

f regulation without fear

Frank Ackerman

The Doonesbury cartoon strip recently featured a character named “Fear Itself,” who showed up to lend a hand in frightening voters during last year’s election campaign. When the talk turns to the environment, Fear Itself could be deployed to spread rumors of job losses and the ruinous economic costs of regulation. Doesn’t everyone know that we can’t afford all those expensive new initiatives that environmentalists talk about?

Fears of this sort have been widespread in recent years, encouraged by the White House and its allies in Congress. At the beginning of his first term, George W. Bush greatly strengthened the role of the Office of Management and Budget (OMB), which has the authority to pass judgment on regulations proposed by EPA and other agencies. The OMB now insists that detailed economic analyses prove that the benefits of regulations exceed their costs, and the agency has the authority to reject regulations that it considers to demonstrate substandard economic justification. Thus, the academic techniques of cost-benefit analysis have become “the decider” on environmental policy issues.

This might make sense—if the costs of regulation were a major economic problem, and if it were possible to put meaningful dollar values on the benefits of regulation, in order to compare benefits and costs. However, the costs of regulation are commonly overstated; and the monetary valuation of benefits of regulation is frequently absurd.

It turns out that environmental regulations just aren’t very expensive. Almost all industries spend 2 percent or less of their sales revenue, often much less, on pollution controls. Amounts of that size don’t bankrupt businesses or destroy jobs. Lewis and Clark economist Eban Goodstein wrote the classic analysis of the jobs versus environment question, *The Great Trade-Off Myth*. He found that there are virtually no documented cases of jobs lost to environmental regulation, save for limited numbers in extractive industries such as logging and mining. There may be a case for assistance to displaced workers in those industries. In fact, the number of affected workers is so small, on a national scale, that the costs of assistance would not be prohibitive. Companies do move at times, often in pursuit of markets, resources, or cheap labor; but researchers have repeatedly failed to find any hard evidence of businesses fleeing from strict environmental standards.

The idea of cost-benefit analysis sounds good at first: compare the costs and benefits of a policy, and only adopt it if the benefits outweigh the costs. The problem is that while the costs of environmental protection are often measured in dollars, the benefits usually are not. To complete a cost-benefit analysis, economists are forced to invent imaginary prices for priceless, non-monetary values.

The Value of Avoiding Chronic Bronchitis...

The first major use of cost-benefit analysis in the development of U.S. environmental policy occurred in the controversy over standards for arsenic in drinking water. On the cost side, engineers identified more than a dozen different technologies for removing arsenic from a variety of water systems. Each had well-defined costs, which in more than a year of intense partisan debate, no one questioned. The debate turned entirely on the benefit side, on the value of not drinking water laced with arsenic.

Because some people die from diseases caused by arsenic, the EPA, under the Clinton Administration, put a dollar value on the loss of life. Basing their evaluation on an intricate analysis of small wage differentials paid for dangerous jobs, the EPA valued human lives at \$6.1 million each.

Under the Bush Administration, the EPA “improved” its methodology and concluded that a human life was worth only \$3.7 million apiece. This number was based on the answers people gave to hypothetical questions about the value of avoiding small risks of death under carefully contrived, imaginary conditions. Neither estimate conveys the sacredness of human life taught by most religious and ethical traditions, nor the way that legal systems hold people responsible when they cause the deaths of others.

Even more convoluted were the calculations for nonfatal diseases caused by arsenic. Lacking any directly relevant information or estimates, EPA’s consultants guessed that the value of avoiding a nonfatal case of bladder cancer would be the same as the value of avoiding a case of chronic bronchitis.

The value of avoiding bronchitis was based on interviews in a shopping mall in Greensboro, North Carolina. Researchers asked shoppers whether they would prefer to live in their own neighborhood or in a similar one with a lower cost of living but a higher rate of bronchitis. The numbers used in the questions (for the cost of living and the rate of bronchitis) were adjusted until the respondents were equally happy with both choices. After excluding responses from one-third of the interviewees, who could not give consistent answers to such questions, as well as from others who gave extremely high or low answers, the researchers inferred a value per avoided case of bronchitis from the remaining responses. Analyzing a different disease more than ten years later, EPA’s consultants merely adjusted the Greensboro bronchitis value for inflation to arrive at the value of avoiding nonfatal bladder cancer.

Humpback Whales: \$18 Billion?

Other examples of cost-benefit analysis are frequently as fantastic and no more scientific. A Forest Service proposal to protect millions of acres of wilderness from road construction was said, by clearly hostile Bush appointees, to cost \$184 million in lost timber sales and to create benefits of only \$219,000 per year. The estimated benefits were so small because they included nothing except the avoided costs of road construction and maintenance. It is, of course, true that every wilderness area that we preserve “saves” a small amount of money on avoided road expenses. But is that the only value of wild nature? In the Bush administration approach, the value of roadless wilderness areas for clean air, science, recreation, watershed maintenance, and any other environmental objective, was assigned no value whatsoever.

