Resisting Abuses of Benefit-Cost Analysis

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In an ideal market economy, prices would be determined by balancing buyers’ and sellers’ interests, without any need for government intervention. The price of a good would reflect the cost of supplying that good and its value to consumers. Because trade is voluntary, buyers and sellers would make exchanges only when both parties benefit. Under such circumstances, markets would balance interests and incentives.

In reality, of course, markets often fail to lead to perfectly efficient outcomes. One prominent source of such market failure is the existence of externalities, which occur when costs or benefits accrue to third parties and are not taken into account in the price of the good. A classic example is when a factory produces and sells a good to a consumer to their mutual advantage, but the pollution generated by the production of the good harms the health of people living near the factory. Given that high transaction costs would likely prevent the people harmed by the pollution from negotiating with the factory owners, the market-exchange system would fail to account for the health costs imposed by the factory’s operations, leading to an inefficiently high level of production of the good.

In such a case, our society’s inclination is to turn to direct government intervention—whether in the form of market-based policies such as a pollution tax or through more traditional command-and-control regulations. Regulators can appreciate the importance of the

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straightforward market transaction while also taking account of the needs and interests of third parties who are affected by that transaction but can’t participate in it. So in this example, they can establish rules to limit pollution while otherwise allowing the market transaction to proceed. But regulators can do this effectively only if they are well informed about both the costs and benefits of different potential approaches for reducing that pollution. And unfortunately, they don’t have a market mechanism at their disposal to inform them about how different people would value these different approaches and their consequences. So how can they know what rules would be best?

In the modern practice of regulation, economists usually turn to what they call benefit-cost analysis (it is also commonly known as cost-benefit analysis in policy circles). BCA has played a central role in evaluating government regulations for several decades. It involves measuring and projecting changes in human welfare resulting from regulatory measures either in terms of the amount individuals are willing to pay for a gain (or to avoid a loss) or the amount they are willing to accept as compensation for a loss (or to go without a gain). If the goal is to achieve the most efficient possible outcome, then BCA can assist in identifying which regulatory option maximizes benefits less costs. But efficiency, or maximum net benefits, is not the exclusive goal; it ignores notions of equity and distributional fairness. A focus strictly on efficiency could, for example, promote an undesirable regulatory decision that yields great benefits to one rich person that exceed the costs imposed on many poor people.

The argument for using BCA within the regulatory process is based on long-established economic principles, and many agencies have been required to use some form of BCA in their evaluations of major regulations under presidents of both parties for more than three decades. Nevertheless, new and major challenges to the way BCA is conducted have cropped up in recent years, leading government agencies to change long-standing BCA practices. Those changes have allowed agencies to legitimize and justify more stringent government regulations irrespective of their actual economic merits.

The first of these challenges is the need to account for findings in the growing field of behavioral economics that focus on identifying cognitive limitations and psychological biases that lead people to make choices that cause self-harm. The second is the challenge of accounting
for weakness in the labor market: For instance, the labor cost of complying with a regulation might actually be a benefit if it is providing work for an unemployed worker, as opposed to providing an alternative job for a worker already employed in the private sector. The third is how to account for the benefits of a regulation when those benefits accrue to the world’s population as a whole but the costs accrue to the American population in particular.

Regulatory agencies today have no choice but to address these concerns. But in recent years, they have been overzealous in how they incorporate such considerations into their benefit-cost analyses, and as a result their assessments have justified greater and more stringent regulation. Today’s regulatory environment—above all in the realm of environmental regulation, but also more generally—evinces an overreaction to the challenges to BCA, and in turn a growing inclination toward over-regulation.

