

Reply to Stan Becker, “Has the World Really Survived the Population Bomb? (Commentary on “How the World Survived the Population Bomb: Lessons from 50 Years of Extraordinary Demographic History”)”

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My 2011 PAA presidential address (Lam 2011), the focus of Stan Becker’s comment, presented an optimistic perspective on how the world fared during the last 50 years of demographic history. An online commenter of a related op-ed column I wrote for the *Los Angeles Times* called me “Professor Happy Talk.” In my opinion, this optimistic view is entirely warranted. Although the last 50 years saw what was by far the fastest population growth the world has ever seen, it seems quite certain that this period also saw the largest improvements in the human condition of any 50 years in history. This remarkable achievement should surely make us optimistic about our ability to address the many complex challenges we will face in the next 50 years.

Although I am optimistic about the future of humanity, I am not as optimistic as Julian Simon’s statement that “every trend in material welfare has been improving—and promises to do so, indefinitely” (Simon 1996). That position ignores serious setbacks, such as a decrease in life expectancy in some African countries resulting from HIV/AIDS as well as many kinds of environmental degradation that are effectively losses in wealth. In my address, I discussed some areas in which the record of the last 50 years is less positive, including disappointing progress in reducing poverty in Africa and environmental problems, such as global warming. I concede, however, that these topics received only limited discussion. I deliberately focused on the positive because I believe that the positive trends dominate the negative and because the positive trends are often overlooked. I’m pleased that Becker has continued the discussion and given more attention to some of these important areas in which we face real challenges.

Becker notes areas in which the world does not look as rosy as the world I described in my address. Among these are depletion of aquifers, depletion of oil, global warming,

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and species loss. One possible response to these points is to counter with a list of additional indicators that suggest the world has been improving. Becker could respond with more indicators that have showed deterioration. We could continue this “half empty or half full” debate through many issues of *Demography*. The reality, of course, is that some things are getting better and some things are getting worse. I think the good far outweighs the bad. Rather than adding more items to my “half full” list, I will focus on some “big picture” questions raised in Becker’s comment.

Humans Versus Nonhumans

Becker argues that the “world” I referred to was only the world of humans, neglecting nonhuman species and the natural environment more generally. For the most part, I concede this point. My perspective was on how humans were affected by an unprecedented explosion in the number of humans. That requires understanding why the explosion took place in the first place and why the explosion has, for the most part, come to an end. Whether humans are more worthy of consideration than other species is a philosophical and ethical issue on which I have no particular expertise. It seems worth pondering the following, however: suppose someone predicted in 1960 that the world would add 4 billion people in the next 50 years (by far the fastest increase in human history), that after 50 years the human population would be considerably better off than it was in 1960, and that the main focus of debate would be on the consequences of the human population explosion for nonhumans. Surely that would have been considered a wildly optimistic scenario in 1960, given concerns at the time about mass starvation and impoverishment. Yet this is, for the most part, exactly where we find ourselves. On a wide range of measures—food consumption, income, infant mortality, life expectancy, poverty, education, and many others—the average human in 2013 is much better off than the average human in 1960, in spite of the fact that there are 4 billion more of us today. Although it is important to consider what damage may have been done to the environment and to nonhumans in order to accomplish this, it is nonetheless an amazing accomplishment that is worthy of recognition.

This is not necessarily to concede Becker’s argument that nonhumans and the environment have deteriorated in the last 50 years. In this dimension, I agree with him on some points and disagree on others. There are important lessons to be drawn from distinguishing the areas in which there has been deterioration and the areas in which there has not.

Nonsustainable Use of Resources

One of Becker’s key points is that feeding an extra 4 billion people has required extensive use of nonrenewable resources, such as fossil fuels and phosphorus, along with massive use of water that has depleted aquifers. I share his concern about aquifers, although I am less concerned about nonrenewable resources. Aquifers are in trouble for the same reason that we have air pollution and overfishing of the oceans: a lack of property rights makes it difficult for market forces to encourage careful use of resources. We do occasionally make progress on managing aquifers, and their management is arguably more amenable to policy solutions than other externality problems, such as global warming. The

consequences of aquifer depletion are felt very close to home by those affected, and there are potentially solutions involving creative resource management. The Giordano (2009) paper Becker cites, which describes many challenges affecting groundwater around the world, also discusses some of the successful efforts to manage aquifers. The successes are admittedly few, however, and I agree with Becker that aquifer depletion is an important challenge that will require serious attention if we are going to feed another 3 billion people and continue to reduce poverty.

