

Introduction

Property Rights and Sustainable Development

Terry L. Anderson

PIONEERING WORK BY the late Julian Simon brought the simple concept of scarcity to the forefront of environmental debates and focused attention on prices as an objective measure of that scarcity. His debates with environmentalists, policy analysts, and scientists were legendary because he challenged them to provide data to support their conclusions that the plight of human beings and the natural environment in which they live were getting worse.

Bjørn Lomborg rose to Simon's challenge and rejuvenated the debate over whether gloom-and-doom environmental predictions are supported by the evidence. As a statistician, Lomborg took seriously his job of testing the hypotheses that resources are becoming more scarce and the environment is getting worse. As he explains in the introduction to his book, he set out to show that Simon's optimistic conclusions were wrong and the belief that we have not been running out of natural

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resources was wrong, but instead concluded that “children born today—in both the industrialized world and developing countries—will live longer and be healthier, they will get more food, a better education, a higher standard of living, more leisure time, and far more possibilities—without the global environment being destroyed. And that is a beautiful world” (Lomborg 2001, 352).

Julian Simon continually drove home the point that his findings and predictions, now buttressed by Lomborg’s work, result from human ingenuity responding to impending scarcity and developing alternative technologies that mitigate against that scarcity. The key, of course, to mitigating natural resource constraints is to switch on human ingenuity, which allows us to accomplish more with a given amount of resources—in other words, to enjoy economic growth spurred by increased productivity from scarce resources. Since the fall of the Berlin Wall and communism, it has been clear that switching on this ingenuity requires getting the incentives right using the appropriate institutions. As we shall see, these institutions include property rights, the rules of law, and limited government. With these in place, economic growth will follow.

The doomsayers contend that such growth will ultimately deplete natural resources and destroy the environment, but Lomborg finds positive correlations between economic growth and environmental quality. He correlates the World Bank’s environmental sustainability index with gross domestic product per capita across 117 nations, concluding that “higher income in general is correlated with *higher* environmental sustainability” (Lomborg 2001, 32). This idea is known as the “environmental Kuznets curve,” based on Nobel laureate Simon Kuznets’s earlier work on patterns of economic growth. Measuring environmental quality (for example, air quality) on the vertical axis and economic performance (for example, the gross domestic product, or GDP) on the horizontal axis, the relationship displays a J-curve. At lower levels of income, environmental quality can deteriorate as people trade environmental quality for economic growth. But as Bruce Yandle, Maya

Vijayaraghavan, and Madhusudan Bhattarai review in Chapter 3, all studies show that the relationship between environmental quality and economic performance becomes positive at higher levels of income because environmental quality is what economists call an *income-elastic good*. In other words, if income rises 10 percent, the demand for environmental quality rises more than 10 percent. Generally, the (annual) income level at which the turning point occurs is between \$4,000 and \$8,000, with the demand for water quality turning upward at lower levels of income than the income levels at which the demand for endangered species preservation turns upward.

In his pioneering data on carbon emissions, presented in Chapter 6, Robert McCormick estimates that net carbon emissions also appear to fit the J-curve, though the turning point occurs at much higher levels of income. McCormick admits that higher-income countries emit more carbon dioxide and other greenhouse gases into the atmosphere, but points out that wealthy countries also sequester more carbon through landfills, better farming techniques, and less burning of wood products, thus their net emissions of greenhouse gases ultimately decline.

The work of Indur Goklany in Chapter 2 adds further optimism to the potential for economic growth to be a driving force in improving environmental quality. Goklany estimates how the turning point for the J-curve shifts over time, given that new environmentally enhancing technologies are exported from rich countries to poor countries. For example, once a country such as the United States invents filters for water purification, developing countries do not have to “reinvent the wheel”; they can simply acquire the new filtering technology and improve water quality at lower levels of income. In case after case, Goklany shows that we can enjoy a given level of environmental quality measured by such considerations as access to clean water or clean air at lower income levels or we can enjoy higher levels of environmental quality at a given level of income. In short, economic growth allows the developing world to enjoy better living standards sooner than the developing world did in the past.

Missing from much of Simon's and Lomborg's type of data analysis is a good explanation of why improved environmental quality is positively correlated with economic growth and under what conditions will the progress shown by these data continue indefinitely into the future. Put in the popular vernacular of today, are the improvements found by Simon, Lomborg, and others sustainable and, if they are, under what circumstances?

It's the Institutions, Stupid

When the Eastern Bloc countries were freed of the shackles of communism, Milton Friedman said, "Privatize, privatize, privatize" (Friedman 2002, xvii). The assumption was that free-market discipline is all that is required for an economy to grow and develop and for growth to take off. Friedman believed that less developed countries, like those in the Eastern Bloc where both growth and environmental quality were at levels well below those in the developed Western nations, would only need to institute free-market reforms (privatization, fiscal and monetary discipline, open markets) to enjoy prosperity.

