

# COST-BENEFIT ANALYSIS VERSUS THE PRECAUTIONARY PRINCIPLE: BEYOND CASS SUNSTEIN'S *LAWS OF FEAR*<sup>†</sup>

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*Perhaps the quintessential role of government is to protect its citizens from threats of all types: war, global warming, terrorism, disease, toxic substances. This essay provides a review and critique of Sunstein's innovative contribution to the lively debate over how government should perform this role, a debate that often pits cost-benefit analysis against the precautionary principle. The authors contend that Sunstein's critique of the precautionary principle has merit, but that his much-discussed Laws of Fear proposals are deficient in several significant respects. Sunstein's proposals fail to solve problems related to cost-benefit analysis, implementation of deliberative democracy, and incorporation of social values into responses to threats. The essay concludes with a recommendation for reconceptualizing the precautionary principle in a manner that saves it from Sunstein's critiques.*

*Laws of Fear: Beyond the Precautionary Principle*, by Cass Sunstein. Cambridge University Press, 2005.

## I. INTRODUCTION

Perhaps the quintessential role of government is to protect its citizens from threats of all types: war, global warming, terrorism, disease, toxic substances. Not surprisingly, substantial legal and political attention is devoted to frameworks for how government should respond to

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such threats and risks. Two paradigms have emerged as paramount in this sociopolitical dialectic: cost-benefit analysis and the precautionary principle.

In an innovative contribution to this debate, Cass Sunstein proposes an alternate framework in *Laws of Fear: Beyond the Precautionary Principle*.<sup>1</sup> This contribution is quite significant, not only because it comes from one of the foremost legal scholars, with a distinguished record of scholarship on risk, but also because it offers fresh insight in this long-pitched battle. Sunstein is drawn towards cost-benefit analysis, but his proposed framework offers much more. By weaving together selections from cost-benefit analysis with certain themes behind the precautionary principle, and adding new concepts such as libertarian paternalism, Sunstein creates his proposed “laws of fear”<sup>2</sup>—a set of rules for how society should confront diverse threats and risks.

*Laws of Fear* contains two parts. The first half of the book is devoted to a potent critique of the precautionary principle; the second half is Sunstein’s proposal for laws of fear to replace the precautionary principle.

The significance of the first part is substantial—it deals a withering blow to applications of weak and strong forms of the precautionary principle. Sunstein argues that weak forms of the precautionary principle are tautological, and that strong forms offer no guidance because they caution against risk, but risk is usually present on all sides of responses to threats. It is a critique that all participants in the threat/risk debate must now consider.

We are less convinced by the second part of the *Laws of Fear*—proposed “Solutions” to issues of threat, risk, and fear. Sunstein’s analysis is, unsurprisingly, very well-written, precise, and well-reasoned. In fact, it may be too well-reasoned. Sunstein is so careful in providing qualifications and limitations to his laws of fear that by the end of his proposal it is unclear whether “there is any there there” anymore. Sunstein’s laws of fear are well defended, but may be so hedged as to no longer apply to any of the threats they were developed to confront.

A second difficulty with the proposed laws of fear is that too many critical considerations are placed outside the ambit of the laws. Sunstein acknowledges the important roles that distributional effects, values, and democratic institutions must play in responding to threats, but does not indicate clearly how these elements are to be integrated. The framework appears to envision that Sunstein’s laws of fear be applied to yield an initial recommendation, which then can be modified with proper institutional operation through deliberative democracy to take into account appropriate distributional effects and value concerns. We believe, how-

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1. CASS SUNSTEIN, *LAWS OF FEAR: BEYOND THE PRECAUTIONARY PRINCIPLE* (2005).

2. In this essay, capitalized and italicized “*Laws of Fear*” refers to Sunstein’s book, while lower-case “laws of fear” refers to the set of rules that Sunstein proposes.

ever, that issues of institution, equitable distribution, and values are so fundamental to societal responses to threats that a model that does not provide for their role more explicitly remains significantly incomplete.

We found *Laws of Fear* highly engaging and thought-provoking, and use this essay to explore some of the thoughts it provoked. Following this Introduction, our discussion of *Laws of Fear* is divided into three parts. Part II is a discussion of Sunstein's deconstruction of the precautionary principle. Part III contains an analysis and critique of Sunstein's proposed laws of fear. In Part IV we provide thoughts on how the precautionary principle may be rehabilitated, and insights on how the apparently dichotomous frameworks of cost-benefit analysis and the precautionary principle can perhaps be integrated coherently.

## II. DEATH KNELL FOR THE PRECAUTIONARY PRINCIPLE?

As Sunstein explains, the precautionary principle takes many forms.<sup>3</sup> These forms range from relatively "weak" constructions (e.g., "a lack of decisive evidence of harm should not be ground for refusing to regulate"<sup>4</sup>) to "strong" prescriptions (e.g., "action should be taken to correct a problem as soon as there is evidence that harm may occur, not after the harm has already occurred"<sup>5</sup>). Sunstein concludes that both forms, as he defines them, are useless.

Weak forms lack utility, in Sunstein's view, because they simply state a truism.<sup>6</sup> Governments cannot require absolute certainty that harm will occur prior to regulation or action. Such a rule would prohibit any precautionary measures, even inexpensive ones, to protect against most risks—from terrorism to toxic substances. Weak constructions of the precautionary principle therefore must be accepted as uncontroversial, but they do not provide practical guidance for how society should respond to threats.<sup>7</sup>

Sunstein's critique of the strong precautionary principle is more involved, and it is the dominant subject of the first half of the book. Sunstein's critique can be boiled down to a relatively simple, but powerfully logical argument: if the precautionary principle prohibits actions that present plausible risks to health, safety, or the environment, then the principle is paralyzing, as it prohibits all actions, including both regulation and nonregulation.<sup>8</sup> Take genetically modified food. The ecological and human health risks posed by the current widespread planting of ge-

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3. SUNSTEIN, *supra* note 1, at 18–20. Sunstein notes that twenty or more definitions have been identified. *Id.* at 18.

