

POLICY BRIEF 2011-06

A Better Approach to Environmental Regulation: Getting the Costs and Benefits Right

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A Better Approach to Environmental Regulation: Getting the Costs and Benefits Right

Regulation is critical to good environmental policy because it corrects market failures that can jeopardize the health and safety of American families. Nevertheless, it is usually not easy to determine which regulations will or will not be effective. Cost-benefit analysis is a key tool for evaluating proposed regulations: for the past thirty years, it has been a cornerstone of the regulatory approval process. In practice, however, the use of cost-benefit analysis has sometimes fallen short, resulting in regulations that impose higher costs than necessary, relative to their goals. In his Hamilton Project discussion paper, Ted Gayer of the Brookings Institution proposes to elevate and improve the role of cost-benefit analysis in shaping environmental regulation. Gayer's proposal would require cost-benefit analysis to be conducted earlier in the regulatory process so that it can play a stronger role in regulatory decision-making, and would improve the foundations of cost-benefit analysis by verifying that agencies rely on the best studies available to come to their conclusions. In addition, Gayer raises concerns that recent regulatory analyses have departed from the traditional approach to cost-benefit analysis that focuses on social benefits like reduced environmental harm or improved health outcomes and advocates additional scrutiny of these analyses. These reforms would help ensure that the benefits of regulations outweigh their costs and that resources are allocated efficiently.

The Challenge

Cost-benefit analysis—the practice of monetizing and weighing costs and benefits in a given policy context—plays a key role in evaluating proposed environmental regulations. A proposed regulation with greater expected benefits than costs is likely to improve our lives, while one with expected costs that exceed benefits should be subject to more scrutiny about its purpose. The usefulness of cost-benefit analysis as a tool is fairly obvious. But carrying out that analysis—deciding which studies are reliable and which assumptions are credible, and leaving enough time at the end to incorporate the results—can be challenging.

The first obstacle to improving the use of cost-benefit analysis is the lack of guidelines in place regarding the quality and reliability of the empirical studies underlying this tool. In order to estimate the benefits of environmental regulations, it is important to establish a causal link between the action being regulated—pollution, for example—and negative consequences, such as adverse health effects. Regulators often rely on outside studies to provide evidence for this causal link, but it is critical that these studies use only the most rigorous methods to estimate the costs and benefits of a proposed regulation. Moreover, little information about those studies is provided to the public so that the credibility of the claimed benefits is difficult for the public and outside experts to verify.

Second, traditionally cost-benefit analysis has focused on social benefits like improved health, reduced mortality, better environmental amenities when evaluating whether a regulation's benefits exceed its cost. Increasingly, however, cost-benefit analyses have also included private benefits to consumers from regulations, for example, from regulations that require more energy-efficient products. The motivation for including these private benefits is the widespread belief of an “energy efficiency gap”—the apparent failure of many consumers to make cost-effective investments in energy efficiency. Taking the efficiency gap at face value, regulations or rules that require consumers to purchase energy efficient products (e.g., by limiting or banning the sale of lower efficiency products) make consumers better off.

Indeed, some recent regulatory changes have been motivated almost entirely by such posited benefits. For example, new analyses for the Corporate Average Fuel Economy (CAFE) standards count the money people save from improved fuel economy (net of the higher cost of the vehicle or loss of features) as a benefit of regulation. In fact, 88 percent of the

gross benefits of these new fuel economy rules come from reduced fuel expenditures for consumers, benefits of increased driving, and reduced refueling time—factors that consumers could presumably observe for themselves. In contrast, only 12 percent come from social benefits to others, like reductions in pollution or national security benefits. In effect, these efficiency rules steer consumers to energy efficient products for their own good rather than on the basis of how those rules will affect the environment, health, or other social costs. One consequence of regulations motivated by these considerations is that they may not give the greatest bang for the buck in the sense that they produce fewer environmental or health benefits relative to their costs.

Gayer suggests additional scrutiny of these posited private benefits. Traditionally, it is assumed that consumers know what products are best for them and make choices accordingly. Viewed in this light, there is no energy efficiency gap—some consumers simply prefer design features like larger cars, top loading washing machines, or forgoing the upfront costs of efficiency technologies even if they save money down the road. Thus, under the usual assumption that consumers choose the best product for themselves, cost-benefit analysis would exclude any private benefits from increased efficiency.

Gayer notes that research from the field of behavioral economics has uncovered evidence that people occasionally make erroneous economic decisions—circumstances where regulation could potentially improve consumers’ well-being—but the evidence tying that literature to the energy efficiency gap is in its nascent stages. Unless regulators can demonstrate that consumers are acting irrationally, Gayer argues that private benefits should be excluded from regulatory analyses.

The final challenge to using cost-benefit analysis in order to better aid the regulatory decision-making process is the timing of cost-benefit analysis within the regulatory approval process. The Office of Information and Regulatory Affairs (OIRA) is charged with reviewing most regulations and the “regulatory impact analyses”, which include cost-benefit analysis, before they take effect. But these analyses are not reviewed by OIRA until after a proposed regulation has been drafted and the cost-benefit analysis completed. At this stage it is often too late, as agencies may not have enough time to incorporate OIRA feedback into the regulatory decision-making process before final review. Gayer argues for a longer period for analysts outside the implementing agency to examine the underlying regulatory analysis.

