FEE's Essential Guide to

PROTECTING THE ENVIRONMENT

FEE FOUNDATION *for* ECONOMIC EDUCATION

FEE's Essential Guide to Protecting the Environment

Essays from the Foundation for Economic Education

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Introduction

Environmental activists care deeply about preserving the diversity of life on earth and the ecosystems that enable plants, animals, and people to thrive. But economists too are concerned about creating sustainable and thriving ecologies within both human society, and its relation with the natural world. "Economy" and "ecology" share the Greek root eco- because economists and ecologists both study emergent systems and concern themselves with the efficient use of scarce resources.

While many assume that proponents of capitalist markets and the natural environment must have opposing goals and theories, the truth is that both use similar concepts to describes their respective domains, and economists have much to say about how to organize human activity to create sustainable and healthy societies.

What we've compiled here is a guide to understanding the most important principles and practices for protecting the environment from an economic perspective. Far from being it's enemy, property rights within the context of a free market are essential to preserving our limited natural resources.

The Problem of Environmental Protection

Dwight R. Lee

A common belief is that economists don't care much about the environment because they are preoccupied with money, markets, and material wealth. And when economists do consider ways to protect the environment, they emphasize benefits and costs, trying to express all values in terms of cash. This view is angrily expressed by mountaineer-philosopher Jack Turner, who decries the economists' approach to the environment as "[reeking] of cynicism—as though having failed to persuade and woo your love you suddenly switch to cash. [Economists] think they are being rational; I think they treat Mother Nature as a whorehouse."[1]While Turner's comment is harsher than most, it is representative of many statements that can be found claiming that economists are environmentally callused.

In truth, economists are just as concerned about environmental quality as most people, maybe more so. All sensible people value the quality of the natural environment, and would like to maintain and improve that quality. Also, economists have thought a lot more than most about the source of our environmental problems and have developed important insights into the best ways to solve them. Unfortunately, it is easy for non-economists to misunderstand the economic approach to protecting the environment, causing them to underestimate the effectiveness of that approach and the genuine environmental concern that economists have.

1. See Jack Turner, "Economic Nature," in Deborah Clow and Donald Snow, eds., *Northern Lights: A Selection of New Writing from the American West* (New York, Vintage Books, 1994), p. 121.

The typical reactions to pollution are to blame it on the greed of those who put profits ahead of protecting the environment and to have someone in authority stop it. The perspective of economists is different. They do not automatically conclude that pollution is always a problem that demands a solution. When they do conclude that pollution is a problem that should be addressed, they seldom suggest having government demand that the pollution be stopped altogether. Finally, economists see blaming pollution on self-interest as unproductive, if not downright silly.

Because of scarcity, attempting to eliminate all harm caused by pollution makes no sense. Sure, it would be nice to eliminate pollution, but reducing pollution always requires doing less of something else that is desirable, and long before we reduced pollution harm to zero, the marginal benefit would be less than the marginal cost. Of course, in many situations it is desirable to reduce pollution. While people may seldom agree on how much to reduce, they should agree that any reduction ought to be achieved as cheaply as possible—at the least possible sacrifice of value. But having a government agency command polluters to reduce pollution is the most costly way to protect the environment. And economists see no advantage in blaming self-interest for pollution because that leads to inefficient pollution reduction. Indeed, the cheapest way to reduce pollution is by taking advantage of self-interest.

In this column I shall begin a discussion of how the concepts of scarcity and marginalism provide important insights into the problem of pollution and how best to address it.

Environmental Protection versus Environmental Protection

Few things are more aggravating to those professing great concern for the environment than economists' insisting on considering the cost of reducing pollution. The environment is seen as too important to be thought of as just another commodity, so costs simply aren't relevant. Pollution harms the environment and should be reduced drastically

regardless of the cost. Economists find these comments either hilarious or depressing, depending on their mood. The environment is important, but we get silly environmental policies when we ignore the costs of environmental protection. This would be true even if environmental quality were all we cared about, since protecting the environment in some ways requires sacrificing it in others. Consider some examples.

Environmentalists want to protect and expand wetlands, which are the habitat for a wide variety of flora and fauna. They are also concerned about global warming, which is supposedly resulting from the emission of greenhouse gases. But wetlands are one of the biggest sources of methane, a major greenhouse gas. So a cost of expanding wetlands is the release of more greenhouse gas. Is this a cost environmentalists think we should ignore?

Environmentalists also want to save forestland and eliminate the use of chemical pesticides and fertilizers in agriculture. Preventing starvation in poor countries without using chemical pesticides and fertilizers would require clear-cutting millions of acres of trees for agricultural use. So fewer trees are one of the costs of reducing chemical pesticides and fertilizers. Finally, and more generally, since waste products have to go somewhere, one cost of reducing water pollution is an increase in either air pollution or waste-disposal sites.

These costs are the direct result of scarcity and require facing up to some tough questions. Is protecting wetlands more important than preventing global warming? Is protecting rivers, lakes, and oceans against the runoff of chemical fertilizer more important than maintaining our forests (which absorb carbon dioxide, another greenhouse gas)? Which is more valuable, clean air or clean water? Environmentalists like to argue that environmental concerns are more important than anything else, but they can't argue that every environmental concern is more important than every other environmental concern.

There is a way around these questions by accepting some insights from economics.

The only sensible way to determine whether clean air is more or less valuable than clean water is by making the comparison *at the margin*.

If the water is extremely dirty (dysentery in every drop) and the air is extremely clean, then the marginal value of clean water (the value of an incremental increase in water quality) is greater than the marginal value of clean air (the value of an incremental increase in air quality). In this case, it is sensible to improve water quality even though the cost is reduced air quality. And the improvement in water quality should continue as long as the marginal value of clean water is greater than the marginal cost of dirtier air.[2]

Those who read my January column will recognize this as an example of equating at the margin: doing the best we can by not doing anything as well as we possibly could. Only by accepting this marginal principle can we deal sensibly with the tradeoffs that scarcity forces us to confront. As I will discuss next month, the implications of equating at the margin for environmental policy are too sensible for some environmentalists to feel comfortable with.

2. This assumes that the only cost of improving water quality is reduced air quality. More accurately, water quality should be improved until the marginal value of doing so equals the marginal cost, where cost reflects all sacrificed value, not just the sacrificed value of air quality.

Why Environmentalists Need to Understand Economics

Steven Horwitz

One of the trickiest set of issues for defenders of free enterprise is environmental concerns, especially large-scale ones like climate change. What makes more sophisticated environmentalist arguments so challenging and so interesting is that they often use ideas and terms that are frequently used to describe economic systems.

For example, both natural and social systems are evolutionary. Nature, like society, is an emergent (or what Hayek called "spontaneous") order. I have described markets as "epistemological ecosystems."And both ecology and economics share the same prefix. More interestingly, environmentalists often use words like "resources," "scarcity," and "efficiency" which we also hear in discussions of markets and economics more generally.