4. *Id.* at 18.

5. *Id.* at 19.

6. *Id.* at 24.

7. *Id.*

8. *Id.* at 24–29.

netically modified crops are not definitively known.<sup>9</sup> On this basis, a strong precautionary principle would require the prohibition (or at least severe restriction and regulation) of genetically modified crops. But prohibiting or restricting genetically modified crops creates its own significant risks—including risks of hunger and starvation, malnutrition, and conversion of more land to agriculture—all problems that genetically modified crops may help ameliorate.<sup>10</sup> On that basis, a strong precautionary principle would require the promotion (or, at most, limited regulation) of genetically modified crops. A strong precautionary principle is incoherent—it simultaneously prohibits the promotion and prohibition of genetically modified crops, and all points in between.

Sunstein provides other lucid examples of this paralysis, including threats from global warming, nuclear power, arsenic in drinking water, DDT, asbestos, military activities, antibiotics, and airplane safety.<sup>11</sup> Strong forms of the precautionary principle will lack utility as long as a technology or activity creates both benefits and risks. Allowing the technology to be used unabated generates risks created by the technology; restricting the technology creates the risk of not receiving all its potential benefits.

Why is the precautionary principle such a seemingly attractive and pervasive framework for responding to threats if it is actually incoherent? Sunstein explains this as well. He contends that the precautionary principle has great public appeal because people in effect evaluate risks with blinders on—individuals automatically focus on certain risks and downplay or disregard others.<sup>12</sup> A wealth of experimental data from behavioral economics and cognitive psychology support this contention. Individuals are boundedly rational—we make most decisions through use of simplifying heuristics or short-cuts that operate to reduce complex decisions to simpler, and more manageable, judgments.<sup>13</sup> These heuristics are very useful, but also can lead us astray.

Sunstein believes several particular heuristics function to make the strong precautionary principle appear functional: (1) the availability heuristic causes individuals to focus on salient risks that come to mind, and ignore risks that do not; (2) probability neglect leads individuals to focus on the worst case scenario, even if it is highly improbable; (3) loss aversion causes people to dislike changes from the status quo; (4) a belief in the benevolence of nature makes human-created risks seem particularly suspect; and (5) system neglect prevents people from recognizing second-

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9. *Id.* at 27; Gregory N. Mandel, *Gaps, Inexperience, Inconsistencies, and Overlaps: Crisis in the Regulation of Genetically Modified Plants and Animals*, 45 WM. & MARY L. REV. 2167, 2190–2202 (2004).

10. SUNSTEIN, *supra* note 1, at 27; Mandel, *supra* note 9, at 2180–86.

11. SUNSTEIN, *supra* note 1, at 27–32.

12. *Id.* at 35.

13. *Id.* at 36; Gregory N. Mandel, *Technology Wars: The Failure of Democratic Discourse*, 11 MICH. TELECOMM. & TECH. L. REV. 117, 157–58 (2005).

order effects and risks created by their decisions.<sup>14</sup> Add to this the exploitation of heuristics by politicians and special interest groups to focus fear on desired issues, and suddenly the strong precautionary principle appears operational.<sup>15</sup> Because people focus only on specific risks, and ignore others, the strong precautionary principle appears to require avoidance or mitigation of those focused-on risks, though such action may create other, less salient, but potentially greater, risks of its own.

Sunstein's conclusion is that neither weak nor strong forms of the precautionary principle can offer functional guidance concerning complex, real-world issues of how to respond to diverse threats and risks. Having deconstructed the precautionary principle, Sunstein turns to constructing a new set of principles to provide coherent guidance in the face of fear.

### III. BEYOND *LAWS OF FEAR*

The subtitle of *Laws of Fear* is "Beyond the Precautionary Principle," and the second half of the book is devoted to this topic: it elaborates Sunstein's prescription for how society should handle the complex issues of fear, risk, and uncertainty created by threats. Sunstein engages in a carefully considered analysis, and provides many lucid thoughts and significant insight into constructing a set of rules for handling fear. In the end, however, we conclude that his prescription does not necessarily provide any better guidance for handling real-world issues than the precautionary principle.

We found Sunstein's proposal unconvincing along three dimensions. First, on its stated terms, it has extremely limited applicability; it does not provide direction for the substantial majority of threats that Sunstein identifies and discusses in the book. Second, despite a focus on deficiencies in individual decision making in critique of the precautionary principle, Sunstein's solutions fail to adequately consider deficiencies in institutional decision making that will affect implementation of his solutions. Third, the solutions fail to appropriately account for incorporation of values and distributional effects in societal threat decisions.

#### A. *Applicability Matters*

Sunstein's prescriptive proposal is based on a three-part approach to risk: (1) a narrow Anti-Catastrophe Principle, (2) moderated cost-benefit analysis, and (3) libertarian paternalism. These proposed "laws of fear" are not presented as precise rules, but rather evolve through discussion in one or two chapters each.

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14. SUNSTEIN, *supra* note 1, at 35–49.

15. *Id.* at 35–36.

Sunstein's discussion is measured and precise. He is very careful not to claim too much; each rule is qualified by a number of caveats. The qualifications are quite reasonable and each of the three proposals may be supportable on its literal terms. Sunstein's self-identified qualifications are so significant, however, that in combination with other concerns and limitations noted below, they render the proposed approach notably underinclusive.