Although I agree with Becker's concern about water, I am less concerned that we will run out of oil or any other resource that has clear property rights and active markets. Predictions that we will soon experience "peak oil" are much disputed, with many energy economists pointing to enormous potential in unconventional petroleum reserves, even if conventional reserves decline (Smith 2009). Some of these unconventional sources raise new environmental concerns of their own, and these should not be minimized. But it seems unlikely that we will simply run out of oil, given the potential supply response if prices rise. Indeed, the more important challenge is reducing oil consumption even as we have large quantities available. Market forces are likely to keep us in petroleum products for a long time. Market forces in and of themselves will not lead to reduced carbon emissions, however, and that is arguably the more urgent challenge.

Becker also mentions deforestation and species loss. Both of these are important issues. Much deforestation (a major contributor to greenhouse emissions and to species loss) is illegal, and its magnitude depends on the aggressiveness of local and national officials. Recent work by Burgess et al. (2012) shows that illegal logging in Indonesia increases when there are more competing political jurisdictions in a given area. This suggests that there is some hope for decreasing illegal logging by creating an institutional environment in which local communities have increased incentives to monitor local forests. The point is that it will take institutional change, not simply the end of population growth, to solve the problem.

Is there a strong link between the population growth of the last 50 years and problems such as deforestation, species loss, depletion of aquifers, and global warming? To some, it may seem obvious that these problems would be less severe if world population were still 3 billion instead of 7 billion. As suggested by the National Research Council's (1986) report on population and development, however, as long as the underlying causes of these problems exist—incomplete property rights combined with nonexistent or poorly enforced regulation—the problems will persist. Stopping population growth is unlikely to end aquifer depletion or deforestation, as long as the fundamental externality issues have not been solved.

Valuing Future Generations

Becker concludes by arguing that children born in 2050 will look back and wish that we had done more to preserve the world that was bequeathed to us. That may be true, but I suspect they will also care about what kind of living standards we have created for them in a broader sense. How do we feel about the world that was passed on to us by previous generations? Most of us place great value on efforts at resource conservation, such as national parks, wildlife preservation, and environmental success stories like the 1987 Montreal Protocol that reduced chlorofluorocarbon emissions. But we also place

great value on technological advances, such as electricity, automobiles, airplanes, and computers. Suppose we put James Watt's 1776 steam engine to the test of sustainable development suggested by Becker: "development that meets the needs of the present without compromising the ability of future generations to meet their own needs." Would it have passed the test? Heavy use of the steam engine required the use of large amounts of nonrenewable coal (which the engines helped extract), with no plan for a substitute for the rapidly depleted coal. Would we future generations have been better off if Watt had decided to work on something else because the steam engine was not a sustainable technology? Would electricity have passed the test of a sustainable technology? Would we be better off if it had never been invented?

The question is, What practical guidance do we get from having a goal of sustainable development? Does it tell us whether the computer was a good invention? Does it help an individual consumer decide whether to buy a computer or a television or a refrigerator? It's also important to recognize that most people do think a lot about future generations in their everyday decision-making. Giving weight to future generations is not something that requires a fundamental change of human thinking. Caring about the welfare of our children and our grandchildren is as hard-wired in our brains as the desire to have children and grandchildren in the first place. This does not mean that we necessarily give as much weight to them as they might wish we did. But parents and grandparents everywhere devote enormous time and resources to improving the lives of their descendants. One of the important reasons that the average human is better off today than 50 years ago is that that parents worked hard to give their children a better life than they had—for example, by investing in their health and education; by migrating to cities and countries with better economic opportunities; and by building farms, business, and institutions that would make life better for the next generation.

I agree with Becker that the world (human and nonhuman) faces many challenges in the coming decades. My claim that the world has survived the population bomb is not a claim that it was easy or that we did not create new challenges along the way. My claim is simply that humans did something quite remarkable: adding 4 billion people to the world while also improving most measures of human well-being. This required hard work, ingenuity, and good institutions. We must now feed and house another 3 billion people by the end of this century, while addressing the kinds of environmental challenges Becker points out. It will take more hard work and ingenuity, but the record of the last 50 years gives us good reason to be optimistic that we can do it.

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