BEHAVIORAL BIASES

In order to make inferences in an infinitely complex world, economics traditionally relies on the simplifying assumption that the choices people make in their market transactions reveal their preferences. Therefore, the traditional approach to BCA assumes that informed citizens are fundamentally rational: While they may not consider the costs their actions impose on others, they are best able to choose the option that achieves the highest net benefits to themselves, subject to their budget constraints. This assumption implies that a regulation that restricts the set of market goods that can be produced and sold can only harm consumers and producers by restricting their choices. (Externalities still exist, however, even under the traditional assumptions, so regulations may help third parties whose costs are not accounted for in the market transaction.)

The growing field of behavioral economics calls into question this assumption of rationality, focusing instead on identifying deviations from the standard economic assumptions. In their book *Policy and Choice*, William Congdon, Jeffrey Kling, and Sendhil Mullainathan classify these deviations from rationality found in psychology and behavioral economics into three categories: imperfect optimization, bounded self-control, and non-standard preferences.

Imperfect optimization challenges the traditional economist’s view that people are good at making decisions concerning their own
well-being. Bounded self-control questions the traditional view that, even when people know what they want, they are able to act on these interests rather than succumbing to self-harming tendencies, such as procrastination or temptation. The problem of non-standard preferences challenges some of the standard economic assumptions about choice: for instance, that people value the end state rather than the path taken to achieve an outcome.

Reasonable critiques of behavioral economics abound, but it is widely accepted that there are indeed some systematic behavioral anomalies that do not accord with fully rational economic behavior. Anomalies, however, by definition, are not the rule, and these deviations do not mean that traditional economic theory lacks insight or that its tools are irrelevant. The evidence of systematically irrational behavior merely suggests that the basic assumptions underlying BCA (that rational consumers will act in their own self-interest) are not always sufficient.

The implications of all this for social welfare should be clear: An approach to BCA that overestimates the rationality of consumers and producers—failing to account for systematic deviations from rationality—could result in harmful policy prescriptions, as it fails to take into account the harm caused by market actors making irrational or otherwise imperfect decisions. On the other hand, a BCA that mistakenly assumes consumers (or producers) are systematically making irrational decisions will sacrifice welfare gains, too, as it will ignore valid, informed preferences of consumers (or producers); the resulting regulations could restrict and homogenize market choices and therefore harm the people involved.

Government agencies have proven particularly liable to fall into this second trap. In a recent wave of regulations mandating energy-efficiency levels for many major consumer durable goods, for instance, policymakers have asserted that consumers suffer from psychological biases that lead them to make irrational energy choices, and therefore consumers stand to gain from regulations that restrict their choice of products.

Such policies are often based on a widely accepted empirical finding, known as the energy-efficiency gap, which shows that consumer choices for energy-efficient products imply a discount rate much higher than market discount rates. While this could arise from irrational consumer behavior, there are also alternative explanations for the energy-efficiency gap that are consistent with individual rationality. For example, the high
implied discount rates could be a rational response to high sunk costs and uncertainty about future conservation savings. Or it could be that the studies that suggest an energy-efficiency gap are themselves flawed, for example, by omitting other relevant costs or benefits that can drive a rational purchase decision or by overestimating the potential energy savings. Indeed, in a recent study, Meredith Fowlie, Michael Greenstone, and Catherine Wolfram evaluated a randomized, controlled trial of the Weatherization Assistance Program of residential energy-efficiency investments and found that the projected savings substantially overestimated the actual energy savings that occurred.

Taken as a whole, the literature on the energy-efficiency gap does not provide strong, credible evidence of persistent consumer irrationality. Nonetheless, in their BCAs, government agencies have justified a host of energy-efficiency mandates on durable goods on the basis of correcting consumer irrationality, even though those agencies offer little or no evidence that consumers are causing harm to themselves in their purchasing decisions.