### 1. *The Anti-Catastrophe Principle*

Sunstein's first law of fear is the Anti-Catastrophe Principle. The Anti-Catastrophe Principle applies where a particular threat creates a potentially catastrophic risk, and "existing science does not enable us to assign probabilities to the worst-case scenarios."<sup>16</sup> In such situations, Sunstein first notes maximin as a potentially useful decision-making tool.<sup>17</sup> Maximin involves identifying the possible options for responding to a threat, identifying the worst-case scenario outcome of each option, and then eliminating from consideration those options with the worst worst-case scenarios. Sunstein does not recommend use of maximin where probabilities can be assigned to various outcomes, but concludes that "it can make a great deal of sense under conditions of uncertainty rather than risk."<sup>18</sup>

Though not explicitly stated as such in discussing the Anti-Catastrophe Principle, Sunstein identifies several important qualifications for application of the Principle. At best, these qualifications render the Anti-Catastrophe Principle useful only in already obvious and undisputed cases.

Sunstein writes that to implement the Anti-Catastrophe Principle, it is necessary to identify all relevant risks, from both any action and from inaction.<sup>19</sup> This requires engaging in something akin to a full risk-risk analysis, considering all relevant risks related to all considered options. In addition to risking paralysis by analysis,<sup>20</sup> comparing identified risks to an unquantifiable risk of catastrophe is difficult. Even more complex is the situation where both risks being compared are uncertain. The paralysis by analysis of risk-risk analysis for uncertain threats is somewhat similar to the paralysis identified by Sunstein for strong forms of the Precautionary Principle. The former precludes action because one cannot

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16. *Id.* at 109.

17. *Id.*

18. *Id.* at 111. Sunstein ends his initial definition of the Anti-Catastrophe Principle by concluding, "where the worst-case scenario is truly catastrophic and when probabilities cannot be assigned, a large margin of safety makes a great deal of sense." *Id.* at 115. This statement raises more questions than it answers. How big is "large"? How does society create a "large margin of safety" for a risk that is, by definition, uncertain?

19. *Id.* at 111, 114.

20. See Howard Latin, *Good Science, Bad Regulation, and Toxic Risk Assessment*, 5 YALE J. ON REG. 89, 106 (1988) (describing the concept of paralysis by analysis).

quantify all relevant risks of each action or inaction; the latter precludes action because there are relevant risks of each action or inaction.

Even more troubling for real-world operationalization, Sunstein states that the Anti-Catastrophe Principle may not be applicable where the costs of reducing the dangers are “huge” or where incurring such costs would divert resources from more pressing problems.<sup>21</sup> Nearly all activities that create realistic threats of catastrophe are expensive to remediate, and therefore have “huge” response costs. For those that are not expensive, it generally goes without saying that society should respond to them. In fact, Sunstein criticizes as trivial a particular construction of the precautionary principle that only applies “where the loss [from precaution] . . . is a matter of relative indifference.”<sup>22</sup>

Sunstein initially identifies global warming as a threat to which the Anti-Catastrophe Principle may apply: it presents catastrophic risks of uncertain magnitude. He recognizes, however, that incurring tremendous costs to respond to global warming at present may not be sensible, particularly considering the potential resulting reduction in the standard of living and corresponding increase in poverty.<sup>23</sup> The Anti-Catastrophe Principle thus cannot be applied to global warming.

As noted, Sunstein also states that costs should not be incurred where they may divert resources from more pressing problems. But threats considered under the Anti-Catastrophe Principle are, by definition, those that pose uncertain risks. Comparing any pressing problem to an uncertain catastrophic one presents a difficult task. The challenge is actually even greater because we must compare multiple uncertain, potentially catastrophic threats to each other (for example, global warming and terrorism), and only apply the Anti-Catastrophe Principle where we can conclude that responding to one risk does not divert resources from a more pressing concern. Such an analysis is not plausible in any rigorous manner.

Sunstein further qualifies the Anti-Catastrophe Principle by noting that “distributional considerations matter,”<sup>24</sup> meaning that the Principle should be applied to reduce the burdens on the least advantaged members of society.<sup>25</sup> The Rawlsian nature of this proposal is reasonable,<sup>26</sup> but implementation raises a host of difficult problems, questions, and concerns that the laws of fear do not answer. Properly accounting for distributional considerations is a complex question of equity and democracy that is the subject of intricate debate. Noting this requirement as a

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21. SUNSTEIN, *supra* note 1, at 114–15.

22. *Id.* at 112.

23. *Id.* at 113.

24. *Id.* at 115.

25. *Id.*

26. *See, e.g.*, JOHN RAWLS, *JUSTICE AS FAIRNESS: A RESTATEMENT* 42–43 (Erin Kelly ed., 2001).

criteria without providing any guidance for its implementation leaves the Anti-Catastrophe Principle underdeveloped.<sup>27</sup>

In sum, the Anti-Catastrophe Principle, as proposed, is applicable only to threats with an uncertain risk of catastrophe, where all relevant risks can be identified, where the costs of reducing the danger of the threat are not huge, and where response costs will not divert resources from more pressing needs. We suggest that decision making in such limited contexts is usually obvious by definition, rarely the subject of strenuous debate, and does not represent any of the significant threats discussed in *Laws of Fear*. In fact, Sunstein identifies no threats that he claims should be subject to the Anti-Catastrophe Principle as he constructs it.

## 2. *Cost-Benefit Analysis*

The second (and perhaps most significant) law of fear that Sunstein proposes is a carefully constructed use of cost-benefit analysis. Cost-benefit analysis is proposed not on the basis of economic efficiency per se, but in order to assist individuals in accounting for and thinking about risks. Sunstein supports cost-benefit analysis for its ability to “produce useful information” and “increase the coherence of programs that would otherwise be a product of some combination of fear, neglect, and interest group power.”<sup>28</sup> He recognizes explicitly, however, that cost-benefit analysis of threats and risk should not be decisive: “Efficiency is relevant, but it is hardly the only goal of regulation.”<sup>29</sup>

Sunstein thus proposes what may be considered a moderate form of cost-benefit analysis: such analysis can provide useful insight into how to respond to certain risks, but is not considered determinative and does not take into account all relevant considerations. This approach sounds sensible, if not somewhat uncontroversial. In practice, however, the difficulties inherent in real-world cost-benefit analysis, as well as the limitations Sunstein himself provides for application, render this proposal rarely applicable.

