

what is the optimum world population?

How many people should the world contain? Ignore practicalities of how to get there from here without wars, starvation, pandemics, and other catastrophes. And assume that it is the good of the whole world rather than the good of human people alone that matters. So we are to value animal life, and diversity, and the general flourishing of the ecosystem. What do humans add to this? Like any animals they bring pleasure, getting what they individually want, and their variety, to the mix, also possibly their unusual capacity to share the pain of unrelated others of their own and even other species. And they subtract in terms of misery, frustration, and the harm they do.

Another crucial assumption. I am asking about the optimal human population of the earth for an advanced technological society which might not be completely egalitarian but where the mass of people do not live from hand to mouth. That puts two downward pressures on the numbers. First, to reduce the ecological burden the absolute number of people has to be controlled; the burden is not going to be relieved if there is a large population, even when many of them are condemned to poverty. Present and future technology can in principle deliver food and energy to large numbers of people with fewer demands on resources than present technology and social organization provide. But I see few signs this promise being realized, and anyway fewer is lighter in this regard. So in a vague way fewer people living non-deprived modern lives means fewer people overall. Second, more subtly, fewer people are needed to achieve what is valuable about humanity when a few fulfilled lives does not mean many unfulfilled or miserable ones. Let me elaborate on this second point.

Of course I cannot give a definitive uncontroversial formula for what is valuable about human life, beyond what is valuable about the lives of dolphins or elephants or parrots. Making large and small-scale societies, from

families to civilizations, is surely part of it, and so surely is human creativity, in scientific and artistic form and also in the many ingenious ways in which people run their lives and their relationships to others. And, especially relevant in this context, the way that humans can care for and manage the planet as a whole. At the moment we are ruining it but in principle we could be its guardians in ways that perhaps no other existing species could be. So we are asking how many people it needs to constitute a culturally live and socially responsible civilization or collection of civilizations.

Some comparisons in time and space are helpful. The human population of the earth was vastly less not very long ago. (See the graph below, lifted from Wikipedia.) Much less populous cultures of the past have produced wonderful literature and music and engaged in adventurous innovative science. The population of Athens during the classical period is estimated as between one hundred and fifty and three hundred and fifty thousand. Thucydides says six hundred and ten thousand. Few of these were free males, so the number taking part in what we think of as classical Athenian civilization was much smaller. Another estimate gives the number of non-foreign free males in Athens in the fourth century BC as 60 thousand. There is a large range of estimates of the population of Greek speakers in the coast and islands of the Aegean Sea during the 5th century BCE, from 800,000 to over 3,000,000. But still this is a remarkably small population to have supported such a creative culture. Continuing in this vein, Florence in the thirteenth century had 30,000 people, and all of central/northern Italy in 1300 and 1600 had less than 8 million (fewer between these dates). All these figures are historians' estimates, but Ming China did a census in 1393 which revealed a population of some 60 million. Remember that most of these were peasants leading miserable lives (of course with joys and satisfactions and companionship when one was not starving to death.) Compare this live culture to the present 7.6 billion people on earth: 127 times as many.

But perhaps with all these additional people we can achieve even more. A

comparison of large and small countries leads to doubt. Iceland has a tiny population of 351,000 people, the size of a small city in many countries. But it is disproportionately represented in music, literature, and science (and football). Finland has 5 million people, and Sweden has 10 million, and both accomplish as much as countries many times their size. (All three of these are Nordic. Is this significant?) While Canada has just over a tenth of the population of the United States (37 million to 326 million) it is much more than a tenth as significant in the arts and the sciences and possibly a greater force for peace and progress in the world. (And quasi-Nordic: same pattern?)

These historical and contemporary figures suggest a hypothesis of "cultural ecology". In a large country the top ten positions in any creative activity are filled by people of talent whose skill and accomplishments inhibit challengers for these roles, taking away motivation for others to push themselves hard enough to qualify. (It is like barriers to entry in a business.) But it is the same in a small country, if it thinks of itself as a separate cultural domain. The motive for rising to the top and the motive for being content with the merely good rather than excellent are the same. So the niches get filled in both places and the forces for excellence are not so different. (There is a danger here in a unified homogeneous world culture. If I am right there could be a population of 10 billion with no more creative accomplishment than a flourishing country of say 100 million.) The very weakest form of the doubt leads to the suspicion - I would say that the evidence for it is extremely strong - that innovation is not a linear function of population. Twice as many does not mean twice as much.

The conclusion is that we could safely reduce the target population to very much less than the present population of the earth, indeed to the population of a large country, without threatening the advantages of a sufficiently large and varied civilization. 400 million could do all the physics, compose all the music, write all the novels, and paint all the paintings that the whole world does now. *And* take care of nature and one another. Indeed, nature and

welfare would be more easily cared for with fewer people. For we might then be few enough that we contributed more than we took. It seems to me plausible that a yet lower figure would do, something like 100 million; but it is hard to be precise with anything this diffuse. Let me just say vastly fewer.

The argument might seem to ignore the intrinsic value of human life, every person being unique and their existence a value in itself not substituted by anyone else's. (I am far from sure that there is any such value, but these are controversial matters, so grant the assumption for the sake of argument, though it is not clear what it means, that alone that it is true.) This is associated with the "mere addition paradox" due to Derek Parfit.¹ If each life adds even a tiny amount of value then a well-functioning world with a limited population would be worth less than a world with that same population plus many people living at just above the level where life ceases to be worthwhile. But that world itself would have less total value, and indeed less average value, than a world where a much greater number of people were living at just over the break-even point. So, the reasoning goes, the well-functioning world is less valuable than a world with an enormous population where everybody is just minimally above misery.

Many smell sophistry here, implausible assumptions or inappropriate reasoning. Others think that it demonstrates an inescapable if unwelcome conclusion. (A few think that it demonstrates an inescapable and welcome conclusion.) But I do not think we have to decide between these. For in fact worlds with enormous numbers of humans in them living even barely acceptable lives impose an indefensible burden on the lives of other animals and the well being of the planet. Human life is valuable, but not *that* valuable. The only way I can see of making the conclusion of the mere addition paradox plausible is to discount the value of everything except human life. I do not think that people who take these issues seriously are likely to assume this.

1 Parfit, Derek (1984). *Reasons and Persons*. New York: Oxford University Press. Chapter 19.

I said I would ignore issues about how to get from here to there. But I shall end by saying that I think the target is attainable. Not tomorrow, certainly, but within a few centuries. My optimism is based on the fact that when people have more comfortable, secure, and interesting lives they tend to have fewer children. Some, increasingly many at the moment, choose to have no children at all. It is important for this that security and satisfaction be widely distributed, so that people do not have children as insurance for their old age or as substitutes for the accomplishments and interests that are not available to them. A roughly even distribution, not so much of absolute wealth as of absorbing life-content, is thus essential. So the campaign against inequality is not to be waged simply for human political reasons but also for the benefit of all inhabitants of the planet.

