

## ADAPTIVE RESPONSES TO RISK AND THE IRRATIONALLY EMOTIONAL PUBLIC

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### INTRODUCTION

The Enlightenment concept of a reason–emotion duality is very much alive today, particularly in the multidisciplinary body of scholarship on risk policy, where much of the commentary laments the “distorting” influence of emotion on the public’s thinking about risk.<sup>1</sup> Concerns that an emotionally volatile and largely ignorant public can hijack the legislative process pervade risk-policy scholarship, particularly among those writing in the increasingly influential area of behavioral decision theory.<sup>2</sup> Yet, a small but growing number of

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1. CASS R. SUNSTEIN, LAWS OF FEAR: BEYOND THE PRECAUTIONARY PRINCIPLE 82 (2005) (“Emotional reactions to risk, and probability neglect, also account for ‘alarmist bias.’”); *see also* RICHARD A. POSNER, CATASTROPHE: RISK AND RESPONSE 14 (2004) (advocating the use of cost-benefit analysis by regulators when shaping responses to catastrophic risk); Ruth F. Weiner, Comment on Sheila Jasanoff’s Guest Editorial in Risk Analysis, 13 RISK ANALYSIS 495, 495–96 (1993); Doni Gewirtzman, *Our Founding Feelings: Emotion, Commitment, and Imagination in Constitutional Culture*, 43 U. RICH. L. REV. 623, 626 (2009) (discussing the drafters of the United States Constitution as subscribing to a theory based in part on the “widely accepted propositions that still enjoy widespread acceptance in contemporary constitutional culture,” namely, the reason and emotion duality, which were seen as diametrically opposed).

2. One of the more well-known papers arguing that social exchange distorts public risk response is Timur Kuran & Cass R. Sunstein, *Availability Cascades and Risk Regulation*, 51 STAN. L. REV. 683 (1999); *see also* SUNSTEIN, *supra* note 1, at 89 (“When emotions lead people to probability neglect, the alarm shown by others is highly likely to be playing a role. When citizens fixate on a worst-case scenario, social processes are probably ensuring that they do so.”); James Gibson, *Doctrinal Feedback and (Un)reasonable Care*, 94 VA. L. REV. 1641, 1670 (2008) (discussing how social exchange of information can lead to risk aversion in a medical setting); Victoria Nourse & Gregory Shaffer, *Varieties of New Legal Realism: Can a New World Order Prompt a New Legal Theory?*, 95 CORNELL L. REV. 61, 105 (2009) (“If the behavioralists were in charge, they would insist that legal doctrine and judging should account for these predictable failures of rationality and that, without accounting for such failures, no interpretation of text or pursuit of efficiency could possibly yield rational, much less optimal, results.”); Cass R. Sunstein, *Probability Neglect: Emotions, Worst Cases, and Law*, 112 YALE L.J. 61, 103–04 (2002).

commentators from anthropology, psychology, sociology, law, and related disciplines argue that some nonrational features of choice formation that were traditionally viewed as problematic may be indispensable to optimal decision-making.<sup>3</sup> In this Article, I focus on contributions from social science that suggest the need for a fresh look at the role of emotion and its cultural influences on private and public decisions about potential sources of harm. I argue that affect-based responses to risk are properly viewed as expressions of individual values, world views, and personal preferences and, as such, achieve legitimacy as a basis for risk policy. In advancing this argument, I align my perspective with that of Dan Kahan<sup>4</sup> and others who advance an optimistic view of the role of emotion in public risk response.<sup>5</sup>

### I. TRADITIONAL RISK ANALYSIS AND BEHAVIORAL DECISION THEORY

Risk dominates our modern social, cultural, and legal landscape. Ulrich Beck, the German sociologist, has argued that over the past century, we have moved from a culture of scarcity to a culture of risk.<sup>6</sup> Beck's characterization is echoed by the American political scientist Aaron Wildavsky who famously remarked, "How extraordinary! The richest, longest-lived, best-protected, most resourceful civilization, with the highest degree of insight into its own technology, is on its way to becoming the most frightened."<sup>7</sup> One obvious source of fear is the media, who, along with public figures and private citizens, take advantage of the burgeoning of new channels of communication that carry information about risks into households and workplaces all over America.<sup>8</sup> Another reason for the twenty-first century shift in attention to risks is the changing nature of the dangers we face. Many risk researchers have emphasized the novelty of today's harms, the unseen potential effects on individual health, collective well-being, and the potential for irreversible

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(advocating that government should work to reduce quasi-rational but real fears due to the economic costs caused by such fears).

3. See *infra* Part II.

4. For a full discussion of Kahan's claim, see Dan M. Kahan, *Two Conceptions of Emotion in Risk Regulation*, 156 U. PA. L. REV. 741, 741 (2008).

5. Emotion researchers and others writing in the areas of behavior and brain science have occasionally offered different definitions for "emotion" and "affect." I use the terms interchangeably throughout this article, but acknowledge that to do so is not without controversy. See, e.g., Susan A. Bandes, Response, *Emotions, Values, and the Construction of Risk*, 156 U. PA. L. REV. PENNUMBRA 421, 424 n.13 (2008), available at <http://www.pennumbra.com/responses/03-2008/Bandes.pdf> ("The terms 'emotion' and 'affect' are sometimes used interchangeably and sometimes to connote different concepts. Neither has a single accepted meaning.").

