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Humanizing Cost-Benefit Analysis

Cass R. Sunstein

Administrator, Office of Information and Regulatory
Affairs

It is . . . the policy of the United States that . . . agencies shall prioritize actions based on a full accounting of both economic and social benefits and costs and shall drive continuous improvement by annually evaluating performance, extending or expanding projects that have net benefits, and reassessing or discontinuing under-performing projects.

Executive Order on
Environmental,
Economic, and Energy
Performance (Oct. 5,
2009)

Technique without morals is a menace; but morals without technique is a mess.

Karl Llewellyn

In the last year and more, the Administration has been taking an approach to regulation that is distinctive in three ways.

First, we have approached regulatory problems not with dogma or guesswork, but with the best available evidence of how people really behave.

Second, we have used cost-benefit analysis in a highly disciplined way, not to reduce difficult questions to problems of arithmetic, but as a pragmatic tool for cataloguing, assessing, reassessing, and publicizing the human consequences of regulation – and for obtaining public comment on our analysis. This emphasis on human consequences – on reducing or eliminating unjustified burdens on the private sector and on ensuring that high costs are justified by high benefits – is especially important in a period of economic difficulty. We have worked to put into place important safeguards while also making regulation compatible with the economic recovery, and while reducing the risk that costly regulations will have adverse effects on jobs, prices, and economic growth as a whole.

Third, we have promoted transparency and open government in unprecedented ways. In domains ranging from nutrition and obesity to automobile safety to credit markets to energy efficiency, we have been using disclosure as a low-cost, high-impact regulatory tool. This new emphasis on transparency is compatible with a central goal of the Administrative Procedure Act, with its emphasis on public notice and comment

– an idea that we are implementing with the aid of modern technology.

In these three ways, our approach to regulation has been empirically informed and data-driven. For a quantitative measure, consider the following. In the first year of the Clinton Administration, the net benefits of economically significant final regulations were -\$400 million. In the first year of the Bush Administration, the corresponding number was -\$300 million. In the first year of the Obama Administration, preliminary estimates suggest that the net benefits were \$3.1 billion.

Of course the numbers tell only part of the story. To turn from dollar equivalents: We have issued rules and undertaken initiatives that are saving lives on the highways and in workplaces; increasing fuel economy, thus saving money while reducing pollution; making both trains and planes safer; helping students to obtain school loans and so to attend college; protecting consumers and investors against manipulation, fraud, and conflicts of interest; increasing energy efficiency, saving billions of dollars while increasing energy security; combating childhood obesity; and creating a “race to the top” in education.

Not least in the current economic environment, these initiatives are indispensable methods for ensuring that regulation will be evidence-based and data-driven – and for ensuring that regulation is subject to public scrutiny, evaluation, and improvement over time.

What Works and What Does Not

In General

In a memorandum signed on January 30, President Obama emphasized that as a result of many years of experience, “Far more is now known about regulation – not only about when it is justified, but also about what works and what does not.”

He explicitly directed the Director of the Office of Management and Budget, Peter Orszag, to produce recommendations for regulatory review that, among other things, “clarify the role of the behavioral sciences in formulating regulatory policy” and that “identify the best tools for achieving public goals through the regulatory process.”

Director Orszag has written that behavioral economics is “one of the most important intellectual developments of the past several years ... By taking the insights of psychology and observed human behavior into account, we now have a fuller picture of how people actually behave — instead of just reducing them to the hyper-rational utility-maximizers of Econ 101.”

Consider three key findings:

- 1) **Inertia:** People are prone to inertia and they tend to procrastinate. This is one reason that in many circumstances, the prevailing default rule tends to “stick” – if people are automatically enrolled in a savings plan, or a magazine subscription, they tend to continue. (I received a

personal lesson to this effect, having subscribed to a number of not-so-great magazines for free for a period of several months – only to find that I was still receiving them, and paying for them, many years later.) Inertia is a powerful force. There is an issue here for energy consumption: How many households are aware that there may well be ways to save energy – and plan to investigate those plans tomorrow?

