HARVARD

JOHN M. OLIN CENTER FOR LAW, ECONOMICS, AND BUSINESS

IS COST-BENEFIT ANALYSIS A FOREIGN LANGUAGE?

Cass R. Sunstein

Forthcoming in *Quarterly Journal of Experimental Psychology*

Discussion Paper No. 910

06/2017

Harvard Law School
Cambridge, MA 02138

This paper can be downloaded without charge from:

The Harvard John M. Olin Discussion Paper Series:
http://www.law.harvard.edu/programs/olin_center

The Social Science Research Network Electronic Paper Collection:
https://ssrn.com/abstract=2893401

Is Cost-Benefit Analysis a Foreign Language?

Cass R. Sunstein[*]

Abstract

Do people think better in a foreign language? D'une certaine façon, oui. Il existe des preuves considérables à cet effet, du moins dans la mesure où ils sont moins susceptibles de s'appuyer sur des intuitions qui peuvent conduire à de graves erreurs. Questa scoperta sottolinea e rende più plausibile, una richiesta centrale nella politica di regolamentazione, il che significa che il valore delle analisi costi-benefici. In gewissem Sinne ist die Kosten-Nutzen-Analyse eine Fremdsprache und verringert das Risiko, dass Menschen auf Intuitionen zurückgreifen, die schwere Fehler verursachen.

[Do people think better in a foreign language? In some ways, yes. There is considerable evidence to this effect, at least to the extent that they are less likely to rely on intuitions that can lead to serious errors. This finding reinforces, and makes more plausible, a central claim in regulatory policy, which involves the value of cost-benefit analysis. In a sense, cost-benefit analysis is a foreign language, and it reduces the risk that people will rely on intuitions that cause serious errors.]

I.   Populists and Technocrats

Begin with a little experiment, conducted in late 2016 with 204 Americans. Using Amazon's Mechanical Turk, I began by noting that "people debate how the government should go about reducing risks that come from air pollution, unsafe food, and potentially unsafe working conditions." I then asked respondents to state their agreement or disagreement, on a five-point scale (from "strongly agree" to "strongly disagree"), with the following proposition:

The government should assign a dollar value to each human life – perhaps $9 million – and weigh the costs of regulation against the benefits of regulation.

As it happens, the U.S. government routinely does exactly that. Within both Republican and Democratic administrations, the proposition is not even controversial (though there are

---

occasional debates over the exact value).[1] And yet respondents were deeply skeptical. The most common answer was "strongly disagree," with 68 votes. The second most common was "somewhat disagree," with 52 votes. Only four strongly agreed. Just 37 somewhat agreed; 42 were neutral.[2] The overwhelming majority of American respondents refused to embrace a proposition that most executive branch officials in the United States find self-evidently correct.

The lack of public enthusiasm for cost-benefit analysis should not be taken as terribly surprising. The idea that risk regulation should be based on monetary valuations fits poorly with ordinary intuitions. In deciding whether to protect a family member or friend against a mortality risk, people do not think: *I will weigh the costs against the benefits*. To be sure, they might do some implicit weighing, but the language of monetary tradeoffs seems quite foreign, even ugly.[3] When I testified before Congress on regulatory reform in the 1990s, and suggested that the national legislature might want to enact guidelines for the monetary valuation of statistical life, I was greeted with incredulous stares. And when I worked in the Executive Office of the President, a member of the Cabinet, with extensive political experience, exclaimed to me in 2011, "Cass, how can you possibly put on a value on a human life?" He was evidently exasperated.

Consider in this light two stylized approaches to regulatory policy: the populist and the technocratic. Populists emphasize the importance of democratic self-government. They think that at least as a general rule, public officials should follow the will of the citizenry. If people do not like assigning a monetary value to statistical lives, officials should not hesitate before assigning a monetary value to statistical lives. If people are especially afraid of genetically modified food or abandoned hazardous waste dumps, regulators should pay close attention to that fear, even if experts believe that it is baseless. Of course populist approaches take diverse forms. Within psychology, the most interesting defense of a particular kind of populist approach, coming from Paul Slovic, is that ordinary people display a "rival rationality," one that has its own logic and that should be treated with respect.[4] Slovic urges that this rival rationality diverges from that of experts and that it is not self-evidently inferior. It contains its own language, its own concerns, and its own moral commitments.

By contrast, technocrats emphasize the importance of facts, and in particular of science and economics. With respect to regulatory policy, they think that government should do what is right (by the lights of science and economics), not what citizens, with their various intuitions and biases, happen to think is right. Of course technocratic approaches take diverse forms. Many (of course not all) technocrats insist that cost-benefit analysis is the proper foundation

---

[1] See Cass R. Sunstein, Valuing Life (2014).

