



Staying Within the Guardrails

Costs, benefits, risk, and equity are but a few of the inputs into a “dashboard approach,” allowing more intelligent rulemaking and avoiding regulatory clunkers



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THE scholars Michael Livermore and Richard Revesz have been among the most important voices in the legal academy supporting the use of cost-benefit analysis in decisionmaking. They have argued for years that CBA can provide a foundation for robust, protective environmental, health, and safety regulations. Their latest book, *Reviving Rationality: Saving Cost-Benefit Analysis for the Sake of the Environment and Our Health*, continues to make that argument. But their faith in the future of CBA seems to have been deeply shaken by the Trump presidency. The book thus expresses a sense of crisis about the methodology's future.

The term cost-benefit analysis is sometimes used to mean any comparison of pros and cons, which is something we all do intuitively for important decisions in ordinary life. For instance, whether to pay extra for a more fuel-efficient furnace in anticipation of lower monthly heating bills—you can even add greater comfort into the equation. For present purposes, though, CBA goes beyond that: it means a very rigorous way of evaluating almost any proposed action by balancing the pros and cons, using economic analysis to quantify all the costs and benefits of an action, even those that are not at first glance economic. Basically, everything gets converted into dollar equivalents in this process, even such concepts as health or security. And problematically, unlike when a homeowner decides to buy a more efficient furnace, the costs are usually born by one set of parties and the benefits accrued to another.

The practical significance of CBA stems largely from presidential efforts to centralize review of proposed regulations in the White House. Although some laws explicitly require the practice or at least a full balancing of costs and benefits, those laws are few. Nevertheless, for the past forty years, starting with Ronald Reagan's Executive Order 12291, issued in 1981, presidents have ordered agencies to make cost-benefit analysis a major part of their decisionmaking.

Many on the left have long viewed cost-benefit analysis with suspicion, seeing it as inherently biased against regulations needed to protect the public and the environment. Frank Ackerman and Lisa Heinzerling's 2004 book *Priceless: On Knowing the Price of*

Everything and the Value of Nothing provides a classic critique. The title of the book itself expresses their skepticism about whether environmental values can be reduced to monetary terms. They also viewed CBA as a stealth attack on regulations. As they put it, "cost-benefit analysis promotes a deregulatory agenda under the cover of scientific objectivity." Progressives' increased emphasis on environmental justice further undercuts CBA's appeal, as the practice seems to be unhelpful to impacted communities.

While in the past CBA has been touted as the gold standard for rational regulation, it seems doubtful that it retains the political support to effectively play that role in the future. It may still be valuable, however, as a safeguard against regulations whose costs and benefits are too far out of alignment. If it cannot provide the "right answer" to a regulatory issue, CBA can at least indicate whether a proposed solution is outside the zone of reasonableness. To borrow a phrase from Livermore and Revesz, it can provide an important guardrail for the regulatory process.

To make the case for this more modest role for cost-benefit analysis, I will begin with a brief dive into how it actually works, followed by a quick review of its history and implementation under Presidents Obama and Trump. That will bring us to the question of how, in our increasingly polarized polity, CBA can best contribute to the regulatory process.

The debate over cost-benefit analysis cannot really be understood without some sense of how it actually works. There are typically financial costs for industry on one side of the balance. Those are easy to measure, at least in principle. However, environmental benefits, such as improvements in public health, must somehow be converted to monetary terms to be compared with the costs. Economists have developed a variety of methods for monetizing benefits. For instance, they calculate a regulation's lifesaving benefits by assigning a monetary value to each death and multiplying that by the number of deaths prevented by the regulation. The monetary amount is called the "value of a statistical life."

They determine this amount by studying employment statistics in occupations with different levels of risk, and asking how much you have to pay workers in exchange for submitting to a higher level of danger. According to some leading studies, you have to pay work-

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ers an extra \$10,000 per year to accept a job where their risk of death increases by a tenth of a percent. Because \$10,000 is a tenth of a percent of \$10 million, an economist could say therefore that the statistical value of life is \$10 million. (Actually, this is really just another way of saying how much of a pay cut workers are willing to take in exchange for a safer workplace in a different job. But that's another story.)