6. See ULRICH BECK, *RISK SOCIETY: TOWARDS A NEW MODERNITY* 19 (1992).

7. Aaron Wildavsky, *No Risk Is the Highest Risk of All*, 67 AM. SCIENTIST 32, 32 (1979).

8. David L. Altheide, *The News Media, the Problem Frame, and the Production of Fear*, 38 SOC. Q. 647, 664 (1997).

damage to the planet.<sup>9</sup> As renowned risk researcher Paul Slovic has pointed out:

In recent decades, the profound development of chemical and nuclear technologies has been accompanied by the potential to cause catastrophic and long-lasting damage to the earth and the life forms that inhabit it. The mechanisms underlying these complex technologies are unfamiliar and incomprehensible to most citizens. Their most harmful consequences are rare and often delayed, hence difficult to assess by statistical analysis and not well suited to management by trial-and-error learning.<sup>10</sup>

As the salience of hazards reaches the saturation point, a variety of schools of thought offer opposing perspectives on how we ought to craft responses to potential sources of harm. The foundation of the current discussion is criticism of the neoclassical economic notion that human beings apply reason (in the traditional sense of the word) to arrive at certain, fixed truths.<sup>11</sup> The Enlightenment idea that we can observe our complex world and, acting rationally, arrive at universal truths about what will harm or kill us, has been seriously undermined by empirical findings from modern behavioral science.<sup>12</sup> The established fact that human beings are influenced by nonrational considerations has led some to argue that members of the public should be largely excluded from participating in risk-policy decisions.<sup>13</sup>

Although most of the relevant empirical studies on human decision-making have been conducted within the past forty years, conclusions drawn from this body of scholarship have largely reinforced prior existing notions about the proper role of the polity in direct policy formation.<sup>14</sup> Large-scale risk decisions historically have not been trusted to the masses. As a rule, conventional risk analysis was—and still is—conducted by investigators

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9. Paul Slovic, *Perception of Risk*, Apr. 17, 1987, SCIENCE at 280, 280 (1987) [hereinafter Slovic, *Perception of Risk*].

10. *Id.*

11. Olivier Jean Blanchard, *Neoclassical Synthesis*, in 3 THE NEW PALGRAVE: A DICTIONARY OF ECONOMICS, 634–36 (1987).

12. See Slovic, *Perception of Risk*, *supra* note 9, at 281.

13. Paul Slovic, *Trust, Emotion, Sex, Politics, and Science: Surveying the Risk Assessment Battlefield*, 1997 U. CHI. LEGAL F. 59, 59 (1997). “[Public risk judgments] are seen as irrational by many harsh critics of public perceptions. These critics draw a sharp dichotomy between the experts and the public. Experts are seen as purveying risk assessments, characterized as objective, analytic, wise, and rational—based on the *real risks*. In contrast, the public is seen to rely on *perceptions of risk* that are subjective, often hypothetical, emotional, foolish, and irrational.” *Id.* at 60.

14. This assertion obviously implicates the role of participatory democracy in this country, an issue with complex and fascinating historical and political connotations, the consideration of which are beyond the scope of this Article.

working in the so-called “hard sciences.”<sup>15</sup> Decisions about how to regulate potential sources of harm and how to allocate resources are often based upon cost-benefit analyses that are data-driven and purportedly rational.<sup>16</sup> In many circumstances, statistic-based information that serves as the basis for risk responses is treated as “fact.”<sup>17</sup> But allocation of national resources, decisions that prioritize certain dangers, and efforts to regulate citizens’ behaviors based upon statistical data may not comport with the preferences and priorities of all, or even a majority of the public.

With respect to conventional risk analysis, there are two problems for regulators and lawmakers. The first is a political, or at least a management, problem: traditional risk analysis ignores or significantly underemphasizes public response to various harms.<sup>18</sup> This feature of risk analysis means that policymakers are, first, unable to predict how members of society will view specific dangers as the threats become salient to the public and, second, are ill equipped to craft responses to risk that take into account public fear of these hazards.<sup>19</sup> The second problem with conventional risk analysis is normative: namely, that any formula that leaves public sentiment out of the equation (or purports to or attempts to) may be based upon questionable assumptions about the appropriate basis for action or inaction. As Beck points out, as long as the debate is “conducted exclusively or dominantly in the terms and formulas of *natural science*” the danger exists that the “terms will inadvertently include human beings in the picture only as *organic material* . . . it runs the risk of atrophying into a discussion of nature *without* people, without asking about matters of social and cultural significance.”<sup>20</sup>

Although traditional risk analysis has been profoundly influential, recent interdisciplinary scholarship has detailed the myriad conscious and nonconscious influences shaping risk preferences and policies. One example of a deliberate, philosophical approach is the precautionary principle, which specifies that when science is uncertain—particularly in the case of hazards

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15. See MARY DOUGLAS, *RISK AND BLAME: ESSAYS IN CULTURAL THEORY* 49 (1992) (discussing the ubiquitous nature of science, and its promise to provide answers, as experiencing a heyday in the 1950s).

16. See Roger E. Kasperson et al., *The Social Amplification of Risk: A Conceptual Framework*, 8 *RISK ANALYSIS* 177, 179 (1988) [hereinafter Kasperson et al., *Social Amplification*]; Slovic, *Perception of Risk*, *supra* note 9, at 281.