[2] It is true that respondents on Amazon's Mechanical Turk are not a nationally representative sample, but the group was diverse along relevant dimensions, and there is every reason to expect that similar results would be obtained with a representative sample.

[3] Cost-benefit weighing is in the nature of "one thought too many," as emphasized in Bernard Williams, Moral Luck (1981).

[4] See Paul Slovic, The Perception of Risk (2000).

for regulatory policy,[5] and that whatever the public believes, the outcome of that analysis should be decisive. If the public is not fearful of certain risks, regulators should nonetheless proceed if the benefits of proceeding exceed the costs. Technocrats are concerned about the problem of public complacency. If the public is fearful of certain risks, regulators should not proceed if the costs of proceeding would exceed the benefits. Technocrats are concerned about the problem of public hysteria.

Influenced by behavioral science, some technocrats make an emphatically *cognitive* case for cost-benefit analysis.[6] They believe that that form of analysis is, in a sense, a foreign language, and the right language with which to assess risk regulation. Invoking behavioral findings, they contend that in thinking about risks, both ordinary people and politicians are susceptible to behavioral biases that lead to systematic and predictable errors. Armed with anecdotes and intuitions, those on the political left might be fearful of environmental and other risks that do not pose objectively serious threats, and they might neglect or downplay the costs of addressing those risks, which may adversely affect real people.[7] Armed with their own anecdotes and intuitions, those on the political right might favor the opposite policies. Cultural commitments of various sorts might account for those intuitions, leading to both mistakes and polarization.[8] Technocrats distrust populism for that very reason. They think that it threatens to produce serious errors, with serious and harmful consequences for people's lives.

II. Framing As Translating

Behavioral scientists have long known that semantically equivalent descriptions of certain questions can produce puzzlingly different responses.[9] For example, people are more likely to choose to have an operation if they are told, "after five years, 90 percent of people who have the operation are alive," than if they are told, "after five years, 10 percent of people who have the operation are dead." If people are informed, "if you adopt energy conservation strategies, you will save $200 per year," they are less likely to adopt such strategies than if they are informed, "if you do not adopt energy conservation strategies, you will lose $200 per year." People dislike losses more than they like corresponding gains, and a "loss frame" can have a much larger impact than a "gain frame."[10] In a sense, framing involves translating. It is usually simple to translate from one frame to another. For decision making, such translations often matter, which is an intriguing puzzle on which considerable progress has been made in recent decades.

---

[5] I am bracketing some important debates over the meaning, use, and limits of cost-benefit analysis. See Matthew Adler, Welfare and Fair Distribution (2011).

[6] See Howard Margolis, Dealing With Risk (1996).

[7] See id.

[8] See Dan Kahan et al., Cultural Cognition of Scientific Consensus, 14 J Risk Res 147 (2011).

[9] Summaries can be found in Daniel Kahneman, Thinking, Fast and Slow (2011).

[10] On some of the complexities here, see Tali Sharot, The Influential Mind (forthcoming 2017).

It is possible, of course, to wonder whether semantically equivalent descriptions might come with suggestive *signals*, to which listeners are rationally attentive. If a doctor tells you that most people who have an operation are alive after five years, she also seems to be saying, "I think it is a good idea for you to have the operation." By contrast, an emphasis on the percentage of people who end up dying seems to say, "This might not be the best idea." The distinction between truth-value and speech-act might explain some of the effects of different frames.

One of the many valuable features of the emerging research on the "foreign language effect"[11] is that it bypasses these kinds of questions about framing. If a problem is described in English and French, and if English speakers offer quite different solutions in the two languages, it is far too weak to say that the descriptions are semantically equivalent. They are equivalent – period.

Suppose that we are drawn to the view that people show "ecological rationality" in the sense that the heuristics they use work well in the situations in which they ordinarily find themselves.[12] If so, it would be natural to expect that people would be (most) ecologically rational in their native tongue. In some ways, this is undoubtedly true; people show a kind of ease and familiarity in their own language that they lack in others, even if they are fluent in them. But along certain dimensions that bear on the topic of bounded rationality, it turns out that using one's own tongue can be a severe hindrance.

The foundational paper, by Boaz Keysar and his colleagues,[13] offers two key findings. *First*, use of a foreign language makes people more likely to make bets (both hypothetical and real) on the basis of positive expected value; loss aversion is reduced. In that sense, people are more likely to act consistently with standard economic accounts of rationality. *Second*, use of a foreign language reduces framing effects. In the famous Asian Disease Problem, people are less likely to display the usual asymmetry between gain frames and loss frames when they answer in a language that is not their own. To that extent, people are more likely to follow the correct normative theory when they are using a foreign language.

