

Why do free-market thinkers turn to scientific risk analysis instead of markets to set environmental policy?

Letting Environmentalists' Preferences Count

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ENVIRONMENTAL POLICY QUESTIONS often result in dueling scientific studies. Typically, articles are published in scientific or medical journals that claim exposure to pollution results in increased morbidity or mortality. Critics then respond in scientific or policy journals with claims that the original scientific articles were flawed and do not reflect "sound" science. (For an example, see "The Arsenic Controversy," Fall 2001.)

The premise of the original scientific articles is that if the negative effects of pollution are "real," then scientifically informed government intervention should "fix" the problem. The premise of the rebuttal articles is that because the best science suggests the causal links are problematic or non-existent, the proposed environmental regulation is an example of illegitimate and unwarranted state action.

But why should those who prefer a cleaner environment have to justify their preferences with scientific evidence? Markets are neutral with respect to preferences. The function of markets is to allow people to pursue their preferences subject to a budget constraint. Under most circumstances, market-oriented policy analysts would severely criticize any attempt to require people to justify their preferences for private goods through scientific analysis.

In fact, the market's delivery of private goods is not related at all to the scientific validity of people's preferences. Markets can and do supply organic lettuce regardless of whether it really is "better" for your health. The market's ability to deliver Miller Lite is not at all contingent on the resolution of the "Great-Taste, Less-

Filling" debate. European consumers do not want genetically modified food regardless of scientists' arguments that consumer concerns about such food are without merit. And people pay good money for light trucks because they feel "safer" in the vehicles even though scientific evidence challenges that sentiment.

The ability of markets to cater to such varied (and perhaps illogical) preferences is often celebrated as their chief virtue. So why, then, do market advocates often require implicitly, and sometimes explicitly, that environmentalists justify their preferences scientifically or through cost-benefit analysis, especially if public goods are involved? Are preferences for clean air different from preferences for pizza, cars, or organic lettuce? Why should environmental preferences require scientific justification?

Peter Huber, whose 1999 book *Hard Green* drew sharp criticism from the environmental left, noted in the book that scientific analysis may not be sufficient to resolve environmental policy disputes. According to Huber,

The axiology of science, its priorities of investigation and research, the criteria for what to study and what not to, are matters of taste, budget, values, politics: everything but science itself. Scientific priorities... are themselves trans-scientific.... Science will never tell us just how much scrubber or converter to stick on a tailpipe or smokestack, how much sand and gravel at the end of sewer pipe, how much plastic and clay around the sides of the dump. (p. xviii)

Even the invisible can have value, even the innocuous can entail cost, if only because value and cost ultimately lie in the mind of the beholder. People are entitled to dislike chemicals

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in their drinking water simply because they dislike them, whether the distaste is for fluoride added deliberately by a meddlesome government or tetrachloro-ethylene added negligently by a noisome factory. People are perfectly entitled to prefer pure drinking water, even if contaminants cause them no harm, even if contaminants harden their teeth. (p. 136)

Paul Portney made a similar point in his 1992 article “Trouble in Happyville.” In that, he described a hypothetical town in which 1,000 residents were willing to pay \$1,000 each to eliminate a natural contaminant from the water supply even though the top risk assessors in the world claimed the exposure was benign. Portney asked, what were the benefits of water purification and would the reader support a tort judgement against a corporate “polluter” if the substance came from its discharges?

How should markets process environmental preferences to arrive at choices? Are markets incapable of processing such preferences into choices under certain circumstances, and, if so, what should be done instead? When faced with an environmental issue, should we not have an economic policy analysis rather than an endless discussion of sound or unsound science?

ECONOMIC ANALYSIS

Within an economic framework, environmental policy disputes, like all policy disputes, are about the distribution of wealth and property rights, or about the ability of current market institutions to achieve efficiency. An economic analysis would ask whether disputes about environmental goods are about the distribution of property rights or about efficiency, and whether the goods are private or public. It would take preferences as given and ask whether markets can satisfy them rather than argue that people should have different preferences because the ones they currently have are not scientifically based.