Because of those similarities, defenders of free markets and those concerned about human interference in the natural world should listen to each other more carefully than they often do. I recently had the chance to engage in just this sort of conversation and it got me thinking about some of the sources of miscommunication, and about what economics can add to the way environmentalists often see these issues. What follows are some related thoughts on that theme.

Economists and Environmentalists

One idea is that defenders of markets should draw more upon the analogies to natural ecosystems when talking to environmentalists. Markets work much like Darwinian evolution, at least by analogy. Entrepreneurship

and innovation are the economic equivalents of "mutations," and profit and loss are the economic equivalents of "natural selection."

Just as the biological process leads to species adapting to their environments because those mutations that enhance survival will get passed on to future generations, so do economic processes lead to humans better "adapting to their social environment" by rearranging the physical world in ways that create more value.

Environmentalists recognize how these sorts of complex adaptive systems create order without a designer in the natural world and noting how the same description applies to markets can be a way to generate more interesting and productive conversations, not to mention an enhanced appreciation for markets.

Like economists, environmentalists are concerned about scarce resources and efficiency. What often divides us is how we understand those terms. For example, environmentalists tend to think about resources being physical objects that are products of nature, as in "natural resources." They sometimes overlook the man-made resource of capital and the combination of nature and humanity that is the resource we call labor.

As an example of this confusion, consider the argument I encountered recently that green forms of energy like solar power are desirable because they use fewer scarce natural resources and because they create millions of jobs.

My response as an economist is to applaud any way of producing something that uses fewer natural resources all other things equal. If I can make the same amount of energy by using less coal and no more of anything else, that's good. But notice the rest of the claim: green energy also requires more of the scarce resource of human labor. That's what it means to "create jobs" in this context. There's a great deal of evidence that **green energy is much more labor intensive** than fossil fuels or other carbon-based forms.

Environmentalists rightly understand that it's good to use less of a scarce natural resource, but seem to forget that idea when it comes to human labor.

Is It Worth It?

Husbanding scarce resources means we have to consider how much labor it will take to produce a particular amount of energy. Just as using more natural resources than we might have to means we give up alternative things those resources could so, so does creating jobs that might be unnecessary to produce the energy we need mean that we are giving up other things we could have had.

Part of this confusion comes from different meanings of "efficiency." Environmentalists are often concerned with "energy efficiency" or "resource efficiency." An example here might be gas mileage. Cars are more efficient if they get more miles to the gallon.

To an economist, however, the relevant efficiency is "economic efficiency," or "is it worth it?"

We have the technology to create much more fuel efficient cars, but if they can't be built for less than, say, $100,000, most people will say it's not worth it. Such cars might be more technologically efficient, but they are less economically efficient.

Put differently, such cars would be using valuable resources to produce something that we think is less valuable than the alternatives those resources could produce.

Understanding Scarcity

This point is also where the word "scarcity" comes into play. It seems as though environmentalists treat "scarcity" as a synonym for "rarity." A thing is scarce if it is few in number. But for economists, scarcity is not a matter of a physical stock, but a relationship between the physical stock and the human desire for the good.

For example, to my knowledge, there exists only one Steve Horwitz autographed baseball in the world. There are, by contrast, many Derek Jeter autographed baseballs. Despite being greater in number, the Jeter baseballs are much more scarce (as is reflected in their much higher value) because no one wants a Horwitz autographed ball, but many people want a Jeter ball.

What markets enable us to do is to have an indicator of that scarcity — prices. The fact that people will pay much more for the Jeter ball than the Horwitz ball tells us that the Jeter ball is more scarce and more valuable. Prices provide knowledge and incentives about the scarcity of goods, including natural resources, and enable us to use them only for those things whose value to people is high enough to justify it.

Markets enable us to make such comparisons of value, and thereby get beyond just technological efficiency to economic efficiency. That is, markets force us to think about cost.

The most sophisticated environmentalists get this at some level, which is why the best proposals for dealing with climate change are those that try, to some degree, to enlist the price system in the process.

Government Fines Won't Solve the Problem

Carbon taxes/fees, for example, try to include the external costs of carbon-based energy in the decisions made by energy producers. Those proposals then often try to return to consumers the revenue collected so as to help them afford the higher prices of energy caused by the tax.

These proposals are better than the old command-and-control regulatory approach, but they suffer from two problems that economists are uniquely positioned to note.

First, finding the right tax/fee/price is not a simple thing. We know that market prices are the emergent outcome of what Mises called the "higgling of the market." Mises also noted that the changes in prices we observe are the visible end of a chain of causation that begins deep in the human mind. What makes market prices work is that they are the outcome of the decision-making processes of the people in those markets, risking their own resources and deploying their own knowledge.

Bureaucratically set prices or fees do not have the same powerful incentives for careful behavior, nor will they ever capture as much knowledge, as do real market prices. Given that, political battles over those taxes and fees are inevitable, and with such battles out goes any semblance of economic rationality.

And that brings the second point economists can make to environmentalists: market failure is not a sufficient condition for government intervention. Carbon tax proposals, like any other policy, can look great on paper but we must always ask whether politicians can do and will do what those proposing the policy have designed.

For example, suppose a carbon tax collected billions in revenue that was to be set aside for redistribution to US households. Given the history of Social Security, would we really expect politicians to not try to use that revenue to satisfy powerful special interests or for other purposes that would deliver more votes per dollar than a dividend check to US households?

Economists can remind environmentalists that as messy as markets are (much like nature is), government intervention is often worse. We have to compare the reality of two imperfect processes and the fact that markets are less than perfect is not, by itself, a justification for government intervention.

It is said that the most interesting things happen on borders where cultures clash. That's true of the borders between the spontaneous orders of markets and ecosystems.

Though I've focused on what environmentalists can learn from economists, the learning runs both ways. Figuring out how to draw the lines when two emergent orders interact in the ways nature and economies do requires careful thought and patient dialogue. I hope both groups are up to the challenge.

The State Can't Protect the Environment — Markets Can

Fred Smith, Iain Murray

As Joseph Schumpeter noted, free markets had a good first century (the 1750s to 1850s). A market economy produced massive improvements in the quality of life, and that gained it general legitimacy. But, as he also warned, as wealth increased, increasingly markets and the prerequisite institutions for markets to exist (specifically property rights) came under attack.

Markets were good at producing wealth but, if tweaked by political intervention, would achieve even more benefits. Progressives in the United States and socialists in Europe championed political control of markets and, perhaps more strategically, blocked efforts to allow markets to expand into new areas of concern.

Those policies are now being reconsidered, but the one area where many, perhaps most, still believe only government can operate is that of environmental protection. This essay argues that classical liberals should challenge this view and seek to evolve a free market environmental programme based on the expansion of property rights and associated legal protections. There are indeed environmental concerns, but these reflect failures to allow markets and their prerequisite institutions to evolve, rather than "market failures."

