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## MISFEARING: A REPLY

Cass R. Sunstein\*

For several decades, social scientists have investigated bounded rationality and its relationship to human behavior.<sup>1</sup> In processing information, people use identifiable heuristics, which can produce severe and systematic errors.<sup>2</sup> When people use the availability heuristic, for example, they answer questions of probability by asking whether examples readily come to mind.<sup>3</sup> In assessing the risk of crime or certain methods of travel, people are affected by their ability to recall instances in which the risk materialized. In addition, human beings do not follow expected utility theory.<sup>4</sup> Most importantly, they dislike losses more than they like corresponding gains, and in that sense they show loss aversion.<sup>5</sup> As a result of various forms of bounded rationality, human beings are prone to what might be called “misfearing”<sup>6</sup>: they fear things that are not dangerous, and they do not fear things that impose serious risks.

An understanding of bounded rationality has obvious implications for law and policy. Much of the time, private fears are translated into public action.<sup>7</sup> No one doubts that democratic nations should respond to the public will, but there is reason for real concern if small problems

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<sup>1</sup> For valuable collections, see BLACKWELL HANDBOOK OF JUDGMENT & DECISION MAKING (Derek J. Koehler & Nigel Harvey eds., 2004) [hereinafter BLACKWELL HANDBOOK]; CHOICES, VALUES, AND FRAMES (Daniel Kahneman & Amos Tversky eds., 2002); HEURISTICS AND BIASES (Thomas Gilovich et al. eds., 2002); and QUASI RATIONAL ECONOMICS (Richard A. Thaler ed., 1991).

<sup>2</sup> See DANIEL KAHNEMAN, PAUL SLOVIC & AMOS TVERSKY, JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES (1982).

<sup>3</sup> See Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, in KAHNEMAN ET AL., *supra* note 2, at 3, 11–14.

<sup>4</sup> For a clear outline of expected utility theory, see Jonathan Baron, *Normative Models of Judgment and Decision Making*, in BLACKWELL HANDBOOK, *supra* note 1, at 19, 24–27.

<sup>5</sup> See Daniel Kahneman et al., *Experimental Tests of the Endowment Effect and the Coase Theorem*, 98 J. POL. ECON. 1325, 1328 (1990); Richard H. Thaler, *The Psychology of Choice and the Assumptions of Economics*, in QUASI RATIONAL ECONOMICS, *supra* note 1, at 137, 143 (arguing that “losses loom larger than gains”).

<sup>6</sup> Cf. Daniel T. Gilbert & Timothy D. Wilson, *Miswanting: Some Problems in the Forecasting of Future Affective States*, in FEELING AND THINKING: THE ROLE OF AFFECT IN SOCIAL COGNITION 178, 179 (Joseph P. Forgas ed., 2000) (using the term “miswanting” to apply to a lack of coordination between what a person wants and likes).

<sup>7</sup> AARON WILDAVSKY, BUT IS IT TRUE? (1995) has many examples.

receive significant attention and resources, and if large problems receive little or none. In *Laws of Fear*, I attempt to show how bounded rationality contributes to private and public blunders, and to outline an approach to risk reduction that might improve people's lives by making them, among other things, healthier and longer.

In their generous, illuminating, and spirited Review,<sup>8</sup> Dan M. Kahan, Paul Slovic, Donald Braman, and John Gastil (hereinafter KSBG) distinguish among three models of risk perception: the "rational-weigher" model, the "irrational-weigher" model, and the "cultural-evaluator" model.<sup>9</sup> They think that I adopt the irrational-weigher model,<sup>10</sup> which, in their view, neglects the role of culture. They contend that the forms of bounded rationality that I emphasize are endogenous to, or a product of, cultural predispositions. They insist that contests about risks are often contests about the status of competing worldviews. KSBG also object that the irrational-weigher model has strong and unfortunate undemocratic tendencies, because it neglects people's values, and because it tends to treat those values as errors rather than as deeply held commitments.<sup>11</sup>

In emphasizing the relationship between culture and risk perceptions, KSBG are onto something important. But there are serious problems with the claim that risk perceptions are *generally* a product of people's worldviews. More fundamentally, what they call "cultural cognition" should not be seen as a competitor to approaches based on bounded rationality. To be sure, some normative positions are deeply entrenched, and people with entrenched normative positions often read facts in a way that conforms to their predispositions. Biased information-processing of this kind — what might be termed *normative bias* — is a distinctive form of bounded rationality, one that certainly affects risk perception. KSBG are best read to contend that normative bias plays a significant role in assessments of certain risks, and this claim is an important supplement to existing work on risk perception.

I argue, in short, that insofar as it produces factual judgments, "cultural cognition" is largely a result of bounded rationality, not an alternative to it. I also argue that while it is undemocratic for officials to neglect people's values, it is hardly undemocratic for them to ignore people's errors of fact.

