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WHAT IS THE NATURE OF THE POPULATION PROBLEM AND HOW CAN IT BE SOLVED?[†]

Amartya SEN

Few problems excite as much panic in the world today as the explosion of the world population. Catastrophic visions of impending doom have been increasingly aired in public discussions, often portraying the population problem as something of a “bomb” that is about to “go off”. The analogy with a bomb is not at all helpful. It is exceedingly alarmist—making us search for “emergency solutions” without adequate critical examination. It also has the effect of viewing the people involved as impulsive and unreformable perpetrators of great social harm who must be kept in discipline, rather than as reasonable allies who share a common predicament and whose willing cooperation is essential for a solution of the population problem. I would argue that the population problem can be eradicated through a cooperative approach that calls for social justice and individual responsibility.

It would, of course, be foolish to be smug about the growth of the world population. The problem needs recognition. Even though the dire predictions of many alarmists of the past (most notably those of Thomas Robert Malthus) have proved to be quite false, and living standards have risen fast along with population growth over the last two centuries, the rate of increase of the world population has accelerated remarkably 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, followed by 33 years to the third, 14 years to the fourth, and 13 years to the fifth billion, with an estimate of the United Nations that the sixth billion will materialize in only 11 years. The challenge of the population problem must be taken seriously. Let us consider the potential sources of danger one by one.

INTERCOUNTRY BALANCE AND IMMIGRATION PRESSURE

Some of the panic in the Western press about population growth in Asia and Africa relates to the fear in Europe and North America of being “engulfed”. There is a common “gut reaction” in the West of panic and apprehension on being told how many black, brown and yellow babies are being born every second. There is

[†] Keio University (Mita Campus) was host to the 7th World Congress of the Econometric Society held from August 23 to 29, 1995. To commemorate the event, on the eve of the Congress, August 22, the Keio Economic Society and the Department of Economics of Keio University jointly organized a series of lecture meetings with the common theme, “The Future of the World Economy.” This is a summary record of one of the lectures given on that occasion.

much discussion on how the “balance” of the world population is changing. Indeed, the share of the world population that is in Asia and Africa has increased from 63.7 per cent in 1950 to 71.2 per cent by 1990, and this ratio is expected to go up, according to the United Nations estimates, to 78.5 per cent by 2050.

Aside from this question of “balance” between regions and races, there is also the commonly expressed idea that population growth is a good predictor of immigration pressure in the West. The argument is that destitution caused by fast population increase in the “third world” leads to severe pressures to emigrate to the developed countries of Europe and North America (and to Japan as well). However, there is very little empirical evidence that the tendency to immigrate relate to population pressure at all. This is not surprising. The immigrants from the South rarely come from the poorest parts of the society: they are usually more “job worthy” than the average population of the “third world” countries from where they emigrate. Quite aside from the economic difficulty that destitutes face in going to the North, the immigration procedures in Northern countries make it extremely hard for the penniless to get into West Europe or North America. The typical immigrant is *pulled in* by work prospects in the North (varying from automobile manufacturing in Germany to farm labouring in California), rather than being *thrown out* by economic destitution or population pressure. In fact, support for such movements of people has tended to come from their potential employers in the North. The historical accentuation of South-to-North migration relates closely to the dynamism of international capitalism and to vastly easier communication and mobility than in the past. This is an important social question, but it must not be confounded with the view of Southerners being “hurled into” the North through population pressure.

What about the racial composition of the world population? It is not obvious how much attention should be paid to worries of this kind, since they are so divisive and parochial. But there is another—historical—issue here as well. The third world is experiencing right now a demographic shift—complete with 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 per cent, and it stayed around there even in 1750. With the industrial revolution, the share of Asia and Africa fell from that figure, because of the rapid rise of the population in Europe and North America, and even now the Asian cum African share (71.2%) is considerably below what its share was in 1650 or 1750. If the United Nations’ prediction that this share will rise to 78.5 per cent 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 particularly “sacred” about population distributions in the past, but the sense of a growing “imbalance” in the world (based *only* on recent trends) ignores history, and takes the earlier expansion of the European population as “natural”, whereas the contemporary expansion of the Asian and African popu-

lations is taken to be “disturbing” the natural balance.

FOOD SUPPLY AND WORLD POPULATION

A second issue to examine is that of food supply vis-a-vis population size. Malthus himself was worried mainly about population growth outrunning the capacity to produce food. Is that happening now? Not really. Even though there are some year-to-year fluctuations in the expansion of food output, the trend of food output per head has been firmly *upward*. Not only over the last couple of centuries (since Malthus’s time), but also over the recent decades, the trend of food output has been significantly and consistently outpacing the expansion of world population.