Historically, the White House has told agencies to count all regulatory benefits in their calculations. This has become controversial recently. A regulation may have side-benefits that don't directly relate to the purpose of the regulation. For instance, EPA has required pollution controls that dramatically slash emissions of carbon monoxide from vehicles. As Livermore and Revesz explained in an earlier book, *Retaking Rationality*, it turns out that one major benefit of those air pollution regulations is that it is now very difficult to commit suicide by gassing oneself in a car. Some would-be suicides simply use another method, but apparently some simply give up on the idea. Economists as well as the White House guidelines would count the reduction in suicides as a benefit of the regulation. Conservatives argue that these incidental benefits (often called co-benefits) shouldn't count. A recent example is the dispute over EPA regulations of methane, a potent greenhouse gas. Although targeted at preventing climate change, the regulations would also have the co-benefits of reducing ozone, fine particulates, and hazardous air pollutants not directly targeted by EPA's regulation.

Here's a quick, very rough example of how cost-benefit analysis works in a public health context: whether to mandate COVID vaccinations. The benefits of vaccination at any given time depend on how widespread COVID is. Just to use some specific figures: As of November, there were roughly seven COVID deaths on average per 100,000 unvaccinated people and only 0.5 deaths among fully vaccinated ones. (It's not clear how the omicron variant will impact the numbers; at this writing, there are still many unknowns.) In other words, if you had fully vaccinated 100,000 people at that point, you could expect to save about seven lives. Given the value of \$10 million that EPA assigns per life, vaccination would have benefits of at least \$70 million for that population. (The "at least" is because of other benefits that I haven't tried to include, such as

reductions in hospitalizations and slowing the spread of the disease to other people.) Two doses of Pfizer vaccine cost the federal government about forty dollars, but let's round up to a hundred to account for the costs of transporting, storing, and administering the vaccine. The cost for vaccinating 100,000 people then comes to \$10 million, compared to \$70 million in benefits. So, according to this very rough calculation, the benefits of vaccination outweighed the cost by seven to one. This should be an appealing revelation from a public perspective, and cause resisters to line up to get the job. But millions of people find these benefits unappealing or outweighed by other concerns, including politics.

THE DEBATE over cost-benefit analysis is now at least forty years old, going back to Ronald Reagan's executive order. Environmentalists were sharply critical of the EO, which was associated with Reagan's campaign to "get the government off the backs of the people." To the surprise of some observers, however, more regulation-friendly presidents like Clinton and Obama tinkered with Reagan's order but left its core intact. A 1993 Clinton executive order, numbered 12866, has continued to be the major basis for cost-benefit analysis, with a few tweaks from later presidents. The George W. Bush administration seemed, at least to environmentalists, like a replay of the Reagan years, with cost-benefit analysis serving to once again undercut regulatory initiatives.

The Obama administration showed, however, that cost-benefit analysis could be used to favor progressive regulation, as Livermore and Revesz have long argued it could. In the area of climate change, the administration's cost-benefit analysis showed that restrictions on fossil fuel use produced major health benefits, particularly by reducing dangerous fine particulates. Obama also introduced the use of the *social cost of carbon* in cost-benefit analysis. The social cost of carbon is an estimate of the harm produced by adding a ton of carbon to the atmosphere. After an intensive literature review and additional economic modeling by an expert task force, the administration used CBA to justify ambitious fuel efficiency standards for cars, limits on car-

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Add Progress, Stability to Policymaking

The Trump administration's biggest actions were often deregulatory—rescinding or modifying the prior administration's recently issued rules. These moves frequently targeted the Obama administration's flagship environmental protections, including the Clean Power Plan, the Waters of the United States Rule, and its groundbreaking vehicle fuel economy and greenhouse gas standards—all of which, according to their cost-benefit analyses, were expected to provide hundreds of millions of net monetized benefits each year.

Thankfully, in some of these cases, courts blocked the Trump actions, at least in part based on the administration's shoddy reasoning for moving away from CBA-justified policies. But if the commitment to CBA and what it represents is abandoned, there will be no protection from such regulatory swings in our increasingly polarized society.