To date, the explanation for these findings is not clear, but the best account emphasizes that when people are using their native tongue, their emotional reactions help to determine their answers. When they use a foreign language, those reactions are blunted, and they think less automatically and more deliberatively.[14] Keysar and his coauthors urge that "people rely more on systematic processes that respect normative rules when making decisions in a foreign

---

[11] For an overview, see Sayuri Hayakawa et al., Using a Foreign Language Changes Our Choices, Trends in Cognitive Science (forthcoming 2016).
[12] For a valuable, concise account, see Michael Lewis, The Undoing Project (2016); for a valuable, lengthy discussion, see generally Mark Kelman, The Heuristics Debate (2011).
[13] See Boaz Keysar et al., The Foreign-Language Effect: Thinking in a Foreign Tongue Reduces Decision Biases, 23 Psych Science 661 (2012).
[14] See Hayakawa et al., supra note.

language than when making decisions in their native tongue."[15] They speculate that the central reason is that affect and emotion are attenuated when people use a foreign language, and that attenuation leads to more systematic processing.[16] In now-familiar terms, native speakers are more likely to think fast, while foreign language speakers are more likely to think slow; they are more distanced from their own immediate reactions.

In recent years, there has been a burst of further research on the foreign language effect, attempting to specify its boundaries and to understand the underlying mechanisms. The original findings by Keysar et al. have been repeatedly replicated and also extended. For example, Albert Costa and his coauthors[17] also find that use of a foreign language reduces loss aversion and framing effects. They also find that when speaking in a foreign language, people are less likely to engage in familiar forms of mental accounting, and that in cases that do not involve loss aversion, respondents are more likely to avoid psychological biases and to run the numbers (and hence to arrive at what is, on standard accounts, the correct solution).

Costa and his coauthors also find that people are less likely to be risk-averse and more likely to be consistent in a foreign language. Interestingly, however, they do not do better on the cognitive reflection test in a foreign language, perhaps because that test involves logic and does not produce affective reactions. The authors' cautious conclusion is use of a foreign language "leads to a reduction of heuristic biases in decision making, in some specific contexts."[18] In particular, "Decision making in contexts that elicit heuristic biases grounded in emotional reactions would be sensitive to the language in which the problems are presented."[19]

These claims raise a number of unresolved puzzles. It is plausible to say that loss aversion stems from emotional reactions, but it is less clear that the effects of framing can be explained in that way,[20] and the original work on heuristics and biases investigated cognition, not emotion.[21] If you think that the letter "n" is more likely to start a word than to be the second-to-last letter (in English!), it is doubtful that your judgment to that effect is a product of your emotion. The use of mental short-cuts, helpfully understood as involving "attribute

---

[15] See Keysar et al., supra note.

[16] Id.

[17] Albert Costa et al., **"**Piensa" Twice: On the Foreign Language Effect in Decision Making**, 130 Cognition 236 (2014), available at https://www.ncbi.nlm.nih.gov/pubmed/24334107

[18] Id.

[19] Id. See also Winskel, H., Ratitamkul, T., Brambley, V., Nagarachinda, T., & Tiencharoen, S. (2016). Decision-making and the framing effect in a foreign and native language. *Journal of Cognitive Psychology*, *28*, 427–436. doi:10.1080/20445911.2016.1139583

[20] For details, see Perspectives on Framing (Gideon Keren ed. 2010).

[21] Amos Tversky and Daniel Kahneman, Judgment under Uncertainty: Heuristics and Biases**, *Science*, New Series, Vol. 185, No. 4157. (Sep. 27, 1974), pp. 1124-1131.

substitution,"[22] might be qick and automatic, but it need not require any kind of affective engagement. Respondents might answer a difficult question by asking an easier one (what do trusted others think?) in an entirely unemotional way. In both ordinary life and politics, people use the availability and representativeness heuristics whether or not their emotions are triggered. The Costa et al. hypothesis would suggest that the use of a foreign language would not attenuate the power of those heuristics unless emotions are in play.