Many other mischievous definitions of benefits arise when

analysts monetize priceless resources such as the existence of entire species and unique and irreplaceable settings. One survey, asking what people would pay to save the whales, concluded that the American public as a whole valued the existence of humpback whales at \$18 billion. Does this mean that we would welcome an offer of \$36 billion from a billionaire who wanted to buy the right to hunt and kill all the humpbacks in the ocean? This hefty sum is, after all, twice as much as the whales are ‘worth’ to us.

The whales are not alone in this regard. At what price would we sell the Grand Canyon to someone who wanted to operate a very big landfill? We might have to conclude that the existence of whales, or of the Grand Canyon, is extremely valuable, but that the value is not measurable in dollars.

Discounting the Future

Yet another problem arises when cost-benefit analysis tackles the future. A process called *discounting* makes costs and benefits expected in the future look like they are worth much less today—it shrinks the value of the world our descendants will inherit. When used to evaluate environmental policy, discounting seems to imply that we should do very little today to reduce greenhouse gas emissions, or other practices that will cause serious harms in the future.

The story of discounting begins with the process of compound interest. To get \$100 out of the bank ten years from now, you don’t have to put \$100 in today; you can put in somewhat less, and thanks to compound interest, you’ll have more and more as time goes on. At 3 percent annual interest, you could put roughly \$74 in the bank in 2007 and withdraw \$100 in ten years. Therefore, you could view \$100 in 2017 as equal in value to \$74 in 2007.

This is summarized by saying that \$100 in 2017 has a discounted or present value of \$74 in 2007, using a 3 percent “discount rate.” The longer the time period and/or the higher the discount rate, the lower the present value. This is a helpful insight if you are evaluating an investment or if you are paying back college loans, a car loan, or a home mortgage. In the case of a loan, you can see that the burden on your current finances of a \$100 loan payment due in ten years is less than \$100 payment due today—and compare it with a loan that is due in twenty years. Present value provides a way of thinking about and measuring change in value, or financial burden, over a specific time period. But strangely enough, this calculation becomes nonsensical when applied to long-term environmental choices.

Economists engaged in cost-benefit analysis apply the same present value calculation to both costs and benefits that are expected to occur in future years; for a bottom line calculation, they add up the present value of all the individual pieces and call the result the net present value. However, climate change and other long-term environmental problems involve spans of time much longer than the mortgage on your house. And over a century or two, compound interest becomes a powerful force. At 3 percent interest, you only have to put \$5.20 in the bank to have \$100 in your account a century from now. By that same logic, \$100,000 of damages that might be caused by climate change in 2107 has a present value, for cost-benefit purposes, of only \$5,200 today. This


means that, in cost-benefit terms, it is not ‘worth’ spending more than \$5,200 today to prevent that much larger future harm. Run the clock forward another century, and the present value calculation is even more astonishing. It advises us to spend no more than a mere \$270 today to protect our descendants in 2207 from \$100,000 of harm.

Even worse, if each life saved has a monetary value, should we discount those as well, so that (at a 3 percent discount rate) 1,000 avoided deaths a century from now have a present value of 52 deaths avoided today? Or that 1,000 deaths avoided two centuries from now are worth less than three deaths avoided today? There is no obvious stopping point; the machinery of discounting shrinks all future values into insignificance, and seems to justify forgetting about tomorrow.

Yet there is still some flexibility in the implementation of the formulas—particularly in the choice of a discount rate. In discounting, as in other aspects of cost-benefit analysis, the political disagreements mentioned above often hide behind the most obscurely technical issues. Analyses of climate change that use a discount rate of 1.5% or less, such as the British government’s recent Stern review (an advisory report on global warming) find it to be worthwhile to engage in large-scale, immediate action. Analyses that use discount rates as high as 5 percent, or even 3 percent, such as those used by many conventional economists, end up endorsing a program of little or no immediate action—because a higher discount rate shrinks the present value of avoiding future harms.

Fear Itself

What’s the alternative to cost-benefit analysis? When it comes to the economics of environmental protection, we have nothing to fear except Fear Itself. No great economic damages have occurred or will occur from taking active measures to protect ourselves, our children, and our natural surroundings. The environmental legislation of the last 30-odd years has given us dramatically cleaner air and water, lower exposure to many harmful pollutants, and other benefits, at an entirely affordable cost. Just as most people find they can afford to spend money on their grandchildren, society can afford the expenditures on climate change that are required to ensure that future generations inherit a liveable world.

The process of analyzing and protecting our world does not become more profound or scientific when we invent imaginary numbers to represent the price of the priceless values of life, health, nature, and a sustainable future. A precautionary approach to known and reasonably anticipated hazards makes far more sense than the crude distortions that have been carried out in the name of cost-benefit analysis. 

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