At its core, a commitment to CBA is a commitment to evidence-backed policies. The tool is meant to be a neutral aide to decisionmaking, helping highlight moves from the status quo that are net socially beneficial based on available evidence. If there's no economic or scientific evidence to support a move away from the status quo (in either direction), then CBA will not help justify the move. In such cases, federal agencies could pursue their objectives without CBA's support—as they often do. But if there is solid evidence to support a move, a CBA will provide a strong justification to an agency advancing such an action. The resulting policy will be more resilient, especially against a future administration with different priorities.

In Trump's efforts to roll back Obama-era regulations, for example, the new administration was most successful when prior regulations were not supported by relatively



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complete CBAs, as was the case for the Hydraulic Fracturing on Federal and Indian Lands Rule. But it was least successful when prior regulations were strongly CBA-justified, such as fuel economy and greenhouse gas standards.

No one thinks CBA, as currently practiced, is perfect. Given incomplete data and underlying scientific uncertainty, CBAs today cannot produce one number to unequivocally direct policies. Instead, they often point to a range of expected values of different courses of action. And admittedly, benefits to the environment are not always easily converted into the monetary values that make CBA most useful—though great strides have been made in doing this, such as valuing the negative consequences of exposure to particulate matter and the accumulation of greenhouse gases.

Moreover, the effort to monetize benefits has sometimes revealed them to be more valuable than initially thought. Examples include the use of the Value of Statistical Life to assess mortality-risk reductions, the Reagan administration's decision to pursue a stricter standard for phasing out lead in gasoline, and the value of additional reductions in particulate matter emissions below the cost-blind National Ambient Air

Quality Standard. But, most importantly, CBA is still the best available tool for advancing sensible and resilient policies to address our most pressing environmental problems.

Pro-regulatory and anti-regulatory advocates both push for less analysis to impose their preferred policies more easily. They attack CBA simultaneously for being easy to manipulate (by the other side), anti-regulatory or pro-regulatory (as relevant), not transparent, and persistently net costly for some groups—eroding decades of bipartisan consensus around the use of the tool. But they typically fail to acknowledge that their preferred alternatives all perform worse by these same measures.

And, simply put, those who value efforts to protect the environment have more to lose in a regulatory dynamic where policy swings from one administration to the next. Many issues that are particularly important, such as seriously tackling the threat of climate change, involve sustained commitments over a long time horizon in order to realize benefits. The focus should be on fostering commitments to welfare-enhancing policies and generating the necessary evidence to obtain bipartisan buy-in. This work is difficult, no doubt, but necessary.

bon emissions from power plants, and a host of other environmental measures.

Many critics on the left thought, however, that even under regulation-friendly Obama, cost-benefit analysis resulted in weaker regulations and bureaucratic foot-dragging. They were particularly critical of the president's first appointee as regulatory czar, law professor Cass Sunstein. They blamed Sunstein for delays in the issuance of regulations, weakening regulations proposed by EPA, and killing tightened restrictions on ozone pollution. Sunstein himself would point instead to his role in approving Obama's climate change regulations.

MEANWHILE, Obama's use of cost-benefit analysis disenchanted many on the right, who came to see CBA as an inadequate safeguard against government overreach. The surprising result, under the Trump administration, was a willingness to short-circuit CBA in order to justify aggressive deregulation. In a 2019 article, I took a close look at the role of CBA in the last administration's first two years. The conclusion was clear: cost-benefit analysis under Trump was an afterthought at best. As did other observers, I found that the administration was far more interested in regulatory costs than in regulatory benefits. One signal of Trump's indifference to CBA was the selection of a young, previously unknown lawyer with two years of government experience as Trump's second regulatory czar.

While not rescinding existing orders, Trump gave short shrift to the benefit side of CBA. Within two weeks of taking office, he issued Executive Order 13771. This order required that the costs of any new regulation be offset by cost-savings from repealing existing regulations. Notably, regulatory benefits were not considered, only costs. It also required that agencies eliminate at least two regulations for each new regulation. Obviously, a balanced appraisal of costs and benefits was considered insufficient to push the massive deregulation that Trump was seeking.

