Qeios

Peer Review

Review of: "Human Population Collapse Ahead: A Comparison of Demographic and System Dynamics Approaches"

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This simple, straightforward paper performs a useful service in comparing standard cohort-component projections of the global population with “system dynamics approaches." The latter place the human population in the economic and ecological frameworks that actually sustain that population, and assume interactions and feedbacks between them, and the possibility of over-stressing and degrading the system. As the author notes, the standard projections assume a smooth demographic transition to low fertility/low mortality societies, followed by an end to population growth, followed by a relatively slow and manageable population decline. But this comforting picture, regularly offered by the U.N. DESA and others, may lead to complacency regarding Earth's ability to indefinitely support multiple billions of human beings living in industrialized societies.

In fact, we may be heading for collapse, globally or within particular societies. The evidence for this is strong, not just in large-scale “systems dynamics” studies, but perhaps more ominously in the many studies describing global ecosystem services in decline or threatening radical state-change. The author draws the moral that a more precautionary approach "suggests preparing for more rapid population change than demographic consensus projections indicate, including:

- Accelerated investment in renewable energy and agricultural resilience
- Health system strengthening for climate and pollution impacts
- Economic restructuring for potential rapid degrowth scenarios"

I agree with the author that “current policy frameworks assuming gradual demographic transitions may be dangerously complacent.” But I'm not sure his policy prescriptions go far enough. Rather than “preparing for more rapid population change,” societies in ecological overshoot should choose to reduce

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their numbers. This is key to creating genuinely sustainable economies. All indications are that 8 billion people are not and will never be sustainable on planet Earth. Best to face this directly and honestly.

Neither of the demographic projection approaches described in this paper gives sufficient weight to the role of choice in societies' demographic futures. But in fact, policy choices are now the primary determining factor in whether societies shrink or grow.

The U.S., Sweden, Germany, and most developed nations can double their populations over the rest of this century by increasing immigration numbers; Canada and Australia can do so simply by continuing current immigration levels. Or they can cut their immigration numbers and stabilize or decrease their populations.

Most sub-Saharan nations are on track to triple their numbers by the end of the century. Serious efforts by their governments to provide universal contraception and educate their citizens on the benefits of small families could avoid most of this growth. Or they can continue on the demographic path they are on and hope for the best.

These are political choices, among the most important that societies can make. And it's worth remembering that it is individual societies, not scientists or the world as a whole, that make them. The author concludes his paper with this warning: "Whether the current global civilization can avoid such trajectories depends critically on recognizing the potential for non-linear dynamics that standard demographic models, by their structural design, cannot capture." It might be more realistic to say: Whether individual societies can avoid collapse depends on their leaders recognizing how deeply humanity has entered global ecological overshoot, and whether their citizens can scale back their numbers and economic demands and scale up their resilience and social solidarity.

Declarations

Potential competing interests: No potential competing interests to declare.