A New Approach

Gayer proposes three reforms to the use of cost-benefit analysis that he believes would result in better environmental regulations.

Proposal A: Require a Checklist of Empirical Practices and Promote Decentralized Evaluations of Data and Research

As a way to make sure that more-rigorous studies are encouraged and given more weight in cost-benefit analysis, Gayer first proposes that agencies would be required to use a checklist for good empirical practices. Although OIRA currently has guidelines that require agencies to demonstrate that they have completed various process steps, it does not require that agencies assess the quality and reliability of underlying empirical studies and does not require them to report key empirical findings. Gayer recommends an improved checklist with questions that address these issues. His checklist would enable regulators and the public to rigorously assess research design, data quality, and assumptions. The box below includes sample questions suggested in the proposed checklist.

- Were all the studies used in the analysis published in peer-reviewed journals?
- For the studies establishing the bulk of the benefits, how was causality established (randomized experiment, quasi-experiment, panel data, repeat cross-sectional data, time-series data, cross-sectional data, theory, anecdote)?
- Do these empirical studies include comparable treatment and control groups, and provide evidence that these groups have similar characteristics?
- Have the empirical studies been replicated by the agency?
- Are all the data and programs publicly available to enable replication by others?

Second, Gayer would require that all studies used in regulatory cost-benefit analysis include data sets and methodological details sufficient for outside scientists to replicate their results. This requirement would give regulators (and the studies they rely on) an incentive to present their findings transparently as well as make it easier for independent observers to evaluate regulatory measures. It also would lay the groundwork for reviewing regulations that are already on the books.

These proposals could be implemented through revised OIRA guidance for agencies. OIRA is empowered to return proposed regulations that do not meet the standards it issues. Alternatively, a stronger signal could be sent to agencies with an executive order from the President establishing the requirement for a comprehensive checklist and data disclosures.

Proposal B: Exclude “Private Net Benefits” from Cost-Benefit Analyses for Energy-Efficiency Standards

Regarding the growing use of the assumption of an energy efficiency gap, while consumers undoubtedly make mistakes, Gayer contends that there is not enough evidence to suggest that irrational behavior drives the energy efficiency gap or that consumers systematically underestimate the benefits of energy efficiency. Furthermore, regulators are not immune from making their own mistakes. Like consumers, regulators may suffer from behavioral biases and imperfect information. In particular, they have relatively little information about consumers’ preferences, lifestyles, and finances—certainly less than consumers themselves do—and thus may not be in a strong position to determine what investments consumers would most benefit from.

Because the evidence regarding the interpretation of the energy efficiency gap is still very preliminary, Gayer proposes excluding the posited private benefits of reducing this gap from cost-benefit analyses unless a specific market failure can be documented that causes a poor choice at the level of the individual consumer. This change should be included in OIRA guidance to agencies.

Proposal C: Improve Regulatory Oversight through an Early Review Process for Major Regulations

The results of cost-benefit analysis need to be incorporated early on in the regulatory process so that this information can help revise and guide the development of regulations. Currently, agencies like the EPA submit regulatory impact analyses to OIRA about three weeks before the OIRA conducts a final review of regulatory options. This limits not only the time OIRA has to oversee cost-benefit analysis, but

Roadmap

To encourage a more cost-effective use of America’s regulatory budget, three changes should be implemented to the regulatory review process.

- Proposal A: Require all agencies to use a “good practices” checklist during cost-benefit analysis, and to release their data to ensure credibility of underlying research. OIRA would provide guidance to the agencies, or a new executive order could require these changes.
 - The checklist would be used during implementation of cost-benefit analysis to assess the quality of underlying evidence.
 - All studies used in regulatory proposals would be required to release sufficient data so that outside scientists could replicate the results.
- Proposal B: Exclude private benefits from consideration in cost-benefit analysis, particularly in energy-efficiency regulations.
 - Guidance from OIRA to agencies would require a presumption that consumers are better able than regulators to make energy efficiency decisions that affect their own pocketbooks, so any posited private benefits accruing to an individual from a regulation mandating more energy-efficient products should not be included, unless stemming from a market failure.
- Proposal C: Improve regulatory oversight by instituting an early review process of at least six months for regulations with an annual impact on the economy of at least \$1 billion.
 - During these six months, agencies would be required to release all data underlying the cost-benefit analysis and allow for public comments.
 - An early review process can be implemented through an executive order. However, to ensure OIRA can enforce the six-month time period, congressional action is recommended.

