



Presentation of NRDC to the Little Hoover Commission on the Value and Risk of Using Cost Benefit Analysis

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Summary

Cost-benefit analysis is promoted by many critics of over-regulation as a way to make sure that regulations follow rules of common sense. But the purpose of regulation, and of legal restrictions in general, often defies economic quantification, being rather related to moral or value-based goals. Regulations with such goals can *cost* money, but their *benefits* are often difficult to express in terms of dollars, and sometimes are not even subject to economic analysis. This testimony describes a subset of cases of which cost-benefit analysis makes sense, and then lists a larger number of cautions, and provides counter-examples where cost-benefit analysis leads to the wrong answer.

Proper Uses of Cost-Benefit Analysis

Cost-benefit analysis works best in supporting public policy goals when both the costs and the benefits are close to commensurable. For example, when a regulation is intended primarily to save money, and the burdens of the regulation primarily consist mainly of the cost it takes to undertake the actions that will cause this savings, then both costs and benefits, by and large, can be accurately described in economic terms. In this case, cost-benefit analysis makes sense, although subject to some practical cautions, even in these cases.

A California example in which cost-benefit analysis has been employed successfully has been the California Energy Commission's regulations for buildings and appliances, Title 24 and Title 20 respectively. In both these cases, the cost of the regulation consists almost entirely of the additional energy efficiency measures that builders, developers, or manufacturers must use in order to meet the standards, while the benefits consist primarily of reductions in operating costs of the buildings and appliances, and secondarily in environmental benefits through reductions in emissions, whose value can in many cases can be quantified in dollars with adequate accuracy. Additional benefits can include taking stress off the electric grid and the Energy Commission has developed regulatory guidance that allows these benefits to be quantified as well.

Since the tradeoff primarily is one of compliance costs versus the savings resulting from compliance, cost-benefit analysis makes sense in principle, and has yielded good outcomes for California.

Even here, however, it is important to insert some cautions. Throughout the history of appliance efficiency standards regulations, the Energy Commission or the Department of Energy have estimated costs and been challenged by the affected industry, which almost universally claims that the actual cost will be higher. At the federal level there is little ability to collect ex-ante costs; this may be true for state agencies other than the Energy Commission. In such cases, agencies rely on the regulated community for projected costs, which leads to significant overestimates.

There has been some retrospective analysis of the cost of compliance, and in almost all cases, the costs of meeting the regulations have been lower, in some cases dramatically lower, and in a few cases, even less than zero, while the benefits tend to be as predicted. So the benefit to cost ratio that one would derive from industry comments is lower than what the agencies derive, which is in turn lower than what turns out to have happened. The estimates of benefit-to-cost ratio are biased low—biased against strong regulation.

Unfortunately, there is very little ability at the federal or state level to look at ex-post costs, despite the fact that one EPA study showed that these costs were usually less than half of what was relied on in the cost-benefit analysis, and always were less¹. But without updates of this study, the source of bias against regulation is likely to persist and thus to degrade the value of cost-benefit analysis studies.

The process of rulemaking reinforces this bias. A regulated industry has the most data at its hands on how much compliance could cost, but since these industries generally oppose the regulations for other reasons, they have incentives to try to show that costs are as high as they possibly can. With their strong access to data, they can find evidence that supports their desired outcome, even if it turns out, in the long term, to be overstated.

The dynamic that comes into play when a regulation is actually passed over industry regulation is that *competitive forces strongly encourage each individual company to comply at the least possible cost*. While industry testimony on high cost may not be based on misrepresentation, it is based on *one of many solutions* to the problem of meeting the regulatory target, and the solutions may well be very expensive ways to accomplish the objectives. Market forces serve as a corrective for this, so that even if a company initially began to comply using the expensive method consistent with their testimony, they would find that they would have to develop new and much more cost-effective ways of meeting the regulation, after competition kicks in.

This problem of biased data is exacerbated by the fact that the affected industry often has far more money to spend on technology consultants than the state agency, and certainly much more than the public interest sector. This imbalance in resources will mean that it is easier to find evidence that the cost of compliance is likely to be high than it is to find the (in the long term, more correct) evidence that costs are lower.

Disadvantages and Limitations of Cost-Benefit Analysis

There are numerous systematic reasons why, when the public policy objective is something that is difficult to quantify in dollar terms, the benefits of a proposed regulation are systematically understated, often by a large amount. We list below several of these problems. Even this is not an exhaustive list:

- a) Uncertain benefits are usually valued by the state agency at zero.

Regulatory agencies frequently have great difficulty in dealing with variables where the predicted outcome of a regulation cannot be quantified at a fixed number, but rather is represented by a range. There is a strong tendency for the agency to resist the explicit recognition of such uncertainty by taking a given variable and valuing it at zero. For example, in numerous Department of Energy appliance efficiency standards proceedings until very recently, DOE looked at a range of possible economic values for reductions in greenhouse gas emissions, but eventually did the cost-benefit analysis assuming they were zero. In one proceeding, DOE was informed through comments that the reductions in demand for natural gas that the proposed standard would cause will depress natural gas prices and lead to large consumer savings for everyone; these savings were the dominant factor in the benefit-cost analysis compared to the net direct benefits to the users of the regulated product. The Department acknowledged the comment, noted that it was directionally correct, but found a very large range of variation in the amount by which natural gas prices could be depressed. The Final Rule was based on setting the value on those reductions at zero.