For those private goods for which property rights already exist, normal market forces serve people’s preferences under most circumstances, and discussions about the scientific validity of people’s preferences are irrelevant. As long as “environmental” and “non-environmental” goods (energy-efficient cars and gas guzzlers, or biotech and organic foods, for example) are simultaneously available in markets, people with varied preferences can purchase the commodities they prefer.

Can markets supply wilderness? A skeptical environmentalist might ask, can markets provide empty, unused green space? Markets can provide any commodity as long as people are willing to pay the owner more than the opportunity cost of using the assets for something else, and the consumption of the commodity can be restricted to those who pay the owner. Wilderness owners can charge fees to all those who physically cross the boundary of a wilderness as long as the transaction costs of monitoring the boundary are not prohibitive.

Even though wilderness can be provided by market forces as long as people are willing to pay more than its opportunity costs, in many cases those who like wilderness seem unwilling to do so. For example, to compensate a wilderness owner for all the second homes or ski resorts that could be built or the mineral or tim-

ber extraction that could take place would be very expensive in some locations.

The private forest lands of northern Maine offer insight into this issue. The owners allow people to use them for hiking, fishing, and camping in exchange for fees. But the owners do extract timber, which suggests that the willingness of people to pay is not sufficiently high to offset the profits from timber. Thus, in some (perhaps most) settings, wilderness actually is an expensive commodity to provide because of its high opportunity costs, and its consumers do not want to pay enough for it.

Public goods Air and water quality disputes are more challenging to analyze than the supply of wilderness for two reasons. First, while property rights have become defined and enforced for land, property rights are not commonly found for the air and water. Thus, environmental politics involves continuous struggle over implicit property rights and the wealth effects that flow from such rights. Second, both air and water quality are “local” public goods (club goods) rather than private goods, thus individual differences in consumption — the primary method of reducing conflict associated with private goods — are not possible. Instead, everyone’s varied preferences for environmental goods can only result in one jointly consumed outcome, which implies that even an efficient solution, difficult to achieve in itself, would leave most people unhappy relative to their most preferred outcome.

Initial allocation problem One possible impediment to the implementation of market-like solutions to air and water quality is that the initial ownership of property rights to air or water emissions not only has wealth effects, but also efficiency effects. That is, those particular property rights (the right to a pristine environment) are so valuable relative to other assets that their initial allocation alters the willingness of people to pay for them and thus affects how much pollution exists. In such cases, the initial distribution is the “whole ballgame” because it determines the resulting equilibrium air and water quality.

Under many circumstances, the initial allocation of property rights does not affect the evolution of trades and thus does not affect efficiency. For example, analog cellular phone licenses were given away by the Federal Communications Commission in a lottery. The licenses that were won by non-telecom companies were quickly sold to telecom companies that then built cellular phone networks. The wealth distribution, rather than the efficiency of the cellular phone market, was affected by the arbitrary initial allocation of property rights.

But environmental quality may be different. For purposes of discussion, let us assign initial allocation of air quality rights to some members of the Sierra Club. If the environment were like the cellular phone license example, the eventual level of pollution in Los Angeles, for example, would not be affected. The initial environmentally minded owners would accept money in return for environmental degradation.

Alternatively, air quality may be different from the cell phone example. Initial ownership by environmentalists of air and water quality rights might reduce activity in industrial society significantly because the environmentalists would not accept money in return for allowing Los Angeles to exist (or, at least, Los Angeles with its current air quality). The Sierra Club members likely

value environmental quality much more than other people and much more than the other assets they possess. Conversely, if polluters had unlimited rights to pollute, pollution levels might be much higher because the willingness of environmentalists to pay polluters to restrict emissions could be much less than the compensation the environmentalists would demand if they owned the initial rights. Thus, the initial allocation of air and water quality rights may have large consequences on the resulting level of air and water quality.