The cost savings that agencies claim can justify energy-efficiency regulations stem in large part from this assumption of irrationality. In a recent paper, we found that the majority of the estimated benefits stemming from most energy-efficiency regulations derive from this presumption of addressing consumer irrationality (saving money by saving consumers from themselves) — not from reducing the external costs associated with energy use. For example, for the recent fuel-economy mandates for passenger cars and light trucks, the Department of Transportation estimated a total cost of $177 billion and a total benefit of $521 billion. Of the $521 billion in benefits (assuming a discount rate of 3% and constant 2009 dollars), fully $440 billion (or 85%) stems from the purported benefits of addressing consumer irrationality. For the same rule, the Environmental Protection Agency estimated that 87% of the total benefits were due to addressing consumer irrationality. But every consumer who does not adopt the single-minded objective of choosing the vehicle with the greatest level of fuel economy is not a victim of irrationality. Other valued motor-vehicle attributes such as acceleration and seating comfort also come into play.

In another article, we examined a wide range of behavioral failures — such as those linked to misperception of risks, unwarranted aversion to risk ambiguity, inordinate aversion to losses, and
inconsistencies in the tradeoffs reflected in individual decisions—as they pertain to government intervention in the economy. While these biases can be justifications for government regulations, we find many instances in which government policies institutionalize rather than overcome behavioral anomalies, and in some cases attempt to justify inefficient regulations based on weakly supported arguments for a need to correct individual irrationality.

By presuming that consumers and firms (but not regulators) are irrational, the agencies are shifting environmental policy away from the goal of mitigating the harm that people impose on others through pollution to a more paternalistic goal of mitigating the harm that people impose on themselves by choosing poorly among options. This also means that we get less bang for the buck from our environmental regulations. For example, this approach misleadingly values regulations that ban energy-inefficient products over the more cost-effective approach of taxing pollution.

The emergence of behavioral economics has been an important contribution to the field of economics, and BCAs should consider how to incorporate findings that document systematic anomalies that may lead to irrational decisions. But regulators need to exercise far more humility and caution in determining when and how to incorporate these findings into BCAs, and their approach should not be dismissive of the merits of individual choice.

Picking up the slack

In the summer of 2012, the California legislature approved a multibillion dollar project to build a high-speed rail line that would ultimately connect Los Angeles and San Francisco. Announcing the project, Governor Jerry Brown said, “The Legislature took bold action today that gets Californians back to work.” Earlier that year, President Barack Obama’s campaign website had promoted his “energy and the environment” agenda as “investing in clean-energy jobs,” and claimed that his “policies have helped create hundreds of thousands of jobs in the clean-energy industry.” These “green job” programs at the state and federal levels were widely lauded for reducing pollution externalities while stimulating much-needed job growth in a sluggish economy, but they came with enormous, controversial price tags.

The challenge in evaluating such programs with benefit-cost analysis is in determining whether they actually address the weakness of
the labor market: Whether a new, government-created job should be evaluated as a cost or a benefit depends on who is hired to do it. If a government-subsidized project hires a worker away from a private job and he is not replaced, then there is no net job creation. Indeed, society’s opportunity cost is the worker’s wage rate in the private sector, as this reflects the value of the lost output that the worker had been producing. In other words, the labor used for the government-financed program represents an overall economic cost, not a benefit, of that program, and should be reflected as such in any credible BCA. A regulation or government program that does not address a market failure (such as reducing an externality or providing a public good) and only leads to government jobs at the expense of private jobs is one in which there are only costs and no benefits.

If, on the other hand, the project hires someone who is currently involuntarily unemployed— which is much more likely to occur when the economy is in recession and there is slack in the labor market—then that newly created job represents a benefit. Because hiring an unemployed worker does not lower output elsewhere in the economy, the wage the worker receives from the government-financed project does not represent an opportunity cost. All that is forgone when the worker is hired is the leisure he was consuming, the value of which is presumably very low since this individual would rather be working than unemployed. Indeed, in addition to the psychological and health benefits of someone moving toward employment (especially out of long-term unemployment), if there is a multiplier effect of hiring this unemployed worker then the job creation can yield substantial benefits, irrespective of whether there are direct benefits from the project in the form of addressing a market failure.

