

## Thematic Section

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# Population and Reasoned Agency: Population growth and food security

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### Editor's introduction

In the following abstracts from a longer article 'Population and Reasoned Agency: food, fertility and economic development' delivered at the 'Population-Environment-Development Seminars' at the Royal Swedish Academy of Sciences and the Beijer Institute, Amartya Sen<sup>1</sup> examines how close we are to the limits of population size and if food security is the main problem. He asks if 'two centuries beyond Condorcet and Malthus, whether food production may not – now – have become ... the right focus for worry about population growth in the world in which we now live.' He also asks the question at the heart of the current population debate about the use of compulsion in restricting families – 'can a rational social policy be voluntary?' His essay addresses the problem of food production in two aspects: the general issue of balancing the expansion of food production to population growth for the world as a whole and the particular problems of specific countries and regions in balancing food supply and population size. In the following abstracts he debates two related issues of particular interest to readers of *Development* when considering the issue of 'economic justice and changing population needs' – the linkages between population pressure, production possibilities and the environment and the influences which operate on the rate of expansion of population itself.

### Output, production possibility and economic incentives

Taking the world as a whole, there is little evidence of food production falling behind population size. But the concentration on these crude figures is not really as enlightening as they might first appear. Food is produced by peasants, farmers and others not to demonstrate how much can be grown, but to make economic use of them – to eat, to sell, to exchange. We cannot directly infer how much could have been produced merely by

looking at what was actually produced. To be sure, we do know that what was actually produced certainly was possible, but we do not know how much more could have been produced if there were economic incentives for expanding output.

This economic distinction, though extremely elementary, is quite important in assessing the global food problem. The optimists may tend to overestimate the basis of their hopefulness by simple extrapolation – that is by just assuming that food production can be pushed up faster than population growth, as has happened in the past, without critically examining the actual possibility of expanding production that exists today. The pessimists, on the other hand, may note that food production is growing only a little faster than population, and this they may tend to interpret as evidence that we are reaching the limits of what we can produce. Such a presumption would not be right, since it ignores the effects of economic incentives that govern production: food will not be produced beyond the effective demand for it.

How do we think about what can be produced? One of the economic issues to bear in mind is the fact that the production of a particular commodity (say, A) can be expanded, even with a given resource base, by reducing the production of another (say, B). Typically, such a process of ‘transformation’ would be accompanied by commodity A becoming more and more expensive *vis-à-vis* commodity B, as resources are shifted into making A by being withdrawn from the production of B, and increasingly more and more resources are needed per unit of production of A *vis-à-vis* that of B.<sup>2</sup> Over time, we may watch two processes simultaneously: (1) expansion of the productive base due to technical progress and resource accumulation (this can expand the capacity to produce both A and B), and (2) expansion of the output of A at the cost of B (by shifting resources to ‘transform’ the production of B into that A). The observation of actual production baskets over time has to be combined with interpretation of what is going on.

It is hard to arrive at definitive interpretations of the production changes, taking full note of all the complexities of technological and economic relations. It is, nevertheless, of interest to inquire whether there are some *prima facie* signs that indi-

cate that expansion of food production is being made to keep up with (and exceed) the growth of population by a strained process of ‘transformation’, and by absorbing more and more resources into making units of food compared with units of other commodities. A plausible sign of that would be a general increase in the relative price of food compared with other products. Do we observe such a tendency?

There is, in fact, very little evidence in that direction. If we look at the long haul, the output of non-food commodities has grown even faster – indeed very much faster – than food, across the world. There is also little to indicate that food has become much more expensive in terms of other commodities, which would give tell-tale signs of needing more and more resources per unit compared with other commodity production. For example, if we look at the price of wheat, corrected for general inflation (at constant US dollars), in the US markets, between 1800 (around the time of Malthus’s first *Essay on Population*) and the mid-1980s, we see sharp fluctuations, but no general upward trend – in fact quite the contrary. Wheat is cheaper today, in terms of other commodities, than it was in Malthus’s time.

Has this picture been changing in recent years, and are there some signs of strained ‘transformation’ now? The information here is too diverse and too hard to interpret to arrive at any kind of a clear picture, but it is interesting to note that the world of international economic relations has been full of complaints of falling food prices *vis-à-vis* other commodities. For example, the United Nations Report by the Secretariat to the UNCTAD VIII Conference in 1992 records a 38 percent fall in the ‘real prices’ of ‘basic foods’ over the last decade.<sup>3</sup> This picture is in line with another which gives the ‘real prices’ of particular food items exported by developing countries, stretching over the last three decades (between 1960 and 1988), adjusted by the index of prices of manufactured goods. These indicators, as calculated by the UNCTAD, can be supplemented by the World Bank’s estimates of real prices of particular food crops between 1953 and 1985, adjusted by the ‘manufacturing unit value index’. There seems to have been a considerable fall in the relative price of staple food *vis-à-vis* manufactured goods, rather than the opposite.

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Questions can certainly be raised about the reliability as well as the interpretation of these price data. The international prices may diverge from prices and costs that obtain in particular economies, and they are also distorted by various controls that affect international markets (though these interventions tend to go typically in the direction of keeping food prices up, rather than pushing them down).

Also, the 'real prices' here compare prices of food with those of manufactured goods only. But it is easily checked that the prices of services have risen sharply over time compared with manufactured goods, so that their inclusion would make the fall in the 'real price' of food greater rather than less.