17. And yet, “Assessment procedures derived from the public health, toxicity, and engineering studies that have dominated the management programs of governments and corporations illuminate one portion of the risk complex while concealing others.” Roger E. Kasperson & Jeanne X. Kasperson, *The Social Amplification and Attenuation of Risk*, 545 *ANNALS AM. ACAD. POL. & SOC. SCI.* 95, 96 (1996).

18. See Kasperson et al., *Social Amplification*, *supra* note 16, at 177.

19. Slovic, *Perception of Risk*, *supra* note 9, at 285 (arguing for the importance of the public’s role in risk assessment).

20. See BECK, *supra* note 6, at 24.

that may cause irreversible or catastrophic consequences—policies should favor caution.<sup>21</sup> Widespread adoption of the precautionary principle has generated a considerable amount of debate.<sup>22</sup> Nonconscious processes, including mental shortcuts and biases that bear on individual and collective judgment, have also received a great deal of attention in the risk-policy literature. In particular, the interdisciplinary psychology and law, sociology, anthropology, and political science fields have engaged related questions.<sup>23</sup>

One body of scholarship emphasizing cognitive research challenges neoclassical economic theory regarding human judgment and decision-making. Some fifty years ago, two now-famous articles, *The Problem of Social Cost* by Ronald Coase<sup>24</sup> and *Some Thoughts on Risk Distribution and the Law of Torts* by Guido Calabresi<sup>25</sup> marked the birth of law and economics along with rational choice theory and its view that humans are rational actors who apply logic to arrive at utility-maximizing decisions. The rational actor model came under fire from critics who asserted that the model was poorly suited to describing real-life human behavior. For example, the ground-breaking work of Kahneman and Tversky, leading to the advent of prospect theory,<sup>26</sup> paved the way for subsequent research in behavioral decision theory on how people

21. The principle has been represented a variety of ways and in multiple contexts. One example is the precautionary principle, which has been characterized in the following way:

When an activity raises threats of harm to human health or the environment, precautionary measures should be taken even if some cause and effect relationships are not fully established scientifically. In this context the proponent of an activity, rather than the public, should bear the burden of proof. The process of applying the precautionary principle must be open, informed and democratic and must include potentially affected parties. It must also involve an examination of the full range of alternatives, including no action.

Science and Environmental Health Network, Wingspread Conference on the Precautionary Principle (Jan. 26, 1998), available at <http://www.sehn.org/precaution.html>.

22. See generally Cass R. Sunstein, *Beyond the Precautionary Principle*, 151 U. PA. L. REV. 1003, 1003 (2003) (detailing the disadvantages associated with the stringent adoption of precautionary approaches); see also Lesley Wexler, *Limiting the Precautionary Principle: Weapons Regulation in the Face of Scientific Uncertainty*, 39 U.C. DAVIS L. REV. 459, 475–77 (2006) (advising caution on the application of the precautionary principle when it comes to military grade pollutants).

23. See Slovic, *Perception of Risk*, *supra* note 9, at 281.

24. See generally Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1, 42–44 (1960) (proposing that in the absence of transaction costs, initial allocation of entitlements will be irrelevant, because parties will bargain to reach the most efficient result).

25. See generally Guido Calabresi, *Some Thoughts on Risk Distribution and the Law of Torts*, 70 YALE L.J. 499 (1961) (arguing for economically efficient allocation of tort liability).

26. See Daniel Kahneman & Amos Tversky, *Prospect Theory: An Analysis of Decision Under Risk*, 47 ECONOMETRICA 263, 274 (1979); see generally Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, in JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES 3–20 (Daniel Kahneman, Paul Slovic & Amos Tversky eds., 1982).

actually—as opposed to *theoretically*—make decisions.<sup>27</sup> The upshot of this collective work is that humans simply do not have the cognitive capacity to reason according to principles of logic, they have imperfect memories, they rely on cognitive shortcuts, and they are subject to a variety of biases that make much of human decision-making nonrational. One group of scholars writing in the behavioral decision theory arena<sup>28</sup> emphasizes a need to counteract or combat faulty decision-making arising from irrational human decision-making.<sup>29</sup>

Emotion cues have been described as interfering with optimal decisions because they can lead to choices other than those suggested by formal rules of logic. Affect can influence a variety of decision paradigms, but it plays a particularly important role in decisions about risks. Empirical research has revealed a strong affective component to risk judgments.<sup>30</sup> Traditional risk analysis, which purports to be based on fact, denies a legitimate role for affect.<sup>31</sup> Likewise, many behavioral decision theorists view emotion as a

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27. A very small subset of the articles relating to Kahneman and Tversky's work include Shawn J. Bayern, *Rational Ignorance, Rational Closed-Mindedness, and Modern Economic Formalism in Contract Law*, 97 CAL. L. REV. 943 (2009); Chris Guthrie, *Prospect Theory, Risk Preference, and the Law*, 97 NW. U. L. REV. 1115 (2003); Russell Korobkin, *The Status Quo Bias and Contract Default Rules*, 83 CORNELL L. REV. 608 (1998); Douglas A. Kysar, *The Expectations of Consumers*, 103 COLUM. L. REV. 1700 (2003); Jeffrey J. Rachlinski, *The Uncertain Psychological Case for Paternalism*, 97 NW. U. L. REV. 1165 (2003); Alan Schwartz, *How Much Irrationality Does the Market Permit?*, 37 J. LEGAL STUD. 131 (2008); Cass R. Sunstein, *Moral Heuristics and Moral Framing*, 88 MINN. L. REV. 1556 (2004). For a review of recent books influenced by prospect theory and related theories of human cognition, see On Amir & Orly Lobel, *Stumble, Predict, Nudge: How Behavioral Economics Informs Law and Policy*, 108 COLUM. L. REV. 2098 (2008) (discussing the books, RICHARD H. THALER & CASS R. SUNSTEIN, *NUDGE: IMPROVING DECISIONS ABOUT HEALTH, WEALTH, AND HAPPINESS* (2008) and DAN ARIELY, *PREDICTABLY IRRATIONAL: THE HIDDEN FORCES THAT SHAPE OUR DECISIONS* (2008)).