- 2) **Social influences.** People are much affected by the behavior of others, especially those in their social network. For example, obesity can be contagious, in the sense that people are significantly more likely to become obese if their friends are also obese. Healthy behavior can be contagious as well. The same is true of energy use and savings behavior. In many areas, the perceived actions and beliefs of others have an influence on what we do.
- 3) **Salience.** People are affected by incentives, to be sure; but incentives have to be salient in order to matter. Nobel Prize winner Daniel Kahneman has emphasized the central importance of the scarce resource of attention. Return to the area of energy conservation: People want to save money, but sometimes they don't. As a California company recently found, the presence of an “ambient orb,” which glows red when energy use is high, produces large decreases in energy use.

Let me mention just two other findings:

- 4) **Unrealistic optimism:** In many contexts, people display unrealistic optimism. In one study, about 90% of drivers say that they are better than the average driver and less likely to be involved in a serious accident. If you ask the average couple what percentage of the household labor each does, and if the total is not more than 100 percent, you have a most unusual couple. One study found that while smokers do not underestimate statistical risks faced by the population of smokers, they nonetheless believe that their personal risk is less than that of the average nonsmoker.
- 5) **System 1 and System 2:** Social science research suggests that human beings have 2 cognitive systems: System 1 is the automatic system, while System 2 is more deliberative and reflective. System 2 is a bit like a computer or Mr. Spock from the old Star Trek show; it runs numbers, carefully but sometimes slowly. It is deliberative. It hears a loud noise, and it assesses whether the noise is a cause for concern. It sees a delicious snack, and it makes a judgment about whether, all things considered, one should eat it. It is a planner more than a doer. System 1 works faster. It is emotional and intuitive. It hears a loud noise, and it is inclined to run. It certainly eats a delicious snack. It can be excessively fearful and too complacent. It is a doer, not a planner.

Default Rules and Simplification

An understanding of these findings has numerous implications for regulatory policy.

Consider, for example, the significant power of starting points, or default rules, for social outcomes. In the United States, workers have long been asked whether they want to enroll in 401(k) plans – pension plans that come with large economic advantages. The number of employees who enroll, or “opt in,” is sometimes disappointingly low. Many employers have responded with *automatic enrollment*, by which employees are enrolled unless they opt out. The results are substantial. Far more employees enroll with an “opt out” design than with “opt-in.”

This finding bears directly on regulatory policy. Consider these words from the 2010 Budget:

“Research has shown that the key to saving is to make it automatic and simple. Under this proposal, employees will be automatically enrolled in workplace pension plans—and will be allowed to opt out if they choose. . . . Experts estimate that this program will dramatically increase the savings participation rate for low and middle-income workers to around 80 percent.”

In September 2009, the President expanded on this theme by offering new initiatives for increasing automatic enrollment. He said, “we know that automatic enrollment has made a big difference in participation rates by making it simpler for workers to save – and that’s why we’re going to expand it to more people.”

In many other domains, it might be possible to achieve regulatory goals by selecting the appropriate default rules. And where it is not possible or best to change the default, we can

have a similar effect merely by easing people's choices. The Administration has taken a series of aggressive steps toward simplifying the Free Application of Student Aid (FAFSA), reducing the number of questions and allowing electronic retrieval of information. Use of a simpler and shorter form is accompanied by steps to permit online users to transfer data previously supplied electronically in their tax forms directly into their FAFSA application.¹ These steps are enabling many people to receive aid, and to attend college, when similarly situated people would have a hard time doing so in the past.

We have adopted other initiatives in the same general family. Consider just two examples:

- In September, the Occupational Safety and Health Administration proposed a new rule, aligning its hazard communication standard with the United Nations Global Harmonized System of Classification and Labeling of Chemicals. This proposed rule is expected to increase simplicity and to reduce costs -- and at the same time to save dozens of lives each year.
- We are in the early stages of a promising innovation in the domain of Social Security and Supplemental Security Income: the Direct Express card program. Under this program, people receive their money via a debit card – a step that at once improves reliability and convenience, reduces costs and paperwork burdens, and offers particular help for those who do not have bank accounts.