The difficulty in conducting the BCA in a case like this is determining whether and how much the labor used for a government-financed project is drawn from the unemployed, especially given that many fiscal-stabilization policies are poorly targeted and that projects can take many years to acquire the necessary permits, undergo competitive contract selection, and negotiate the scope of the work. And, for a complete understanding of the employment benefits of a program, one would also need to estimate the extent to which the new jobs are merely being pulled from the near future (when they would have come about without government intervention) and how to value this pulling forward of employment.
Projecting whether a proposed government program will actually create (rather than divert) jobs requires the difficult task of estimating the counterfactual job-market performance absent the policy. In January 2009, the Obama administration released its now-infamous projection that unemployment would peak at 9% absent a stimulus, when in fact unemployment rose to 10% after the stimulus plan was enacted. Their failure of projection does not point to any particular deficiency of the administration’s economists but to the difficulty all economists face in estimating the extent to which any particular program can create rather than divert jobs. These challenges are especially acute in analyses of environmental policies, which in recent years have often been justified more as ways to create “green jobs” than as ways to address the market failure of pollution externalities.

One explicit conflation of the goals of fiscal stimulus and environmental protection occurred with the Cars Allowance Rebate System (CARS) program, better known as “Cash for Clunkers.” This was a federal program enacted in the summer of 2009 that allowed consumers to trade in older, less fuel-efficient vehicles for vouchers to subsidize their purchases of newer, more fuel-efficient vehicles. Over the course of 55 days in July and August of 2009, nearly 700,000 individuals brought their old cars to dealerships to have their engines destroyed and received vouchers toward new cars. Each voucher was worth either $3,500 or $4,500, depending on the difference in fuel efficiency between the new car and the old one. In total, about $2.85 billion was distributed in voucher form.

In a 2013 report, Ted Gayer and Emily Parker assessed how effective this program was at stimulating the economy. Of the 700,000 cars purchased with the voucher, approximately 45% would have been sold absent the program. The remaining additional purchases were just pulled forward from the near future, so the cumulative effect was nullified ten months after the program expired. In terms of gross domestic product, the net result of the program was the shifting of roughly $2 billion into the third quarter of 2009 from the subsequent two quarters, with minimal additional job years created. Taken together, the CARS program created 0.7 jobs for each $1 million of program cost, resulting in a cost of $1.4 million per job created. This suggests that the CARS program was far less cost-effective at creating jobs than other common fiscal-stimulus options. (The program also fell short of achieving its
environmental goals, since the savings in fuel economy and the reduction in emissions applied to relatively few vehicles and did not result in substantial fuel-economy savings per vehicle.)

**GLOBAL BENEFITS AND DOMESTIC COSTS**

The purpose of a BCA is to estimate the net benefits of various policy options (including the option of no policy). But when economists discuss the guidelines for assessing benefits and costs, the scope of the analysis is often not well-defined. The ambiguity arises even in utilitarianism, which in many ways is the philosophical basis for BCA. Jeremy Bentham asserted that, when evaluating social reforms, “it is the greatest happiness of the greatest number that is the measure of right and wrong.” Later approaches to measuring social welfare, such as that of economist E. J. Mishan, defined the goal of policies as maximizing net benefits across the “defined society.” But who should be included within the universe of Bentham’s concept of the “greatest number”? Who is part of Mishan’s “defined society”?

Defining the scope of a BCA is straightforward when considering policies in which the benefits and the costs accrue within the same political jurisdiction. The complication arises when a political jurisdiction is considering a policy — say, again, one to address air pollution — in which the costs will be borne by residents of the jurisdiction but the benefits will extend beyond its borders. In some special cases, the jurisdiction footing the bill may have access to intergovernmental grants that encourage it to weigh total (cross-jurisdictional) benefits against its own costs, such as when municipalities provide services like street maintenance or waste removal that are funded in part by grants from the state or national government. But traditionally, those using BCA have accounted for only the benefits accruing to the jurisdiction bearing the cost of the policy.