My purpose in this Reply is to elaborate these claims, but let me begin with two clarifications. First, KSBG refer to "irrational

<sup>8</sup> Dan M. Kahan, Paul Slovic, Donald Braman & John Gastil, *Fear of Democracy: A Cultural Evaluation of Sunstein on Risk*, 119 HARV. L. REV. 1071 (2006) (reviewing CASS R. SUNSTEIN, *LAWS OF FEAR: BEYOND THE PRECAUTIONARY PRINCIPLE* (2005)).

<sup>9</sup> See *id.* at 1074–76, 1087–88.

<sup>10</sup> See *id.* at 1076–83.

<sup>11</sup> See *id.* at 1088–1106.

weighers,” a term that seems to me misleading. People should be regarded as boundedly rational weighers, not as irrational ones.<sup>12</sup> Those who use heuristics are hardly irrational; they are adopting simple rules of thumb that generally work well. Second, KSBG describe their own approach as “cultural cognition,” but I wonder about this term as well. Is the United States best understood as divided into different “cultures”? It seems more plausible to say that people have different normative positions, and those positions bias their judgments on questions of fact. Sometimes those normative positions are “clustered,” to use KSBG’s terminology,<sup>13</sup> and these clusters have important biasing effects that reflect bounded rationality. But to say this is to get ahead of the story.

### I. THE LIMITS OF CULTURAL EXPLANATIONS

Relying on work by Mary Douglas and Aaron Wildavsky, KSBG point to three different “cultural worldviews,” which they call “hierarchical,” “egalitarian,” and “individualistic.”<sup>14</sup> They believe that people process risks through the lens of these worldviews, and they offer an empirical study that, in their view, supports that conclusion.<sup>15</sup> The study asked people to evaluate their level of concern about specified risks by registering their agreement on a four-point scale, reflecting how strongly they agreed that the risk in question was “serious” or produced “danger.” The relevant risks were global warming, nuclear power, pollution, abortion (risks to the mother), and guns (dangers to owners and society).<sup>16</sup> To identify the role of “culture,” KSBG attempted an independent test of people’s tendency to be hierarchical, egalitarian, or individualistic. That test asked people to state their agreement or disagreement with such propositions as, “The women’s rights movement has gone too far”; “It seems like the criminals and welfare cheats get all the breaks, while the average citizen picks up the tab”; and “The government interferes far too much in our everyday lives.”<sup>17</sup>

KSBG find that as people become more egalitarian and solidaristic, they become more concerned about the risks associated with global

<sup>12</sup> Similarly, Richard Thaler uses the term “quasi rational,” as distinguished from “rational” or “irrational.” See *QUASI RATIONAL ECONOMICS*, *supra* note 1.

<sup>13</sup> See Kahan et al., *supra* note 8, at 1091–92.

<sup>14</sup> See *id.* at 1083–84 (citing MARY DOUGLAS & AARON WILDAVSKY, *RISK AND CULTURE* (1982)).

<sup>15</sup> See *id.* at 1086–87.

<sup>16</sup> Dan M. Kahan, Donald Braman, John Gastil, Paul Slovic & C.K. Mertz, *Gender, Race, and Risk Perception* 13–14, app. at 39–40 (Yale Law Sch. Pub. Law & Legal Theory Research Paper Series, Paper No. 86, 2005), available at <http://ssrn.com/abstract=723762>. For guns, the questions were somewhat more complex. See *id.*

<sup>17</sup> *Id.* at 12–13, app. at 38–39.

warming, nuclear power, and pollution — whereas those who are especially hierarchical and individualistic are far less concerned about these risks. At the same time, the egalitarian and solidaristic types are more concerned about gun violence and less concerned about risks to women who have abortions — whereas those who are hierarchical and individualistic fear that gun control might undermine public safety, and believe that abortions do cause health risks.<sup>18</sup>

Armed with this evidence, KSBG contend that “*culture is prior to facts*.”<sup>19</sup> They argue that bounded rationality itself operates against a cultural backdrop, with different groups having different senses of what incidents are available. In KSBG’s understanding, risk-related beliefs are an outcome of “status competition” among competing social groups.<sup>20</sup> People “care as much about their status as they do about their material welfare,”<sup>21</sup> and those who propose a particular position on global warming, or on guns, are seeking to protect their status from perceived attack. In KSBG’s account, status competition helps to explain more particular findings as well. For example, African Americans are especially sensitive to abortion risks, a finding that stems from “the distinctive status anxieties of African Americans, male and female.”<sup>22</sup> African Americans are “[d]isposed by status-protective concerns to denounce abortion as immoral.”<sup>23</sup>

In sum, KSBG contend that it is best to understand risk perception in terms of cultural cognition, not bounded rationality. They believe that a cultural understanding of risk is indispensable to seeing how government might best approach social disagreements — and also might ensure that political debates are genuinely democratic. In their view, an emphasis on bounded rationality, and on misfearing, will blind regulators to the moral commitments that underlie people’s judgments.