¹ On the importance of such steps, see Eric P. Bettinger et al., *The Role of Simplification and Information in College Decisions: Results from the H & R Block FAFSA Experiment*, available at ssrn.com

Simplification also bears on disclosure requirements. Consider the Administration’s proposed Consumer Financial Product Agency. The Treasury Department’s analysis emphasizes that the new agency should promote innovation and should not operate with a heavy-hand, but should require that “communications with the consumer are reasonable, not merely technically compliant and non-deceptive. Reasonableness includes balance in the presentation of risks and benefits, as well as clarity and conspicuousness in the description of significant product costs and risks.” It goes on to say that the agency “should harness technology to make disclosures more dynamic and adaptable to the needs of the individual consumer . . . Disclosures should show consumers the consequences of their financial decisions.”

In numerous domains, we have been using disclosure to help people to make informed choices for investments, safety, health, and more. We have been working hard to ensure that disclosure is clear and straightforward, not merely technically accurate, and that it responds to how people process information.

Social Norms

I have referred to the importance of social norms. Consider the following:

- With respect to energy use, people are greatly affected by the behavior of their peers. If people learn that they are using more energy than similarly

situated others, their energy use declines – saving money while also reducing pollution.²

- College students have been found to be 8.3 percent more likely to get a flu shot if an additional 10 percent of their friends get a flu shot.³
- Obesity is contagious. If people are in a social network with people who are obese, they are significantly more likely to become obese themselves.⁴

For purposes of regulatory policy, these findings create many opportunities. In the domain of both tobacco smoking and seatbelt usage, real change occurred as private-public partnerships helped to spur emerging norms. We are well aware that if safety is to increase significantly on the highways, it must be in part because of social norms that discourage distracted driving (and other risky behavior).

In October, the President issued an important Executive Order banning texting while driving by federal employees; the Department of Transportation has embarked on a range of initiatives to reduce distracted driving – by, among other things, banning texting while driving by commercial truck drivers. The Department of Transportation has embarked on range of educational efforts, and private-public partnerships, to reduce

² See Hunt Allcott, Social Norms and Energy Conservation, available at <http://web.mit.edu/allcott/www/Allcott%202009%20-%20Social%20Norms%20and%20Energy%20Conservation.pdf>

³ See Nicholas Christakis & James Fowler, CONNECTED: THE SURPRISING POWER OF OUR SOCIAL NETWORKS AND HOW THEY SHAPE OUR LIVES 119 (2009).

⁴ Id.

the risks associated with distracted driving – efforts that build on an awareness of the importance of social norms in reducing dangerous behavior. The First Lady’s initiative in the domain of childhood obesity also emphasizes public-private partnerships, and is built, in significant part, on an awareness of the importance of social norms.

In short: Material incentives matter. People are certainly affected by prices. But people are also and independently influenced by (1) the social environment and (2) prevailing norms.

Salience

Social scientists emphasize the importance of *salience*. A great deal of empirical work suggests that non-price interventions, making energy use more salient, can significantly reduce electricity use.⁵ Consider the efforts of a California company, Southern California Edison. Early attempts to notify people of their energy use with e-mails and text messages did no good. What worked was to give people something called an Ambient Orb, a little ball that glows red when people are using a great deal of energy, but green when their use is modest. In a period of weeks, users of the orb reduced their energy consumption during peak times by 40 percent.

Consider two examples from the recent past:

⁵ See Hint Allcott and Sendhil Mullainathan, Behavioral Science and Energy Policy (2009), available at <http://web.mit.edu/allcott/www/Allcott%20and%20Mullainathan%202009%20-%20Behavioral%20Science%20and%20Energy%20Policy.pdf>

- President Obama has taken a major step toward reduced energy consumption with an October Executive Order designed to cut costs and reduce greenhouse gas emissions by imposing a series of requirements on federal agencies. One of the central goals of this Executive Order is to make certain costs more visible and salient than they have been, within the federal government -- and ultimately beyond.
- The new law governing tobacco products states, “Not later than 24 months after the date of enactment of the Family Smoking Prevention and Tobacco Control Act, the Secretary shall issue regulations that require color graphics depicting the negative health consequences of smoking to accompany the label statements specified in subsection (a)(1). The Secretary may adjust the type size, text and format of the label statements specified in subsections (a)(2) and (b)(2) as the Secretary determines appropriate so that both the graphics and the accompanying label statements are clear, conspicuous, legible and appear within the specified area.”