In contrast to these traditional BCA practices and the U.S. government’s own guidelines, recent regulatory-impact analyses of the benefits associated with reducing greenhouse-gas emissions have considered global benefits when evaluating domestic environmental policies. For instance, in 2010, the Obama administration formed the Interagency Working Group on Social Cost of Carbon to develop guidelines for assessing the benefits associated with reductions in carbon-dioxide emissions. The working group estimated that the social cost per ton of
carbon ranged from $5 to $65 (in 2007 dollars)—which reflected an assessment of the global damages of greenhouse-gas emissions.

In a recent Brookings Institution working paper, we examined U.S. laws and practices for evaluating the scope of policy assessments, which often conflict with regulators’ new focus on the global benefits of domestic policies. The common focus of these laws and guidelines—such as the Clean Air Act and executive-branch guidelines for regulatory-impact assessments (OMB Circular A-4 and Executive Order 12866)—is on the benefits derived by the American public, not the benefits to those overseas. This is not to say that international effects are irrelevant. As we discuss below, a desire to foster reciprocal climate-change policies in other countries and altruistic concern for people outside of the United States could influence regulators’ appraisal of global benefits in a BCA. But when it comes to formal assessments of costs and benefits in the process of developing regulations, the formal procedures in place for decades require that domestic costs and benefits be weighed. OMB Circular A-4, which governs agency benefit-cost analyses, calls for the presentation of domestic benefits and—if the agency chooses—a separate presentation of benefits outside the United States.

That requirement has not always been followed by the Obama administration, however, and the novel global perspective regarding the benefits of reducing greenhouse-gas emissions has been implemented in the benefit analyses of several prominent energy-conservation regulations. This failure to assess domestic effects serves to inflate the level of estimated benefits of greenhouse-gas emission rules by a factor of 4.4 to 14.3, depending on which end of the range of estimated domestic benefits is used. Thus, imposing a global perspective on benefits will increase the apparent desirability of the policy but may significantly overstate the actual benefits to the American people.

One of the most expensive recent energy-efficiency regulations followed this approach: the corporate average fuel economy (CAFE) rule for passenger cars and light trucks. Both the Department of Transportation and the Environmental Protection Agency proposed CAFE rules to require greater fuel efficiency. The details of the proposed regulations were quite similar, as were the requirements. A DOT analysis estimated that its proposed CAFE standard for passenger cars and light trucks would generate $45.6 billion in benefits from reducing greenhouse gases. But if these benefits were evaluated in a manner consistent with the
methodology developed by the administration, only 7% to 23% of them would be considered domestic benefits. As a result, the domestic benefits would be only $3.2 billion to $10.5 billion. These domestic benefits constitute about 1% of total benefits estimated for the regulation and a somewhat larger fraction of the estimated costs of $132.1 billion.

Unsurprisingly, given the similarity of the proposed regulatory requirements under both the DOT and EPA versions of the CAFE standards, the latter agency claims a comparable amount—$46.4 billion—in benefits from reducing greenhouse gases. As in the DOT analysis, this amount constitutes a small share of the total benefits of $444 billion from the regulation and total costs of $192 billion. And, similar to the DOT case, the domestic share of the greenhouse-gas benefits in the EPA analysis is only $3.2 billion to $10.7 billion.

Despite the paucity of domestic benefits stemming from these environmental regulations, agencies could invoke the goals of reciprocity and altruism as possible rationales for taking a more global perspective. The administration contends that the global approach is justified because of the need for “international agreements to reduce emissions” and to encourage “other nations, including emerging major economies, to take significant steps to reduce emissions.” This approach suggests, however, that the focus on the global benefits of an American policy should be contingent on the level of reciprocity from other nations in considering their own climate policies.