Market Institutions

Economic liberals have long understood that free markets evolve and are dynamic, and the appropriate price/demand terms for today will continually vary as consumer tastes and producer technologies evolve. But classical liberals also understand (although they devote

less attention to) the fact that markets don't operate in a vacuum, but rather are embedded within a necessary institutional framework. That framework entails a system of extensive private property, a rule of law outlining how contracts and liability issues are to be resolved and, finally, a culture that recognizes that voluntary exchange can increase wealth. Environmental issues arise in a situation where one or more of these requisite institutions don't exist, where voluntary arrangements for resolving them have been denied.

Ludwig Von Mises summarized this position:

> It is true that where a considerable part of the costs incurred are external costs from the point of view of the acting individuals or firms, the economic calculation established by them is manifestly defective and their results deceptive. But this is not the outcome of alleged deficiencies inherent in the system of private ownership of the means of production. It is on the contrary a consequence of loopholes left in the system. It could be removed by a reform of the laws concerning liability for damages inflicted and by rescinding the institutional barriers preventing the full operation of private ownership.

Policy makers have failed to recognize the relevance of such institutions and that time may be required for them to evolve. This neglect stems in part from the fact that these requisite institutions had evolved, in many areas, long before the Industrial Revolution. Those established institutions were stressed by the different challenges arising from the Industrial Revolution.

As the Nobel Laureate Ronald Coase notes, as the Industrial Revolution developed and environmental concerns (sparks from early rail locomotives, river damage from early industrial processes, the need to locate and develop oil resources), institutions did develop. Nuisance law was applied to pollution and subsurface property rights were established. But then that process was stopped in its tracks.

Legislatures eager to promote economic growth granted railroads and many industrial plants pollution privileges. Subsurface property rights in oil pools and reserves did evolve, but they were not extended to aquifers, groundwater, and other liquid underground resources. And

most mainstream environmental resources, such as wildlife, springs and brooks, airsheds and bays, remained as unprotected commons. Normal market processes were blocked from addressing these emerging areas of social concern. Thus, overuse and pollution — not addressed at the margin — were neglected until they grew to critical levels. A similar problem occurred in the failure to recognize the efforts of radio pioneers to homestead the electromagnetic spectrum.

Institutional evolutionary history has received too little attention because for much of history it had happened incrementally, slowly and largely out of view. Some newly discovered resource or some emerging value raised interest in providing or obtaining that resource, but interested parties found the transaction costs of achieving such exchanges excessive. But, viewing the potential of reaching a mutually beneficial wealth-enhancing agreement, the potential buyers and sellers as well as those brokering such transactions, would seek ways to lower these costs — via institutional and/or technological innovations.

The more successful of these innovations would be integrated into the established institutional framework. In effect, over time this would civilize these novel frontier exchanges, extending the market so that it could make "sweet" commerce available there also. The growth of the institutions of liberty would permit the expansion of the market.

Why didn't this process occur as environmental values moved into prominence? Why were markets blocked from playing a creative role in nurturing and advancing economic values as they had long done in more traditional economic areas? Why are environmental resources rarely available as ownable private property?

Although the history of early environmental concerns has received little attention, Coase among others has examined how environmental concerns were addressed at the dawn of the Industrial Revolution. Early forms of pollution — primitive charcoal production that produced noxious smoke, say, or sewerage that dirtied water — would likely irritate downwind or downstream parties. Communal norms would discipline to some degree such "pollution activities" as they threatened the communities' "proper enjoyment of their property." But such low

levels of pollution, especially in small cultural enclaves, could readily be handled: community pressures could encourage charcoal operations to relocate to more remote woodlands. Homeowners could be shamed into building clay-lined privies.

"Excuse Our Dust, But Grow We Must"

But with the dawn of the Industrial Revolution, the quantity and nature of materials processed and the quantity of residuals increased. The power of communities to address external and large enterprises weakened; moreover such enterprises brought benefits as well as nuisances.

Yet weak property rights and a liability system dealing with water and air did exist, building blocks for a more robust market in these areas. And efforts were made to adapt them to these new challenges. Coase notes that farmers filed suits against railroads when the sparks from these first-generation locomotives set fire to their crops. Fishing clubs moved to enjoin corporate disposal practices that harmed the fishing in areas where they held rights. And these early "free market environmental actions" had impact — firms did respond and, it appeared, that the Industrial Revolution would consider all values (addressing the challenge posed by Mises).

But, while there were some concerned about environmental values (initially mostly those enjoying those resources or harmed by a firm's negligence) many, especially socialists in Europe and progressives in America, championed "Progress" — a policy of "Excuse our Dust but Grow We Must!"

Politicians in England responded by granting licenses to pollute to industries and firms seen as especially important to such growth. Rather than integrating environmental resources into the market economy, they were locked out.

And, perhaps more importantly, the concept of private property as a valuable institution to disperse power, encourage a variety of experiments, allow diversity in use, Progressives viewed resources as better protected by politics — vast tracts of America have been transferred to the federal

government over the last century. Moreover, the process by which newly valued resources slowly gained the status of private property, allowing them to become managed by the market, stopped totally in the late 19th Century. No resource that was not in private hands in 1890 is today.

The shift was sometimes abrupt. The electromagnetic spectrum which became a valuable resource at the turn of that century was initially being homesteaded with rules to separate one bandwidth user from another. Then Congress created the precursor of the Federal Communication Commission to own and manage this valuable resource. Subsurface resources such as minerals, oil and water all gained protection in America in the 19th Century by the innovation and legitimization of the concept of subsurface mineral rights. Yet aquifers (the most abundant source of potable water) remain common property resources, lacking the institutional benefits of ownership.

Environmental Politics

To reiterate: free market environmentalism argues that current environmental policy took an unfortunate path. Rather than realizing that the more worrisome forms of external impacts happened incrementally, that we should encourage a vast array of experiments about how best to reconcile (indeed integrate) environmental concerns with economic ones, the "market failure" model presumes that all environmental issues are inherently political.

Such environmental events happen somewhere and at some time before they happen everywhere and persistently. Thus, some individuals will be affected initially and will seek redress while the impacts are still small. Coase finds that the common law was often receptive to such requests, leading firms to reduce the nuisance: relocation, changing time of operations, acquiring buffer zones or even negotiating with the harmed party to permit future emissions. Firms and impacted parties might well innovate — impacted parties "fencing" themselves off from the nuisance, firms adding settling and treatment ponds, and so forth.

In brief, classical liberals would expect a period of confusion and adaptation as the parties encountering such-extra market costs and benefits evolved means of integrating those costs and benefits into the market structure. These would include extending property rights to the new resource (clarifying the right of owners to prevent this new form of trespass), legitimizing new contract instruments that would permit the parties to agree to a risk-sharing arrangement (the plant agrees to hold its effluents below some harmful level and agrees to compensate the property owner if those protections fail), cultural change (recognizing that air and water transgressions — transferring one's residuals on to the properties of others without their permission — is a trespass, a "pollution").