- b) Benefits that are inherently non-economic are systematically understated.

There is a reason why Congress or the Legislature, often specifies health, safety, or environmental goals in direct health, safety or environmental terms rather than in economic terms: the fundamental goals that the legislature is trying to accomplish cannot be described adequately in economic terms. To then subject rulemakings to oversight on the basis of what the agency thinks the economic value of the benefit is (as opposed to the actual value that was established legislatively) is to create an unfair burden that a proposed regulation must then meet—NRDC believes it amounts to regulatory overreach by the agency. Many environmental laws are designed to protect things like the ability to swim safely in waterways, or the visual value of clean air, or the viability of ecosystems. These goals would not be different if the cost of compliance were higher or lower. The fundamental policy tradeoff, reflected in the legislation that spawns the regulatory efforts, is that these environmental (or other public interest) values are desired and presumably this desire is based on some (at least intuitive) understanding by legislature of what cost would be imposed in trying to comply. To try to impose another cost screen would be defeating the purpose of the law.

c) The risk of analysis paralysis

This risk is particularly acute if the cost-benefit analysis is done correctly and more particularly if it accounts for the value of public goods that are not normally traded in markets. The analytic effort can become a very expensive and time-consuming process. This is true all the more so when the notice and comment process provides opportunity for stakeholders on all sides to point out aspects of the benefits or costs that were overlooked in the analysis and really need to be studied in order to get benefit and cost estimates that are valid and make sense. This can add dramatically to the time that the rulemaking takes, delaying the beneficial result of the regulation, and it also adds, often significantly, to the government expenditures needed to perform the analysis, to say nothing to the cost of stakeholders, both from private industry and from the public interest sector, to track and improve the cost-benefit analysis. Often NRDC has found that regulated industries have encouraged the regulatory agency to do ever more extensive analyses for the direct purpose of delaying or even scuttling a rulemaking based on this analysis paralysis.

d) Cost predictions seldom account for learning curve effects and almost never account for indirect benefits.

In most cases, cost-benefit analysis results in a worst-possible-case calculation of the true ratio of costs and benefits. Costs of meeting new technology requirements, whether imposed by the marketplace or imposed by regulatory means, tend to come down with cumulative production experience. A typical learning curve results in 15% or 20% reductions in costs for each cumulative doubling of production. This fact is almost never accounted for in cost-benefit analysis.

An even larger effect is failing to account for the indirect benefits of the regulation. For example, the Title 24 requirements for more efficient lighting and for natural daylighting allow workers to be more productive, students to learn better, and retail outlets to sell more goods. These benefits vastly outweigh the benefits of energy cost savings, yet they have never been accounted for in a regulatory proceeding on energy efficiency standards. Similarly, the benefits of clean air and increased naturalness of ecosystems are very hard to quantify and very seldom accounted for in cost-benefits analyses.

e) Cost-benefit analysis assumes the economic goal is allocational efficiency rather than technological innovation.

An implicit but hardly ever stated policy rationale for cost-benefit analysis is that regulatory changes should increase the allocational efficiency of the economy. But, as discussed previously in the section dealing with technology innovation, an additional economic purpose of the regulation can be technology innovation itself. An innovative economy is one of California's strongest competitive assets. When regulations increase the rate of uptake of new

technologies in the marketplace, they not only reduce the cost of compliance with the regulation, but they also provide business opportunity for the rest of California to become as competitive globally as possible. This economic benefit of stronger regulations is inconsistent with the very framework of cost-benefit analysis. A related problem is how BCA deals with a dynamic economic system. Allocational efficiency as estimated in a BCA tends to take a short-term perspective where costs and outputs are defined by today's technologies. But if the goal of regulation includes advancing the development of technologies that are used for compliance, then the value of induced innovation generally is not quantified as part of the benefits, although it may be large.

- f) Cost-benefit analysis often is suggested to make decisionmaking more rational, but that argument is based on hidden assumptions that may not be correct.

One example frequently cited by proponents of cost-benefit analysis is that different regulations are based on very different values for the economic worth of saving a life. These critiques make the implicit assumption of saving a statistical life has the same value in all circumstances. But this is not the way the public reacts. Based on public reaction, it is evident that saving a life that would be lost to terrorist attacks is far more valuable than saving a life that would be lost to ordinary crime. Similarly, losing a life to crime is considered higher of a priority than loss of life due to a traffic accident. Assuming that the value of saved human life ought to be the same is simply inconsistent with the political and economic decisions people make. A cost-benefit analysis of airport security would conclude that the cost of security is much higher than the benefits: that just in terms of the value of lost time by travelers, security would have to be averting one 9/11 size event at least once a year to justify its costs. Yet no one would consider scrapping the program based on such a calculation.