Furthermore, the largest increases in the production of food—not just in the aggregate but also in per-capita terms—are actually taking place in the third world, particularly in regions that are having the largest absolute increases in the world population—to wit, Asia. The many millions that are added to the populations of India and China may be constantly quoted by those who want to raise alarm, but it is precisely in these countries that the quickest growths in the food output *per head* are to be observed. For example, between 1979–81 and 1991–93, when food production per head in the world moved up by 3 per cent, it went up by only 2 per cent in Europe and went *down* by nearly 5 per cent in North America (including the USA), while per-capita food production jumped up by 22 per cent in Asia, including by 23 per cent in India and 39 per cent in China.

There is, however, one regional exception, to wit, Africa. In the same period, food production per capita went *down* (by 6 per cent) in Africa, with declining figures for many countries in sub-Saharan Africa. While sub-Saharan Africa is not where the largest absolute expansion in the total population is taking place (it contributed only 15 per cent to the increase in the world population in the last decade, out of a total 90 per cent that occurred in the less developed countries as a whole), its problems need serious attention. The falling ratio of food production to population in Africa is a cause for concern mainly because it is an *indicator* of Africa’s negative economic growth in general and of the intensification of poverty in particular. The complex economic and political causes underlying the troubles of Africa include, among other things, the subversion of democracy and the rise of combative military regimes with frequent international and civil wars. It is not possible to have economic progress, nor indeed much expansion of family planning, in such troubled times. Africa’s political decline was encouraged by the cold war, with that unlucky continent providing “client states”—from Somalia and Ethiopia to Angola and Zaire—for the superpowers (from the 1960s onwards). What Africa needs now is the promotion of peace, the rebuilding of democracy, reconstruction of market institutions, stimulation of the economy, expansion of education and health care, and along with these—an expansion of facilities for family planning. The population issue is just one part of more general problems

in Africa.

Returning to the issue of the balance between world population and world food supply, it is also very important to recognize that the rising trend of world food output per capita has been achieved *despite* a sharply falling relative price of food in the world economy. The World Bank's estimates of prices of particular food crops (in terms of rate of exchange with manufacturing goods) show massive declines: between 1953–55 and 1983–85 rice prices fell by 42 per cent, wheat by 57 per cent, sorghum by 39 per cent, and corn or maize, by 37 per cent. A United Nations report has indicated a 38 per cent fall in average food prices (in terms of industrial goods) from the early 1980s. 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, given the falling relative price of food. Neo-Malthusians often point to the fact that food production is growing "only a little faster than population", and this they are inclined to interpret as evidence that we are reaching the "limits" of what we can produce. But this is surely the wrong conclusion to draw in view of the falling relative prices of food and the difficulty in selling food, since it ignores the effects of economic incentives that govern production. Given the persistent decline of food prices, there are good grounds to suggest that food output is being held back by problems of selling food profitably in the market. This is not to deny the possibility that if the world population continues to grow very fast for a long time, food supply *could* become a problem at some future date, but only that this is not likely for a long time to come, and we have to see whether population growth could not be expected to become much slower well before this problem could potentially emerge.

THE GLOBAL ENVIRONMENT

What about the environmental consequences of world population growth? The size of the population does have an impact on the environment that affects the kind of life we can actually lead. Many poorer countries have been spoiling their local environment badly, and that needs to be corrected with more environment-conscious economic and social policies.

In dealing with the impact of the world population on global environmental problems (such as "global warming" or "ozone layer depletion"), 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 consumption level of people in the third world countries is often quite low, and consequently the impact of population growth in these countries is not, in relative terms, so damaging to the global environment. One additional American typically has a bigger impact on the ozone layer, global warmth, and other constituents of the earth's environment, than dozens of Indians or Zimbabweans put together.

However, that still leaves us with the problem of the *long run*. With economic development, the Indians and Zimbabweans will consume a great deal more and

pose, in the future, a similar threat to the Earth's environment as people in the rich countries do today. This long run concern brings us back again to questions about the ways of reducing fertility rates and population growth in the third world.

WOMEN'S WELL-BEING AND EMPOWERMENT

Perhaps the biggest adverse effect of a high rate of growth of population is its consequences for the lives and freedom of young women. The assessment and scrutiny of desired life styles must take note of the serious adverse effects of high birth rates on the lives women can lead in the modern world, and in particular the drudgery of a life of continuous child bearing and rearing that is routinely forced on many Asian and African women.