#### A. “*Serious*” Risks

KSBG are right to emphasize the relationship between moral judgments and risk perception, but many questions might be asked about the inferences they draw from the study they describe. The basic problem is that their study does not establish that culture produces different *factual* judgments about the magnitude of social risks.

Recall that KSBG find that people with different normative commitments offer different judgments about whether certain risks are

<sup>18</sup> See Kahan et al., *supra* note 8, at 1086–87.

<sup>19</sup> *Id.* at 1083.

<sup>20</sup> *Id.* at 1073.

<sup>21</sup> *Id.* at 1095.

<sup>22</sup> Kahan et al., *supra* note 16, at 27.

<sup>23</sup> *Id.* at 28.

“serious.”<sup>24</sup> The term “serious” explicitly invites consideration of normative as well as factual issues; indeed, it confounds the two. When people say that a risk is “serious,” they are unlikely to separate an assessment of the sheer magnitude of the risk from a normative evaluation of whether government ought to do something about it.<sup>25</sup> Is it shocking, or even surprising, to find that people with identifiable political predispositions offer systematically different judgments about whether risks are “serious”? Consider a far simpler version of KSBG’s test involving just one proposition: “George W. Bush is a good President.” I am willing to hypothesize that people’s agreement or disagreement with that proposition, on a four-point scale, will operate as a decent predictor of their agreement or disagreement with a range of questions involving the seriousness of risks associated with nuclear power, global warming, pollution, gun control, and abortion. (Is this cultural cognition?)

If ordinary people are asked whether a risk is “serious,” they are not likely to respond with a quantitative analysis of the projected harm. For this reason, people’s judgments about seriousness do not reveal much about risk perception as that term is explored in *Laws of Fear*. Asked about seriousness, people might well offer a rapid, intuitive judgment — one that reflects the affect heuristic and that would naturally line up with their political predispositions. If they are more reflective, they are likely to consider at least three variables: the anticipated harm, the cost of reducing or eliminating the risk, and the related moral and political issues. Those who oppose gun control laws might believe that the risks of gun ownership are “not serious” even though they have a full understanding of the number of lives lost without such laws. For purposes of uncovering risk perceptions, it would be most interesting to see whether the relevant groups generate systematically different numbers about expected annual deaths, rather than if they have systematically different assessments of whether a risk is “serious.”<sup>26</sup> Without evidence on that point, we have limited knowledge of the relationship between people’s cultural values and their risk perceptions.

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<sup>24</sup> The term “serious” was used in the prompts for only two of the five risks (pollution and global warming), but the other prompts, which solicited opinions about whether “it is dangerous” and the like, raise similar problems, and hence I use the problems with the word “serious” to capture the general issue.

<sup>25</sup> Thus it is possible to say that a risk is “serious” even though the likelihood of death is relatively small, and also possible to say that a risk is not so “serious” even though the likelihood of death is relatively larger. A risk of 1 in 50,000, for example, may or may not seem “serious,” depending on other variables.

<sup>26</sup> A study of this sort, although not exploring cultural differences, is Sarah Lichtenstein, Paul Slovic, Baruch Fischhoff, Mark Layman & Barbara Combs, *Judged Frequency of Lethal Events*, 4 J. EXPERIMENTAL PSYCHOL.: HUM. LEARNING & MEMORY 551 (1978).

There is an additional problem. The analysis in the study invoked by KSBG could easily be reversed. Does culture predict risk perceptions, or is the converse true? Imagine that certain people believe that global warming and nuclear power do not pose a serious risk; imagine too that such people think that gun control increases risks and that abortion imposes serious risks on the mother. I predict that such people would show the cultural profile that KSBG describe as hierarchical and individualist. The evidence does not enable us to establish priority.

### B. "Hot" Risks and Bounded Rationality

But suppose, plausibly, that normative commitments often come first, and that people's judgments about the magnitude of risks are influenced by their normative commitments. Even if this is so, we should distinguish between the relatively few "hot" risks, which trigger cultural conflicts, and other risks, which are far less likely to do so. The judgments of Americans about most risks are not a product of cultural conflicts within the United States.

Kahan's own work on risk regulation has focused most directly on gun control<sup>27</sup> — an area in which moral commitments are particularly likely to affect people's assessments of risks. It would be hard to persuade committed gun control advocates that gun control actually increases the risk of homicide. KSBG's own study involves "hot" risks of various kinds. Indeed, abortion and gun control may be two of the "hottest" political issues. But in many areas, evidence of risks actually has a significant effect, and normative or cultural commitments play a less central role in people's assessments of risk. As possible examples, consider the risks associated with hurricanes, earthquakes, lawn mowers, power saws, sharks, motor vehicles, airplanes, swimming pools, lightning, bridges, jogging, fire, and trains. For the evaluation of many of these risks, cultural or normative commitments play a smaller role. While people are divided about the risk of global warming, they are not so divided about the risks associated with bridges.