Free-rider problem One reason the Sierra Club may be unwilling to pay market rates for a cleaner environment is because any air quality gains obtained with club funds could not be restricted to those who contributed to restrict emissions. In other words, people would free-ride on the benefits purchased by Sierra Club “cleaner air fund” contributors.

Conversely, if Congress created additional emissions rights, all

firms, which would benefit most from emissions expansion, would face difficulties similar to those faced by citizens.

Another possible solution to the free-rider problem would be to raise revenues to purchase emissions rights through the legislative process or subsidize the activities of private groups to do so. Some might see that as no different than the status quo policy of funding the Environmental Protection Agency, but emissions-rights purchases would make the relationship between costs and benefits more transparent and incremental. Congress would debate whether an extra \$50 million to buy so many pounds of emissions rights (or subsidize a private organization that bought rights) was worth the reduction in ambient exposure or whether acceptance of \$50 million from polluters was sufficient compensation for increased ambient exposure. In such a debate, the costs of reduced pollution would not be hidden as they are now. Under current policy, standards are changed as if the resulting benefits

Can environmentalists and lobbyists channel their energy away from lobbying and publishing pamphlets, and toward creating and trading emission rights?

emitters would benefit from the lower prices that would result from the increased supply. Those benefits could not be confined to the firms that paid (lobbied) to create the additional rights. The creation of additional emissions rights faces another obstacle: The firms most likely to benefit from the right to emit are potential rather than existing firms, because the potential firms likely would release the lion's share of the new emissions. As Robert Crandall argued in his 1983 book *Controlling Industrial Pollution*, traditional environmental protection, with its separate standards for new and existing sources, serves the interest of existing firms by erecting entry barriers to new firms.

What should be done about the “free-rider” problem? One possibility would be to allow voluntary groups to solicit contributions to pay to increase or reduce the supply of emission rights. The free-rider problem does not result in zero provision of public goods, just less-than-optimal provision.

But the free-rider problem easily could magnify the problem over initial allocation of rights. To be more precise, the fear of the effects of the free-rider problem motivates continued political resistance by environmentalists to the creation of initial rights. If firms gained the right to pollute and environmentalists had to buy firms' rights to reduce emissions, the free-rider problem easily could result in too little purchase of rights by environmental groups and too much pollution relative to their preferences. Conversely, if citizens had the right to a pristine environment and firms had to purchase pollution rights or compensate citizens for the creation of additional rights, some firms would free ride on the efforts of others, and less pollution would occur than in the scenario in which firms had unlimited pollution rights. Firms would likely face fewer free-rider problems than citizens, but potential

had no costs and thus were free goods.

Disputed rights problem Allocating initial emission rights to incumbent polluters faces an additional difficulty: the disagreement over what can be consumed and disposed of without third parties' consent. To borrow again from Huber's *Hard Green*:

Labels like “externality” and its rough opposite, “privacy,” settle nothing. The rancher whose land abuts Yellowstone sees a federally protected wolf straying from the park to hunt his sheep. The rancher wants the wolf removed, at once, and by force if necessary. And how, philosophically, is he very different from a woman with an unwelcome fetus in her uterus? Both can speak indignantly about autonomy and personal freedom. And each will face an outsider who replies: The space is not yours alone; I too have an interest in it.... With pregnancy, as elsewhere, the “internal” gives way to the “external” where society says it does, no sooner or later. (p. 134)

Policy areas clearly vary as to how much the definition of property is up for grabs, and the environmental area is one of the least settled.

With air quality, the problem may be worse because both environmentalists and industrial polluters envision the allocation of property rights as the end rather than the beginning of the process. Even though some environmentalists pursue their land-use goals through land purchases and development easements, they do not analogize to emission-rights acquisition. And while firms are comfortable with buying and selling, under current cap-and-trade emission rights policies, they cannot pay anyone to increase aggregate emissions.