28. The term "behavioral decision theory" or "behavioral decision theorist" is used in this article to represent the loose group of scholars who rely heavily upon the seminal work of Kahneman and Tversky's work to analyze human decision-making and behavior as it pertains to legal and governmental institutions and policies. A great number of scholars in this area focus on the limitations of human cognition, and particularly the heuristics and biases that can result in nonrational judgments.

29. See, e.g., Eyal Zamir, *The Efficiency of Paternalism*, 84 VA. L. REV. 229, 252 (1998); see also Russell Korobkin, *Bounded Rationality, Standard Form Contracts, and Unconscionability*, 70 U. CHI. L. REV. 1203, 1243–44, 1255 (2003); Jeffrey J. Rachlinski, *The Uncertain Psychological Case for Paternalism*, 97 NW. U. L. REV. 1165, 1177–1206 (2003) (providing some examples of arguments along these lines).

30. Paul Slovic, *Affect, Reason, and Mere Hunches*, 4 J.L. ECON. & POL'Y 191, 195 (2007) [hereinafter Slovic, *Hunches*].

31. See Kasperson et al., *supra* note 16, at 177 (stating that traditional risk analysis focuses primarily on the probability and magnitude of risk).

source of bias with the potential to distort judgment in a variety of ways.<sup>32</sup> Legal scholarship cites the potential for fear or outrage to cause people to overestimate the risk posed by certain crimes, nuclear energy, terrorism, pesticides, Communism . . . the list goes on.<sup>33</sup> Because the public at large does not have ready access to scientific data and lacks sophistication regarding statistics and issues of proof, members of society are deemed vulnerable to emotional appeals—particularly those based upon fear. Traditional risk analysis excludes the public primarily because the public is uninformed. Behavioral decision theorists would exclude the public because the public is impassioned. Both counsel that risk regulation be assigned to politically insulated experts whose judgments are supposedly free of emotion's distorting impact.<sup>34</sup>

Unequivocally, certain cognitive patterns interfere with optimal decision-making under some circumstances. It is not clear, however, that emotions create sufficiently serious problems for judgment formation so as to justify insulating the public from risk decisions. Interdisciplinary efforts over the past thirty years have yielded a rich and nuanced picture of public risk perception.<sup>35</sup> Not only does emotion accompany risk judgments, it increasingly appears to *assist* the decision-maker in forming those judgments. Slovic notes that “[w]hile we may be able to ‘do the right thing’ without analysis (e.g., dodge a falling object), it is unlikely that we can employ analytic thinking rationally without guidance from affect somewhere along the line. Affect is essential to rational action.”<sup>36</sup>

32. Slovic, *supra* note 13, at 59.

33. See, e.g., Kuran & Sunstein, *supra* note 2, at 689; Cass Sunstein, *Irreversible and Catastrophic: Global Warming, Terrorism, and Other Problems*, 23 PACE ENVTL. L. REV. 3, 7 (2005–2006). Supporting the notion that emotions can cause irrational decision-making is the dual system concept of reasoning. System 1 reasoning is “fast, automatic, effortless, associative, and often emotionally charged.” Daniel Kahneman, *Maps of Bounded Rationality: Psychology for Behavioral Economics*, 93 AM. ECON. REV. 1449, 1451 (2003). On the other hand, System 2 reasoning is slow and deliberate, and it is more likely to include consideration of probabilities and careful weighing of costs and benefits. *Id.* The implication of this view is that System 1 is necessary in situations where there is a lack of information and resources but that it is more likely to result in error than System 2. Dan M. Kahan, *Two Conceptions of Emotion in Risk Regulation*, 156 U. PA. L. REV. 741, 747–48 (2008).

34. For examples of works that propose substituting public risk decisions with those of unbiased experts, see Kuran & Sunstein, *supra* note 2, at 737, and Cass R. Sunstein, *LAWS OF FEAR: BEYOND THE PRECAUTIONARY PRINCIPLE* 126 (2005).

35. A number of commentators have pointed out that emotions are more than hurdles to overcome in applying rational reasoning. See, e.g., Bandes, *supra* note 5, at 422 (“Although emotions are often portrayed as bursts of feeling that intrude upon rational thought from time to time, this view is out of step with current findings across a range of disciplines.”).