Moreover, general swings in the fear of Americans can occur despite differing normative commitments. Both within and across any cultural category, bounded rationality is likely to affect people's judgments about risks. If a nuclear power accident has occurred and been highly publicized in the last three months, I predict that public fear will increase as a result, and the increase will be found across cultural divisions. Fear will be heightened if relevant events are cognitively available; it will be lessened if such events are not available. It follows

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<sup>27</sup> See Dan M. Kahan & Donald Braman, *More Statistics, Less Persuasion: A Cultural Theory of Gun-Risk Perceptions*, 151 U. PA. L. REV. 1291 (2003).

that in the United States, the perceived risks of terrorism leapt after the attacks of September 11, and that the perceived risks of hurricanes leapt after the Gulf Coast disaster of August 2005 — and these leaps probably occurred across “cultures.” It is likely, of course, that the fears in some cultures leapt less than in others. But whatever people’s cultural predispositions, judgments about risks are a product not of irrationality but of bounded rationality — of perceptions of the facts, processed by fallible human beings.<sup>28</sup>

Nothing in KSBG’s findings is inconsistent with these claims. As Slovic has shown, vivid and easily imagined causes of death (for example, tornadoes) receive likelihood estimates that are greater than those of less vivid causes (for example, asthma attacks) that occur with far greater frequency (here, by a factor of twenty).<sup>29</sup> Slovic has also shown that whether people will buy insurance for natural disasters is greatly affected by recent experiences. If floods have not occurred in the immediate past, people who live on flood plains are far less likely to purchase insurance. In the aftermath of an earthquake, the number of people purchasing earthquake insurance rises sharply — but it declines steadily as time passes and vivid memories recede.<sup>30</sup> The same conclusion, involving the importance of the availability heuristic, emerges from a cross-national study of perceptions of risk associated with terrorism and SARS. Because of the attacks of September 11, Americans perceived terrorism to be a far greater threat, to themselves and to others, than SARS. Because of highly publicized cases involving SARS in their country, Canadians perceived SARS to be a greater threat, to themselves and to others, than terrorism.<sup>31</sup> The disparity between Americans and Canadians is entirely consistent with the account in *Laws of Fear* and does not depend on any distinction among individualists, egalitarians, and hierarchists.

KSBG nonetheless emphasize the importance of culture as opposed to bounded rationality. But consider the fact that within the United States, public concern about risks usually tracks actual risk levels<sup>32</sup> — a finding that cannot be explained by reference to “culture,” and a

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<sup>28</sup> KSBG suggest, incorrectly, that I “depict[] the impact of affect as foundational to nearly all other mechanisms of risk perception.” Kahan et al., *supra* note 8, at 1078. Availability, for example, can operate in purely cognitive terms. Affect is certainly important, but people use heuristics, and show biases, whether or not affect is involved.

<sup>29</sup> Lichtenstein et al., *supra* note 26, at 555, 556 tbl.2. For a more recent finding in the same vein, see W. Kip Viscusi, *Judging Risk and Recklessness*, in PUNITIVE DAMAGES: HOW JURIES DECIDE 171, 181–82 (Cass R. Sunstein et al. eds., 2002).

<sup>30</sup> PAUL SLOVIC, THE PERCEPTION OF RISK 40 (2000).

<sup>31</sup> See Neal Feigenson et al., *Perceptions of Terrorism and Disease Risks: A Cross-National Comparison*, 69 MO. L. REV. 991, 996–97 (2004).

<sup>32</sup> See George Loewenstein & Jane Mather, *Dynamic Processes in Risk Perception*, 3 J. RISK & UNCERTAINTY 155, 166, 173 (1990).



tribute to the fact that people are not irrational but instead boundedly *rational*. When does public concern outrun actual fluctuations? The answer, an example of *bounded* rationality, lies in the important case of “panics,” bred by vivid illustrations that do not reflect increases in danger levels.<sup>33</sup> At certain points in the 1970s and 1980s, for example, there were extreme leaps in concern about teenage suicides, herpes, illegitimacy, and AIDS — leaps that did not correspond to an increase in the size of these problems. These leaps were produced, in large part, by the availability of “a particularly vivid case or new finding that receives considerable media attention.”<sup>34</sup>

Notwithstanding culture, then, facts are usually crucial to risk-related judgments, and perceptions of facts are affected by bounded rationality. It follows that culturally heterogeneous groups — the citizens of New Orleans in late 2005, or the citizens of Washington, D.C. after the sniper attacks of 2002, or those who live along the San Andreas Fault, or Americans in the aftermath of September 11 — will often show similar risk beliefs regardless of their diversity along religious, ethnic, and other lines. I do not mean to deny the possibility, emphasized by KSBG, that population-wide changes of the sort just outlined may sometimes disguise internal disagreements produced by different social predispositions.<sup>35</sup> For example, if a nuclear power accident occurs, some people will continue to believe (perhaps correctly) that nuclear power poses low risks. KSBG’s argument about cultural disagreements will be least powerful with risks that are disconnected from “hot” debates that separate people in moral and political terms. But the overwhelming majority of questions of risk perception are indeed disconnected from those debates, simply because most of the risks that we face do not involve the cultural or political issues that divide us; hence cultural disagreements are essentially irrelevant. And even when such disagreements matter, bounded rationality is important too.<sup>36</sup>

### C. Cultural Cognition, Rationality, and Bounded Rationality

KSBG think that cultural cognition is an alternative to bounded rationality and a superior account of risk perception. In my view, cultural cognition is actually a reflection of bounded rationality and a

<sup>33</sup> *Id.* at 171–73.