Since environmental issues will happen in many areas over time, classical liberals would expect the discovery process to provide a number of competing environmental response strategies and for those which proved most effective to gain dominance in the courts and in practice. Moreover, given the dispersed nature of these initial events, we would expect the initial respondents to be those most adversely affect or those most sensitive to nuisances, or those who value aesthetic more (modern environmentalists). If the culture viewed polluting activities as "necessary," such individuals might well use their own resources within the restricted institutional framework to protect those environmental resources they valued.

Moreover, since those early events would affect relatively few people there would be less urgency to solve such problems immediately, politically. Over time, as the legal rules and property rights evolved, the nuisance would integrate into the standard market framework.

Endangered Animals

There is much to say about this process but an illustrative example can be drawn by concern over endangered species (and more broadly biodiversity). Efforts to protect such species politically — making such species a ward of the state — have not fared well. Too often the reaction

of property owners faced with laws banning them from encroaching (on their own land) on the habitat of such species is: "Shoot, shovel, and shut up."

That's a description of how many American landowners have reacted to the burdens of the Endangered Species Act. Those burdens are substantial — finding that an endangered species is using your land as its habitat will preclude any further development or use of the land. The result has been that landowners have an incentive to kill any endangered species they find on their land, remove all traces of it, and keep quiet about it. Can there be a better way?

Classical liberal economics suggests that the answer is yes. The reason why the landowner disposes of the endangered species is not simply because the species imposes a cost, but also because the species has no economic value to him. If we can find a way of providing value to the landowner in having the species on his land, then the incentives towards destructive behavior will be removed (or at least lessened).

One way to do this would be through ownership of the animal(s). Having a property right in the members of the species inhabiting his land would give the landowner an incentive to protect his property and its habitat. Moreover, the landowner could realize that value by selling his property right to someone else, thereby allowing the landowner to "cash in" his ownership stake.

The new owner might then pay the landowner to maintain the habitat, thereby providing an income stream associated with the species. Moreover, ownership in wildlife — like ownership in commercial and pet species — encourages the developing of a wide array of supporting institutions: pet stores, veterinary science, licenses, and pet adoption agencies.

To initiate this process one might leave in place the current government ownership of wildlife but create a process that would allow individuals or groups (those having a special interest in that species) to petition to acquire ownership of a suitable population of that species. As in the case of human adoption, the petitioners might have to demonstrate their ability to manage the species and be monitored until that was proven.

Different petitioners might experiment with different approaches and, over time, one would expect a wide array of management practices. All this would open the market to Green experiments and innovation just as has long happened in conventional areas.

Every party would benefit from such a market arrangement. The landowner would get a continuing income from land that would otherwise have been worthless, the new owner would get a property right in something he regards as valuable, and the endangered animal gets a chance to live in a maintained habitat. Such a market arrangement of winners is clearly preferable to the current regulatory arrangement, which produces losers.

Even a market arrangement short of outright ownership would be better. For instance, crowdfunding could be used to compensate the landowner for his foregone income from his land. People who value the endangered species could pool their resources to provide this benefit. Again, this would be a market transaction.

Externalities and the Market Process

The problem is that market solutions like these are currently made very difficult by the nature of environmental regulation. Environmental regulation generally depends on bans, caps, and mandates that restrict the possibility of market transactions. Why should people who value the spotted owl send money to a landowner to protect it when the landowner is theoretically banned from doing anything to harm it or its habitat? They get far more "bang per buck" from funding environmental groups that lobby for more bans, caps, and mandates.

Regulation evolved this way because the economists of the progressive era viewed environmental degradation as a social cost. Landowners, factory owners, utilities, and so on were viewed as imposing costs on the rest of society and had to be prevented from doing so by legislation.

This imposition of regulatory law derailed the process by which market institutions could have evolved to solve the problem. As Coase revealed in his essay The Problem of Social Cost, such "externalities"

are actually the manifestation of differing priorities between people that could be resolved by market transactions if the transaction costs are low enough.

Coase therefore did not support government intervention (at least, not initially or permanently) but rather argued that the potential wealth-creating opportunity would engage entrepreneurs to devise ways of reducing such transaction costs, to realize that wealth. The possibility of transactions creating value for both parties would create the "inventive-incentive" necessary for creating a framework for these transactions to happen.

In particular, proper institutions can lower transaction costs. For example, the rule of law makes transactions more likely, as parties to the transaction can be certain that disputes will be resolved fairly. The institution of property rights provides a vehicle for a whole swathe of transactions. These institutions are essential and evolving prerequisites to markets. This is a central insight of classical liberal economics.

Unfortunately, mainstream economists of the progressive era became enamored of making economics a quantitative "science" and forgot the role of institutions. Thus environmental issues were relegated to the category of "market failure," and the role of economists to that of commissars of rules and regulations designed to correct these failures. The institutions necessary to allow environmental market transactions to solve the problems were simply not allowed to evolve.

A Path Forward

In many ways, environmental regulation is the last bastion of central planning. It is remarkable that even as Europe has realized the folly of central planning in so many other economic areas, it has actually doubled down on it in environmental regulation, and has indeed sought to export it to other nations. In this, it has found a willing ally in recent years in the United States, whose environmental policy is also largely a product of progressive era thought.

In that framework, the role of government should be to stand ready to facilitate proposals to expand and refine property rights and contracts, to ensure that liability laws encourage rational exchanges.

Perhaps the simplest example of this thinking would be to encourage experimentation with subsurface ownership of suitably isolated aquifers. The history of mineral and oil and gas policy suggests the value of linking ownership and natural resources. Does anyone really think that water availability would be a problem if such a policy were in place?

The term "the environment" has become a synonym for "everything" — but central management of everything is foolish. Allowing private parties to pioneer extending the institutions of liberty to environmental areas would begin the exploration and discovery process that has been suppressed for the last century. It is overdue.

A property rights approach would allow those closest to a polluter the right to enjoin that nuisance. The polluter could bargain and compensate to gain operating rights, with penalty fees for accidental discharges. That would create incentives for an array of ameliorative innovations: settling ponds, treatment diversion to other media (via incineration or land disposal).

Moreover, as such policies became widespread, firms would locate in areas where non-industrial uses were rare or where dilution potentials were high. In effect, externalities would be internalized while they were minor, and readily addressed, rather than waiting till there was a crisis.

Property Rights Help Environmentalists Protect Wildlife

Shawn Regan

Earlier this year, President Donald Trump announced that his administration would seek to open oil and gas drilling in the Arctic National Wildlife Refuge. The plan, outlined in Trump's 2018 budget resolution, has reignited a long-standing debate over the oil-rich Alaskan wildlife refuge.

"Some places are so special that they should simply be off-limits," Nicole Whittington-Evans of the Wilderness Society **said** at the time, arguing that the refuge is "too wild to drill" and "has values far beyond whatever oil might lie beneath it." David Yarnold, president of the Audubon Society, **said** that drilling in ANWR "would cause irreversible damage to birds and one of the wildest places we have left on Earth."

Drilling proponents cite the area's immense energy potential. More than 10 billion barrels of oil could be tapped by developing just a small portion of the 19-million-acre refuge, **according** to the U.S. Geological Survey — enough to produce 1.45 million barrels per day, **more than the United States imports daily from Saudi Arabia**. The Trump administration claims that opening ANWR for leasing would reduce the federal deficit by $1.8 billion over the next decade.