That hypothesis remains to be tested. It is possible that when people are using a foreign language, their automatic processing is weakened in general, and they end up thinking more slowly and deliberatively. If so, we might expect that they will be more likely to use statistical knowledge in a foreign language, whether or not emotional reactions are at work. On the other hand, it might be that even when people slow down and think more deliberatively, they rely on the availability and representativeness heuristics, because they have nothing else to which they can reliably resort. At least this might be true in some contexts that involve risks (associated, say, with travel by railroad or with obesity). On that count, framing effects and loss aversion might be more likely to be reduced or eliminated in a foreign language, because slower and less automatic thinking more readily leads in the direction of standard economic rationality. A great deal remains to be learned here.[23]

III. Cost-Benefit Analysis As A Foreign Language

Let us bracket the unanswered questions and bring the foreign language effect directly into contact with the debate over regulatory policy. A fanciful question: When public officials in English-speaking nations are trying to resolve difficult problem, should they try to conduct their meetings in French? Of course that would be crazy. But cost-benefit analysis is essentially a foreign language, and it has the same effect identified in research on the foreign language effect: It reduces people's reliance on intuitive judgments that sometimes go wrong, especially in highly technical areas.

Imagine, for example, that because of some recent event – a railroad accident, an outbreak of food-borne illness – both ordinary citizens and public officials are quite alarmed, and they strongly favor an aggressive (and immediate) regulatory response. Imagine too that the benefits of any such response would be relatively low, because the incident is highly

---

[22] See Daniel Kahneman and Shane Frederick, Representativeness Revisited: Attribute Substitution in Intuitive Judgment, in Heuristics and Biases: The Psychology of Intuitive Judgment (T. Gilovich et al. eds 2002).

[23] There is also intriguing work, not engaged here, on the effects of foreign language use in moral judgments, which is generally to move people in more utilitarian directions. See J. Geipel et al., Foreign language Affects the Contribution of Intentions and Outcomes to Moral Judgment, Cognition (2016), available at https://www.ncbi.nlm.nih.gov/pubmed/27232522. There is an evident connection between this work and research on the neuroscience and psychology of deontology. For an overview, see Cass R. Sunstein, Is Deontology a Heuristic?, 63 Iyyun 83 (2014).

unlikely to be repeated, and that the costs of the response would be high. The language of cost-benefit analysis imposes a firm brake on an evidently unjustified initiative. Or suppose that a 1 in 50,000 lifetime risk – say, of getting silica in the workplace – faced by millions of workers is not much on the government's viewscreen, because it seems to be a mere part of the social background, a fact of life. But suppose the risk could be eliminated at a relatively low cost, and that it would save at least 500 lives annually (for a monetized benefit of $4.5 billion, assuming a $9 million value of a statistical life). Cost-benefit analysis would require that risk to be eliminated, even if the public is not clamoring for it.

Whatever the problem, cost-benefit analysis, by definition, makes both loss aversion and framing essentially irrelevant. Properly conducted, it should also reduce and perhaps even eliminate the power of relevant biases (such as optimistic bias and present bias) and heuristics (such as availability and representativeness) -- both of which strengthen or weaken the public demand for regulation. It forces officials to speak in a language that citizens do not ordinarily use and that they even find uncongenial. But insofar as it helps to correct biases, it is all the better for that.

None of these points is sufficient to demonstrate that cost-benefit analysis is the appropriate decision rule in the countless domains that go under the capacious category of "regulation."[24] For example, cost-benefit analysis is usually indifferent to distributional concerns, which might well matter: If the disadvantaged gain less than the advantaged lose, the regulation might nonetheless turn out to be justified on normative grounds.[25] There is also a risk that public officials will not properly calculate costs and benefits, in part because they lack adequate tools to identify them, and behavioral biases might play a role in (erroneous) quantification. With respect to the consequences of risk regulation, uncertainty is hardly uncommon. Behavioral science has itself placed an increasingly bright spotlight on the differences between (1) cost-benefit analysis, undertaken ex ante and a mere prediction of effects on well-being and (2) actual measures of subjective well-being, undertaken ex post and cataloguing those effects.[26] In theory, what matters is well-being, and cost-benefit analysis is only a proxy for that; in some cases, it may not be a sufficiently accurate proxy.

These qualifications are true and important, but they merely underline the central point, which is that cost-benefit analysis is essentially a language, one that defies ordinary intuitions and that must ultimately be evaluated in terms of its fit with what people, after a process of sustained reflection, really value. Its principal virtue is that it weakens the likelihood that policymakers will decide on the basis of intuitive reactions that seem hard to resist and that cannot survive that reflection.

Work on the foreign language effect seems to be about psychology, not politics or law. But it clarifies and fortifies the claim that in legislatures, bureaucracies, and courtrooms, as in

---

[24] See Adler, supra note.
[25] See Sunstein, supra note.
[26] See John Bronsteen et al., Happiness and the Law (2014).

ordinary life, we often do best to translate social problems into terms that lay bare the underlying variables, and make them clear for all to see.[27]

N'est–ce pas?

---

[27] In that sense, there is also a democratic argument for cost-benefit balancing, though a defense of that claim would take me far beyond the present topic.