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A new controversy has erupted over estimates of how many births China's one-child policy avoided.

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## Analysis of China's one-child policy sparks uproar

By [Mara Hvistendahl](#) | Oct. 18, 2017, 12:25 PM

A new study of China's one-child policy is roiling demography, sparking calls for the field's leading journal to withdraw the paper. The controversy has ignited a debate over scholarly values in a discipline that some say often prioritizes reducing population growth above all else.

Chinese officials have long claimed that the one-child policy—in place from 1980 to 2016—averted some 400 million births, which they say aided global environmental efforts. Scholars, in turn, have contested that number as flawed. But in a paper published in the journal *Demography* in August, Daniel Goodkind—an analyst at the U.S. Census Bureau in Suitland, Maryland, who published as an independent researcher—argues that the figure may, in fact, have merit.

By extrapolating from countries that experienced more moderate fertility decline, Goodkind contends that birth-planning policies implemented after 1970 avoided adding between 360 million and 520 million people to China's population. Because the momentum from that decline will continue into later generations, he suggests, the total avoided population could approach 1 billion by 2060. Some scholars worry such estimates could be used to justify, ex post facto, the policy's existence, and feel that Goodkind's criticisms of previous work fall outside the bounds of scholarly decorum.

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"For the top journal to publish that paper was quite something," says Nancy Riley, a demographer at Bowdoin College in Brunswick, Maine. Goodkind's central estimate, she adds, relies on "building a house of cards" through a series of assumptions about data inputs.

Demography was born decades ago from a fixation with population growth, particularly in the developing world, where birth rates were highest. When China adopted the one-child policy, some scholars were dazzled by the potential for rapid fertility decline. By the mid-1980s, however, demographers had begun to decry forced abortions and other abuses under the policy, and to raise concerns that it would lead to an aging population, sex-selective abortion, and distorted social relations. Beginning in 2000, an international group of researchers [appealed to the Chinese government](#) to relax birth-planning regulations. At the heart of their argument was empirical research debunking the claim of 400 million averted births.

That figure originated in a 1990s analysis by China's National Population and Family Planning Commission, the agency that implemented the one-child policy. To estimate what fertility might have been without the policy, commission researchers simply extended the trajectory of fertility decline between 1950 and 1970 to the following decades, arriving at a crude birth rate of 28.4 per 1000 people by 1998. They compared this with China's actual birth rate that year, 15.6 per 1000 people, and projected how many more babies would have been born.

Three demographers—Wang Feng of the University of California, Irvine; Cai Yong of the University of North Carolina in Chapel Hill; and Gu Baochang of Renmin University of China in Beijing—set out to challenge this figure. In a 2013 paper in *Population and Development Review*, they found that in 16 developing countries that started with similar birth rates as China in 1970, the crude birth rate fell to an average of 22 per 1000 by 1998, far below the commission's estimate. They did not use this method to provide a better estimate of how many births the one-child policy avoided because of the risk of inaccuracy and misinterpretation, they say.

In his paper, Goodkind takes that step. He compares China's actual population with that implied by the pace of fertility decline in those 16 countries, along with Vietnam and India. In the absence of birth regulations, he concludes, the average Chinese woman since 1990 would have had two children. He also accuses colleagues of bias, writing that scholars in the field "link[ed] arms to dispute the demographic impact of the one-child policy." In a response submitted to *Demography*, Wang, Cai, and co-authors say Goodkind's

projections are a “numbers game” reliant on a “secret ingredient”—the assumption that if the one-child policy had not been implemented, fertility in China would have suddenly jumped.

Goodkind told *Science* that his projections assume a jump from 2.8 births per woman in 1979 to 4.0 in 1980, to account for China lowering the marriage age and parents making up for lost childbearing opportunities from previous years, among other factors. (In the decade before the one-child policy was adopted, China had introduced other population control measures, including later marriage age and longer spacing between births.) Wang and Cai retort that this figure doesn't appear in Goodkind's paper, and that his projections only add up with a leap to 4.6 children per woman, a fertility rate they call “absurd.” During the U.S. baby boom era, by comparison, fertility climbed less than 0.5 births per woman—from 2.4 to 2.8—from 1945 to 1946.