How are these conflicting environmental and natural-resource values to be resolved? In the case of ANWR, the answer is politics. The refuge is federal land, so decisions about its management are political by their nature. Debates are often characterized as all-or-nothing decisions — either "save the Arctic" or "drill baby drill" — and when one side "wins," another side loses.

But what would happen if ANWR were privately owned, perhaps by an environmental group?

Privately-Owned Protection

Take, for example, the Audubon Society, one of many environmental groups opposed to drilling in ANWR. "Oil and birds don't mix," **says** the group on its website. "Drilling is a dirty and dangerous business that has historically always resulted in spills and harmed the environment."

Yet consider how the Audubon Society manages some of its own privately owned wildlife refuges. For nearly 50 years, starting in the 1950s, the group allowed oil and gas companies to **drill dozens of wells** on its 26,000-acre Paul J. Rainey Sanctuary, a bird sanctuary in southwestern Louisiana.

Why would Audubon allow drilling on its own sanctuaries but oppose it elsewhere? The answer, in short, is property rights. Private ownership creates incentives that often lead to more reasonable outcomes than in the political arena. Property rights motivated Audubon to consider the trade-offs associated with its management and the opportunity costs of leaving the oil and gas in the ground. Because the group owned the sanctuary, it sensibly weighed the potential benefits of drilling against its environmental costs.

Audubon earned **more than $25 million** in royalties from energy development on the Rainey Sanctuary, and it used those funds to protect more land and invest in habitat improvements on the preserve. "The gas-development activities, closely controlled and monitored by Audubon, offer opportunities to diversify and improve habitat which Audubon otherwise couldn't afford to create," said one of the group's senior vice presidents **in 1984**.

The Audubon Society had every incentive to ensure the drilling was done responsibly. For instance, energy companies had to comply with strict limits on drilling during bird-nesting season. One journalist wrote that "when the cranes punched in, the hardhats would have to punch out." The group was especially careful to do so because, as one

sanctuary manager put it, Audubon's members "would be very irate if we polluted our own environment, our own land, our own sanctuary."

Assessing Trade-Offs

The Rainey Sanctuary isn't the only example of Audubon calling for different actions on its private property than on public lands. The group authorized drilling on its Bernard Baker Sanctuary in Michigan as well. For years, an oil well located outside that sanctuary tapped oil and gas beneath its surface through slant drilling, earning the group mineral royalties while also protecting habitat.

On public lands such as ANWR, the story is much different. Audubon opposes virtually all oil and gas development on federal lands. The group would receive none of the benefits of saying "yes" to drilling there, so it has no reason to weigh its costs and benefits, even if those benefits could be substantial.

One recent **study** estimated the value of the oil beneath ANWR at $374 billion. With that kind of potential, if the refuge were under private ownership, even the most anti-development environmental group would be forced to consider what additional conservation benefits could be gained by allowing at least some drilling.

After all, it's possible that a small amount of energy development in one area could help provide even more important environmental benefits elsewhere.

As one Alaskan outdoor writer **said** in response to debates over ANWR, "It would seem of far more environmental concern that Alaska's ducks and geese have a place to winter in overcrowded, overdeveloped California than that California's ducks and geese have a place to breed each summer in uncrowded and undeveloped Alaska." With private ownership, environmental groups would more sensibly assess that trade-off, just as Audubon has, to achieve the most environmental value.

Greater Potential for Win-Win Arrangements

Oil and gas production ended on the Rainey Sanctuary in 1999, but Audubon has since **considered reopening** it to drilling. Other groups such as the Nature Conservancy have also allowed drilling **on some of their private lands in Texas**, raising millions of dollars to conserve endangered prairie chicken habitat. The conservancy's efforts, however, have drawn criticism from some environmental activists who pressured the organization to recently declare that they want to get out of the oil and gas business entirely.

Nonetheless, with new horizontal-drilling techniques that allow oil and gas to be extracted from afar and with fewer surface impacts, there is now even greater potential for such win-win arrangements on private lands.

Property rights give owners strong incentives to balance conservation with resource development and resolve competing demands in a cooperative, mutually beneficial way. When environmental groups bear the costs of managing their own lands, their behavior is often very different from what they advocate on public lands. The experience of the Audubon Society's Rainey Sanctuary demonstrates a more sensible approach than can be found in most public land debates today.

As Richard Stroup of PERC once **put it**: "Audubon is smart to maintain wildlife habitat while capitalizing on revenue potential — now if only our federal land management agencies could figure this out."

The Costs of Hysteria

Robert P. Murphy

Suppose the "scientific consensus" on climate change is right. Let's also stipulate, for the sake of argument, that the computer projections used by the United Nations and the US government are correct, and that economists are able to translate those data into meaningful projections about costs and benefits to people living in the future with climate change.

Despite what the public has been led to believe, the situation is not a crisis at all — and certainly not something that demands drastic government actions to avert serious damage to the environment. In fact, implementing the wrong policy can cause far more damage than it can prevent.

It's understandable that the public has no idea of the real state of the literature on climate change policy, because even professional economists use utterly misleading rhetoric in this arena. To show what I mean, first, let's quote from a recent **Noah Smith *Bloomberg* article**, which urges left-liberals to support the Trans-Pacific Partnership (TPP) trade deal:

One of the bigger economic issues under debate right now is the Trans-Pacific Partnership (TPP), the multilateral trade deal that would include most countries in the Asia-Pacific region as well as the US. Many people both here and abroad are suspicious of trade deals, while economists usually support them. This time around, however, the dynamic is a little bit different — the TPP is getting some pushback from left-leaning economists such as **Paul Krugman**.

Krugman's point is that since US trade is already pretty liberalized … the effect of further liberalization will be small.… I'm usually more of a free-trade skeptic than the average economist.… But in this case, I'm

strongly on the pro-TPP side. There are just too many good arguments in favor.

> University of California-Berkeley economist *Brad DeLong does some quick back-of-the-envelope calculations, and estimates that the TPP would increase the world's wealth by a total of $3 trillion. Though that's not a big deal in the grand scheme of things, it's one of the best reforms that's feasible in the current polarized political situation*. (emphasis added)

To summarize the flavor of Smith's discussion, he thinks the TPP is "one of the bigger economic issues" today, and that its potential windfall to humanity of $3 trillion is "not a big deal in the grand scheme of things" but certainly worth pursuing if attainable. Krugman disagrees with Smith's assessment, but their differences are clearly quibbles over numbers and strategies; it's not as if Smith thinks Krugman is a "Ricardo denier" or accuses Krugman of hating poor Asians by opposing the trade deal.