36. Slovic, *Hunches*, *supra* note 30, at 194.

## II. OTHER APPROACHES TO RISK PERCEPTION

In addition to Traditional Risk Analysis and Behavioral Decision Theory, there are several other important sources of scholarship in the risk perception area. The first is the Psychometric Study of Risk Perception, which can be characterized as an attempt to derive a “cognitive map” of risk perceptions.<sup>37</sup> This approach relies upon survey data to determine attitudes about a wide variety of risks with the goal of understanding the characteristics of a risk most likely to cause human beings concern.<sup>38</sup> The Social Amplification of Risk (SAR) Theory builds and expands upon the psychometric paradigm by including a dynamic model describing how information about risk is amplified or attenuated as it travels via channels of social discourse.<sup>39</sup> This model includes consideration of cultural and symbolic understandings of risk along with the potential for risk events to serve as signals portending future harms.<sup>40</sup> As the foundational article in this area points out: “[R]isk has meaning only to the extent that it treats how people think about the world and its relationships. Thus, there is no such thing as ‘true’ (absolute) and ‘distorted’ (socially determined) risk.”<sup>41</sup> SAR is particularly useful in the discussion of emotional reactions to risks because it identifies the underlying source of many affective reactions: culture.

Empirical and theoretical scholarship in the areas of psychology, sociology, and anthropology has long viewed emotional responses as rooted in cultural understandings. It has been remarked: “Feelings are not substances to be discovered in our blood but social practices organized by stories that we both enact and tell.”<sup>42</sup> Increasingly, the link between culture and emotions is being recognized by writers outside of the social sciences, particularly those in the legal academy.<sup>43</sup> Specifically, while basic emotions such as fear, disgust, surprise, and joy are universally experienced to some degree, the more complex nuances of emotional reactions vary depending upon associated

37. PAUL SLOVIC, *THE PERCEPTION OF RISK* 222 (2000).

38. See Baruch Fischhoff et al., *How Safe is Safe Enough? A Psychometric Study of Attitudes Towards Technological Risks and Benefits*, 9 POL’Y SCI. 127, 130 (1978).

39. See Kasperson et al., *Social Amplification*, *supra* note 16, at 182.

40. *Id.* at 178–79.

41. *Id.* at 181.

42. Michelle Z. Rosaldo, *Toward an Anthropology of Self and Feeling*, in *CULTURE THEORY: ESSAYS ON MIND, SELF, AND EMOTION* 137, 143 (Richard A. Shweder & Robert A. LeVine eds., 1984).

43. See, e.g., Gewirtzman, *supra* note 1, at 630 (“[C]onstitutional culture’ often transcends the legalistic and the logical, with emotion functioning as an essential predicate for the American constitutional regime and a vehicle for collective expression of social aspirations.” (internal citation omitted)).



cultural meanings.<sup>44</sup> Scholars have stated to explore the ways in which emotions are “scripted” by culture.<sup>45</sup> Our traditional understanding of emotions as rooted in biology have more recently been supplemented by a complimentary interpretation of social norms and socially-derived reactions to various situations.<sup>46</sup> Evocative triggers make little sense when interpreted in a vacuum, absent from cultural interpretation and variability.<sup>47</sup> In the context of risk perception, providing emotions and the relevant culture-based norms have received special attention.<sup>48</sup> It has been noted, for example, that triggers for public “panics” vary from one country to another, evidence that fear about harms is largely influenced by societal expectations and understandings.<sup>49</sup>

Although psychometric risk analysis explicitly uses emotion (dread) as one measure of concern for harms, and the Social Amplification of Risk theory includes consideration of cultural inputs, neither directly address the question of what value, if any, emotions and culture have in the risk policy debate. For a normative perspective on the proper role of culture and emotion in risk perception, we must look elsewhere. One potential source of insight is cultural anthropologist Mary Douglas, who was an early advocate of the cultural theory of risk perception. Douglas argued, first, that cultural understandings have a profound impact on public perceptions of risk, and, second, that attitudes about risk based upon cultural norms are *legitimate*—or at least *inevitable*—bases for risk response.<sup>50</sup> Douglas asserts that by failing to recognize cultural

44. See Klaus R. Scherer, *Evidence for Both Universality and Cultural Specificity of Emotion Elicitation*, in *THE NATURE OF EMOTION: FUNDAMENTAL QUESTIONS* 172, 175 (Paul Ekman & Richard J. Davidson eds., 1994) for the notion that cultural understandings and norms underpin most emotional responses.

45. See Terry A. Maroney, *Emotional Common Sense as Constitutional Law*, 62 VAND. L. REV. 851, 864–65 (2009) (“[Emotional common sense] is shaped and bounded by culture, which imposes on our emotions ‘a recognizable, meaningful order, so that we may not only feel but know what we feel and act accordingly.’”) (quoting CLIFFORD GEERTZ, *THE INTERPRETATION OF CULTURES* 80 (1973)).

46. ANTONIO R. DAMASIO, *THE FEELING OF WHAT HAPPENS: BODY AND EMOTION IN THE MAKING OF CONSCIOUSNESS* 51 (1999).

47. *Id.*

48. Paul Slovic has said:

I believe that the multidimensional, subjective, value-laden, frame-sensitive nature of risky decisions, as described above, supports a very different view, which Dean and Thompson call ‘the contextualist conception.’ This conception places probabilities and consequences on the list of relevant risk attributes along with voluntariness, equity, and other important contextual parameters.

Slovic, *supra* note 13, at 67.

49. Other aspects of the risk context, such as how a risk is framed is similarly important to human understanding and to the production of fear or dread. A detailed discussion of rhetorical and other influences on risk perception is beyond the scope of this Article.