Learn More About This Proposal

This policy brief is based on The Hamilton Project discussion paper, *A Better Approach to Environmental Regulation: Getting the Costs and Benefits Right*, which was authored by:

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Additional Hamilton Project Proposals

Promoting Clean Energy in the American Power Sector

Despite bipartisan interest in advancing American energy policy, comprehensive energy and climate legislation fell short in 2009. The difficulty of coming to broad agreement highlights the need for a more targeted and incremental approach. One promising intermediate step would be a technology-neutral national clean energy standard that applies to the U.S. power sector. This paper proposes a standard that would lower carbon dioxide emissions, streamline the fragmented regulatory system that is currently in place, generate fiscal benefits, and help fund energy innovation. The National Clean Energy Standard would provide certainty about the economic returns to clean energy that would facilitate investment in new energy projects, lower the emission intensity of the power sector, and serve as an ambitious bridge to economy-wide energy and climate policy.

An Energy Technology Corporation Will Improve the Federal Government's Efforts to Accelerate Energy Innovation

Energy innovation is critical to solving many of the energy and environmental challenges we face today, from reducing the risks of climate change to lowering the costs of alternative energy sources. While there is no shortage of new ideas, a major obstacle stands in the way of implementation: proving that these ideas work and are worthy of expensive investment. The private sector underinvests in technology demonstration because of the expense and uncertainties involved; at the same time, previous demonstration programs carried out by the Department of Energy have met with mixed results. This paper proposes a series of best practices for government support of U.S. technology demonstration and a new institution, the Energy Technology Corporation, that would be responsible for managing and selecting technology demonstration projects.

also the role cost-benefit analysis can play in the development of regulation. Sometimes this means that cost-benefit analysis is not an input into rulemaking as much as it is a rubber stamp that justifies rules after the fact.

Gayer proposes a new executive order that would establish an early review process for major environmental regulations. Any regulation with economic impacts over \$1 billion, as well as additional regulations chosen at the OIRA director's discretion—perhaps twenty per year in total—would undergo a six-month early review process in advance of proposed and final regulation. During this six-month period, agencies would be required to release all data underlying their cost-benefit analysis and allow public comment on, as well as replication of, any empirical studies that were used. A longer window for review would give agencies more time to comply with the checklist of good empirical practices and allow for greater scrutiny of their assumptions and evidence. Existing regulations above the \$1 billion threshold should also be subjected to a six-month retrospective review.

Conclusion

Cost-benefit analysis is critical to developing effective environmental regulations, but several methodological and practical issues impede good analysis. Gayer's proposals would address these problems by requiring agencies to refer to a checklist of good empirical practices when completing cost-benefit analysis, increase scrutiny regulatory analyses motivated by private benefits, and establish a six-month early review process for regulations expected to have a significant economic impact. These reforms could help improve the effectiveness of environmental regulations and ensure that their benefits outweigh their costs.

Questions and Concerns

1. Is it possible to incorporate distributional concerns into the regulatory process?

A good regulatory process promotes regulations in which the benefits to the winners exceed the costs to the losers, which can provide opportunities to address distributional concerns either within cost-benefit analysis or through other policies. One approach is to use cost-benefit analysis to choose the most efficient regulation and then to use the tax code to offset the losses to those made worse off. Alternatively, cost-benefit analysis could include information about costs and benefits to a number of different groups. Using this information, equity considerations can be addressed by assigning greater weight to the net benefits incurred by certain groups affected by the regulation.

2. Is cost-benefit analysis more important to conduct for some proposed environmental regulations than for others?

Cost-benefit analysis is a useful tool that should be applied across the board in evaluating proposed regulations. However, it is especially important for regulations that require specific approaches or technologies for reducing pollution—so called “command-and-control” regulations. Regulations vary in the extent to which they harness market forces. Some regulations, such as a pollution tax or cap-and-trade system, rely mostly on the market. Others, such as those that rely on performance standards or require the use of certain technologies, involve a higher degree of government control. A major advantage of market-based incentives is the amount of flexibility they allow, eliciting the lowest-cost ways to achieve any desired pollution reduction from consumers and firms. Government, conversely, usually lacks the information to determine where the most cost-effective reductions could come from. Therefore, it is especially important to apply cost-benefit analysis to regulations that include command-and-control components.

Highlights

Ted Gayer of The Brookings Institution proposes three reforms that would enhance the use of cost-benefit analysis in developing environmental regulations.

The Proposal

Proposal A: Require a checklist and release of data and methods. Agencies would assess the reliability of the empirical studies used for cost-benefit analysis by referring to a checklist of good empirical practices. There also would be a mandate for releasing the data and methods used to produce the studies that regulators rely on.

Proposal B: Exclude “private net benefits” from cost-benefit analysis. Environmental regulations, especially those covering fuel economy and energy efficiency, should exclude private benefits from cost-benefit analyses unless a clear market failure can be demonstrated.

Proposal C: Improve the regulatory review process. A six-month early review process should be established for major regulations, including those that are expected to have an impact of more than \$1 billion plus others chosen at the OIRA director’s discretion.

Benefits

These proposals would help make cost-benefit analysis more robust, reduce reliance on questionable assumptions, and enable cost-benefit analysis to have greater influence on the regulatory decision-making process. The result would be better protection of health and the environment at a lower economic cost.



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