We get a much different tone if instead we look at Smith discussing climate-change policy. For example, in **June 2014, Smith wrote a *Bloomberg* piece** on five ways to fight global warming. In the interest of brevity, let me simply quote Smith's concluding paragraph:

> If we do these five things, then *the US can still save the world from global warming*, even though we're no longer the main cause of the problem. And the short-run cost to our economy will be very moderate. *Saving the world on the cheap sounds like a good idea to me*. (emphasis added)

Clearly, there is a chasm in the rhetoric between Smith's two *Bloomberg* pieces. When discussing the TPP, it's an honest disagreement between experts over a trade agreement that Smith thinks is definitely worthwhile, but in the grand scheme is not that big a deal. In contrast, government policies concerning climate change literally involve the fate of the planet.

At this point, most readers would wonder what the problem is. After all, isn't man-made climate change a global crisis? Why *shouldn't* Smith use much stronger rhetoric when describing it?

I am making this comparison because according to one of the pioneers in climate-change economics, William Nordhaus, even if all governments around the world implemented the textbook-perfect carbon tax, the net gain to humanity would be … drumroll please … $3 trillion. In other words, one of the world's experts on the economics of climate change estimates that the difference to humanity between (a) implementing the perfect carbon-tax policy solution and (b) doing absolutely nothing was about the same difference as DeLong estimated when it comes to the TPP.

To be more specific, the $3 trillion Nordhaus estimate comes from the 2008 calibration of his Dynamic Integrated Climate-Economy (DICE) model. (The numbers have gone up since then, but I studied his 2008 calibration in great detail.) Note that this isn't some "denier" computer simulation, rejected by the serious scientists. On the contrary, Nordhaus's DICE model was **one of only three chosen by the Obama administration** when it set up a working group to estimate the monetary damages of carbon dioxide emissions. To help the reader understand the trade-offs humanity faces when it comes to climate change, let me reproduce table 4 from **my *Independent Review* article** that critically evaluated Nordhaus's model:

Table 4
DICE's Relative Benefits of Different Climate Policies (in Trillions of 2005 U.S.$)

Climate Policy	PDV Difference from Baseline	PDV of Environmental Damages	PDV of Abatement Costs	Sum of Damages and Costs
No controls baseline	0.00	22.55	0.04	22.59
Optimal tax	+3.07	17.31	2.20	19.52
Limit CO_2 to 560 ppm	+2.67	15.97	3.95	19.92
Kyoto with the United States	+0.63	21.38	0.58	21.96
Kyoto without the United States	+0.10	22.43	0.07	22.49
Stern Review discount rate	−14.18	9.02	27.74	36.77
Limit temp. to 1.5°C	−14.44	9.95	27.08	37.03
Limit CO_2 to 420 ppm	−14.60	9.95	27.24	37.19
Gore's 90 percent emissions cut	−21.36	10.05	33.90	43.96

Note: PDV = present discounted value.
Source: Adapted from Nordhaus 2008, 89.

The table shows Nordhaus's estimates (made in 2008 based on the "consensus" scientific assessments of the time) of the net benefits of various possible governmental climate policy approaches. The first row shows what happens if governments do nothing. There will be $22.55 trillion (in present value terms, and quoted in 2005 dollars) of environmental damage, but virtually no economic costs of complying with regulations, for a total harm of $22.59 trillion.

In contrast, if governments around the world implemented Nordhaus's recommended "optimal" carbon tax, the world would be spared a little more than $5 trillion in future environmental damage, while future economic output would be $2.2 trillion lower due to complying with the carbon tax. Adding it all up, humanity would suffer total harms of $19.52 trillion, meaning the world would be $3.07 trillion wealthier with the optimal, global carbon tax (because $22.59 — $19.52 = $3.07).

Central to the economic way of thinking is the concept of trade-offs. Every possible policy — including a policy of doing nothing — comes with costs. But the public tends to hear about only one set of costs, not the full array. For example, as the earlier table shows, the *wrong* climate policy can be much, much worse than doing nothing. Nordhaus evaluated Al Gore's suggestion to cut emissions by 90 percent, and estimated that it would make humanity some $21 trillion poorer compared to the do-nothing baseline — a net harm seven times greater than the net benefits of the textbook-optimal approach.

My point here is not to trumpet Nordhaus's numbers as being gospel. (My *Independent Review* article was a full-blown *critique* of his model.) Rather, I am pointing out that even one of the leading models that underpins the so-called consensus on climate-change activism shows that this is hardly the planetary crisis that the rhetoric of Smith and others would suggest. The actual numbers are in the same ballpark as those of trade deals — and nobody thinks the fate of the planet hangs on the passage of a trade deal.

More generally, what even most economists have failed to convey to the public is that climate-change policies at best will affect things *on the*

margin. Nordhaus's table beautifully illustrates this. The optimal carbon tax doesn't *eliminate* the climate-change damage that his computer simulations predict. On the contrary, the carbon tax only *reduces* it from about $23 trillion down to $17 billion. The reason it doesn't make sense to enact a more aggressive carbon tax is that the (marginal) harm to the conventional economy would exceed the (marginal) environmental benefit. There are several policies in the table that reduce environmental damage below the $17 trillion mark, but they hurt the economy so much more that, on net, they are inferior approaches.

It is understandable that non-economists would fail to employ marginal analysis and would engage in overblown rhetoric when discussing something as controversial as climate-change policy. However, too many professional economists have also fallen into this bad habit, including not just Smith but also **Krugman** and many others.

Lower Costs, Not Regulations, Will Save the Environment

Iain Murray

I have a long bus commute to work in Washington DC. Most mornings I am engrossed in reading the latest news or a scholarly article, but the other morning I was thinking about a knotty problem and found myself looking out of the window. The answer to the problem became apparent as I realized how many commercial vehicles there were out there, and that each one was engaged in an economic transaction of one kind or another. It's all about transaction costs.

Nobel laureate Ronald Coase first brought transaction costs to our attention in the 1930s. His article, **The Nature of the Firm**, examined the role of what was then called "marketing costs" in allowing an economic transaction to take place, and the particular nature of the employment contract in reducing these costs.

A transaction cost is, at its simplest, a cost incurred in making an economic transaction such as buying a new phone, getting legal advice, or flying to Maui for a holiday. If the transaction costs are too high, the transaction doesn't happen. Yet it is these transactions that are the basis of wealth creation. As David R. Henderson **says**, "The only way to create wealth is to move resources from a lower-valued to a higher-valued use. Corollary: Both sides gain from exchange."

So if transaction costs are too high, resources remain at their lower-valued usage. I keep my money in my pocket rather than getting a new phone, the lawyer's investment in his skills goes without a return, and planes fly with empty inventory. It is in all our interests to get transaction costs down. Technology has been a great enabler of this in the decades since Coase wrote that first paper. Yet there are other aspects to reducing

transaction costs — such as the institution of the rule of law reducing the transaction costs of corruption.

Indeed, the vast wealth of America can be explained by how we have lowered transaction costs. The invention and adoption of the automobile, for example, lowered the transaction cost of distance. All those commercial vehicles flying by my bus were engaged in economic transactions that would not have been possible a hundred years ago.