50. See DOUGLAS, *supra* note 15, at 5–7 (explaining that communities define danger and assess blame in order to protect the common good); see also MARY DOUGLAS & AARON

antecedents of risk perception, risk policy makers inevitably impose their own cultural biases on those for whom they make risk decisions.<sup>51</sup> Douglas suggests that purportedly value-neutral scientists and policy analysts have been doing this for years.<sup>52</sup> The troublesome aspect of how decisions are made is not the lack of neutrality—as predilections and biases are inevitable characteristics of human judgment—but rather, the assertion that decisions are value-neutral. The claim of neutrality risks inappropriately or prematurely subjugating the will of members of the public to that of scientists and policy experts. Importantly, as Douglas writes, “[the risk researcher’s] method assumes that all humans have the same responses and preferences that are enshrined in the utilitarian philosophy. Instead of objectivity, we find ideological entrenchment.”<sup>53</sup>

Douglas was among the first to emphasize the inevitability of the role of emotion in decisions about sources of harm, stating, “Anger, hope, and fear are part of most risky situations.”<sup>54</sup> Subsequent research has provided ample evidence to support Douglas’s view of emotion as integral to risk perception. Slovic and his colleagues have found that judgments about threats posed by various harms were correlated with emotional valence, as measured by rating the activity on bipolar scales such as *good/bad*, *nice/awful*, *dread/not dread*, and so forth.<sup>55</sup> This finding suggests that people base their judgments of an activity or a technology not only on what they *think* about it but also on how they *feel* about it. Of course, the emotions that people report when assessing dangers may simply be a byproduct of rational, analytic decisions about risk.<sup>56</sup> This possibility was tested using a variety of research paradigms involving manipulating affect and holding analytic information constant. Although cause and effect is difficult to definitively demonstrate, empirical findings from this line of work suggest that the primary catalyst for judgments is emotional reactions, rather than effortful reasoning processes, and that reasoning supplements or justifies judgments that are formed largely based upon

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WILDAVSKY, RISK AND CULTURE: AN ARTICLE ON THE SELECTION OF TECHNICAL AND ENVIRONMENTAL DANGERS 6–7 (1982) (“[D]ifferent social principles that guide behavior affect the judgment of what dangers should be most feared, what risks are worth taking, and who should be allowed to take them.”).

51. DOUGLAS, *supra* note 15, at 11.

52. *Id.*

53. DOUGLAS, *supra* note 15, at 13. As Douglas writes, “When he brackets off culture from his work, the well-intentioned risk analyst has tied his own hands. He wants to be free of bias, he would rather pretend that bias is not important than sully himself by trying to categorize kinds of bias.” *Id.*

54. *Id.* at 12.

55. Early psychometric studies of risk perception showed that feelings of dread were the major determinant of public perception and acceptance of risk for a wide range of hazards. Fischhoff et al., *supra* note 38, at 149; Slovic, *Perception of Risk*, *supra* note 9, at 284–85.

56. Kahan, *supra* note 33, at 746.

emotional reactions.<sup>57</sup> Findings from psychological studies on choice formation suggest that decision makers often optimize outcomes when they stick with initial “gut” judgments.<sup>58</sup> Analyzing costs and benefits of various courses of action, for example, often leads to a decision that people later regret and one which is inconsistent with later behavior and preferences.<sup>59</sup>

The notion that affective reactions play a valuable role in decision-making (even when deliberate reasoning is feasible) is consistent with the “cultural evaluator” model advanced by Dan Kahan. The cultural evaluator model of risk perception hypothesizes that emotional responses to risk reflect culturally defined, expressive appraisals of potential sources of harm.<sup>60</sup> Kahan writes, “When people draw on their emotions to judge the risk that such an activity poses, they form an expressively rational attitude about what it would *mean* for their cultural worldviews for society to credit the claim that that activity is dangerous and worthy of regulation . . . .”<sup>61</sup> The cultural evaluator model differs from both the neoclassical economic rational actor model (which would deny that emotion plays any real role in risk decisions) and the behavioral-decision-theory emotion-as-bias model, by favoring an active, utilitarian role for emotion. Because emotion serves as a signal of underlying values,<sup>62</sup> emotional responses to risk can be understood as tools, guiding the individual toward decisions that serve deeply held values and preferences, rather than treating emotion as a source of bias. It is not, after all, irrational for members of society to care about meanings and not just about consequences and to form positions on risk that express their cultural values.<sup>63</sup> As Kahan points out, “individuals’ decisions to forgo or forbear risks is based not on the expected utility of those actions but on their social meanings, which are unlikely to be tied in any systematic way to the actuarial magnitude of those risks.”<sup>64</sup> For an individual assessing a risk, the maintenance of her worldview may well be more important than making a decision that is supported by expert opinion, particularly when to deviate from her own accepted worldview would lead to cognitive dissonance and might threaten her self identity.

As should be clear, the cultural view is at odds with the notion that “irrational” risk behavior is any choice that is not statistically supported. This principle has particular implications for the behavioral decision theory

57. Melissa L. Finucane et al., *The Affect Heuristic in Judgments of Risks and Benefits*, 13 J. BEHAV. DECISION MAKING 1, 13–14 (2000).

58. See TIMOTHY D. WILSON, STRANGERS TO OURSELVES: DISCOVERING THE ADAPTIVE UNCONSCIOUS 170 (2002).

59. *Id.*

60. Kahan, *supra* note 33, at 750.

61. *Id.* at 750–51.

62. *Id.* at 758.