It remains unclear how agencies should account for reciprocity in their analyses of regulations. Greenhouse-gas policies of the United States could lead other countries to become more lax in their policy efforts, reducing the benefits from a U.S. perspective. A more likely scenario, however, is that the reciprocity value is positive due to ongoing international efforts to reduce emissions. The empirical question is whether efforts by the United States to curb greenhouse-gas emissions might spur reciprocity by other countries to do so as well, generating benefits that are (in the case of the CAFE standards example) 4.4 to 14.3 times as great as the direct domestic benefits of the U.S.-only policy.

There are many practical obstacles to accounting for such a reciprocity effect. The actions taken under specific U.S. laws, such as the Clean Air Act, are not tantamount to treaty commitments that can establish a formal basis for evaluating the domestic efforts of other countries. For reciprocity to occur, the domestic commitments of other countries
to reducing emissions would have to be known, publicized, and incorporated in their policy initiatives, likely within the context of an international treaty. Given the well-known incentives to free ride in public-goods situations, including those involving externalities and particularly those involving global pollutants like greenhouse gases, international reciprocity is elusive. It is therefore inappropriate to assume that there is a global-benefits multiplier effect of the magnitude suggested above without further evidence of such a commitment.

Altruism is also a possible rationale for regulators’ focus on global benefits. This could take one of two forms: geographic or generational. The first refers to effects outside of the country’s borders. U.S. citizens may suffer a welfare loss from the risk that climate change could affect civilians of other countries; if climate change leads to flooding in Venice or famines in Africa, there may be concerns about the well-being of those affected. The second altruistic concern involves future generations who could face the effects of a changing climate. Given the substantial time lag before greenhouse-gas policies will have any perceptible effects on the climate, assessments of greenhouse-gas policies that consider altruism will typically include both international and inter-temporal aspects.

The altruistic concern, regarding both geography and time, is distinct from the question of economic standing. For a person, in this generation or in the future, to have economic standing means that he is granted autonomous consideration; thus, his willingness to pay for goods for himself or others is included within the net benefit calculation for a regulation. The nature of altruism suggests that the willingness to pay for providing a good to oneself is usually greater than one’s willingness to pay to provide the good to another person. This implies that, if U.S. citizens have altruistic concerns for non-citizens regarding climate change, then this should be represented by applying a fractional (not full) weight to the benefits to non-citizens.

But the Obama administration does not offer a compelling justification for considering full global benefits for domestic climate policies, whether based on reciprocity or altruism. As part of a more convincing rationale, explicit reciprocity would justify giving economic standing to citizens of other countries, and demonstrable feelings of altruism would justify partial economic standing to citizens abroad. However, there is currently an empirical void in this area, given that there is no sound basis for determining the appropriate level of reciprocity or altruism.
adjustments. These may well be suitable questions for economists to take up in the coming years. But at this point, the careless incorporation of international effects into the BCA process acts mostly to legitimize greater government intervention without much rational support.

A CALL FOR CAUTION

The conceptual argument for using BCA in the regulatory process is based on long-established economic principles, and BCA has been used to evaluate major government regulations for more than three decades. But recent developments—the emergence of behavioral economics, the prolonged weakness recently experienced in the job market, and the global nature of the climate problem—present new challenges to the way we currently conduct BCAs.

It should surprise no one that regulators view these developments as an opportunity to increase government intervention. The emergence of these new concerns threatens to undermine the discipline imposed by benefit-cost analysis—which is meant to rescue rule-making from the capricious will of regulators—by giving agencies leeway to arbitrarily boost the supposed benefits of regulations.

But a careful assessment of BCA suggests that we should insist on a more cautious approach, one that is less dismissive of the merits of individual choice, that is less enamored by the prospects of addressing a weak labor market through environmental regulations, and that maintains an emphasis on considering domestic benefits for domestic policies. Otherwise, a dangerous precedent could be established in which agencies justify expansive use of regulatory powers based on weak and unsubstantiated premises—badly degrading the legitimacy and the authority of benefit-cost analysis.