Keeping Costs Low

That's not all lowering transaction costs can do. In his second great article, Coase looked at "**The Problem of Social Cost**." Coase's insight here was that so-called economic "externalities" were not just a question of one party inflicting harm on another, but a conflict of interests that could be resolved by an economic transaction if transaction costs were low enough.

We now live in a world where **Venmo** makes settling debts for shared pizza purchases easy. Is it too hard to believe that environmental nuisance problems cannot be solved quickly and easily by appropriate cost-sharing mechanisms? While we may not be there yet, we are much closer than we were just a few years ago. As I have written about at length **here**, homesharing and ridesharing technologies have created new markets simply by lowering the transaction costs of putting people in touch with one another. It is plausible that new environmental markets could be created in similar ways.

Want to save the spotted owl? Using a crowdfunding platform, you could contribute to compensating the owner of the woodland who won't be able to harvest lumber.

Unfortunately, while many transaction costs are trending down, some are veering up. That's often because of regulation. Payment regulations could make apps like Venmo too expensive to use. Occupational licensing regulations could make trading your skills illegal unless you gain licenses requiring thousands of hours of study — and costing hundreds of dollars. Environmental regulations crowd out

the possibility of running a crowdfunding campaign to save the spotted owl (the money goes instead to environmental pressure groups who simply lobby for more regulation).

That's a problem because all that regulation is getting in the way of yet more wealth creation. It's no coincidence that the much-ballyhooed income stagnation in America began at about the same time as **regulation started to take off**. Technology has kept us a few steps in front of some of the regulation, but we'd still benefit from much of that **$1.9 trillion annual burden** being lifted.

If we lift that burden, transaction costs will go down, and there will be even more commercial vehicles speeding down the highway. If you're worried about the cost of congestion, well, **autonomous vehicle technology** and **ridesharing** could take care of that, as long as the transaction costs are low enough. Because, in the end, it's all about transaction costs.

How a Free Society Could Solve Global Warming

Gene Callahan

The phrase "global warming" has been around for quite some time, but in the past year it has captured the spotlight as never before. One can't turn on the radio or open a newspaper without facing ads from "green" corporations, or hearing the latest way to reduce one's "carbon footprint." With even prominent Republicans (such as Arnold Schwarzenegger and George W. Bush) on board, it seems all but inevitable that major governments around the world will enact new policies to combat this ostensible threat—and to cripple economic growth in the process.

Thus far the typical libertarian response to the growing clamor has been to challenge the science behind it. Now it really is the scientific consensus that global warming occurred during the twentieth century. What is not so obvious is that (1) humans caused this warming and (2) this warming is necessarily bad.

Although it is interesting to explore the question of whether science has been perverted in the cause of environmentalism, there is a danger for libertarians in pinning their entire case on this strategy. After all, every serious student of science knows that when it comes to empirical claims, we never achieve certainty. For example, even if today one thinks that there are insurmountable problems facing the theory of man-made global warming, one still must accept the possibility that new evidence or theoretical advances could indicate that the environmentalists are perfectly right. Another possibility is that there is some other, similar disaster lurking unsuspected.

For these reasons, I believe it is crucial to accept provisionally, for the sake of argument, the scientific claims behind the case for man-made global warming. In the present article I will demonstrate that it still would not follow that the taxes and other regulations typically proposed by greens are the best way to address the problem. Just as the free market is still the optimal economic arrangement, regardless of how many citizens are angels or devils, so too does the free market outperform government intervention, regardless of the fragility of Earth's ecosystems.

When trying to determine if the free market is to blame for possibly dangerous carbon emissions, a logical starting point is to list the numerous ways that government policies encourage the very activities that Al Gore and his friends want us to curtail.

The U.S. government has subsidized many activities that burn carbon: it has seized land through eminent domain to build highways, funded rural electrification projects, and fought wars to ensure Americans' access to oil. After World War II it played a key role in the mass exodus of the middle class from urban centers to the suburbs, chiefly through encouraging mortgage lending.

Every American schoolchild has heard of the bold transcontinental railroad (finished with great ceremony at Promontory Summit, Utah) promoted by the federal government. Historian Burt Folsom explains that due to the construction contracts, the incentive was to lay as much track as possible between points A and B—hardly an approach to economize on carbon emissions from the wood- and coal-burning locomotives. For a more recent example, consider John F. Kennedy's visionary moon shot. I'm no engineer, but I've seen the takeoffs of the Apollo spacecraft and think it's quite likely that the free market's use of those resources would have involved far lower CO2 emissions. While myriad government policies have thus encouraged carbon emissions, at the same time the government has restricted activities that would have reduced them. For example, there would probably be far more reliance on nuclear power were it not for the overblown regulations of this energy source. For a different example, imagine the reduction in emissions if

the government would merely allow market-clearing pricing for the nation's major roads, thereby eliminating traffic jams! The pollution from vehicles in major urban areas could be drastically cut overnight if the government set tolls to whatever the market could bear—or better yet, sold bridges and highways to private owners.

Of course, there is no way to determine just what the energy landscape in America would look like if these interventions had not occurred. Yet it is entirely possible that on net, with a freer market economy, in the past we would have burned less fossil fuel and today we would be more energy efficient.

Even if it were true that reliance on the free-enterprise system makes it difficult to curtail activities that contribute to global warming, still the undeniable advantages of unfettered markets would allow humans to deal with climate change more easily. For example, the financial industry, by creating new securities and derivative markets, could crystallize the "dispersed knowledge" that many different experts held in order to coordinate and mobilize mankind's total response to global warming. For instance, weather futures can serve to spread the risk of bad weather beyond the local area affected. Perhaps there could arise a market betting on the areas most likely to be permanently flooded. That may seem ghoulish, but by betting on their own area, inhabitants could offset the cost of relocating should the flooding occur. Creative entrepreneurs, left free to innovate, will generate a wealth of alternative energy sources. (State intervention, of course, tends to stifle innovations that threaten the continued dominance of currently powerful special interests, such as oil companies—for example, the state of North Carolina recently fined Bob Teixeira for running his car on soybean oil.)

Private insurers have a strong incentive to assess the potential effects of global warming without bias in order to price their policies optimally—if they overestimate the risk, they will lose business to lower-priced rivals; if they are too sanguine about the dangers, they will lose money once the claims start rolling in. Individuals finding their homes or businesses threatened by rising sea levels will find it easier to relocate to the extent that unfettered markets have made them

wealthier. Industrial manufacturers, as long as they are held liable for the negative environmental effects of their production processes—a traditional common-law liability from which state policies intended to "promote industry" have often sought to shield manufacturers—will strive to develop technologies that minimize the environmental impact of their activities without sacrificing efficiency. Government interventions and "five-year plans," even when they are sincere attempts to protect the environment rather than disguised schemes to benefit some powerful lobby, lack the profit incentive and are protected from the competitive pressures that drive private actors to seek an optimal cost-benefit tradeoff.