The difficulties inherent in application of cost-benefit analysis are now well described. A considerable literature (including some of Sunstein’s own work) demonstrates that substantial challenges regarding (a) uncertainty, (b) valuation, and (c) temporal concerns render even rough application of cost-benefit analysis often impossible.<sup>30</sup>

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27. See *infra* Part II.C (discussing problems concerning distributional considerations and values).

28. SUNSTEIN, *supra* note 1, at 149.

29. *Id.* at 129. On the question of whether cost-benefit analysis will reduce undue special interest influence, see Amy Sinden, *Cass Sunstein’s Cost-Benefit Lite: Economics for Liberals*, 29 COLUM. J. ENVTL. L. 191, 210–11 (2004) (arguing that in situations where cost-benefit analysis is indeterminate, special interests can simply manipulate results to support their preferred outcomes).

30. See generally SIDNEY A. SHAPIRO & ROBERT L. GLICKSMAN, RISK REGULATION AT RISK: RESTORING A PRAGMATIC APPROACH (2003); CASS R. SUNSTEIN, THE COST-BENEFIT STATE (2002).



## a. Uncertainty

For practical application, cost-benefit analysis requires a wealth of information concerning the costs and benefits of the action being evaluated. Consider the global warming threat that Sunstein uses as a routine example throughout the book. Cost-benefit analysis of how to respond to global warming would require reliable data concerning the probability of various amounts of global warming, the physical impacts of each possibility, and the economic effects of each scenario. And that is just the cost side. To determine the benefit of any action or inaction, we would need to know the relative contribution of various sources to global warming (for example, how much is due to anthropogenic greenhouse gas emission), projections of future human population and distribution, and the effects of any considered action on economic growth, other threats and risks, and other relevant social factors. Acquiring this wealth of data, and keeping it up-to-date, presents a likely impossible task.<sup>31</sup> Even if the data were acquired, the level of uncertainty present in these factors would probably render any such analysis statistically insignificant.<sup>32</sup>

Though global warming is but one example, cost-benefit analysis routinely faces substantial uncertainty in calculating both costs and benefits of most responses to most significant threats. Sunstein himself, for instance, conducted a well-known and elaborate cost-benefit analysis of the Environmental Protection Agency's (EPA) regulation of arsenic in drinking water. Sunstein concluded that reasonable estimates of the benefits of the EPA's arsenic regulation ranged from zero dollars to \$560 million or more.<sup>33</sup> As the estimated cost of the regulation was \$210 million, cost-benefit analysis did not provide significant guidance concerning what action to take.

## b. Valuation

Sunstein explicitly recognizes the importance of personal values in decisions about how to respond to threats, but then essentially limits his

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[hereinafter COST-BENEFIT STATE]; Frank Ackerman & Lisa Heinzerling, *Pricing the Priceless: Cost-Benefit Analysis of Environmental Protection*, 150 U. PA. L. REV. 1553 (2002); Lisa Heinzerling, *Discounting Life*, 108 YALE L.J. 1911 (1999); Lisa Heinzerling, *Regulatory Costs of Mythic Proportions*, 107 YALE L.J. 1981 (1998); Douglas A. Kysar, *Climate Change, Cultural Transformation, and Comprehensive Rationality*, 31 B.C. ENVTL. AFF. L. REV. 555 (2004); Sinden, *supra* note 29.

31. Ackerman & Heinzerling, *supra* note 30, at 1569 (“[C]ost-benefit analysis . . . demands an enormous volume of consistently updated information, which is beyond the practical capacity of our society to generate.”).

32. See Kysar, *supra* note 30, at 563–64 (concluding with respect to cost-benefit analysis of responses to global warming that, “we do not know with anything other than an anemic level of confidence what will be the consequences of our [response to global warming] . . .”).

33. Cass R. Sunstein, *The Arithmetic of Arsenic*, 90 GEO. L.J. 2255 (2002); CASS R. SUNSTEIN, RISK AND REASON: SAFETY, LAW, AND THE ENVIRONMENT 175–77 (2002) [hereinafter RISK AND REASON].

discussion of cost-benefit analysis to (what are in his view) monetizable benefits. Sunstein focuses almost exclusively on monetizing potential lives saved, and devotes considerable attention to the tremendous hurdles of carrying out this task. Determining the value of noneconomic costs and benefits requires the use of some substitute metric, as there is no actual market price for these goods. Sunstein, and most cost-benefit proponents, use willingness-to-pay as the metric—the amount a person would pay to avoid a cost or receive a benefit.<sup>34</sup> Sunstein recognizes, and discusses in some detail, many of the theoretical and practical problems with using willingness-to-pay. These problems include that individuals view identical statistical risks differently,<sup>35</sup> that individuals evaluate different risks differently,<sup>36</sup> and that the distribution of wealth affects willingness-to-pay.<sup>37</sup> Other scholars have devoted substantial effort to the problems of appropriately valuing lives for cost-benefit analysis as well.<sup>38</sup>

Putting this unresolved set of difficulties to one side for the moment, cost-benefit analysis faces even murkier problems in the context Sunstein proposes. The majority of threats create not only monetizable costs and benefits, but also nonmonetizable ones. Even if cost-benefit analysis could monetize the value of a child's life, for example, Sunstein appears to recognize that the manner of cost-benefit analysis proposed still does not account for values or costs associated with nonmonetizable impacts, such as the destruction of coral reefs, human physical and emotional suffering short of fatality, or the extinction of species.<sup>39</sup> As Sunstein has recognized in previous work, not everything can be monetized, and not everything can be measured along the same metric.<sup>40</sup> Different goods—health, environmental quality, physical goods, relationships,

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34. SUNSTEIN, *supra* note 1, at 151, 169.