The most glaring example of the Trump administration's willingness to play fast and loose with cost-benefit analysis involved fuel efficiency standards for

vehicles. Trump was eager to freeze the scheduled tightening of the standards put in place by Obama, even though the car manufacturers vocally supported them. In the view of outside economists, the initial version of the Trump era cost-benefit analysis did not even pass the laugh test. For example, the CBA claimed that as a result of loosening the standards, "the overall size of the vehicle fleet falls even though new vehicle prices are lower." Products rarely become less popular as a result of price cuts. "On its face," experts said on the Resources for the Future web site, "this is inconsistent with economics." Even the economists whose work the government relied on denounced the CBA. In a December 2018 article in the journal *Science*, they concluded that "the 2018 analysis has fundamental flaws and inconsistencies, is at odds with basic economic theory and empirical studies, is misleading, and does not improve estimates of costs and benefits of fuel economy standards beyond those in the 2016 analysis."

One of Trump's priorities was eliminating climate change regulations. Part of this campaign involved slashing estimates of the impact of greenhouse gases. As mentioned earlier, the Obama administration had convened an expert task force to estimate the harm done by adding one additional ton of carbon dioxide to the atmosphere. The task force also estimated the social cost of another potent greenhouse gas, methane — that is, the harm done by each additional ton of methane emitted. The Trump administration took aim at both of these estimates and came up with numbers that were only a fraction of the Obama estimates. Since climate change is a global problem, Obama's regulators had considered the global impacts of climate change, but the Trump team considered only direct impacts within the United States. As a result, the estimate of the social cost of methane was slashed by more than 95 percent.

The Trump estimate was resoundingly rejected as arbitrary and capricious by a federal district court in 2020. The court noted that the Obama estimate "resulted from an interagency team of experts developed through years of public comment and peer review," whereas the Trump estimate "was developed in months without any public comment or peer review." The court also observed that "focusing solely on do-

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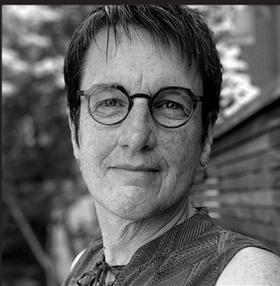
False Promise of Cost-Benefit Analysis

Making decisions is hard in environmental policy. It requires grappling with controversial value choices, complex systems, and vast uncertainties about future outcomes. Perhaps it's no surprise then that the promise of cost-benefit analysis—the idea that we can just plug numbers into a mathematical formula that will spit out objectively determined, welfare-maximizing public policy prescriptions—is almost irresistibly alluring.

But it's a false promise. EPA regulates literally hundreds of pollutants that we know cause serious harm to human health and the environment. But knowing something is one thing; being able to quantify it is another. For the vast majority of these pollutants, the agency simply doesn't have the fine-grained data necessary to put a dollar figure on the benefits of controlling them. These data gaps are so pervasive that most of the time, they prevent EPA's cost-benefit analyses from monetizing whole categories of benefits the agency itself views as significant. A study I published in 2019 showed that happening in 80 percent of the agency's major rulemakings issued between 2002 and 2015. Indeed, the problem is so severe that in many instances, EPA is entirely unable to quantify any of the impacts associated with the pollutants a regulation is designed to control.

And all of this is to say nothing of values—like dignity, equity, or human suffering—that resist quantification altogether.

If a CBA can't put a dollar figure on all the significant categories of benefit, it can't calculate net benefits. And if it can't calculate net benefits, formal CBA really doesn't tell you much. It certainly can't lead you to the Shangri-La of net benefits maximization promised by its proponents. The result is that the CBA



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requirement effectively ends up imposing a burden of proof on agencies that is in many instances insurmountable, putting a chilling effect on the implementation of regulatory safeguards. EPA personnel are afraid to propose rules with unquantifiable benefits that prevent the cost-benefit math from coming out right—for fear of reprimand by the bean counters at the White House's Office of Information and Regulatory Affairs. Under a set of executive orders dating back to President Reagan, that little-known but powerful office houses a small group of economists responsible for ensuring that federal regulations pass the CBA test.

