

*The Population Surprise*

*The old assumptions about world population trends need to be rethought. One thing is clear, in the next century the world is in for some rapid downsizing*

by Max Singer

FIFTY years from now the world's population will be declining, with no end in sight. Unless people's values change greatly, several centuries from now there could be fewer people living in the entire world than live in the United States today. The big surprise of the past twenty years is that in not one country did fertility stop falling when it reached the replacement rate -- 2.1 children per woman. In Italy, for example, the rate has fallen to 1.2. In Western Europe as a whole and in Japan it is down to 1.5. The evidence now indicates that within fifty years or so world population will peak at about eight billion before starting a fairly rapid decline.

Because in the past two centuries world population has increased from one billion to nearly six billion, many people still fear that it will keep "exploding" until there are too many people for the earth to support. But that is like fearing that your baby will grow to 1,000 pounds because its weight doubles three times in its first seven years. World population was growing by two percent a year in the 1960s; the rate is now down to one percent a year, and if the patterns of the past century don't change radically, it will head into negative numbers. This view is coming to be widely accepted among population experts, even as the public continues to focus on the threat of uncontrolled population growth.

As long ago as September of 1974 *Scientific American* published a special issue on population that described what demographers had begun calling the "demographic transition" from traditional high rates of birth and death to the low ones of modern society. The experts believed that birth and death rates would be more or less equal in the future, as they had been in the past, keeping total population stable after a level of 10-12 billion people was reached during the transition.

Developments over the past twenty years show that the experts were right in thinking that population won't keep going up forever. They were wrong in thinking that after it stops going up, it will stay level. The experts' assumption that population would stabilize because birth rates would stop falling once they matched the new low death rates has not been borne out by experience. Evidence from more than fifty countries demonstrates what should be unsurprising: in a modern society the death rate doesn't determine the birth rate. If in the long run birth rates worldwide do not conveniently match death rates, then population must either rise or fall, depending on whether birth or death rates are higher. Which can we expect?

The rapid increase in population during the past two centuries has been the result of lower death rates, which have produced an increase in worldwide life expectancy from about thirty to about sixty-two. (Since the maximum—if we do not change fundamental

human physiology—is about eighty-five, the world has already gone three fifths as far as it can in increasing life expectancy.) For a while the result was a young population with more mothers in each generation, and fewer deaths than births. But even during this population explosion the average number of children born to each woman—the fertility rate—has been falling in modernizing societies. The prediction that world population will soon begin to decline is based on almost universal human behavior. In the United States fertility has been falling for 200 years (except for the blip of the Baby Boom), but partly because of immigration it has stayed only slightly below replacement level for twenty-five years.

Obviously, if for many generations the birth rate averages fewer than 2.1 children per woman, population must eventually stop growing. Recently the [United Nations Population Division](#) estimated that 44 percent of the world's people live in countries where the [fertility rate](#) has already fallen below the replacement rate, and fertility is falling fast almost everywhere else. In Sweden and Italy fertility has been below replacement level for so long that the population has become old enough to have more deaths than births. Declines in fertility will eventually increase the average age in the world, and will cause a decline in world population forty to fifty years from now.

Because in a modern society the death rate and the fertility rate are largely independent of each other, world population need not be stable. World population can be stable only if fertility rates around the world average out to 2.1 children per woman. But why should they average 2.1, rather than 2.4, or 1.8, or some other number? If there is nothing to keep each country exactly at 2.1, then there is nothing to ensure that the overall average will be exactly 2.1.

The point is that the number of children born depends on families' choices about how many children they want to raise. And when a family is deciding whether to have another child, it is usually thinking about things other than the national or the world population. Who would know or care if world population were to drop from, say, 5.85 billion to 5.81 billion? Population change is too slow and remote for people to feel in their lives—even if the total population were to double or halve in only a century (as a mere 0.7 percent increase or decrease each year would do). Whether world population is increasing or decreasing doesn't necessarily affect the decisions that determine whether it will increase or decrease in the future. As the systems people would say, there is no feedback loop.