After more than a decade of experiments and a growing amount of data on what it takes to stimulate economic growth, however, Friedman has modified his position. Now he says: "It turns out that the rule of law is probably more basic than privatization. Privatization is meaningless if you don't have the rule of law. What does it mean to privatize if you do not have security of property, if you can't use property as you want to?" (Friedman 2002, xviii). Without the rule of law and secure property rights, growth is unlikely to occur. Free market discipline may be necessary for economic growth, but there is growing evidence that markets must be prefaced by the rule of law and secure property rights.

This does not mean that markets are not part of the equation for environmental quality. In fact, as B. Delworth Gardner describes in Chapter 4, criticisms of globalization and of freer international trade are unfounded. Contrary to popular opinion, trade liberalization is crit-

ical to improving human health and well-being and is more likely to improve environmental quality than reduce it.

Seth Norton actually calculates the statistical relationship between various freedom indexes and environmental improvements and reports his results in Chapter 5. His findings are supported by other scholars. For example, Panayotou (1997) tested five indicators of general institutional quality: respect/enforcement of contracts, efficiency of the bureaucracy, efficacy of the rule of law, extent of government corruption, and the risk of appropriation. He found that higher indexes for the institutional variables led to significant environmental quality improvements. In another study, Bhattarai (2000) found that civil and political liberties, the rule of law, the quality and corruption levels of government, and the security of property rights were important in explaining deforestation rates in sixty-six countries across Latin America, Asia, and Africa. Without question, institutions—especially those of property rights and the rule of law—are key to environmental improvements.

Sustainable Institutions

This strong empirical evidence helps to make operational the concept of sustainable development. The popular, though vague, term is used to argue that resource use today should leave future generations at least as well off as current generations. The notion of sustainability received its credibility in the environmental literature with publication of the *Blueprint for a Green Economy* in 1989. According to this book, sustainability means “that real incomes rise, that educational standards increase, that the health of the nation improves, that the general quality of life is advanced” (Pearce, Markandya, and Barbier 1989, 2).

By these standards, Lomborg’s data and the data presented in this volume provide strong evidence that sustainable growth is occurring. Resource stocks are not declining and in many instances are actually growing as we discover new sources for existing resources and new ways of more efficiently using existing stocks. For example, soil resources are

increasing as agricultural yields on rice, corn, and wheat have increased for decades, despite neo-Malthusian predictions to the contrary. Reserves of oil, natural gas, and coal continue to increase. Stocks of aluminum, zinc, iron, and copper, even with maintained use in society, have been steadily increasing for decades as technology develops more conservative production techniques and the price mechanism encourages exploration and new discoveries of underground reserves. As Lomborg concludes in his book, “All indicators seem to suggest that we are not likely to experience any significant scarcity of raw materials in the future” (Lomborg 2001, 148). In other words, the prosperity and improved human well-being that we are enjoying today are not leaving future generations worse off; rather, today’s bounty is leaving them with more capital and larger stocks of natural resources.

This stands in sharp contrast to the undying conclusion of the doomsayers for whom the environment and the plight of human beings will always be getting worse. Paul and Anne Ehrlich (1996, 11) are perhaps the gloomiest.

Humanity is now facing a sort of slow-motion environmental Dunkirk. It remains to be seen whether civilization can avoid the perilous trap it has set for itself. Unlike the troops crowding the beach at Dunkirk, civilization’s fate is in its own hands; no miraculous last-minute rescue is in the cards. . . . [E]ven if humanity manages to extricate itself, it is likely that environmental events will be defining ones for our grandchildren’s generation—and those events could dwarf World War II in magnitude.

Put a little less dramatically, respected Harvard biologist Edward O. Wilson contends that “the wealth of the world, if measured by domestic product and per-capita consumption, is rising. But if calculated from the condition of the biosphere, it is falling” (2003, 42).

In the past, such gloom and doom would have been followed with the traditional litany of environmental problems identified by Lomborg, but now there is a new Litany. The change is partly because of the growing amount of data such as those found by Simon and Lomborg

and partly because of the loss of the bet that Paul Ehrlich made with the late Julian Simon. In that bet, Simon challenged Ehrlich to put his money where his mouth was by picking any five commodities and betting that they would rise in price between 1980 and 1990. Simon's point was that Ehrlich's gloom-and-doom model predicting exponential scarcity predicts rising prices, whereas Simon's human ingenuity model predicts falling prices. The wager allowed Ehrlich to pick five metals (he chose chromium, nickel, tungsten, copper, and tin) and hypothetically purchase \$200 worth of each at the 1980 price for a total of \$1,000. If the real prices went up over the ten-year period, Simon was to pay Ehrlich the difference between the initial and ending value of the hypothetical bundle of commodities; if they went down, Ehrlich was to pay Simon. In fact, all five declined in both nominal and real terms—Ehrlich had to pay Simon more than \$400.¹

In response, Ehrlich and his colleague Stephen Schneider challenged Simon to bet another \$1,000, with a new Litany of gloomy predictions that would come to pass by 2004. That Litany included, to mention a few,²

- rising global temperatures.
- increased carbon dioxide in the atmosphere.
- more sulfur dioxide in the atmosphere in Asia.
- less firewood available per person in developing nations.
- significantly less land area covered by virgin tropical moist forest in 2004 than in 1994.

