sup> This is confirmed by, among other statistics, the food production figures regularly presented by the United Nations Food and Agricultural Organization (see the *FAO Quarterly Bulletin of Statistics*, and also the *FAO Monthly Bulletins*).

<sup>[22]</sup> For a more detailed picture and references to data sources, see my "Population and Reasoned Agency: Food, Fertility and Economic Development," in *Population, Economic Development, and the Environment*, edited by Kerstin Lindahl-Kiessling and Hans Landberg (Oxford University Press, 1994); see also the other contributions in this volume. The data presented here have been slightly updated from later publications of the FAO.

<sup>[23]</sup> On this see my *Poverty and Famines* (Oxford University Press, 1981).

<sup>[24]</sup> See UNCTAD VIII, Analytical Report by the UNCTAD Secretariat to the Conference (United Nations, 1992), Table V-S, p. 235. The period covered is between 1979-1981 to 1988-1990. These figures and related ones are discussed in greater detail in my paper "Population and Reasoned Agency," cited earlier.

[25] World Bank, *Price Prospects for Major Primary Commodities*, Vol. II (World Bank, March 1993), Annex Tables 6, 12, and 18.

[26] Condorcet, *Esquisse d'un Tableau Historique des Progrès de l'Esprit Humain*; in the 1968 reprint, p. 187.

[27] The importance of "local" environmental issues is stressed and particularly explored by Partha Dasgupta in *An Inquiry into Well-Being and Destitution* (Oxford University Press, 1993).

[28] In a forthcoming monograph by Jean Drèze and myself tentatively called "India: Economic Development and Social Opportunities," we discuss the importance of women's political agency in rectifying some of the more serious lapses in Indian economic and social performance—not just pertaining to the deprivation of women themselves.

[29] See Jean Drèze and Amartya Sen, *Hunger and Public Action* (Oxford University Press, 1989), which also investigates the remarkable success of some poor countries in providing widespread educational and health services.

[30] World Bank, *World Development Report 1994*, p. 212; and *Sample Registration System: Fertility and Mortality Indicators 1991* (New Delhi: Ministry of Home Affairs, 1993).

[31] See the discussions, and the literature cited, in Gita Sen, Adrienne German, and Lincoln Chen, editors, *Population Policies Reconsidered: Health, Empowerment, and Rights* (Harvard Center for Population and Development Studies/International Women's Health Coalition, 1994).

[32] On the actual processes involved, see T.N. Krishnan, "Demographic Transition in Kerala: Facts and Factors," in *Economic and Political Weekly*, Vol. 11 (1976), and P.N. Mari Bhat and S. I. Rajan, "Demographic Transition in Kerala Revisited," in *Economic and Political Weekly*, Vol. 25 (1990).

[33] See, for example, Robin Jeffrey, "Culture and Governments: How Women Made Kerala Literate," in *Pacific Affairs*, Vol. 60 (1987).

[34] On this see my "More Than 100 Million Women Are Missing," *New York Review of Books*, December 20, 1990; Ansley J. Coale, "Excess Female Mortality and the Balance of the Sexes: An Estimate of the Number of 'Missing Females'," *Population and Development Review*, No. 17 (1991); Amartya Sen, "Missing Women," *British Medical Journal*, No. 304 (March 1992); Stephan Klasen, "'Missing Women' Reconsidered," *World Development*, forthcoming.

[35] Tamil Nadu has benefited from an active and efficient voluntary program of family planning, but these efforts have been helped by favorable social conditions as well, such as a high literacy rate (the second highest among the sixteen major states), a high rate of female participation in work outside the home (the third highest), a relatively low infant mortality rate (the third lowest), and a traditionally higher age of marriage. See also T.V. Antony, "The Family Planning Programme—Lessons from Tamil Nadu's Experience," *Indian Journal of Social Science*, Volume 5 (1992).

[36] World Bank and Population Reference Bureau, *Success in a Challenging Environment: Fertility Decline in Bangladesh* (World Bank, 1993).