<sup>34</sup> *Id.* at 172.

<sup>35</sup> See Kahan et al., *supra* note 8, at 1095.

<sup>36</sup> I agree (pp. 104–05) with KSBG that availability is sometimes endogenous to culture. See *id.* at 1085. At the same time, certain social events will be available to most or even all. See Lichtenstein et al., *supra* note 26.

part of the general framework that it offers.<sup>37</sup> I mean, then, to suggest not only that bounded rationality helps to explain variations in beliefs, but also that identifiable forms of bounded rationality lie behind cultural cognition. To explore this possibility, it is necessary to untangle the mechanisms by which “culture” contributes to judgments about risks. There are three possibilities.

1. *Social Influence*. — Suppose that people do not know whether global warming causes serious risks. They might well make a judgment based on what they learn from those they know. People with incomplete information are rationally interested in the views of those they trust. Those who believe that global warming is a serious problem might hold this view because they are following the views of others. Here cascade effects and group polarization<sup>38</sup> are common, and they help to constitute relevant “cultures.”

Call this the “social influence” model of cultural cognition, one that can be taken as a useful specification of some of the arguments about cascades and polarization in *Laws of Fear*. Such influences come in two forms: informational and reputational (pp. 94–102). If trusted people believe that global warming poses a serious risk, there is reason to believe that global warming poses a serious risk — the informational influence. And if trusted people so believe, there is reason to go along with them, simply to avoid incurring their disapproval — the reputational influence.

When people are divided along certain lines, and when certain beliefs tend to “cluster,” it is often because of social influences. If people sort themselves into different groups, with different fears, then risk perceptions will diverge accordingly. The resulting differences may or may not operate along geographical lines. If environmentalists are influenced by other environmentalists, then their fears about global warming might have little to do with physical location. The findings offered by KSBG are fully consistent with this possibility.

2. *Normative Bias*. — As I have suggested, people’s judgments about factual questions are often affected by their normative commitments. Suppose that you believe that abortion is a form of murder. You might be inclined to accept evidence that abortion is dangerous for women as well. Or suppose that you are inclined to oppose capital

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<sup>37</sup> A growing body of work explores the intersection. See, e.g., Incheol Choi et al., *Culture and Decisions*, in BLACKWELL HANDBOOK, *supra* note 1, at 504.

<sup>38</sup> KSBG argue that my emphasis on polarization “underestimates persons’ discursive capacities,” Kahan et al., *supra* note 8, at 1100, but in general, their citations do not support the charge. On the contrary, polarization is a remarkably robust finding. See ROGER BROWN, *SOCIAL PSYCHOLOGY* 200–48 (2d ed. 1986). It is true, however, that institutional design can help to improve deliberation. See CASS R. SUNSTEIN, *INFOTOPIA: HOW MANY MINDS PRODUCE KNOWLEDGE* (forthcoming 2006).

punishment as barbaric. You might well be inclined to reject evidence that it deters murder. The general phenomenon — normative bias — is well supported by evidence of confirmation bias, by which people tend to seek out, and to believe, evidence that supports their own antecedent views.<sup>39</sup>

As I understand it here, normative bias is an effort to reduce the cognitive dissonance<sup>40</sup> produced when normative commitments are in evident tension with apparently relevant facts.<sup>41</sup> Of course, it is possible to oppose capital punishment even if deterrence can be established, just as it is possible to favor a right to choose abortion even if the relevant procedure carries risks. My only claim is that as an empirical matter, people's moral judgments, which often precede careful empirical inquiry, tend to affect how they process information.<sup>42</sup> I suspect that normative bias plays a substantial role in explaining KSBG's findings. If people with certain predispositions think that global warming is not a serious problem, or that gun control imposes risks, it may well be because of normative bias. For risks that are not "hot," smaller splits may be observed simply because little or no normative bias is triggered: Americans do not much divide along normative lines with respect to less "hot" risks such as those associated with floods, hurricanes, and airplanes.

3. *Status Competition.* — KSBG believe that with respect to many issues, people think that their status is on the line, and that they press their views on those issues as part of status competition.<sup>43</sup> This explanation is not implausible, but it is doubtful that such competition accounts for the evidence that they describe.

<sup>39</sup> See Craig R.M. McKenzie, *Hypothesis Testing and Evaluation*, in BLACKWELL HANDBOOK, *supra* note 1, at 200, 203–09. People may well be simple Bayesians here. For example, people may believe that gun ownership is not dangerous because their own experience, and that of their acquaintances, supports that belief; for such people, it will take a great deal of evidence to justify the conclusion that guns are not safe.