Here, then, is an explicit recognition of the power and the importance of salience.

Evidence-Based, Data-Driven Regulation

Some risks are large and others are small. Some precautions are burdensome and some are not. Before acting, regulators should “look before they leap,” in the sense of obtaining a clear understanding of the likely effects of what they propose to do. Science, including social science, is critically important.

These uncontroversial points suggest a particular defense and understanding of cost-benefit analysis. It is not possible to do evidence-based, data-driven regulation without assessing both costs and benefits, and without being as quantitative as possible.

We have attempted to avoid regulatory failure with extremely disciplined analyses of the likely effects of regulations, including a careful and transparent accounting of both benefits and costs. A few examples:

- In their rulemaking on fuel economy and greenhouse gas reductions for light-duty vehicles, both DOT and EPA offered systematic accounts of a wide range of benefits and costs – finding that the benefits of the rules exceed the costs by billions of dollars annually.
- In a rule protecting passengers from long delays on the tarmac, the Department of Transportation offered a rigorous, and highly quantitative, analysis of both costs and benefits.
- Workplace safety initiatives have also been transparent about benefits and costs, and have

proceeded with a clear explanation that those initiatives have net benefits, measured in monetary terms.

Recall that the Executive Order on Environmental, Economic, and Energy Performance proclaims that it is “the policy of the United States that . . . agencies shall prioritize actions based on a full accounting of both economic and social benefits and costs and shall drive continuous improvement by annually evaluating performance, extending or expanding projects that have net benefits, and reassessing or discontinuing under-performing projects.” In its 2009 report on the Costs and Benefits of Federal Regulations, OMB underlined the importance of careful analysis, urging that “the best practice is to accompany all significant regulations with (1) a tabular presentation, placed prominently and offering a clear statement of qualitative and quantitative benefits and costs of the proposed or planned action, together with (2) a presentation of uncertainties and (3) similar information for reasonable alternatives to the proposed or planned action.”

Offering that accounting, the worker safety initiative on global harmonization of hazard communication is expected to have benefits well in excess of costs. Consider the following table:

Table 1

Benefits and Costs, Global Harmonization Rule

<u>Annualized Costs</u>	
Reclassification of Chemical Hazards and Revision of SDSs and Labels	\$11 million
Employee Training	\$44 million
Management Familiarization and Other Costs	\$42 million
<u>Total Annualized Costs</u>	<u>\$97 million</u>
<u>Annualized Benefits</u>	
Number of Non-lost-workday Injuries and Illnesses Prevented	318 (159-1,590)
Number of Lost Workday Injuries and Illnesses Prevented	203 (101-1,015)
Number of Chronic Injuries Prevented	64 (32-302)
Number of Fatalities Prevented	43 (22-215)
Monetized Benefits of Reduction in	\$266 (\$133-\$1,318)

Safety and Health Risks	million
Cost Reductions and Productivity Gains	\$585 million
Reductions in non-tariff trade barriers	Unquantified
OSHA standards that are consistent with international standards, consensus standards, and standards of other federal regulatory agencies	Unquantified
Contribution towards achieving international goals supported by the U.S. Government	Unquantified
<u>Total Annual Monetized Benefits</u>	<u>\$851 (\$738-\$1,903)</u> <u>million</u>
—	
<u>Net Annual Monetized Benefits (Benefits Minus Costs)</u>	<u>\$754 (\$641-1,806)</u> <u>million</u>

Three points are noteworthy here. First, cost reductions and productivity gains dwarf the cost of the rule. Second, the agency's analysis offers both qualitative and quantitative information on the expected health and safety benefits. Third, the agency does not neglect variables, such as international goals, that cannot easily be monetized but that are nonetheless essential to consider. It is clear that the benefits exceed the costs. Of course we could imagine cases in which the analysis pointed in the other direction, and also difficult cases in which the benefits and costs are roughly equivalent.