Simon refused the wager on the grounds that the new Litany did not measure human welfare, which is what Simon always contended was getting better. To the doomsayers, however, measures such as life expectancy, one of Simon's favorites, are "determined by a complex interaction of many factors, including infant and child nutrition, availability and sophistication of medical services, cleanliness of air and water, and

other elements of environmental quality” (Ehrlich and Ehrlich 1996, 103).

Indeed, this is precisely the point of the chapters in this volume, of Lomborg’s book, and of all of Simon’s books: Measuring specific natural resource quantities or qualities tells us little about the plight of humanity because that plight is a complex mix. In the real world, the beach at Dunkirk is not a unidimensional plot of sand; rather, it includes boats, planes, food, and medical supplies, which are in a continual state of change because of human ingenuity, to say nothing of changes in political institutions.

As the authors in this volume show, especially important to the complex world are the property institutions that determine our incentives to husband natural resources and promote economic growth. Simon’s confident, cheery predictions about human welfare emanated from his understanding of this complexity and of the potential for legal institutions to foster market processes that can coordinate the diffuse and complex information regarding resource scarcity and human demands.

Professor Robert Solow is one of the few economists who has tried to provide a conceptual context for considering this problem. Solow argues that sustainability “must amount to an injunction to preserve productive capacity for the indefinite future.” This requires creating and maintaining “a generalized capacity to produce economic well-being” (Solow 1992, 14). He goes on to say that

a sustainable path for the economy is thus not necessarily one that conserves every single thing or any single thing. It is one that replaces whatever it takes from its inherited natural and produced environment, its material and intellectual endowment. What matters is not the particular form that the replacement takes, but only its capacity to produce the things that posterity will enjoy. Those depletions and investment decisions are the proper focus. (15)

In other words, focusing on conservation of finite resources is not necessarily the path to sustainability, for two reasons. First, focusing on finite resources ignores the fact that our knowledge is limited. What we know about the availability of finite resources is limited by our willingness to invest time and money into finding those resources, and that time and money could be doing other things to improve well-being. There is a finite quantity of oil at any point in time because we are not willing to invest more in finding new reserves until scarcity of existing reserves makes it worth finding new inventories. Just as a supermarket only has a finite quantity of flour at a point in time because there is a cost of maintaining the inventory (storage, spoilage, and so on), so, too, is there a cost of finding oil reserves and maintaining ownership of those reserves until they are pumped. Seen in this light, it is not surprising that known oil reserves are continually rising despite the fact that we consume more of them all the time (Lomborg 2001, 124). Second, finite resources can be converted to other types of capital that have a greater ability to foster both intragenerational and intergenerational equity. For example, converting finite reserves of oil into plastic for medical treatment has the potential to provide services for posterity and is certainly the type of “replacement” that Solow had in mind.

With the focus on decisions rather than finite resource stocks, sustainability requires consideration of the institutions that create the incentive structure for human ingenuity. This incentive structure must include secure property rights and the rule of law that encourage development, innovation, conservation, and discovery of new resources. Growth and increasing wealth, through these mechanisms, lead to environmental sustainability by raising the demand for environmental quality and by allowing supply to match demand by making the resources available for achieving environmental quality. Economic growth is not the antithesis of environmental quality: rather, the two go hand in hand—if the incentives are right.

Conclusion

In his book, *The Ultimate Resource 2* (1998), the late Julian Simon built the coffin in which neo-Malthusian ideas should be buried. Simon believed that the ultimate resource is human ingenuity. As he was fond of saying, “With every mouth comes two hands and a mind.” Or in the words of Aaron Wildavsky, “[S]carcity has yet to win a race with creativity” (Chai and Swedlow 1998, 91). Both of these scholars understood that institutions’ getting the incentives right and prices that signal the extent of scarcity are why scarcity always loses the race.

The optimism shown by these two scholars also permeates the chapters in this volume. After reading it, you will have to admit the environment is getting better, not worse. In fact, I was recently asked what environmental problem concerned me the most for future generations. After a few seconds of thought, I answered that there was none. This is not to say that we will not face environmental problems, but I am optimistic that human ingenuity will continue to hammer out the institutions of freedom—namely, property rights and the rule of law—and those institutions will provide the incentive for us to solve whatever environmental problems might arise.

The findings in this volume, which link economic growth and environmental quality through the institutions of free societies, should drive the final nail into the doomsday coffin. Doomsayers will profess—as they have since Thomas Malthus—that exponential growth and consumption will ultimately run up against resource limits. Though the present-day doomsayers’ predictions are no more likely to be borne out than those of past doomsayers, their concerns will help keep us vigilant. The lesson of this book is that our exercise of vigilance should be focused on developing and protecting the institutions of freedom rather than on regulating human use of natural resources through political processes. With a focus on the former, we will be able to have our environmental cake and eat it, too.

Notes

1. For Ehrlich's explanation of why the bet was a flawed measure of his position, see Ehrlich and Ehrlich (1996, 101).
2. For the complete list, see Ehrlich and Ehrlich (1996, 101–3).

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