<sup>40</sup> See LEON FESTINGER, *A THEORY OF COGNITIVE DISSONANCE* (1957).

<sup>41</sup> See Kahan et al., *supra* note 8, at 1083 ("Individuals selectively credit and dismiss factual claims in a manner that supports their preferred vision of the good society.")

<sup>42</sup> According to KSBG:

In the public consciousness, there is no genuine distinction between the "costs" and "benefits" of putatively dangerous activities. Adopting the stance that best expresses their cultural values, citizens invariably conclude that activities that affirm their preferred way of life are both beneficial and safe, and those that denigrate it are both worthless and dangerous. . . . [R]isk perceptions originating in cultural evaluation are not ones individuals are likely to disown once their errors are revealed to them.

*Id.* at 1105. For risks that are not bound up with strong cultural values, I do not believe these claims are accurate. But suppose that for some risks, they are indeed accurate — a supposition supported by empirical work on the affect heuristic to which KSBG refer. See *id.* at 1084. Even if so, the affect heuristic should hardly be turned into a virtue for policymakers! Costs and benefits are indeed separate, and if people collapse them, there is a serious problem.

<sup>43</sup> See *id.* at 1095–96.

KSBG need not even speak in terms of status competition; social influences and normative bias could be a complete explanation for their findings. To be sure, the claim of status competition is not *foreclosed* by the existing data. But when some Americans are concerned about global warming and nuclear power, do KSBG really believe that they are seeking to preserve their status? When other Americans believe that nuclear power is not a serious risk, do KSBG think that status concerns are playing the major role? What is the mechanism by which the attempt to preserve status leads to these particular beliefs? If KSBG are correct, African Americans are relatively skeptical of abortion and believe that women who have abortions incur risks as a result.<sup>44</sup> But KSBG have not defended the claim that these views are a *product* of a desire, on the part of African Americans, to prevail in some status competition. An alternative explanation is that many African Americans have moral objections, on principle, to abortion — and that for some African American women, abortion has imposed health risks. Indeed, it is plausible to speculate that availability helps to explain the fears of African Americans on this count; perhaps abortion is riskier for African American women. Compare the likely finding that gun owners do not believe that gun ownership presents a serious risk: the overwhelming majority of gun owners live without any unfortunate incidents,<sup>45</sup> and they extrapolate from their experience.

With this background, consider KSBG's argument that the development of a market solution to environmental problems helped to soften the resistance of the White House to acid deposition regulation under President George H.W. Bush. In their account, cultural and status competition were central to aggressive efforts to control acid deposition. Thus officials were willing "to accept the idea that there was a problem to be dealt with after all" only after they were shown "a solution that affirmed their cultural values."<sup>46</sup> The key point is that this solution was "cognitively" less costly.<sup>47</sup> This suggestion seems to me implausible, and KSBG offer no evidence for it. Here is a simpler account. There was a great deal of political pressure for a response to the problem of acid deposition, and the Bush White House was sympathetic to the claim that the problem was real. Once the emissions-trading approach was identified as a method for reducing acid deposition, the Bush Administration could see that the program would be less costly — *period*.<sup>48</sup> Emissions trading would ensure that the

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<sup>44</sup> See *supra* p. 1113.

<sup>45</sup> See STEVEN D. LEVITT & STEPHEN J. DUBNER, *FREAKONOMICS* 149–50 (2005) (reporting that less than one child is killed by a gun for every one million guns).

<sup>46</sup> Kahan et al., *supra* note 8, at 1097.

<sup>47</sup> *Id.*

<sup>48</sup> See A. DENNY ELLERMAN ET AL., *MARKETS FOR CLEAN AIR* 21–22 (2000).

program would be far less expensive than was originally feared. With respect to acid deposition, KSBG see status competition among cultures, but the real story involves strong political and technocratic dimensions.<sup>49</sup> The emissions-trading approach reduced both opposition and cost.<sup>50</sup> The White House did not think that its “cultural worldview” was reaffirmed; it thought instead that the program would be politically feasible and also sensible, all things considered.

In short, KSBG overstate the role of status competition in producing risk regulation; social influences and normative bias are far more important.<sup>51</sup> But suppose that the status competition view does have some explanatory power. If so, a form of bounded rationality is surely involved. Indeed, economists pay a great deal of attention to people’s concern for their status.<sup>52</sup>

My general conclusion is that once we identify the mechanisms that underlie “cultural cognition,” we will be operating under the general framework provided by behavioral economics. Those mechanisms are certainly important, but they do not provide an alternative to bounded rationality.

## II. DEMOCRATS AND TECHNOCRATS

What is the relationship between public fear and democratic self-government? *Laws of Fear* contends that officials should respond to people’s values, rather than to their blunders.<sup>53</sup> If bounded rationality is leading to excessive fear, government should not require precautions that fail to increase safety but that impose significant burdens. If bounded rationality is leading people to neglect serious risks, government should not compound that neglect with official indifference. To be sure, risk regulation is no mere technocratic exercise. If people’s values lead them to show special concern with certain risks, government should take that concern into account. But to the extent

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<sup>49</sup> See *id.* at 21–29.

