

Overpopulation Does Not Threaten the Environment or Humanity

Ronald Bailey, "The Law of Increasing Returns," *The National Interest*, Spring 2000.

10 *Predictions that a growing **population** will inevitably lead to famine and environmental destruction are inaccurate, claims Ronald Bailey in the following viewpoint. In addition to tangible goods, he argues, humanity also produces ideas. The more people there are, the more ideas, he points out. These ideas engender new ways to produce more resources using less land and energy. According to Bailey, the best way to stave off environmental degradation and famine, then, is not to restrict **population growth** but to promote economic development, which leads to higher education levels and, in turn, more ideas. Bailey is an adjunct scholar with the Cato Institute, a libertarian think tank.*

20 Two hundred years after Thomas Robert Malthus published *An Essay on the Principle of **Population***, demographers, ecologists, economists, biologists and policymakers still debate his theory of **population**. Leading foundations spend scores of millions of dollars on **population** programs, while the United Nations holds international conferences on the topic and even has a specialized agency, the United Nations **Population** Fund, devoted to the issue. [In 1999] the Fund portentously declared that the world's **population** reached six billion on October 12 [1999]. Every year, hundreds of weighty studies and books pour from the universities and think tanks discussing what is to be done.

30 **The Theory of Thomas Malthus**

Malthus advanced two propositions that he regarded as completely self-evident. First, that "food is necessary for the existence of man", and second, that "the passion between the sexes is necessary and will remain nearly in its present state." Based on these propositions, Malthus famously concluded that "the power of **population** is indefinitely greater than the power in the earth to produce subsistence for man. **Population**, when unchecked, increases in a geometrical ratio. Subsistence increases only in an arithmetical ratio. A slight acquaintance with numbers will show the immensity of the first power in comparison with the second." Malthus ... further asserted that "**population** does invariably increase where there are the means of subsistence." Malthus' dismal summary of the situation in which humanity finds itself is that some portion of mankind must forever be starving to death; and, further, efforts to aid the starving will only lead to more misery, as those initially spared from famine bear too many children to feed with existing food supplies. In his first edition of the *Essay*, Malthus argued

60 that there were two "checks" on **population**, "preventive" and "positive." Preventive checks, those that prevent births, include abortion, infanticide and prostitution; positive checks include war, pestilence and famine. In later editions, he added a third check that he called "moral restraint", which includes voluntary celibacy, late marriage and the like. Moral restraint is basically just a milder version of the earlier preventive check. If all else fails to keep human numbers under control, Malthus chillingly concludes, "Famine seems to be the last, the most dreadful resource of nature. The power of **population** is so superior to the power in the earth to produce subsistence for man, that premature death must in some shape or other visit the human race. The vices of mankind are active and able ministers of depopulation. They are the precursors in the great army of destruction, and often finish the dreadful work themselves. But should they fail in this war of extermination, sickly seasons, epidemics, pestilence, and plague, advance in terrific array, and sweep off their thousands and ten thousands. Should success be still incomplete, gigantic inevitable famine stalks in the rear, and with one mighty blow, levels the **population** with the food of the world."

Applying the Principles

Malthus' principle of **population** has proved to be one of the most influential and contested theories in history....
90 Naturalists, biologists and ecologists have since applied Malthusian theory not only to animals and plants, but to humans as well. Undeniably, his principle of **population** has an appealing simplicity, and has proved a fruitful hypothesis for ecology and **population** biology. It undergirds such biological concepts as carrying capacity, which is a measure of the **population** that a given ecosystem can support. The Kaibab

Plateau deer, for example, is a famous case of an animal **population** outstripping its food supply. In the 1920s, the deer **population** expanded dramatically. In the absence of predators, a forage shortage ensued, which in turn led to a dramatic reduction of the deer **population**.