35. *Id.* at 131. Sunstein uses the example of individuals distinguishing among “1/100,000 risks of dying from AIDS, an airplane crash, Alzheimer’s disease, cancer, and a workplace accident.” *Id.*

36. *Id.*

37. *Id.* at 142–46. Sunstein spends an entire chapter discussing these and other difficulties, concluding that the “problems are fatal to *full* individuation” (and thus to precise cost-benefit analysis), but nevertheless concludes that a second-best cost-benefit analysis is still useful. *Id.* at 147 (emphasis in original). For additional discussion of problems with the willingness-to-pay metric, see Matthew D. Adler & Eric A. Posner, *Rethinking Cost-Benefit Analysis*, 109 *YALE L.J.* 165, 189, 193; Sinden, *supra* note 29, at 206–10.

38. See sources cited *supra* note 30.

39. SUNSTEIN, *supra* note 1, at 129. More ardent strong-form cost-benefit analysis proponents try to monetize all costs and benefits through certain methods, such as contingent valuation and hedonic pricing methods. For critiques of the utility of contingent valuation and other methods that attempt to monetize such costs and benefits, see FRANK ACKERMAN & LISA HEINZERLING, *PRICELESS: ON KNOWING THE PRICE OF EVERYTHING AND THE VALUE OF NOTHING* 75–90, 162–65 (2004); Kysar, *supra* note 30, at 571–77. Sunstein appears to vacillate in *Laws of Fear* on the question of whether all costs and benefits are monetizable. He restricts the vast majority of his discussion to monetizing human lives and seems to indicate certain environmental effects are not monetizable, SUNSTEIN, *supra* note 1, at 129, but then without further discussion states that (apparently all) “anticipated benefits should be turned into monetary equivalents” at the end of his cost-benefit discussion, *id.* at 169.

40. Cass R. Sunstein, *Incommensurability and Valuation in Law*, 92 *MICH. L. REV.* 779, 841 (1994).

quality of life—are valued in different ways, and in many respects are incommensurate with each other.<sup>41</sup>

Hurricane Katrina and its effects highlight significant cost-benefit problems in this regard. First, monetizing “only” the lives that would have been saved by better protection measures substantially undervalues the benefits of precautions, which properly would include preventing the uprooting of half a million people, widespread property and environmental damage, and the cost of public and private responses. Second, even if cost-benefit analysis recognized all the effects of Hurricane Katrina, valuing them presents a seemingly impossible task. Third, a great number of the people most harmed by Hurricane Katrina (for example, those stuck in the New Orleans Superdome or Convention Center days after the storm) were low-income individuals and families. Assuming that low-income individuals were likely to have a low willingness-to-pay to avoid the harm of Hurricane Katrina because they had limited resources does not indicate that it is appropriate to let them face the brunt of the storm.<sup>42</sup> This last point underscores the importance of distributional effects—many people were outraged that a seemingly disproportionate number of those most harmed by Hurricane Katrina were low-income and minority individuals.

### c. Time

A third critical problem for cost-benefit analysis, barely considered in *Laws of Fear*, concerns temporal issues and discounting. Many of the threats discussed in *Laws of Fear* present not only immediate risks, but also risks created by current activities that may not materialize for decades or even centuries. Consideration of future benefits and costs, however, raises a temporal quagmire: how to treat deaths, illnesses, and environmental degradation expected decades from now for purposes of cost-benefit analysis. An initial response may be that a life saved (or lost) in the future should be considered of equal value to a life saved (or lost) today. However, any cost-benefit analysis requires monetizing lives saved or lost,<sup>43</sup> and this leads to a conundrum. Most cost-benefit proponents contend that it is necessary to discount the value of future lives, just as one would discount future costs or benefits, on the basis that dollars saved or lost now create opportunity gains or costs. Discounting future lives, however, can have dramatic consequences for cost-benefit analysis. One million lives lost 150 years from now, discounted at ten percent per year, are worth less than one life lost today.<sup>44</sup>

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41. *Id.* at 785–86, 835–36.

42. It is also possible that low-income individuals are more likely to have less information about the extent of a risk, and therefore they have an artificially low willingness-to-pay.

43. See SUNSTEIN, *supra* note 1, at 132–48 (discussing valuation of lives).

44. Kysar, *supra* note 30, at 578.

Discounting, as the example above shows, raises significant moral issues. What does it mean to say that a life in the future is worth less than a life today? Cost-benefit proponents often respond to these moral concerns by contending that the discount rate is based on the opportunity cost of the value of a statistical life, rather than valuing life itself.<sup>45</sup> Future generations are actually made better off by this analysis, they argue, because it results in resource maximization. The life may be lost, but the savings today, compounded over time, will eventually result in more lives saved or in a higher enough quality of living to justify the lost life. Nothing in cost-benefit analysis, however, assures that the theoretical wealth transfer takes place. Nor does cost-benefit analysis address the problems this creates for concepts of individual autonomy. Members of future generations likely would not agree to be sacrificed in order to improve others' standard of living today or the overall standard of living in the future.<sup>46</sup>

In addition to the moral conundrums presented by intergenerational issues, the discount rate itself is subject to substantial disagreement. Those same one million lives discounted at 5% over 150 years (as opposed to 10%) would be worth 663 lives today, not just one life. Sunstein uses an average value of a statistical life of \$6 million for comparison purposes (though he is careful not to endorse it).<sup>47</sup> Using this value (which we also are careful not to endorse), cost-benefit analysis reveals that actions taken today which will save one million lives 150 years from now have a present benefit of anywhere from \$6 million (applying a 10% discount rate) to \$6 trillion (applying no discount rate).<sup>48</sup> Such variation in benefits renders cost-benefit analysis of limited use for evaluating risks involving any significant threats to future lives.