<sup>50</sup> See KEVIN M. ESTERLING, *THE POLITICAL ECONOMY OF EXPERTISE* 114–60 (2004).

<sup>51</sup> This is not to say that status competition never plays a role. Social influences come in two varieties: informational and reputational. To the extent that reputational forces are at work, a form of status competition may be involved, though usually at the individual level rather than at the cultural level. See CASS R. SUNSTEIN, *WHY SOCIETIES NEED DISSENT* 12–13 (2003). Strong social influences can in turn fortify normative biases, and vice versa.

<sup>52</sup> See, e.g., ROBERT H. FRANK, *CHOOSING THE RIGHT POND* (1985). Such status concerns need not speak of “bounded” rationality — it is necessary only to specify a utility function that includes concerns about status. Rational people may well be concerned about their status.

<sup>53</sup> KSBG say that I believe that “the optimal balance is one that maximizes satisfaction of individual preferences.” Kahan et al., *supra* note 8, at 1106. Because democracy entails deliberation about preferences and moral judgments (pp. 158–60), this is an inaccurate description of my view.

possible, any official response should be based on a realistic understanding of the facts.<sup>54</sup>

KSBG are right to say that for some problems, actual risk levels are only part of what people care about. For many years, Slovic has been arguing that people care, rationally, about qualitative factors, including whether risk is equitably distributed and whether it is potentially catastrophic.<sup>55</sup> Although I have raised some questions about Slovic's claim of a "rival rationality,"<sup>56</sup> he is right to argue that a purely quantitative approach misses important concerns. Citizens might want to take expensive precautions against the potentially irreversible and catastrophic risks associated with global warming (pp. 109–17).<sup>57</sup> They might want to give poor people special protection against environmental harm.<sup>58</sup> In these cases, *Laws of Fear* embraces their goals (pp. 158–60, 166–71). And if those who reject gun control believe that law-abiding citizens should be allowed to own guns even if innocent lives are lost as a result, they are certainly permitted to press their moral claims in the public domain.

KSBG nonetheless object that my approach is fatally undemocratic — that it does not respect the normative commitments that are often at the heart of debates over risk regulation. In their view, risk policy often requires people to debate "their preferred vision of the good society."<sup>59</sup> Because people "adopt stances toward risks that express their commitment to particular ways of life," their perceptions of risks "might or might not be accurate when evaluated from an actuarial standpoint . . . . Nevertheless, which activities individuals view as dangerous and which policies they view as effective embody coherent visions of social justice and individual virtue."<sup>60</sup> KSBG think that once we appreciate the role of cultural cognition, we will be inclined to "afford normative significance to public risk evaluations generally."<sup>61</sup> KSBG object that I fear democracy and do not favor democratic

<sup>54</sup> This includes a realistic understanding of factual uncertainty. Of course, it is necessary to develop normative principles to decide how to handle uncertainty. See Cass R. Sunstein, *Irreversible and Catastrophic*, 91 CORNELL L. REV. (forthcoming May 2006).

<sup>55</sup> See SLOVIC, *supra* note 30, at 225 fig.13.1, 231.

<sup>56</sup> Cass R. Sunstein, *The Laws of Fear*, 115 HARV. L. REV. 1119, 1144–50 (2002) (reviewing SLOVIC, *supra* note 30).

<sup>57</sup> RICHARD A. POSNER, *CATASTROPHE: RISK AND RESPONSE* 43–44 (2004); Sunstein, *supra* note 54.

<sup>58</sup> There are some complexities here. Aggressive risk regulation, meant to help disadvantaged people, may not help them at all; everything depends on the distributional consequences of such regulation (pp. 166–74). See also Cass R. Sunstein, *Valuing Life: A Plea for Disaggregation*, 54 DUKE L.J. 385 (2004).

<sup>59</sup> See Kahan et al., *supra* note 8, at 1083, 1100–04.

<sup>60</sup> *Id.* at 1088 (emphasis omitted).

<sup>61</sup> *Id.* at 1104.

deliberation at all, simply because I “seek to exclude the regulation of risk from its ambit.”<sup>62</sup>

Nothing could be further from the truth. Suppose people believe that a risk is serious even though the number of lives at risk is low; suppose they want government to take precautions because (in their view) we should not live in a nation that exposes certain people to the specified risk. If citizens are not blundering on the facts, but are responding to “coherent visions of the good society and the virtuous life,” then they are making a perfectly legitimate request. Whether officials should yield to that request depends on the arguments that are brought forward on its behalf.