It was worries about precisely this kind of dynamic that led Congress to largely avoid formal CBA in crafting the statutes from which most of our biggest and most contentious environmental regulations originate. Instead, lawmakers came up with a lot of creative ways to make sure costs are kept in check and are not disproportionate to benefits, without requiring them to be directly weighed against each other. In this way, they avoid the need to express regulatory benefits—things like saving lives or preventing neurological damage to kids—in monetary terms.

These are the scrappy, street-

smart tools of regulatory decision-making—tools like feasibility analysis, cost-effectiveness analysis, and multi-factor balancing. In contexts in which significant benefits (or costs) can't be quantified, these tools can often provide a more useful framework for rational decisionmaking. And while they may look less elegant in theory, they have a proven track record of actually reducing pollution levels in the real world. But the current hyper-formalistic approach to CBA that has become de rigueur under the regulatory review executive orders is often in tension with these statutory requirements.

In reforming the regulatory review process, President Biden should resist the false allure of CBA and instead reaffirm the primacy of federal agencies and their statutory mandates in regulatory decision-making. He should dispense with the CBA mandate, directing the agencies to instead use the context-specific methods set out in their authorizing statutes for considering the costs and benefits of regulations. These tools are pragmatic, effective, and tailored to specific contexts and information constraints—designed to take advantage of the information we have rather than the information we wish we had.

mestic effects has been soundly rejected by economists as improper and unsupported by science.” And in terms of effects on U.S. citizens, the new estimate “ignores impacts on 8 million United States citizens living abroad, including thousands of United States military personnel; billions of dollars of physical assets owned by United States companies abroad; United States companies impacted by their trading partners and suppliers abroad; and global migration and geopolitical security.”

The court concluded by saying that “an agency simply cannot construct a model that confirms a pre-ordained outcome while ignoring a model that reflects the best science available.” The litigation was put on hold after the election, leaving it unclear how the Ninth Circuit court of appeals would have ruled. The district court’s analysis, however,

clearly delineates the gap between the Trump approach and that of mainstream economists—showing once again how little the administration really cared about CBA. Nor, apparently, did other Republican political figures. So far as I’m aware, not a single Republican member of Congress complained about the administration’s shoddy economic analysis of regulation after regulation.

GIVEN shrinking support on both ends of the political spectrum, cost-benefit analysis is unlikely to serve as the litmus test for regulations in the future. That will be disappointing to some CBA advocates. They may need to recalibrate their goals. Livermore and Revesz themselves use the term “guardrail” in describing the role of cost-benefit analysis. George W. Bush and Barack Obama had very different approaches to regulation. If, as Livermore and Revesz maintain, CBA accommodates both approaches, there’s obviously considerable maneuvering room between the guardrails. The choice seems to be whether to acknowledge the limited role of CBA as a guardrail or abandon it for other alternatives.

One alternative would involve eliminating the analyses but keeping the information that goes into them. For example, in preparing an analysis of a new regulation under the Clean Air Act, EPA assembles and assesses the scientific information relating to the risk posed by a pollutant. This may involve both the use

of existing scientific studies and of agency models to determine how the pollutant would spread. EPA then models how a new regulation would affect pollution levels and the resulting risks. Those effects provide a basis for estimating the benefit of the regulation in reducing hospitalization and mortality. On the other

side, regulators attempt to determine how industry would comply and to estimate the costs of compliance. This discussion contains information that we’d really like to know regardless of whether we’re interested in a monetized CBA.

In the absence of a cost-benefit analysis, key agency findings could be displayed on a standardized online dashboard. The dashboard would provide information such as estimates of the severity of the risk being regulated; projections of compliance costs; quantifiable benefits of

the regulation; impact of the regulation on social inequality; unquantifiable benefits; impact on jobs, etc. This is all information that the public as well as the ultimate decisionmakers should take into account.

The appeal of the dashboard approach is that it doesn’t try to squeeze a complicated policy decision into a rigid monetized calculation. It also offers the opportunity to provide information about the uncertainties surrounding many policy decisions. For instance, scientists may not really have much confidence in any precise quantitative estimate of the risk posed by a single chemical, let alone the potential harm of climate change. The dashboard would avoid the need to come up with a specific number and allow fuller communication of the range of reasonable estimates.