The success story of the first year – \$3.1 billion in net benefits – is partly a testimonial to the value of careful scrutiny of whether the benefits of rules justify the costs.

Numbers and Beyond Numbers

In a January 30, 2009 memorandum, President Obama pointed to the importance of “a dispassionate and analytical ‘second opinion’ on agency actions.” He also asked the Director of OMB to address the role of three factors that are not always fully included in cost-benefit analysis: the interests of future generations; distributional considerations; and fairness.

If regulation is to be data-driven and evidence-based, it must include, rather than neglect, those who will follow us. Consider the recent effort of an interagency working group within the United States Government to develop figures for the social cost of carbon – figures that were recently used for

several regulations. The figures were designed to recognize the adverse effects of such emissions on future generations.

Nor can sensible regulation ignore distributional considerations. If regulation would impose serious costs on the least well-off, or deliver significant benefits to them, regulators should take that point into account in deciding how to proceed. Of course fairness matters. These points have been recognized in many rules over the past year, including rules eliminating the HIV entry ban, where careful analysis of quantities and monetary equivalents was complemented by an appreciation of the humanitarian values at stake:

“The primary benefit of this rule is that each year an additional 4,275 (range of 1,073 to 6,409) immigrants who otherwise qualify for entry but are denied based solely on **HIV** status will now be able to enter the country. Although we are unable to quantify all of the benefits of this change in policy, we believe it will help reduce stigmatization of **HIV**-infected people; bring family members together who had been barred from entry (thus strengthening families); and allow **HIV**-infected immigrants with skills in high demand to enter the U.S. to seek employment and contribute as productive members of U.S. society, and if they are able to obtain better health care in the United States, to improve health outcomes and productivity. There are also ethical, humanitarian, distributional, and international benefits that are important but difficult to quantify.”

These various examples suggest the need to humanize cost-benefit analysis in two ways – first by ensuring that we focus on

human consequences in the most disciplined possible way, and second by understanding that monetary equivalents cannot tell us everything we need to know.

Open Government

President Obama has placed a great deal of emphasis on open government. In calling for transparency, the President has emphasized three quite separate points.

First, he has emphasized the importance of accountability and stressed the words of Supreme Court Justice Louis Brandeis: “Sunlight is said to be the best of disinfectants.” Second, he has said that transparency enables people to find information that they “can readily find and use”; for this reason, he has said that agencies “should harness new technologies” and “solicit public feedback to identify information of greatest use to the public.” Third, he has said that “[k]nowledge is widely dispersed in society, and public officials benefit from having access to that dispersed knowledge” and hence to “collective expertise and wisdom.”

In these ways, the President suggested that transparency can serve as a **disinfectant**; provide **data** for citizens to find and use; and ensure that institutions benefit from the **dispersed knowledge** of Americans. Taken as a whole, these points suggest that if regulation is to be empirically informed, it must be in large part because of the knowledge and participation of the American people.

In the United States, a significant success story for “sunlight” is the Emergency Planning and Community Right-to-

Know Act, enacted by Congress in 1986 in the aftermath of the Chernobyl nuclear plant disaster in the Soviet Union. At first, this law seemed to be merely a bookkeeping measure, requiring a Toxic Release Inventory in which firms reported what pollutants they were releasing. But the law has had dramatic beneficial effects, spurring large reductions in toxic releases throughout the United States. And in March of 2009, the Administration worked with Congress to strengthen the Toxic Release Inventory by lowering the thresholds for reporting releases of more than 650 toxic chemicals.

The Environmental Protection Agency has built on this precedent and issued a Greenhouse Gas Reporting rule, requiring disclosure by the most significant emitters. The data will also allow businesses to track their own emissions, compare them to similar facilities, and provide assistance in identifying cost-effective ways to reduce emissions in the future.