The Population Bomb

10 If the concept of carrying capacity can explain fluctuations in animal **populations**, some intellectuals have reasoned in the second half of the twentieth century, it should apply equally well to human **populations**. As Stanford University entomologist Paul Ehrlich has explained: "To ecologists who study animals, food and **population** often seem like sides of the same coin. If too many animals are devouring it, the food supply declines; too little food, the
20 supply of animals declines.... Homo sapiens is no exception to that rule, and at the moment it seems likely that food will be our limiting resource."
In the late 1960s, Ehrlich was one of many biologists and agronomists who began to issue dire warnings about human "overpopulation", the most famous of which appeared in his book, *The Population Bomb* (1968). "The battle to feed all of humanity is over", Ehrlich wrote. "In the
30 1970s, the world will undergo famines—hundreds of millions of people are going to starve to death in spite of any crash programs embarked on now." Later, in an article for the first Earth Day in 1970, Ehrlich outlined a horrific scenario in which 65 million Americans and 4 billion other people would die of starvation in a "Great Die-Off" between 1980 and 1989. And in 1990 Ehrlich and his wife Anne published *The Population Explosion*, where they
40 once again asserted that, "One thing seems safe to predict: starvation and epidemic disease will raise the death rates over most of the planet." In these gloomy forecasts, Ehrlich was far from alone. In 1967, William and Paul Paddock asserted in their book, *Famine 1975!*, that, "The famines which are now approaching ... are for a surety, inevitable.... In fifteen years the famines will be catastrophic." Today, the Worldwatch Institute, a Washington, DC, environmentalist
50 advocacy group chaired by Lester Brown, still has a solid Malthusian focus. Food is not the only resource said to be in short supply. In 1972 the Club of Rome, a group of politicians, businessmen and senior international bureaucrats, famously commissioned The Limits

to **Growth** report, which concluded: "If the present **growth** trends in world **population**, industrialization, pollution, food production, and resource depletion continue unchanged, the
60 limits to **growth** on this planet will be reached sometime in the next one hundred years. The probable result will be a rather sudden and uncontrollable decline in both **population** and industrial capacity."

This is Malthus writ large: not only will humanity run out of food, but it will also run out of non-renewable resources like minerals and fossil fuels....

70 Theories of Economic Growth

For decades, economists essentially used a two-factor model in which economic **growth** was accounted for by adding more labor and more capital to create more goods. The problem with this model is that over time **growth** must halt when the marginal value of the goods produced equals the cost of the labor and capital used to produce them. This neoclassical model of
80 economic **growth** was elaborated in the 1950s by Nobelist Robert Solow and his colleagues, and was later incorporated into The Limits to **Growth** computer model. Relying on it, MIT [Massachusetts Institute of Technology] researchers predicted eventual collapse as the inevitable result of continued economic and **population growth**.

In the last two decades, economic forecasters, following the lead of economist Paul Romer, have made a conceptual breakthrough that has enabled them to describe more rigorously and accurately—and differently—how economic **growth** occurs and how, with the proper social institutions, it can continue for the foreseeable future. Romer explains this approach, which has come to be known as the New **Growth** Theory: New **growth** theorists now start by dividing the world into two fundamentally different types of
90 productive inputs that can be called "ideas" and "things." Ideas are nonrival goods that could be stored in a bit string. Things are rival goods with mass (or energy). With ideas and things, one can explain how economic **growth** works. Nonrival ideas can be used to rearrange things, for example, when one follows a recipe and transforms noxious olives into tasty and healthful olive oil. Economic **growth** arises from the discovery of new recipes and the transformation of things from low to high value configurations.
110

Decoding the clunky economic terminology, "rival" goods are simply things that cannot be used by two or more persons at once, e.g., cars, drill presses, computers, even human bodies and brains. "Nonrival" goods can be used by any number of people simultaneously, e.g., recipes for bread, blueprints for houses, techniques for growing corn, formulas for pharmaceuticals, scientific principles like the law of gravity, and computer programs.

To understand the potency of ideas, consider that a few decades ago silicon was used primarily to make glass. Today it is a crucial component in microchips and optical fibers. Again, until fairly recently petroleum was known mainly as a nuisance for people engaged in drilling water wells; its use as a cheap lighting replacement for increasingly scarce whale oil only began in the 1890s, and soon after came the internal combustion engine.

We make ourselves better off, then, not by increasing the amount of resources on planet earth—that is, of course, fixed—but by rearranging resources we already have available so that they provide us with more of what we want. This process of improvement has been going on ever since the first members of our species walked the earth. We have moved from heavy earthenware pots to ultrathin plastics and lightweight aluminum cans. To cook our food we have shifted from wood-intensive campfires to clean, efficient natural gas. By using constantly improving recipes, humanity has avoided the Malthusian trap while at the same time making the world safer and more comfortable for an ever larger portion of the world's **population**....

Reframing the Problems

Insights from New **Growth** Theory reframe many environmental problems and suggest some surprising solutions. For example, one of the global environmental problems most commonly attributed to **population** and economic **growth** is the loss of tropical forests. But is **growth** really to blame? According to the Consultative Group on International Agricultural Research, the chief factor that drives deforestation in developing countries is not commercial logging but "poor farmers who have no other option to feeding their families other than slashing and burning a patch of forest.... Slash-and-burn agriculture results in the loss or degradation of some 25 million acres of land per year."