Sunstein previously has referred to the discount rate as “[p]erhaps the most difficult issue” for cost-benefit analysis,<sup>49</sup> and has referred to the issues it raises as “exceedingly complex,” offering “no clear path,” and creating “underlying conundrums.”<sup>50</sup> It is surprising that Sunstein does not acknowledge these problems in *Laws of Fear*.

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45. Sunstein takes an analogous approach in a recent article. Cass R. Sunstein & Arden Rowell, *On Discounting Regulatory Benefits: Risk, Money, and Intergenerational Equity*, available at [http://papers.ssrn.com/sol3/papers.cfm?abstract\\_id=756832](http://papers.ssrn.com/sol3/papers.cfm?abstract_id=756832).

46. For an in-depth discussion of the moral concerns raised by discounting in cost-benefit analysis, see Kysar, *supra* note 30, at 578–85.

47. SUNSTEIN, *supra* note 1, at 137.

48. Sunstein has noted elsewhere that discount rates ranging anywhere between zero and seven percent can be reasonably defended when evaluating harm to future generations. SUNSTEIN, *COST-BENEFIT STATE*, *supra* note 30, at 83–86; *see also* SUNSTEIN, *RISK AND REASON*, *supra* note 33, at 224–28.

49. SUNSTEIN, *RISK AND REASON*, *supra* note 33, at 224.

50. *Id.* at 228.

## d. Sunstein's Limits

Sunstein recognizes some of the limitations of cost-benefit analysis. In fact, his discussion of cost-benefit analysis as a law of fear includes numerous qualifications aimed at saving the analysis from certain of the critiques identified above. These qualifications, however, like his qualifications of the Anti-Catastrophe Principles, render the range of application of Sunstein's cost-benefit analysis strikingly small.

Sunstein first apparently recognizes that cost-benefit analysis is inapplicable for uncertain threats: "For present purposes, I am speaking only of situations in which reasonable ranges [of risk] can be identified."<sup>51</sup> Though Sunstein does mention uncertain threats in his cost-benefit discussion, they are not central to his analysis, and he never withdraws this significant qualification or explains how his version of cost-benefit analysis could be applied to uncertain threats.

Sunstein also acknowledges that cost-benefit analysis cannot be applied in situations where individuals have adapted their preferences to perceived existing opportunities or where individual preferences have been influenced by bounded rationality.<sup>52</sup> Adaptive preferences occur where individuals change their preferences to conform to their existing perceived options. An individual living in an area with heavy air pollution, for example, may show little preference for cleaner air because she has psychologically adapted to the reality of dirty air.<sup>53</sup> Adaptive preferences make willingness-to-pay figures unreliable. If social or environmental conditions change individual preferences for reasons other than individual autonomy and free choice, using such misconstrued preferences as a basis for cost-benefit analysis is improper.

Bounded rationality raises similar problems for willingness-to-pay calculations. As Sunstein recognizes, individuals are not always rational actors in the classical or neo-classical sense. Rather, due to limitations on time, perception, memory, cognition, and learning, individual preference-seeking is constrained, or only boundedly rational.<sup>54</sup> In fact,

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51. SUNSTEIN, *supra* note 1, at 150.

52. *Id.* at 154-56.

53. Such adaptation, as Sunstein notes, may be the result of cognitive dissonance avoidance. *Id.* at 154. Cognitive dissonance occurs when an individual holds two apparently conflicting ideas in mind at once. See generally LEON FESTINGER, A THEORY OF COGNITIVE DISSONANCE (1957) (analyzing a number of studies and proposing the concept of cognitive dissonance). The presence of conflicting concepts creates psychological discomfort, leading individuals to take steps to reduce or eliminate the conflict. For individuals living in areas of environmental degradation, one of the simplest forms of cognitive dissonance avoidance is to change (lower) one's preferences for environmental quality. See *id.* at 6 (noting that a common method of cognitive dissonance avoidance is to change one's beliefs); Mandel, *supra* note 13, at 161-62 (discussing changing preferences as a method of cognitive dissonance avoidance).

54. For a wealth of literature on bounded rationality, see generally HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT (Thomas Gilovich et al. eds., 2002); JUDGMENT UNDER UNCERTAINTY: HEURISTICS AND BIASES (Kahneman et al. eds., 1982) [hereinafter JUDGMENT UNDER UNCERTAINTY].

bounded rationality is central to Sunstein's deconstruction of the precautionary principle in the first half of the book, and to libertarian paternalism, his third law of fear solution.<sup>55</sup> This same bounded rationality, as Sunstein notes, raises problems for calculating willingness-to-pay as well. If individuals have problems evaluating low-probability risks, and are impacted, for instance, by emotional reactions to risk, then such irrationality will improperly impact their willingness-to-pay.

Despite recognizing the fundamental problems that adaptive preferences and bounded rationality raise for willingness-to-pay, and consequently for cost-benefit analysis, Sunstein dismisses both concerns as irrelevant to most calculations. He concludes that "[m]uch of the time, there is no reason to believe that the use of informed [willingness-to-pay] . . . is a product of adaptive preferences"<sup>56</sup> in the former case, and, "[i]n many cases, . . . [willingness-to-pay] is not a result of inadequate information and bounded rationality is not leading people to err"<sup>57</sup> in the latter. No basis is provided for these conclusions.

Considering Sunstein's careful and detailed analysis throughout most of the book, these unsupported, hunch-based conclusions stand out as surprising. The latter conclusion is particularly perplexing considering that a central feature of Sunstein's explanation for the popular attraction of the Precautionary Principle is that it results from widespread influence of cognitive heuristics and biases—particularly the availability heuristic and loss aversion. Why these heuristics and biases can be assumed to become inconsequential in "many cases" is unclear.

