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Very long range global population scenarios to 2300 and the implications of sustained low fertility

BY **Stuart Basten**, **Wolfgang Lutz**, **Sergei Scherbov**

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Abstract

Background: Depending on whether the global level of fertility is assumed to converge to the current European TFR (~1.5) or that of Southeast Asia or Central America (~2.5), global population will either decline to 2.3-2.9 billion by 2200 or increase to 33-37 billion, if mortality continues to decline. Furthermore, sizeable human populations exist where the voluntarily chosen ideal family size is heavily concentrated around one child per woman with TFRs as low as 0.6-0.8. However, the UN population projections to 2300 use a much narrower band of possible future TFRs.

Objective: If the two-child norm is not necessarily the end-point of transition, what would be the consequences of the currently reported low fertility rates being sustained and becoming widespread?

Methods: We present new projections for 13 IPCC world regions with scenarios calculated on the basis of regular cohort-component projections by age and sex in single-year time steps up to 2300, each based upon a much broader set of fertility assumptions than currently employed. We create three mortality scenarios based upon maximum life expectancies of 90, 100, and 110, as well as a series of 'special' scenarios.

Results: Even under conditions of further substantial increases in life expectancy, world population size would decline significantly if the world in the longer run followed the current examples of Europe and East Asia.

Conclusions: In contrast to Malthusian disaster scenarios, our exercise illustrates the distinct possibility of significant population shrinking associated with increasing life expectancy and human well-being.

Author's Affiliation

Stuart Basten - University of Oxford, United Kingdom [[EMAIL](#)]

Wolfgang Lutz - International Institute for Applied Systems Analysis, Austria [[EMAIL](#)]

Sergei Scherbov - International Institute for Applied Systems Analysis, Austria [[EMAIL](#)]

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