63. *Id.*

64. *Id.* at 754.

literature, where emotional reactions to potential sources of harm are often discussed in the context of “probability neglect.” Probability neglect occurs when individuals make choices that are deemed nonrational because the choices do not reflect those choices that would be predicted by the probability of a particular outcome.<sup>65</sup> Probability neglect is discussed in the context of emotion because experiments often reveal that triggering strong emotions in people leads them to fear a potential source of danger “more than they should” given the probability that the danger will actually materialize.<sup>66</sup> The problem with this understanding of choice as fundamentally irrational is that it treats statistical outcomes as the only reasonable basis upon which to form choices.

An example is illustrative: suppose Sheila is particularly interested in avoiding sudden, accidental death, such as death by automobile. She values protection against such demise above protection from a death by complications related to obesity-related diseases. Sheila invests substantial sums of money in safety features for her automobile, and as she grows older, avoids driving in poor weather or after dark. She simultaneously neglects to invest in weight loss and exercise, instead suffering the risks associated with Type 2 diabetes. Rhonda, on the other hand, has a preference pattern that is directly opposed to that of Sheila’s. Rhonda’s self concept is consistent with the “no guts, no glory.” Rhonda is terrified of dying from a slowly progressing, debilitating disease; she is a “fitness fanatic” who invests in fast cars and rides a motorcycle. The cultural evaluator model denigrates neither Sheila’s nor Rhonda’s value and emotion-based preferences. Instead, they are accepted as personal bases for risk decisions.

Of course, risk decisions vary tremendously. Some risk decisions only affect certain subpopulations (or affect these groups disproportionately), while other risk decisions influence most or all of the population. Risk preferences may be different, depending upon who is affected by the decision (“self” or “others”). Respondents’ attitudes also differ, and the response to a particular question depends on whether the person perceives that the risk is to him- or herself, on the one hand, or to members of an out-group, on the other. The rationale expressed in the example of Sheila and Rhonda applies more broadly to risks we perceive to populations to which we do not ourselves belong. Even in arms-length situations where we might expect a more “rational” analytical approach, preferences are important. For example, Bill chooses to donate money to the Diabetes Foundation over other causes. He would continue to do so even if he discovered that each dollar given to alternative Charity X results

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65. See generally Yuval Rottenstreich & Christopher K. Hsee, *Money, Kisses, and Electric Shocks: On the Affective Psychology of Risk*, 12 PSYCHOL. SCI. 185 (2001) (demonstrating the important role of affect in preferences for various lottery outcomes).

66. A commonly cited example can be found in JONATHAN BARON, THINKING AND DECIDING 246–47 (2001).

in a higher percentage of lives saved. Bill may be motivated by the fact that he has a beloved Aunt who is diabetic. Alternatively, Bill may view his continued support of the Diabetes Foundation as loyalty to a cause (a value upon which he places importance) and the fulfillment of an on-going commitment he has made.<sup>67</sup>

There is a deeply personal value judgment inherent in many risk decisions. To the extent that it makes sense to say that we prefer a particular mode of injury or demise, we need to consider the possibility that the risks that are over-feared are more emotionally charged because we are particularly interested in avoiding death or injury by those means. The claim that human beings *should* fear all threats with the same probability of injury or death to the same extent is itself a value judgment. Moreover, decisions made that take into account emotional states are more consonant with the human experience. A “rational” choice may be supported by conventional statistics, but it may also fail to maximize the decision maker’s well-being, and it may thus actually be nonrational in a very real sense.<sup>68</sup> In any risky choice, the individual’s experience of hope and fear is part of the benefit or the harm.<sup>69</sup> It has been remarked, “If individuals’ factual beliefs are expressive of cultural worldviews, then experts who treat those beliefs as ‘blunders’ unentitled to normative respect in a ‘deliberative democracy’ are necessarily shielding regulatory law from citizens’ visions of the good society.”<sup>70</sup>

### CONCLUSION

This Article has suggested that there are serious theoretical and practical problems with supplanting individual risk choices with those of experts, who are themselves not value-neutral. Some risky choices, such as whether to buy insurance, drive a car, smoke, eat healthful foods, receive regular medical

67. As Robert Zajonc has pointed out, unlike other influences on action, “preferences [and emotions] cannot be judged for accuracy or validity.” Robert B. Zajonc, *Emotions*, in 1 THE HANDBOOK OF SOCIAL PSYCHOLOGY 591, 597 (Daniel T. Gilbert et al. eds., 4th ed. 1998).

68. See Rottenstreich & Hsee, *supra* note 65, at 190.

69. *Id.* (“[H]ope and fear may be crucial consequences in and of themselves. These feelings are modeled by the S-shaped weighting function. Thus, although an S-shaped weighting function surely leads to preferences that are incoherent, it may fully capture the decision maker’s actual experience. In contrast, although expected utility’s identity weighting function leads to coherent preferences, it may neglect crucial (affective) aspects of a decision maker’s experience.” (internal citations omitted)).