Sunstein also notes that willingness-to-pay is not a useful metric for very low probability risks, particularly low-probability risks of catastrophe.<sup>58</sup> Part of the problem here concerns individual difficulty in evaluating low-probability risks, and part concerns individual failure to properly attach a "catastrophe" or "extermination" premium on certain risks.<sup>59</sup> Sunstein concludes that willingness-to-pay remains useful for risks in the range of 1/10,000 to 1/100,000 as long as no large-scale catastrophe is at issue.<sup>60</sup>

Sunstein identifies other limitations to application of his form of cost-benefit analysis as well. He notes that "it is fully reasonable to say that whatever their [willingness-to-pay], human beings should have a right not to be subject to risks above a particular level,"<sup>61</sup> and that, "[w]e

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55. See, e.g., SUNSTEIN, *supra* note 1, at 70–87 (discussing several forms of irrational behavior in response to risk); *id.* at 181–84 (discussing irrational decision making as a basis for libertarian paternalism).

56. *Id.* at 155.

57. *Id.* at 156.

58. *Id.* at 160–61.

59. *Id.*

60. *Id.* at 161.

61. *Id.* at 156. Sunstein notes that protection of such rights, in practice, is resource-dependent. *Id.*

might add that people have a right not to be subjected to an intentional or reckless imposition of harm.”<sup>62</sup> Similarly, actions that would violate socially agreed upon moral rules should not be evaluated based on willingness-to-pay.<sup>63</sup> Examples that Sunstein offers here include prohibitions on racial and sex discrimination, prohibitions on sexual harassment, and protection of endangered species. Simply because individuals might be willing to pay to discriminate does not mean society should allow it.<sup>64</sup> Social mores can thus place certain decisions outside the ambit of cost-benefit analysis. Sunstein does not discuss why such mores place discrimination outside the purview of willingness-to-pay, but still allow for the application of willingness-to-pay to greater harms (for example, the loss of human life).

The final limitation that Sunstein identifies concerns third-party effects. Where risks produce harms for third parties (negative externalities), and such third-party welfare is not considered, “then the [willingness-to-pay] calculus is seriously incomplete.”<sup>65</sup> In such situations, willingness-to-pay will produce values that are “far too low.”<sup>66</sup> Sunstein’s solution to this problem is contained in a single sentence: “The appropriate response is to increase the numbers.”<sup>67</sup> How to do so, and by how much, is not discussed.<sup>68</sup>

Sunstein thus has confined application of his second law of fear, cost-benefit analysis, to situations where: (1) the risks are not uncertain, (2) adaptive preference formation has not occurred, (3) bounded rationality has not influenced preference formation, (4) individual rights are not violated by the risks, (5) socially agreed upon morals are not violated by the risks, (6) the risks fall within a 1/10,000 to 1/100,000 range, (7) there is not a risk of catastrophe, and (8) there are not third-party/externality effects. Even assuming that certain of these limitations are being taken more literally here than Sunstein intended, and relatedly, that certain of these limitations are more flexible at the margin than literally described, Sunstein’s own list of restrictions renders cost-benefit analysis applicable only to a small set of threats, and applicable to almost none of the threats that Sunstein discusses in *Laws of Fear*.

#### e. The Dangerous Lure of Cost-Benefit Analysis

Sunstein repeatedly defends cost-benefit analysis in reference to an “Easy Case” hypothetical that he creates for descriptive purposes—

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62. *Id.*

63. *See id.* at 158.

64. *See id.* (“In the context of racial and sex discrimination, sensible societies do not aggregate people’s [willingness-to-pay].”).

65. *Id.* at 161.

66. *Id.* at 162.

67. *Id.*

68. Presumably some form of third-party willingness-to-pay would be called for, but the difficulties inherent in calculating such figures are substantial and not considered.

where risks are precisely known, people are adequately informed, and individuals have precise preferences.<sup>69</sup> Sunstein recognizes the “obvious artificiality” of the Easy Case, particularly the failure to consider distributional effects.<sup>70</sup> In an effort to demonstrate the applicability of cost-benefit analysis to real-world situations, Sunstein includes a section on extending the Easy Case to harder ones.<sup>71</sup> His primary basis for doing so, however, appears to be that “[m]aybe everything will balance out in the end.”<sup>72</sup> Of course, it is quite likely that everything will not balance out in the end. Sunstein acknowledges, for instance, that the inclusion of just a single factor missing from the Easy Case—externality effects—renders the analysis “much more complicated.”<sup>73</sup>

One response to our critique could be that cost-benefit analysis, despite its limitations, still may apply to certain situations, and in those situations can provide some useful guidance, though, as Sunstein notes, the efficiency goal of cost-benefit analysis should not be taken as absolute. This may well be correct. But it also leads to a problem of perceived reliability. The quantitative appearance of cost-benefit analysis lures unsuspecting (and even suspecting) decision makers to believe that it offers far more than it can actually provide.<sup>74</sup> As discussed above, uncertainty, valuation, and temporal problems render cost-benefit analysis, even in the rare case where it can satisfy the full litany of Sunstein’s qualifications, highly uncertain. Nevertheless, once cost-benefit analysis spits out a number, people attach to it, even when they are aware that it is highly unreliable. In fact, several well demonstrated heuristics indicate that people will rely on cost-benefit analysis to an irrational extent. These heuristics include the anchoring heuristic, the overconfidence bias, and the manner in which individuals assimilate data.

Anchoring occurs where an individual is presented with an initial value prior to making a judgment. Studies demonstrate that individuals are highly and irrationally influenced by the initial value, even if it is entirely uninformative.<sup>75</sup> In a seminal experiment, subjects were asked to estimate the percentage of African countries in the United Nations.<sup>76</sup> First, a number between zero and one hundred was selected by spinning a wheel of fortune in the subject’s presence. The subjects were then asked whether the percentage was higher or lower than the number, and

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69. SUNSTEIN, *supra* note 1, at 150.

