FRASER INSTITUTE

2023

COLLECTED ESSAYS

ESG: MYTHS and REALITIES

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Date of Issue
March 2023

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Acknowledgments
The author wishes to thank the reviewers for their comments. Any remaining errors are the sole responsibility of the author. As the researcher has worked independently, the views and conclusions expressed in this paper do not necessarily reflect those of the Board of Directors of the Fraser Institute, the staff, or supporters.

Environmental Markets vs. Environmental Mandates: Capturing Prosperity and Environmental Quality

Terry L. Anderson

Today everyone claims to be an environmentalist, but what constitutes environmental quality varies. For some, it avoids a "Malthusian trap," named for the Reverend Thomas Malthus, who, in 1798, postulated that humans would continue to reproduce until the population demands exceed their ability to produce food, after which famine, disease, and pestilence would check human population growth. Centuries later we still hear fears of "limits to growth" (Meadows, Meadows, *Randers,* and Behrens, 1962), of a "population bomb" (Ehrlich, 1968), of a "silent spring" (Carson, 1962) in which wild species go extinct due to human negligence, and of "the end of oil" (Roberts, 2004). For others, environmentalism has more to do with romantic views of nature as Henry David Thoreau observed in *Walden* and as John Muir believed untamed wilderness should be.

To these we can add environmental ethics as promoted by Aldo Leopold's *Sand County Almanac* (Leopold, 1966). Accordingly we should honour animal rights, recycle even when doing so does not save resources, and protect land from development.

All of these perspectives on environmentalism played a role in the passage of a regulatory alphabet soup in the United States—the WA (Wilderness Act, 1964), the CAA (Clean Air Act, 1970), the CWA (Clean Water Act, 1972), and the ESA (Endangered Species Act, 1973), to mention a few. These were all based on the premise that private individuals and companies will not be good environmental stewards, thus making command and control necessary to ensure environmental quality.

Unfortunately, many of these regulations have thwarted environmental and economic progress (Anderson and Leal, 2015). *Political Environmentalism: Going Behind the Green Curtain* documents several examples (Anderson, 2000). The Endangered Species Act has succeeded in protecting iconic species such as the grizzly bear, whales, and the bald eagle, but it has also made many species the enemy in a war of "shoot, shovel, and shut up" in which landowners kill endangered species when they find them rather than subject themselves to the regulations and restrictions that the discovery of such a species inevitably brings with it. Recall the spotted owl that was the poster child of protectionists wanting to stop logging in the Pacific Northwest in the late 1990s. Listing the spotted owl as endangered virtually halted logging on almost all of the national forests in the United States, but it also stopped private forestland owners from wanting the owls on their property and it encouraged, because timber prices increased, more logging on private lands. Similarly, a designation of endangered for the red-cockaded woodpecker in the Southeast has led to harvesting pine trees at a younger age before they become old-growth trees suitable for woodpecker habitat (Lueck and Michael, 2003).

Fishery management that focuses on season, catch, and equipment regulations has led to more intensive fishing during the season, greater bycatch (fish that weren't targeted for markets but were killed in the process), and fewer—but bigger and more efficient—boats. As a result, fish stocks in fisheries regulated this way declined rather than improved (Leal, 2005).

Finally, the century-old Jones Act, which prohibits foreign ships from carrying goods from one US port to another, has regulated US marine shipping in ways that have increased greenhouse gas emissions. The US commercial fleet is powered by far less efficient engines with higher emissions than less regulated foreign fleets. And, because of the reduced efficiency, it takes more ships to carry the same goods. As University of Chicago economist Casey Mulligan reports, "A sizable amount of the cargo that, without the Jones Act, would be shipped on coastal waters ends up on trucks congesting our highways and polluting our atmosphere, especially near large cities where many people live and breathe" (Mulligan, 2020, June 3).

It just keeps getting better

Despite the detrimental effects of regulations and the gloom and doom from environmentalists, all the evidence suggests, as the Beatles song put it, "It's getting better all the time," and the improvement is closely linked to human ingenuity, prosperity, and economic growth. Harnessing the power of human ingenuity is the key to economic and environmental progress.

One of the more systematic analyses of the relationship between prosperity and the environment is the environmental sustainability index (ESI) (World Bank, Undated a) developed by the joint effort of the World Economic Forum, the Yale University Center for Environmental

Law and Policy, and the Columbia University Center for International Earth Science Information Network. The group measured 145 nations based on 20 indicators and 68 related variables in order to give each nation a sustainability score. On the ESI scale for 2002, Finland came in first, with a score of 73.9, and Kuwait came in last, with a score of 23.9.