70. Kahan, *supra* note 33, at 761 (emphasis omitted) (internal citation omitted). Dan Kahan and Paul Slovic (who was integral to developing the psychometric and social amplification models) take the position that “cultural worldviews pervade popular (not to mention expert) risk assessments and that a genuine commitment to democracy forbids simply dismissing such perceptions as products of ‘bounded rationality.’” Dan M. Kahan & Paul Slovic, *Cultural Evaluations of Risk: “Values” or “Blunders”?*, 119 HARV. L. REV. F. 166, 166 (2006).

check-ups, and practice safe sex, reside with the individual. But many others are dictated or influenced by public policy decisions made by a select few, on behalf of the public.<sup>71</sup> In theory, in a representative democracy, members of society play an important role in shaping policy by exerting pressure on elected officials. Yet sometimes a philosophy of paternalism becomes so prevalent among policymakers that it becomes difficult for voters to identify and target those lawmakers most likely to substitute their own risk preferences for those of the individual citizen. In other instances, a majority of the electorate may not object to certain restrictions on freedoms that simply render choices this majority would already make inevitable. However, the acquiescence of some citizens may adversely influence a sizable minority. Some situations justify imposing restrictions on public risk decisions. Policies that are designed to prevent gross inefficiencies, excessive public costs, or prevent the victimization of certain powerless groups—such as in situations where there are power imbalances, strategic actors, or free riding—may well be appropriate and necessary. Nevertheless, lawmakers should be clear about when a policy serves a specific, broader goal as compared to when it simply serves to save an actor from his or her own “irrational” decision.

Traditional risk analysis has, through recent years, been more open to input from the public. But some behavioral law researchers have resisted this trend, suggesting that even when fully informed, the public’s passions will cloud judgment and result in poor decision-making. An understanding of emotion as an expression of underlying values provides a new framework for understanding public perception of risk. This understanding argues against leaving decisions in the hands of so-called experts, who are themselves inevitably influenced by their own cultural worldviews, which may or may not correspond with those of individual members of society.

The view I advocate argues in favor of soliciting more public feedback about various risks, and suggests that when the government severely restricts public involvement in risk decisions, it should do so only under limited circumstances and in the face of clear and widespread misunderstanding, misinformation, or distortion.<sup>72</sup>

Feedback from the public may be accumulated through a variety of mechanisms, including public hearings, citizen advisory committees, surveys,

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71. A brief list of examples include wearing seatbelts, investing in the military, supporting fire and rescue personnel through taxes, paying a 911 surcharge on phone service, vaccinating children, evacuating residential areas in times of natural disaster, and maintaining speed limits. Like many risks, some of these precautionary measures may be designed to protect the public at large. However, some risky choices that people *are* free to make if they choose have negative effects for the public if certain harms surface.

72. Importantly, the conveyance of information about a risk can trigger incorrect responses when the framing of the issue is misleading. For this reason, deliberate communication about risk should be framed in a way that expresses a plurality of social meanings.

focus groups, and interactive technologies. Each of these methods has benefits and drawbacks. A recent example was the town hall meetings discussing health care reform over the summer of 2009, when the Obama Administration was attempting to garner support for health care reform.<sup>73</sup> One view maintains that these meetings served primarily as forums for small, well-organized, and politically motivated groups to dominate and distort the discussion.<sup>74</sup> Regardless of whether this characterization is accurate, the town hall meetings demonstrate the potential for public forums to serve as opportunities for grandstanding. Employing a variety of methods of garnering public input can avoid the distorting influence of a small, but vocal minority. Municipalities and state policy-makers have already used the multimethod approach in cases where a proposed plan will affect a large group of citizens for many years to come. In the 1980s, for example, when New Jersey was revising its water quality regulations, the state used various of methods for soliciting public input, including a task force, informal focus groups, surveys, and public hearings.<sup>75</sup>

When it comes to risk perception, the Enlightenment notion that every person is capable of arriving at universal truths through empirical observation has been debunked. Evidence supports the notion that when human beings choose to confront or avoid risks, they are guided by culturally-based, emotion-driven preferences. In many cases, our actions are not supported by statistics derived from research in the hard sciences. This discrepancy exists because we do not, as a rule, apply rules of logic and reason probabilistically. Nevertheless, our emotion-based reactions have value in the risk decision context. Selectively eschewing risks that are particularly threatening to our own individual sense of identity or security increases our well-being in substantial and important ways. It would be a mistake, therefore, to adopt a policy that favors supplanting individual choice or collective preference with expert opinion. Vital interests in privacy and autonomy mandate that we have an active role in decisions regarding the dangers around us so that we may face the perils of our own choosing and avoid those that cause us special terror.

73. See, e.g., *Town Hall Meeting on Health Care Turns Ugly*, CNN.COM, Aug. 18, 2009, <http://www.cnn.com/2009/POLITICS/08/07/health.care.scuffles/index.html>

74. Jake Tapper, *Democratic National Committee Suggests Town Hall Protestors are Fringe Birther Mob*, ABCNEWS.COM, Aug. 15, 2009, <http://blogs.abcnews.com/politicalpunch/2009/08/democratic-national-committee-suggest-town-hall-protestors-are-fringe-birther-mob-.html> (“The White House suggestion that some of the anger seen at town hall meetings is ‘manufactured’ apparently wasn’t seen as strong enough, so the Democratic National Committee in a new web video is depicting the protestors as irrational birthers who want to ‘destroy’ President Obama.”)

75. COMM’N ON BEHAVIORAL & SOCIAL SCIENCES & EDUCATION (CBSSE), UNDERSTANDING RISK: INFORMING DECISIONS IN A DEMOCRATIC SOCIETY 205 Paul C. Stern & Harvey V. Fineberg, eds., (1996).

These are decisions that are profoundly influenced by our identities as social, emotional, and cultural beings.