If the situation truly becomes dire, it will be free-market capitalism that allows humans to develop techniques for sucking massive amounts of carbon out of the atmosphere, and to colonize the oceans and outer space. Beyond these futuristic possibilities, the obvious responses to global warming—such as more houses with AC, sturdier sea walls, and better equipment to evacuate flooded regions—are again only feasible when the free market is unleashed.

It is the poorest people and nations that stand to suffer the most if the worst-case scenario for global warming is realized, and the only reliable way to alleviate their poverty, and thus help protect them from those effects, is the free market.

Can the Market Meet the Threat Head-On?

In the first section I summarized some of the ways governments inadvertently contribute to the very activities that allegedly cause dangerous global warming; in the second I sketched some of the ways that free markets allow humans to better adapt to climate change. However, I haven't really tackled the problem directly. Am I conceding that with a worldwide problem the market—which is just dandy for one-on-one interactions—can't match the concerted "will of the people" working through their elected representatives for a common solution?

Of course not. Even when economic transactions generate so-called negative externalities (activities that shower harms on third parties), I still contend that the free market is the best institution for identifying and reducing the problems.

One way negative externalities can be addressed without turning to state coercion is public censure of individuals or groups widely perceived to be flouting core moral principles or trampling the common good, even if their actions are not technically illegal. Large, private companies and prominent, wealthy individuals are generally quite sensitive to public pressure campaigns.

To cite just one recent, significant example, Temple Grandin, a notable advocate for the humane treatment of livestock, asserts that McDonald's is the world leader in improving slaughterhouse conditions. While many executives at the fast-food giant genuinely may be concerned with the welfare of cattle, pigs, and chickens, undoubtedly a strong element of self-interest is also at work here, as the company realizes that corporate image affects consumers' buying decisions.

But that self-interest does not negate the laudable outcome of the pressure McDonald's has applied to its suppliers to meet the stringent standards it has set for animal-handling facilities. Similarly, to the degree that the broad public regards man-made global warming as a serious problem, companies will strive to be seen as "good corporate citizens" that are addressing the matter. And this isn't ivory-tower speculation on my part—I can see the "green friendly" ads already.

Critics of libertarianism sometimes denigrate it as a political program of "market fundamentalism" that, if put into practice, would reduce all human values to the price they can fetch as mere commodities. But that is a caricature of the social arrangements advocated by any sensible libertarian. The great figures of classical-liberal and libertarian thought have always recognized the vital contributions that non-market institutions, such as churches, families, charities, social clubs, communities of scholars and their students, art foundations, conservation groups, neighborhood associations, and youth athletic leagues, make to the healthy functioning of a free society. What libertarians offer as

an alternative to statism is not a social order that judges every human interaction solely on a miserly calculation of profit or loss, but a society in which every desirable form of voluntary association is allowed to flourish, free from coercive interference by the state.

Customary Law

Besides the samples listed above, most libertarians recognize private or customary law as another important, non-market source of social order. A historical case in point is the Anglo-American common-law tradition in which legal norms evolved spontaneously from the customs of the people to whom it applied, rather than through legislation and state planning deliberately aimed at achieving some "public good." The many centuries during which the common law sustained civic order in the face of inevitable divergences between individual citizens' own interests demonstrate that a successful legal order does not inevitably require state sponsorship. The common law has shown itself to be fully capable of dealing with a number of issues that, while not exhibiting the worldwide scope of global warming, are still similar to our present concern in arising from the cumulative effects of many individual actions, each of which, regarded in isolation, appears to be unproblematic and not subject to legal sanction. For instance, the salmon-fishing streams of Scotland are a valuable natural resource, and the communities along them have developed quite successful institutions for ensuring the value of the streams is maintained, including private policing and legal penalties for overfishing and for polluting the water.

The many cases in which voluntary solutions to problems of collective choice have worked pose an empirical embarrassment for those who argue that "public goods" must be provided by the government. Most advocates of compulsory solutions to pollution abatement, for example, would assert that voluntary efforts will be vitiated by "free riding." If individuals are not forced to contribute their fair share toward addressing these problems, this argument runs, each person rationally will hold back and hope others will pay for the proposed solution, since

any free riders would gain the benefits (such as clean air) anyway. Since almost no one likes to be "the sucker," it follows that the amount of resources devoted to the provision of the public good will fall woefully shy of the total that would be available if each person gave the amount he'd be willing to give if only he could count on everyone else pitching in equally. The sole solution that can be imagined is for the members of a society to create a "social contract" by which they are forced to pay for pollution abatement.

However, Anthony de Jasay notes in his book *The State* that this argument is severely flawed. If people cannot solve public-goods problems through voluntary cooperation, how can they rely on politicians' promises to do so? There is no external authority to enforce those promises. There is only public opinion, the same thing that would enforce voluntary solutions. Moreover, government is itself a "public good" in the sense that free riders benefit from the efforts of those who try to get the government to produce public goods such as clean air.

Is Temperature a Public Good?

Another consideration is that the earth's temperature isn't such a public good after all. That is, certain people really do have more at stake, particularly if the warming is moderate. For example, if Manhattan became submerged because of rising sea levels, that calamity would not affect every human being equally. The residents of Manhattan and the owners of its skyscrapers would be hurt far more than people living in inland China. Because all the various potential dangers of global warming affect particular people more intensively than others, it is these groups that (in a free market) would have the incentive to reduce CO2 concentrations. For example, if rising sea levels would cause $10 trillion in damage to a comparatively small group of wealthy individuals, that's a huge "pie" that the wealthy can offer others to motivate them to reduce emissions.

Despite my optimism about the potential to deal with environmental problems through voluntary means, I don't wish to be misunderstood:

If the official global-warming story is true, it presents a serious problem that humanity will find difficult to solve through voluntary means. But this isn't a strike against voluntarism—of course a difficult problem will be difficult to solve! By the very same token, the government doesn't do a terrible job at collecting stray dogs, because that's a very simple task. When it comes to harder assignments, such as stopping terrorism or reducing teen pregnancy, the government's record is quite a bit worse.

The very features of the official global-warming scenario that hamper purely private solutions would apply equally to government efforts. For example, even if the U.S. government passed draconian measures at home, that alone wouldn't be enough if China and India don't follow suit. And just as private companies in a free market may have an incentive to pollute if they can get away with it, so the state, under the influence of special-interest groups and run by leaders always tempted to ignore the public good in favor of increasing their own power and wealth, can have incentives to allow more pollution than is optimal. (It should be clear the "best" amount of pollution is not zero, because even using fire to cook generates some pollutants, and I doubt that anyone but the most misanthropic, fanatical nature worshippers want to reverse all of the last 40,000 years of human progress.)

As in all debates over public versus private choice, it's inappropriate to measure a realistic free-market response to global warming against an idealized government program. We must try to envision what real people would do if their property rights were respected and compare that scenario with the probable outcome of actual politicians in today's world being given a blank check in the name of saving the earth.

Government programs don't ameliorate world poverty or sickness, and no libertarian would deny that these are serious problems. So even if man-made global warming is a real threat, why should we expect governments to get it right on this issue?

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