There remain many uncertainties in interpreting these data (the limitation of market prices as indicators of true social costs is one of them), but on the basis of these – and similar data from other sources – it would be hard to conclude that there is any presumption that food output is being kept up with population growth and economic development through strenuous 'transformation' exercises, making it increasingly more costly to produce food compared with other goods and services.<sup>4</sup> If anything, the evidence points in the opposite direction.

### Incentives, entitlements and food consumption

In considering the future demand for food, we have, however, to take note not only of the increase in population, but also of rising food consumption per head. While population growth is slowing down, there will continue to be some expansion of food consumption per head with growing prosperity of those who are forced now, by their poor economic circumstances, to remain somewhat hungry.

The neo-Malthusian concern with population size tends to distract attention from the importance of demand related to economic means and their consequences.<sup>5</sup>

The effectiveness of many of these policies has already been demonstrated in particular countries in sub-Saharan Africa.

The importance of preventing civil wars and military conflicts, which have had profoundly negative effects on many economies in this region, is also hard to over-emphasize. (Sen, 1994; Dréze and Sen, 1989) The opportunities of raising productivities in general and those in food production in particular are indeed most extensive in sub-Saharan Africa at this time. Without dismissing the issue of fast population growth, the production side of the problem requires appropriate emphasis, if only because even with zero population growth, the progress of the sub-Saharan economy would be very slow, unless its record of economic stagnation is reversed.

### Approaches to problems and remedies

When we broaden the analysis of the population problem from focusing narrowly on food, we have to consider the effects of demographic factors on the economy and society in general. Arguments have been presented suggesting that an increase in the labour force, even in the circumstances of poor countries, may contribute substantially to the expansion of production.<sup>6</sup> There is also a considerable literature on the effects of additional members of a family in raising family earnings (including through work performed by children). If these incomes are taken to be related to their productive contributions, then some *prima facie* evidence would be found in the direction of pre-suming a positive impact of extra people on national production and social benefits.

These lines of reasoning are, however, made difficult by the divergence between private and social benefits, and also between private and social costs, for example due to the presence of externalities and public goods. There is also the issue of dichotomy between the interests of different members of the family. For example, the burden of child bearing and rearing may fall mainly on women, whereas male household heads may be more influential in family decisions in many traditional societies (and may quite possibly give more weight to the additional outside incomes generated by child labour). (Dasgupta, 1993a,b) The accounting of the suffering and social costs

associated with child labour is another serious concern.

It has also been suggested that far from contributing much to national production and benefits, an expansion of population can have the effect of reducing the aggregate opportunities in the community and may lead to a negative impact on aggregate production and on well-being. Overcrowding can lead to overuse and diversion of land and other local resources enjoyed in common, and thus produce what Partha Dasgupta calls 'the erosion of the local environmental resource-base'. (Dasgupta, 1993a,b) Rapid population growth can also yield social problems with considerable negative effects on the well-being of the members of the community (for example, the impact of frequent pregnancies may be quite detrimental to women's health, aside from reducing their effective freedom to do various things which they may have reason to value).

If the population problem is not seen in terms of the Malthusian fear of population outrunning food supply, but in the light of the general impact of rapid population expansion on the well-being and freedom of women and men in the society,

then there are indeed real problems to consider and investigate, which may not be as easily disposed off as the highly publicized anxiety about global food shortage. There seems little merit in taking the narrowly food-oriented Malthusian route.

When we consider the question of alleviating the problems the possible remedies may take different forms, such as fiscal policies to reduce the gap between social and private benefits, the creation of useful social institutions (varying from markets for some externalities and credit organizations to lend to the financially precarious), the political empowerment of those who have most to suffer from frequent births (including women), and so on. We need to be willing to look for solutions to difficult social problems (rather than accepting the Malthusian-like inevitability of misery). We need to be confident that we do have a procedure of rational assessment of the effectiveness of alternative social and economic policies which can ultimately rely upon voluntary, reasoned decisions (rather than compulsion) in bringing about suitable revisions of behaviour patterns.

## Notes

- 1 Amartya Sen is Lamont University Professor at Harvard University, Cambridge, Massachusetts. This article is an abridged version of a longer paper to be published by Oxford University Press (forthcoming). Printed with permission of Oxford University Press.
- 2 There are many technical issues in these relationships, connected with technological and economic circumstances; I am not going into them here. On the plausibility and limits of characterizing the problem this way, see Meade, 1955; Johansen, 1972; Dasgupta and Heal, 1972.
- 3 See UNCTAD VIII. The period covered is between 1979–81 to 1988–90. The 'real prices' are 'based on price in current US \$ divided by the United Nations index of export unit values of manufactured goods'. (p. 235).
- 4 The inclusion of externalities, including environmental effects, will tend to change the relative prices of food and other goods. But the environmental worries apply at least as much to industrial production as to the increase in agricultural activities.
- 5 Interestingly enough, while Malthus had tended to concentrate rather wholeheartedly on the rhetoric of 'the proportion between the natural increase of population and food' in his *Essay on Population*, in his other works he was very acutely concerned with the role of effective demand and incentives in the operation of the economy. In fact, Keynes's great praise of Malthus (citing Malthus's letter to David Ricardo, dated July 7, 1821, and the 'Preface' to his principles of Political Economy) was related specifically to Malthus's analysis of 'effective demand' (see Keynes, 1936: 362–3). That side of Malthusian economic analysis is also well illustrated by his deeply illuminating essay, *An Investigation of the Cause of the Present*.
- 6 For a strongly argued and influential contribution in this direction, see Julian Simon (1981).

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