There is, as a result, a close connection between women's *well-being* and women's *agency* in bringing about a change in the fertility pattern. It is, thus, not surprising that reductions in birth rates have been often associated with enhancement of women's status and voice, related to educational expansion and political activism of women. In fact, there is much evidence across the world of a rapid reduction of fertility with increased empowerment of women, related to such factors as female literacy, women's employment and outside earning, women's legal rights, and a reduction of child mortality rates. This has been well observed in inter-country studies.

The same influences also emerge from contrasts within India, which is a large country with much heterogeneity in fertility rates. Whereas some northern states have total fertility rates around 5.0 or more, the southern state of Tamil Nadu has a fertility of 2.2 (close to the figures for USA and Sweden) and another southern state Kerala has a rate of 1.8, which is well below replacement (and much the same as Britain and France). The most extensive study of these influences is provided by an important statistical contribution by Jean Drèze, Anne-Catherine Guio and Mamta Murthi, dealing with data from the different districts of India. They found that among all the variables included in their extensive empirical analysis, the *only* ones that have a statistically significant effect on fertility are female literacy and female labour-force participation, and these effects are very strong. The importance of women's agency emerges forcefully from this analysis.

Thus, there is a clear link between the most severely adverse aspect of over-frequent child-bearing (namely the diminution of the well-being and freedom of young women) and the impact of women's emancipation and empowerment in reducing fertility rates. Indeed, it is precisely because of this connection that policies of coercion—often advocated for third world countries (and widely used in contemporary China)—do not seem to be more effective in reducing fertility rates than the favourable conditions created by social reform involving women. In particular, China's reduction of fertility through such policies as "one child family" has not been faster than that in those parts of India (in particular Kerala and Tamil Nadu) which have attempted to integrate family planning with social

reform including women's education and economic independence and health care improvement. When China introduced the policy of "one child family" and related coercive measures, China's total fertility rate was 2.8, whereas those of Tamil Nadu and Kerala were respectively 3.5 and 3.0. By 1991, China's fertility had certainly fallen sharply—from 2.8 to 2.0 in fact—but the fertility decline in Tamil Nadu and Kerala had been still faster, going down from 3.5 to 2.2 in the former and from 3.0 to 1.8 in Kerala. Kerala, which has the highest literacy rate in India and the longest life expectancy (quite a bit higher than China too, for women in particular), also has had a history of matrilineal property inheritance for a substantial part of the community, which has given its women more legal powers.

In fact, even in China's own achievement of low fertility rates, her social policies of expanding female education and female job opportunities, and the effects of her good health care coverage, clearly did play an important part. While China gets too much credit for what it has done through coercive means, it does not receive anything like the credit it deserves in helping social change through expansion of basic education and employment opportunities and in promoting inclusive health care. These social influences towards the empowerment of women would have predicted a fall in fertility rate in China even without coercion. But it is possible that coercion too had a further—possibly subsidiary—role in this reduction. Indeed, the negative effect of coercion in raising infant mortality rate (particularly of the female child) is clearly observable in Chinese statistics. A family that is *forced* to have lower fertility (rather than being *persuaded* that this is what the family—and the potential mothers in particular—want) retaliates with neglect of infants and children (especially—given a pro-male bias—of girls). Whereas Kerala's infant mortality rates were much the same as China's in 1979, by 1991 infant mortality rates were very much higher in China than in Kerala for males (28 in China and 17 in Kerala), and even more so for females (33 in China and 16 in Kerala).

SOLUTION THROUGH JUSTICE AND RESPONSIBILITY

The "solution" of the population problem that seems to be emerging involves a close connection between public policies that enhance social justice (particularly justice for women who are deprived of education, health care and job opportunities) and individual responsibility of the family (particularly of the potential mothers). It is the close linkage between young women's well-being and their agency that provides the best hope for a rapid reduction in fertility rates, given the enabling conditions of female literacy, women's job opportunities, and reduced anticipation of high child mortality.

While this process operates through the connection between women's well-being and agency, the resulting reduction of fertility rates will also help to reduce the long-run threat of population pressure on global warming and other aspects of the natural environment. Since these linkages are often overlooked in policy

debates, it is important for us to emphasize them. Even at the level of international awareness and cooperation, the temptation to advocate a coercive solution is thoroughly counterproductive. It is not needed; it does not achieve very much; and it has many terrible side effects. In fact, it is not particularly helpful even to provide international assistance on the *condition* that it is used *only* for family planning programmes, which is sometimes done at the cost of health care and schooling. The absence of family planning facilities is one deprivation among others, and the population problem must be seen in more integrated terms. The most effective forms of cooperation are those that contribute to the eradication of social injustice through more schooling, health care, and gender equality. The solution of the population problem calls for *more* responsibility and freedom—*not less*.

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