The most significant finding derived from the ESI study compares each nation's ESI score with its gross domestic product (GDP) per capita and shows that a strong relationship exists between wealth and environmental quality. The data follow the pattern of what economists call the environmental Kuznets curve, named after Nobel laureate Simon Kuznets (Pettinger, 2019, September 11). Generally, environmental quality declines in the early stages of growth and then increases after a certain threshold; the turning point varies with the environmental goods in question. As incomes rise people shift their focus from obtaining the basic necessities of life—food and shelter—to other goods and services. For a person living at a subsistence level, setting aside land for wildlife or reducing carbon emissions to reduce the potential for global warming is unfathomable. With higher incomes, people demand cleaner water, cleaner air, and other ecosystem enhancements. The higher demand for environmental amenities stimulates environmental entrepreneurship (Yandle, Bhattarai, and Vijayaraghavan, 2004).

More recent data on the ESI for 2015 to 2017 show that environmental quality is rising for 114 of the 135 nations for which data are available, with the world median ESI growing slightly. The United States experienced a year-on-year average growth rate of 2.39 percent between 2015 and 2017 (World Bank, Undated a). Lesotho had the highest year-on-year average growth rate at 21.56 percent (World Bank, Undated b). And Uruguay had the lowest year-on-year average growth rate at -16.78 percent (World Bank, Undated c).

"The correlation between environmental quality and economic growth is largely due to human ingenuity which flourishes when property rights are well defined and enforced and people are 'free to choose.'"

The correlation between environmental quality and economic growth is largely due to human ingenuity which flourishes when property rights are well defined and enforced and people are "free to choose" (Friedman and Friedman, 1980). Whether it occurs and whether it is positively correlated with environmental quality depend mainly on the institutions—especially secure property rights and the rule of law—within each country. Economic growth creates the conditions for environmental improvement by raising the demand for improved environmental quality and by making resources—natural and human—more abundant.

Seth Norton calculated the statistical relationship between various freedom indexes and environmental improvements. His results show that institutions—especially property rights and the rule of law—are key to human well-being and environmental quality. Dividing a sample of countries into groups with low, medium, and high economic freedom and similar categories for the rule of law, Norton showed that in all cases except water pollution, countries with low economic freedom are worse off than those in countries with moderate economic freedom, while in all cases those in countries with high economic freedom are better off

than those in countries with medium economic freedom. A similar pattern is evident for the rule-of-law measures (Norton, 2004).

> "Countries with lower freedom index scores, mainly those founded on socialism, have both less environmental quality and less prosperity."

On the other hand, countries with lower freedom index scores, mainly those founded on socialism, have both less environmental quality and less prosperity. Consider Venezuela, one of the world's more repressed economies. It ranks above only North Korea in the Heritage Foundation's freedom index. It has one of the 10 most biodiverse environments in the world and was a prosperous nation at the beginning of the twenty-first century. After decades of socialism, however, environmental quality has declined along with prosperity. Just how much the environment has deteriorated is difficult to say because the government restricts collection and dissemination of data. It has the third highest deforestation rate in South America, sewage pollution in its water supplies, soil degradation, and urban pollution.

Environmental markets to the rescue

Since the 1970s, when environmental regulations helped solve a myriad of environmental problems in the United States by picking the low-hanging fruit—stopping the killing of endangered species such as the bald eagle, designating over 100 million acres of wilderness where not even pedal bikes are allowed, and restricting emissions into the air and water—environmentalists have begun looking for better ways to achieve environmental goals. To be sure, some people may act with enlightened self-interest if they are motivated by what Aldo Leopold called a land ethic (Leopold, 1966). However, good intentions are often not enough to produce good results, which is why Leopold, the pragmatic environmentalist, declared, "Conservation will ultimately boil down to rewarding the private landowner who conserves the public interest" (Leopold, 1934: 202). This is also why the US-based Environmental Defense Fund's motto is "finding the ways that work."

Environmental markets are one of those ways. In the early days "free-market environmentalism" was considered an oxymoron, but markets have proved to be an effective tool for environmental protection. Water markets have thrived, creating higher prices for water and encouraging conservation. Where water has a higher value left instream, environmental groups have negotiated with diverters—farmers and municipalities—to leave more water in streams for fish and wildlife. By owning land or conservation easements that restrict land use, environmental groups in both the US and Canada, such as the Nature Conservancy, have been able to allow environmentally friendly energy production and protect grizzly bear habitat where there can be predation on livestock. Transferable fishing quotas have given fishermen a stake in ocean fishery management and efficiently improved fish stocks and allowable catches. Finally, emission trading programs for sulphur dioxide have virtually eliminated acid rain at far lower costs than regulatory mandates would have done.

None of these examples are meant to say that markets can solve all environmental problems. Rather, they suggest how property rights give owners an incentive to take account of the value of owned resources and the costs of using them in alternative ways.