Others say that Goodkind's paper does not adequately parse the effects of China's dramatic socioeconomic changes in the past 40 years. Zhongwei Zhao, a demographer at the Australian National University in Canberra, points out that the ages at which women first marry and give birth have steadily increased since the mid-1990s, independent of any government directives. “You cannot statistically or empirically disentangle” the effects of population policies and social change, adds Susan Greenhalgh, an anthropologist at Harvard University who also submitted a comment to *Demography*. “They were totally entwined, with each one impacting the other.”

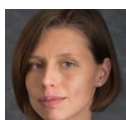
Any long-term projections involving China are highly uncertain, says Hania Zlotnik, former director of the United Nations Population Division in New York City, who notes that the sheer size of China's population can compound the effect of shaky statistics for the birth rate and other indicators. She says Goodkind's paper could appeal to non-China specialists interested in “us[ing] it politically” to demonstrate the impact of quickly reducing the birth rate. That is precisely what Wang and Cai fear. In a 17 August email to Matthews, Wang blasted Goodkind's paper as “morally irresponsible.” He and Cai called on *Demography* to withdraw the paper or provide the peer reviewers' comments. In an email to *Science* in 2016, Goodkind wrote that an earlier paper had encountered “ferocious resistance” during peer review. Stephen Matthews, a co-editor of *Demography* and demographer at Pennsylvania State University in State College, noted that Goodkind's latest paper “went through the standard double-blind peer review process” and underwent revisions before publication.

At issue is “how scientists as human beings should ask questions,” Wang says. Goodkind says that demographers routinely attempt to estimate the impact of famines and other events on populations, and that the one-child policy should be no different: “Well-grounded estimates are what they are, and they go where they go.”

Others say that the debate over values sparked by the paper is long overdue. Population research “has political implications,” Riley notes. “Demography has to start owning up to it.”

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**Mara Hvistendahl**

Mara is a contributing correspondent with *Science*.

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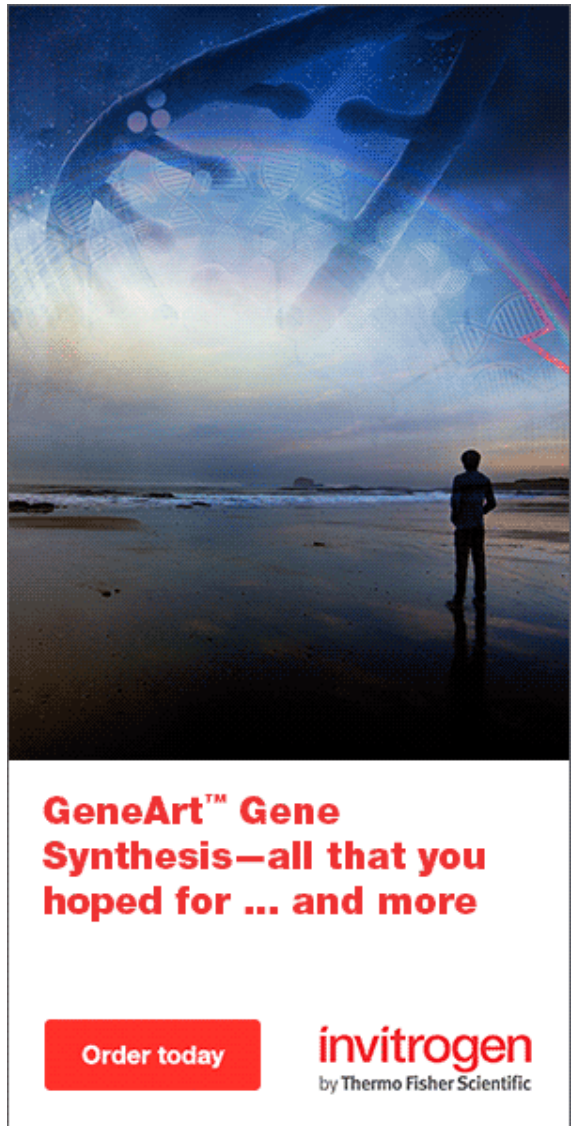
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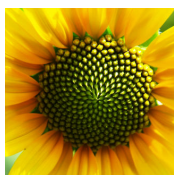
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