NEGOTIATING AWAY THE INEFFICIENCIES

Although scientific studies and cost-benefit studies do not resolve environmental policy disputes, such studies do serve an important function: They demonstrate the possibility of large gains to trade. For example, let us consider studies that demonstrate that cleaning up Superfund sites or arsenic contamination of water supplies is very expensive relative to the number of lives saved (valued at the conventional estimate of a statistical life) and not worth the benefits.

The conclusion that one should draw from such studies is not that the preferences of environmentalists (who want contaminated, abandoned industrial sites to be cleaned up or arsenic removed from water supplies) should be different. Instead, one should conclude that the implicit property rights given to environmentalists by Superfund and arsenic regulation have created the possibility of large gains to trade. Because compliance with Superfund or arsenic regulations is so expensive relative to the benefits, those who bear the costs of the regulation would pay a large amount to avoid cleanup. The alleged “victims” of pollution may well accept such a payment rather than accept the regulated status quo in which litigation is much more common than cleanup. If those people were given the equivalent wealth transfer and the Superfund and arsenic studies (and others like them) are correct, then the “victims” would not spend the money to reduce the environmental risk targeted by the regulation. Instead, they would use the money to reduce other risks or for other consumption. They would rather give up their right to be protected against a particular environmental harm in return for money.

The initial allocation of cell phone rights also was “irrational” because rights were given to people who did not know how to build a cellular phone system. But the irrationality only affected the wealth distribution rather than the development of cell phones, because the rights were easily traded to phone companies. No scientific studies were commissioned to demonstrate that the allocation of cellular phone rights was not “sound science” because trading eliminated the irrationality of the initial allocation.

The biggest irrationality of environmental regulation is not its allocation of rights to a pristine environment, but instead is its not allowing the initial “irrationality” to be eliminated by subsequent trading. So, for example, giving people the right to cleaned-up industrial sites at the expense of anyone with any legal connection to the site (Superfund) has created vacant industrial sites surrounded by poor unemployed people because no one is allowed to negotiate away from the initial rights allocation.

Another sensible reform would allow the amount of emissions in tradable-permit systems to go up rather than down only. Under cap-and-trade proposals, environmentalists can purchase rights to decrease the supply of emissions, but currently polluters cannot pay anyone to accept an increased supply of emissions. If the purpose of cap-and-trade policies is to mimic markets, then the supply of emissions rights must be flexible in both directions.

CONCLUSION

Economic analysis of environmental policy disputes does not examine the validity of preferences. Instead, it asks whether policy disputes are about the allocation of property rights or efficien-

cy, and whether the disputes are about private or public goods.

Many environmental disputes are about the initial distribution of property rights to public goods such as air and water quality. Firms want rights to their status quo emission behavior. Environmentalists do not want that to occur. Both believe that their ability to raise money to purchase rights to secure their preferred outcome relative to the status quo would be limited. And they may be correct in their assessment.

Scientific studies do not resolve environmental policy disputes. To be sure, scientific analyses often help people form their preferences and understand the cost-and-benefit consequences of their preferences. In other words, studies that “demonstrate” a particular environmental regulation costs many orders of magnitude more per life saved than people appear to be willing to spend suggest the possibility of market exchange. If those citizens on whose behalf government adopts costly environmental regulations were instead given the equivalent wealth transfer and the cost-benefit analyses are correct, then the “victims” would not spend the money to reduce the environmental risk targeted by the regulation. Instead, they would use the money to reduce other risks or for other consumption. They would rather give up their right to be protected against a particular environmental harm in return for money.

Thus, the main impediment to the creation of environmental markets may be the unwillingness of the participants to accept any definition of initial property rights. Instead, they prefer to use the political system to engage in continuous wealth and property rights disputes. The difficult task is to channel the energies of environmentalists and polluters into creating and then trading emission rights rather than publishing pamphlets and lobbying. **R**

READINGS

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