Or consider Data.gov, a new government website that allows the public to download Federal datasets to build applications, conduct analyses, and perform research. Early usage of the website suggests that individuals and organizations are not only viewing the data, but they are repurposing it. When Data.gov was launched, the Sunlight Foundation launched a parallel competition to elicit from the public the most innovative applications based on data available from the government site. Within days, there was a new application called “FlyOnTime.US,” which uses data from the Bureau of Transportation Statistics to allow consumers to see estimated versus actual flight times for flights on major commercial carriers.

All this is merely a glimpse at an unprecedented effort to democratize data. Consider as well the following:

- The Department of Transportation has issued a passenger protection rule that will ensure clear, available information about prolonged delays at the airport. The same Department has proposed a rule that would call for disclosure of information about the safety, durability, and fuel efficiency of tires. On data.gov, the Department of Transportation has released a great deal of new information about car safety and about infant safety seats.
- The FDA has signaled its intention to police deceptive front-of-the-package labeling and to investigate methods for ensuring accurate labels, so that people will have a clear and simple way to see key nutritional information.
- The Occupational Safety and Health Administration has, for the first time, listed fatality information on its website. When workers die on the job, the public can learn about it – a step that might well end up increasing safety.

New disclosure policies can also help to track government's own performance. With rulemaking, of course, the Administrative Procedure Act requires public notice and opportunity to be heard, and we have been taking that requirement very seriously – flagging issues for public comment and learning from what we have heard. In numerous cases, you will see significant differences from rules as proposed and rules

as finalized; the reason is that public comment has pointed the way toward major improvements. We are taking the commitments to transparency, participation, and collaboration quite seriously, and the result is to improve the substance of what government does.

OMB's Open Government Directive attempts to institutionalize transparency and accountability, with ambitious plans and deadlines for increasing openness. Within forty-five days, agencies and departments were asked to produce and to post at least three high-value sets – and they did. Shortly thereafter, they were asked to produce “/open” sites, seeking public engagement with their efforts to increase transparency – and eventually to produce ambitious, concrete open government plans.

The new OIRA dashboard fits within this framework, offering a clear and unprecedentedly vivid picture of forthcoming rules from executive agencies. With a very quick glance, you can see what is under review from EPA, DOT, HHS, DHS, and many more. You can see how long rules have been under review, whether they are economically significant, what they would do, and more. We are looking for ways to make the dashboard even better and to improve our own performance – but we think that this is a good start.

Conclusion

In the regulatory domain, we have moved in three directions, all designed to ensure that regulation is empirically informed.

Armed with an accurate understanding of human behavior, we have suggested fresh, effective, low-cost methods for achieving regulatory goals, in domains ranging from consumer protection to workplace safety to energy efficiency to driver distraction to childhood obesity. Seeing cost-benefit analysis as a pragmatic tool, we have emphasized the importance of science and economics, of eliminating unjustified burdens, and of ensuring that benefits justify the costs. Stressing the importance of transparency, we have sought to engage the public in evaluating regulation, benefiting from dispersed knowledge and thus improving rules by reducing burdens, increasing benefits, and often moving in creative directions.

Once more, some highlights from the catalogue of results: billions of dollars in net benefits, as we have issued rules and undertaken initiatives that are saving lives on the highways and in workplaces; making both trains and planes safer; helping students to obtain school loans and so to attend college; protecting consumers and investors against manipulation, fraud, and conflicts of interest; increasing energy efficiency, saving money while increasing energy security and reducing pollution; combating childhood obesity; promoting information technology in health care, in a way that will soon be delivering real results for patients; and creating a “race to the top” in education.

I have emphasized what we all know: This is a period of acute economic distress. Regulations must be designed in a way

that promotes, and does not undermine, the continuing recovery. A transparent accounting of consequences – of costs and benefits – is indispensable. If we look before we leap, with a commitment to openness, we are going to be finding unprecedented opportunities for improving and even extending people's lives.