Perhaps the hardest of all environmental issues to deal with using markets is climate change. The benefits of reducing the rise in global temperatures are diffuse across the world and across time, the benefits accrue over dozens or hundreds of years, and the costs accrue and are concentrated on companies that produce hydrocarbons and economies that depend on them. Couple this with the impossibility of defining and enforcing property rights to the atmosphere, and market solutions seem impossible.

That is why many economies resort to calls for "market-like" solutions which are really political solutions disguised as markets. A carbon tax is at the top of the list of these solutions. A governmentally imposed tax on carbon emissions equal to the social cost of carbon associated with global warming would encourage producers to reduce their use of hydrocarbons. Of the many problems associated with this solution, the difficulty of establishing the proper tax, the difficulty of enforcing it across nations, and the politics of distributing the tax proceeds make it a pipe dream.

The good news is that asset and financial markets are already responding to climate change. Increased rainfall raises the value of land for crops, lower snowfall reduces the value of ski resorts, rising sea levels and storm surges lower the value of beachfront properties. The result is that asset owners and investors facing higher variance in their returns are adapting.

> **"Even if... greenhouse gas emissions themselves are not priced, prices correlated with the effects of climate change will induce adaptation."**

Even if the atmosphere as a greenhouse gas sink and greenhouse gas emissions themselves are not priced, prices correlated with the effects of climate change will induce adaptation. For example, if climate change reduces the productivity of land for certain wheat production, the price of land will be high relative to its productivity. This generates an incentive for wheat farmers to seek new places for wheat production where land prices are lower. Hence, the 2012 *Bloomberg News* headline, "Corn Belt Shifts North with Climate as Kansas Crop Dies" (Bjerga, 2012, October 15). As Hoover Senior Fellow Edward Lazear puts it, "Economic incentives will induce people who are setting up new households, businesses, and farms to move to areas that are less severely harmed by warming temperatures" (Lazear, 2014, September 2).

There is evidence that property owners who experience increased coastal flooding due to slowly rising sea levels are moving to higher ground. A paper by three Harvard University professors in the journal *Environmental Research Letters* tested the hypothesis "that the rate of price appreciation of single-family properties in MDC [Miami-Dade County] is positively related to and correlated with incremental measures of higher elevation" (Keenan, Hill, and Gumber, 2018, April 23). Using the value of 107,984 properties between 1971 and 2017, they found a positive relationship between price appreciation and elevation in 76 percent of the properties (82,068) in the sample.

A similar study by economists at the University of Colorado and Penn State found that beachfront homes in Miami exposed to rising sea levels sell at a 7 percent discount compared to properties with less exposure to coastal flooding (Bernstein, Gustafson, and Lewis, 2018). Moreover, the discount has risen significantly over the past decade. Comparing rental rates to selling prices of coastal homes, they found that the discount in selling prices "does not exist in rental rates, indicating that this discount is due to expectations of future damage, not current property quality."

Wine producers in California, Bordeaux, and Tuscany beware. A study by Conservation International published in the *Proceedings of the National Academy of Sciences* forecasts that wine production in California may drop by 70 percent and regions along the Mediterranean by as much as 85 percent over the next 50 years (Hannah, Roehrdanz, Ikegami, et al., 2013, April 23). The silver lining is that vintners will adapt by moving their grape production north, some predicting it will even move to places such as Montana, Wyoming, and Michigan, currently noted for their severe winters (Rathi, 2017, November 10).

In the future you may also see more signs on fruit saying, "Country of Origin—Canada." Canadian biologist John Pedlar sees more people in southern Ontario "trying their hand at things like peaches a little farther north from where they have been trying" (Grist, 2015, July 17). This is consistent with the US Department of Agriculture's Plant Hardiness Zone Map, which shows tolerant zones moving north (Charles, 2012, January 26).

Conclusion

For decades, economists have focused more on institutions than other factors such as resource scarcity or culture as the driving force in economic growth. Countries with more secure property rights and a rule of law that recognizes individual rights are more likely to prosper than those using mandates to guide human and physical capital investment and natural resource use.

The same institutions that promote economic growth also promote environmental quality. This is not to say that environmental mandates have no place, but the fact is that environmental markets align individual incentives with efficient resource use for land, minerals, water, fisheries, and air. The more that environmental markets can supplant environmental mandates, the better the chance for us to have both environmental quality and prosperity.

"The more that environmental markets can supplant environmental mandates, the better the chance for us to have both environmental quality and prosperity."

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Author's Note

This chapter was adapted from the author's contribution to the 2022 book *The Human Prosperity Project: Essays on Socialism and Free-Market Capitalism from the Hoover Institution*.

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