By contrast, the United States today farms less

than half of the land that it did in the 1920s but produces far more food now than it did then. The key, of course, is technology. In fact, available farming technology from developed countries could prevent, and in many cases reverse, the loss of tropical forests and other wildlife habitat around the globe. Unfortunately, institutional barriers, the absence of secure property rights, corrupt governments and a lack of education prevent its widespread diffusion and, hence, environmental restoration.

Pollution Declined with Population Growth

Another environmental problem frequently attributed to **population growth** is pollution. In 1972 The Limits to **Growth** computer model projected that pollution would skyrocket as **population** increased: "Virtually every pollutant that has been measured as a function of time appears to be increasing exponentially." But once again, the new Malthusians had things exactly backward. Since 1972, America's **population** has risen 26 percent and its economy has more than doubled. Western Europe and Japan have experienced similar rates of **growth**. Yet, instead of increasing as predicted, air pollutants have dramatically declined. In fact, a growing body of literature suggests that in most cases there are thresholds of wealth at which the amount of a pollutant begins to decline. Department of Interior analyst Indur Goklany calls these thresholds the "environmental transition." What this means is that when people rise above mere subsistence, they begin demanding amenities such as clean air and water. The first environmental transition is clean drinking water. Goklany has found that the level of fecal coliform bacteria in rivers, which is a good measure of water pollution, peaks when average per capita incomes reach \$1,400 per year. The next transition occurs when particulates like smoke and soot peak at \$3,200. And again, levels of sulfur dioxide peak at about \$3,700.

Targeting Rich Nations

Not surprisingly, committed Malthusians reject such findings. Paul Ehrlich, for instance, stubbornly insists that, "Most people do not recognize that, at least in rich nations, economic **growth** is the *disease*, not the cure." [emphasis in original] To counteract the "disease" of economic **growth**, Maurice King recommends

that people in the "privileged North" should engage in "the deliberate quest of poverty" to curb their "luxurious resource consumption." The favored target of such critiques is the United States, whose citizens are supposedly consuming more than their fair share of the world's goods and causing more than their fair share of its ills. The average American, however, is not only a consumer but a producer of both goods and ideas. Americans and Europeans get more done with relatively less because of their higher levels of education, greater access to productive tools, superior infrastructure, democratic governments and free markets. As a consequence, output per hour of labor in the United States today is ten times what it was a hundred years ago. Thus, the average Westerner creates far more resources, especially knowledge and technology, than she or he consumes. Thus, too, both Western economies and environments are improving simultaneously.

The Benefits of Growth

All that said, if the right social institutions are lacking—democratic governance, secure private property, free markets—it is possible for a nation to fall into the Malthusian trap of rising poverty and increasing environmental degradation. The economies of many countries in Africa are declining, not because of high **population growth** rates or lack of resources, but because they have failed to implement the basic policies for encouraging economic **growth**: namely, widespread education, secure property rights and democratic governance.

Democratic governance and open markets have in fact proved indispensable for the prevention of famine in modern times. Nobel Prize-winning economist Amartya Sen notes that "in the terrible history of famines in the world, there is hardly any case in which a famine has occurred in a country that is independent and democratic, with an uncensored press." Why is this? Because, says Sen, "so long as famines are relatively costless for the government, with no threat to its survival or credibility, effective actions to prevent famines do not have the urgency to make them inescapable imperatives for the government." Along with Romer and other theorists, Sen also argues that general economic **growth**, not just **growth** in food output, is crucial to ending the threat of famine in Africa. He calls "for measures to encourage and enhance technical change, skill formation and productivity—both in agriculture

and in other fields."

Contemporary Malthusians liken humanity to a car travelling one hundred miles per hour on a foggy road. And they warn of dire consequences if we do not slow down. But if we adopt institutions and regulations that slow the pace of innovation, we may find ourselves depleting our current energy supplies before they can be replaced by new ones. New **Growth** Theory suggests that a better analogy might be that human society is an airplane cloaked in clouds flying at a speed of six hundred miles per hour. If the plane slows down, it will lose air speed and may crash before arriving safely at its destination.

We cannot deplete the supply of ideas, designs and recipes. They are immaterial and limitless, and therefore not bound in any meaningful sense by the second law of thermodynamics. Surely no one believes that humanity has already devised all of the methods to conserve, locate and exploit new sources of energy, or that the flow of ideas to improve houses, transportation, communications, medicine and farming has suddenly dried up. Though far too many of our fellow human beings are caught in local versions of the Malthusian trap, we must not mistake the situation of that segment as representing the future of all of humanity and the earth itself; it is, instead, a dwindling remnant of an unhappy past. Misery is not the inevitable lot of humanity, nor is the ruin of the natural world a foregone conclusion.