**W**HAT does affect fertility is modernity. In almost every country where people have moved from traditional ways of life to modern ones, they are choosing to [have too few children to replace themselves](#). This is true in Western and in Eastern countries, in Catholic and in secular societies. And it is true in the richest parts of the richest countries. The only exceptions seem to be some small religious communities. We can't be sure what will happen in Muslim countries, because few of them have become modern yet, but so far it looks as if their fertility rates will respond to modernity as others' have.

Nobody can say whether world population will ever dwindle to very low numbers; that depends on what values people hold in the future. After the approaching peak, as long as people continue to prefer saving effort and money by having fewer children, population

will continue to decline. (This does not imply that the decision to have fewer children is selfish; it may, for example, be motivated by a desire to do more for each child.)

Some people may have values significantly different from those of the rest of the world, and therefore different fertility rates. If such people live in a particular country or population group, their values can produce marked changes in the size of that country or group, even as world population changes only slowly. For example, the U.S. population, because of immigration and a fertility rate that is only slightly below replacement level, is likely to grow from 4.5 percent of the world today to 10 percent of a smaller world over the next two or three centuries. Much bigger changes in share are possible for smaller groups if they can maintain their difference from the average for a long period of time. (To illustrate: Korea's population could grow from one percent of the world to 10 percent in a single lifetime if it were to increase by two percent a year while the rest of the world population declined by one percent a year.)

World population won't stop declining until human values change. But human values may well change—values, not biological imperatives, are the unfathomable variable in population predictions. It is quite possible that in a century or two or three, when just about the whole world is at least as modern as Western Europe is today, people will start to value children more highly than they do now in modern societies. If they do, and fertility rates start to climb, fertility is no more likely to stop climbing at an average rate of 2.1 children per woman than it was to stop falling at 2.1 on the way down.

In only the past twenty years or so world fertility has dropped by 1.5 births per woman. Such a degree of change, were it to occur again, would be enough to turn a long-term increase in world population of one percent a year into a long-term decrease of one percent a year. Presumably fertility could someday increase just as quickly as it has declined in recent decades, although such a rapid change will be less likely once the world has completed the transition to modernity. If fertility rises only to 2.8, just 33 percent over the replacement rate, world population will eventually grow by one percent a year again—doubling in seventy years and multiplying by twenty in only three centuries.

The decline in fertility that began in some countries, including the United States, in the past century is taking a long time to reduce world population because when it started, fertility was very much higher than replacement level. In addition, because a preference for fewer children is associated with modern societies, in which high living standards make time valuable and children financially unproductive and expensive to care for and educate, the trend toward lower fertility couldn't spread throughout the world until economic development had spread. But once the whole world has become modern, with fertility everywhere in the neighborhood of replacement level, new social values might spread worldwide in a few decades. Fashions in families might keep changing, so that world fertility bounced above and below replacement rate. If each bounce took only a few decades or generations, world population would stay within a reasonably narrow range—although probably with a long-term trend in one direction or the other.

The values that influence decisions about having children seem, however, to change slowly and to be very widespread. If the average fertility rate were to take a long time to

move from well below to well above replacement rate and back again, trends in world population could go a long way before they reversed themselves. The result would be big swings in world population—perhaps down to one or two billion and then up to 20 or 40 billion.

Whether population swings are short and narrow or long and wide, the average level of world population after several cycles will probably have either an upward or a downward trend overall. Just as averaging across the globe need not result in exactly 2.1 children per woman, averaging across the centuries need not result in zero growth rather than a slowly increasing or slowly decreasing world population. But the long-term trend is less important than the effects of the peaks and troughs. The troughs could be so low that human beings become scarcer than they were in ancient times. The peaks might cause harm from some kinds of shortages.

One implication is that not even very large losses from disease or war can affect the world population in the long run nearly as much as changes in human values do. What we have learned from the dramatic changes of the past few centuries is that regardless of the size of the world population at any time, people's personal decisions about how many children they want can make the world population go anywhere—to zero or to 100 billion or more.

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