- g) Cost-benefit analysis produces results that are inconsistent with other areas of law.

Many of the most-widely accepted legal processes, namely trial by jury and incarceration for crime, would be difficult or impossible to justify on the basis of cost-benefit analysis. If a robber steals \$100, the economic costs of trying and convicting him, much less incarcerating him, are virtually assured to exceed half a million dollars. Even if we assume that catching and incarcerating one criminal deters 100 other criminals, the cost of the infrastructure to arrest, convict, and incarcerate that one person still do not counter balance the economic benefits. Yet no one believes that people should be able to get away with crime indiscriminately. The same problem applies to civil cases that are decided by trial. For trials in an area such as San Francisco where jurors are drawn from a pool of relatively highly-paid professionals who are not compensated for their time on jury service, it is easy to estimate that a jury trial costs society at least a quarter of a million dollars. Cost-benefit analysis would say that such right to trial by jury should be denied unless *the differential benefit of deciding by jury exceeded the benefit of a simpler, less elaborate trial, say by*

an arbitrator, by this amount. Yet, no one is pressing to reform the civil trial system to eliminate trial by jury in cases involving less than say, \$1 or \$2 million.

- h) BCA results are very sensitive to input assumptions such as the time frame of the analysis, the value of human lives saved or the discount rate

These very powerful parameters are well understood in terms of their impact on the results of BCA analysis. So the use of BCA tends to precipitate time-consuming advocacy battles over what values to assume. This strikes at the very purpose of BCA, which is to try to bring some objectivity into otherwise subjective arguments. In addition, while this is not an indictment of BCA in general, almost all of the BCA's we have reviewed establish arbitrarily limited timeframes. For example, the BCAs for building efficiency standards for new homes are evaluated over a 30 year timeframe whereas the actual building will last over 100 years. This assumption is often referred to as a "conservatism" but since it affects the calculation of benefits differentially from the costs, it is really a bias.

- i) Cost-benefit analysis usually fails to address the issue of *whose* costs? and *whose* benefits?

Cost-benefit analysis often ignores equity issues in comparison to efficiency issues. A project that costs \$1 billion and has benefits of \$1.1 billion may look like a good deal, but if the costs are imposed on the weak or the poor while the benefits are limited to a few individuals, this sort of cost-benefit analysis will give what most citizens would regard as the wrong answer.

Higher-Level Concerns with Cost-Benefit Analysis

The public interest community has long expressed serious concerns about misuse of cost-benefit analysis. For example, a number of public interest groups joined in a document called "Advancing the Public Interest through Regulatory Reform" (www.ombwatch.org/files/regulatoryreformrecs.pdf). NRDC is one of these organizations. The document noted that different organization have different levels of acceptance of the principle of cost-benefit analysis at all. But even if one assumed that cost-benefit analysis were going to be done, they agreed on the following principles for conducting the analysis:

"Cost-benefit analysis has been required by E.O. 12866, and OIRA has provided a prescriptive directive, Circular A-4, Regulatory Analysis, on how agencies are to conduct such analysis. We have differing views on the utility of cost-benefit analysis, but we do agree that prescriptive directives such as Circular A-4 should be curtailed. If there is White House guidance on cost-benefit analysis, it should provide agency flexibility on how to do such analyses, including the option to decide if such analyses are to be done at all.

We also have strong agreement on the principles that should steer any cost-benefit guidance:

- Cost-benefit analysis should only be used in ways consistent with the values expressed in statutory or judicial provisions;
- Cost-benefit analysis is an analytical tool and should not be determinative in regulatory decision making unless specifically required by statute (i.e., it should be a source of information, not a decisional standard);
- Information and assumptions used in cost-benefit analysis should be transparent and allow for the analysis to be replicated. The analysis should include statements of uncertainty about the assumptions;
- Cost-benefit analysis should disclose both quantitative and qualitative aspects – and utilize both when interpreting results;
- Cost-benefit analysis should include an explicit statement about who benefits and who bears the costs; and
- While it may be appropriate to have methodological questions about cost-benefit analyses conducted by federal agencies, the White House or other regulatory review agencies should never manipulate or alter results.

Overall, we recommend reducing the emphasis on quantification in regulatory decision making, reestablishing the importance of statutes in guiding agency actions, and changing the use of cost-benefit analysis as a determining factor in decision making except when it is specifically mandated in statute.”

Conclusions

Cost-benefit analysis can serve a valuable public interest purpose in a very limited number of circumstances. In other cases, its value may range from being a marginally useful additional information source to being a source of distraction and misinformation if not disinformation regarding the total (not just economic) value to society of a given regulatory choice.

Respectfully submitted by,



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ⁱ Hart Hodges. “Falling Prices: Cost of Complying with Environmental Regulations Almost Always Less than Advertised.” Economic Policy Institute, Briefing Paper, 1997. <http://www.epi.org/page/-/old/briefingpapers/bp69.pdf>.