It is true that the type of cost-benefit analysis endorsed by *Laws of Fear* can dampen social disagreement by revealing the size of the relevant problems. If a hurricane is likely to kill hundreds or thousands of people, regulators should take account of that fact; if cell phones create a trivial cancer risk, the argument for an aggressive regulatory response is weakened. But KSBG exaggerate the extent to which disputes over risk regulation require resolution of large-scale contests among competing ways of life. And when such large-scale contests are on the table, quantitative analysis will hardly be the whole story. It is sensible to place a special emphasis on risks that are irreversible or potentially catastrophic.<sup>63</sup> Distributional considerations also matter. And if moral judgments are believed to justify gun ownership, or to call for aggressive protection of wildlife against environmental risks, then the normative issues should be debated and explored in their own right. Those issues, however, should not be confused with the empirical ones — and when cultural commitments are at the heart of a public debate, they should be identified and discussed as such.

### III. CONCLUSION: VALUES YES, ERRORS NO

Decades of work in cognitive psychology and economics have catalogued the differences between *homo sapiens* and *homo economicus*.<sup>64</sup> For their part, social psychologists have shown that social influences often amplify cognitive errors.<sup>65</sup> Bounded rationality, interacting with social influences, often leads to excessive or insufficient fear. Law and policy should not replicate cognitive errors.

KSBG argue that “cultural cognition” provides an alternative model to one that emphasizes bounded rationality. But their central

<sup>62</sup> *Id.* at 1106.

<sup>63</sup> On the complexities this emphasis entails, see Sunstein, *supra* note 54.

<sup>64</sup> See sources cited *supra* note 1.

<sup>65</sup> See Norbert L. Kerr et al., *Bias in Judgment: Comparing Individuals and Groups*, 103 PSYCHOL. REV. 687, 691–93 (1996).

idea collapses three different mechanisms that may account for cultural differences: social influences, normative bias, and status competition. All of these possibilities, which undoubtedly interact with one another, are consistent with bounded rationality; indeed, all of them fit within the most conventional models of rationality.<sup>66</sup> It follows that cultural cognition is not a competitor to neoclassical and behavioral accounts of human judgment. It is best understood as a specification of central strands of those accounts.

If we appreciate the role of culture, KSBG believe that we will conclude that it is undemocratic to emphasize people's mistakes and to suggest that law and government should not capitulate to them. "Even if individuals could be made to see that their cultural commitments had biased their review of factual information . . . , they would likely view those same commitments as justifying their policy preferences regardless of the facts."<sup>67</sup> This statement may be correct, at least for some people's judgments about some risks. But if cultural commitments are responsible for people's policy judgments, those commitments should be identified and defended in their own terms. Suppose, for example, that because of cultural cognition, people believe that a certain risk is "not serious" and also that it has a 1 in 500,000 chance of coming to fruition, when the true risk is 1 in 500. Would it be appropriate for regulators to act as if the risk is actually 1 in 500,000? Might it not be better to begin with an accurate understanding of the facts, while also considering all moral issues that bear on the appropriate regulatory response?<sup>68</sup>

To make the problem more concrete, imagine that state officials are deciding whether to reduce the speed limit from 65 miles per hour (mph) to 55 mph; imagine too that the change will significantly decrease accidents and hence deaths and injuries. If most citizens wrongly believe that a 55 mph limit will fail to decrease accidents, officials should not base their decision on that error. If the effect of the change would be to save a large number of lives, officials should take that fact into account.

To be sure, it is no simple matter to say how officials should respond if most citizens reject a 55 mph limit even after having been convinced that many lives would be saved as a result. An obvious

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<sup>66</sup> Normative bias is the only challenge for the conventional accounts. But there is a plausible Bayesian explanation even here, see *supra* note 39, and cognitive dissonance is costly for people to experience.

<sup>67</sup> Kahan et al., *supra* note 8, at 1105.

<sup>68</sup> Of course, fear and anxiety are themselves costs, and it might be appropriate for regulators to take them into account in deciding what to do, particularly if they cannot be reduced with education. See Matthew D. Adler, *Fear Assessment: Cost-Benefit Analysis and the Pricing of Fear and Anxiety*, 79 CHI.-KENT L. REV. 977 (2004).



question is why, exactly, citizens remain committed to the 65 mph status quo. Perhaps some normative judgment, not a product of factual error and not adequately captured in any kind of quantitative analysis,<sup>69</sup> helps to account for their commitment. My only claim is that officials should not, in democracy's name, base their decisions on factual mistakes that are products of bounded rationality. What can be said for the speed limit example can be said for countless other problems involved in risk regulation, including those raised by global warming, terrorism, genetic modification of food, hurricanes, earthquakes, water pollution, and pesticides.

In the end, KSBG offer two major lessons. The first is that social influences and normative bias can produce erroneous judgments about facts. The second is that moral commitments, rather than factual judgments, sometimes lead people to show a special concern about certain risks. Both claims are important and correct. Neither is incompatible with the suggestion that in a democratic society, officials should respond to people's values, rather than to their blunders.

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<sup>69</sup> To be sure, a full analysis of this kind would have to account for the social benefits that come from a higher speed limit.