What would be lost with this approach is a standardized metric for comparing costs and benefits. Monetization may seem artificial and reductionist, but it does provide useful guidance. Even for those who don’t believe that you can put a dollar value on risks to human lives, it may be useful to provide benchmarks for the tradeoffs accompanying a regulation. A cost-benefit analysis essentially does that by comparing regulatory tradeoffs with the tradeoffs that people make in terms of their personal risks in different occupations.

Estimates of the social cost of carbon provide an illustration of the pitfalls and utility of quantification. There are many uncertainties involved in calculating the social cost of carbon. Some involve the climate models themselves, others involve projections about how well society will adapt to climate change and

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about the economic cost of any remaining impacts. There is also considerable dispute about how to compare impacts decades or more in the future with costs incurred today.

Yet the estimate of the social cost of carbon does play a valuable role. It provides a guidepost about what costs are justifiable and a mechanism for ensuring some consistency across the many different regulatory arenas where climate change impacts are important. It also provides a gauge of whether market-based mechanisms are setting a reasonable price on carbon emissions. Something important would be lost if we substitute a dashboard of qualitative information for this quantified estimate.

Another advantage of cost-benefit analysis lies in the fact that it involves a standardized methodology backed up by the professional norms of economists. This standardization makes CBA useful for decision-makers needing a metric to compare actions across different agencies or across presidential administrations. It also provides some constraints on the ability of different presidential administrations to swing regulatory policy in opposing directions.

The guardrail approach seems consistent with what the Supreme Court has had to say about cost-benefit analysis. While CBA is founded on presidential mandates, the courts have also had something to say about it. In *Michigan v. EPA*, decided in 2015, the issue was whether EPA needed to consider costs in deciding whether to regulate toxic emissions from power plants. The statutory language was quite open-ended and said nothing directly bearing on the question. The Court split five to four, but there was a surprising amount of agreement on one fundamental issue: At some point in the regulatory process, EPA would need to consider how the costs of regulation compared with its benefits. Justice Scalia's majority opinion said that "no regulation is 'appropriate' if it does significantly more harm than good." Justice Kagan's dissent agreed that "(absent contrary indication from Congress) an agency must take costs into account in some manner before imposing significant regulatory burdens." The dissent also agreed (quoting a previous Scalia opinion) that ignoring costs would create a risk that the agency would "impose massive costs far in excess of any benefit." In that earlier case, *Entergy Corp. v. Riverkeeper, Inc.*, the issue was whether EPA had erred

in considering the costs as well as the benefits of requiring power plants to use closed-system cooling in order to minimize impacts on waterbodies. Justice Scalia had said it was a "reasonable and hence legitimate exercise of its discretion to weigh benefits against costs," for EPA to consider whether costs were "significantly greater than" benefits. While less than a full-throated endorsement of CBA, the Court clearly seemed favorably inclined to using it in some form as a way to ensure against unreasonable regulatory tradeoffs.

INDEED, there is a case to be made for retaining cost-benefit analysis as part of the decision-making process. It is a pipedream, however, to imagine that CBA will ever be able to boil down all the information relevant to policymakers into a single definitive number. The monetized results will never be able to include everything relevant to social policy and will always incorporate judgment calls about uncertain parameters.

Revesz and Livermore refer to cost-benefit analysis as providing guardrails. It seems to me that this is much more defensible than the stronger claim that CBA equates with good social policy. It provides much more room for political disagreement about what values government should pursue. It is also a claim that comes closer, at least in my view, to what CBA can actually deliver, given the data gaps, modeling difficulties, and unquantifiable benefits that are an inevitable part of the enterprise. Rather than being a litmus test, CBA should function as a way of giving policymakers the best available information about the positive and negative effects of a regulation.

As we have seen, political support for use of cost-benefit analysis as the yardstick for regulators has dwindled. The theoretical and legal arguments for that kind of reliance on cost-benefit analysis are also shaky. Nevertheless, CBA does retain some advantages: as a discipline to ensure full articulation of regulatory impacts; as a rough metric for comparisons across agencies and administrations; and as a guidepost for regulatory reasonableness. Forty years of history show that while this is surely a more modest claim than some advocates of cost-benefit analysis have made, it is also a more defensible one. **TEF**

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