70. *Id.* at 166.

71. *Id.* at 169.

72. *Id.*

73. *Id.* at 166.

74. See Sinden, *supra* note 29, at 194 (“The danger of [cost-benefit analysis] . . . lies in its false promise of determinacy, its pretense of objectivity and scientific accuracy.”).

75. Gretchen B. Chapman & Eric J. Johnson, *Incorporating the Irrelevant: Anchors in Judgments of Belief and Value*, in HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT, *supra* note 54, at 121–30; Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, in JUDGMENT UNDER UNCERTAINTY, *supra* note 54, at 3, 14–18.

76. Tversky & Kahneman, *supra* note 75, at 14.



finally what the percentage was. The median estimate of the percentage of African countries in the United Nations was twenty-five for individuals that received ten as a starting point; and was forty-five for individuals that received sixty-five as a starting point.<sup>77</sup> An initial value that subjects knew was random created a very strong anchor. The initial result of a cost-benefit analysis would be expected to cause an even greater anchoring bias because people view cost-benefit analysis as more reliable than a randomly generated number.

The overconfidence bias refers to the repeated finding that people have irrationally high confidence in their judgments—“people are often more confident in their judgments than is warranted by the facts.”<sup>78</sup> Critical for our purposes, various studies have found that experts often exhibit such a bias, and often exhibit a more extreme overconfidence bias than laypeople.<sup>79</sup> Experts conducting cost-benefit analysis can be expected to be irrationally overconfident in the certainty and accuracy of their result.

A third type of excessive bias towards cost-benefit results arises from the manner in which individuals assimilate information. The persuasiveness of evidence depends on two factors: its relevance (strength) and reliability (weight). Experiments on judgment have found that people do not combine relevance and reliability properly.<sup>80</sup> Rather, individual judgments are overinfluenced by the relevance of evidence and underinfluenced by its reliability.<sup>81</sup> The highly relevant (though unreliable) results of cost-benefit analysis are exactly the type of evidence that will be more persuasive than is rationally appropriate.<sup>82</sup>

Sunstein himself appears to fall victim to the bias of overreliance on cost-benefit analysis. As discussed above, Sunstein recognizes that cost-benefit analysis cannot apply usefully to uncertain risks. Nevertheless, he closes the chapter in which he identifies this limitation with a rough attempt to apply cost-benefit analysis to the threat of global warming,<sup>83</sup> perhaps the poster child for uncertain risk.<sup>84</sup> Sunstein adopts one estimate of the anticipated costs for the United States to implement the Kyoto Protocol in response to global warming (\$300 billion).<sup>85</sup> But estimates of the costs of meeting the emissions targets of the Kyoto Protocol

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77. *Id.*

78. Dale Griffin & Amos Tversky, *The Weighing of Evidence and the Determinants of Confidence*, in *HEURISTICS AND BIASES: THE PSYCHOLOGY OF INTUITIVE JUDGMENT*, *supra* note 54, at 230; *see also* Mandel, *supra* note 13, at 164.

79. Griffin & Tversky, *supra* note 78, at 230; *see also* Mandel, *supra* note 13, at 164.

80. Griffin & Tversky, *supra* note 78, at 231–40.

81. *Id.*

82. Mandel, *supra* note 13, at 164–65.

83. SUNSTEIN, *supra* note 1, at 173.

84. *See* Ackerman & Heinzerling, *supra* note 30, at 1579 (noting that even when nonquantifiable benefits are explicitly recognized, they “are almost invariably ignored” once cost-benefit analysis is conducted). Global warming also represents a potentially catastrophic risk produced by externality-causing activities, two other factors that Sunstein identifies as problematic for cost-benefit analysis.

85. SUNSTEIN, *supra* note 1, at 173.

vary widely, by at least a factor of twenty.<sup>86</sup> The direct benefits of reductions in greenhouse gases vary by an even greater magnitude.<sup>87</sup> This is not to say that Sunstein's thoughts on a reasonable response to global warming are wrong—only that we do not know. Cost-benefit analysis, in most cases, simply cannot provide the “more concrete sense”<sup>88</sup> that Sunstein claims. Once you accept cost-benefit analysis as a central tool, even if theoretically only for carefully proscribed circumstances and conditions, its quantitative lure is so strong that it inevitably becomes used in circumstances and with precision far outside its power.

### 3. *Libertarian Paternalism*

The third and final law of fear that Sunstein proposes is libertarian paternalism. Libertarian paternalism is based on the notion that individuals often lack clearly defined preferences or do not make decisions in accord with their actual preferences.<sup>89</sup> Such “irrationality” can occur for a variety of reasons—for instance, limited information, bounded rationality, or lack of self-control.<sup>90</sup> In these cases, it is reasonable for the government to set default rules and take certain other limited actions that the government believes are in most individuals' self-interest.<sup>91</sup> The government must set some rule as the default rule, so it should choose the best estimate of individual best interest.<sup>92</sup> Such a recommendation is paternalist, but it is also libertarian as it leaves individuals free to opt out of the default rules if they so choose.<sup>93</sup>

Sunstein's specific libertarian paternalism recommendations are several: (1) the government should disclose all necessary information (and pay attention to its disclosure and processing) so that individuals can make informed choices;<sup>94</sup> (2) the government should set default rules to maximize social welfare, but generally preserve freedom of contract to allow individuals to depart from the default rules;<sup>95</sup> (3) in certain instances, government should impose procedural constraints on individuals' opting out of default rules to ensure that such departure is “fully voluntary and entirely rational”;<sup>96</sup> and (4) in certain instances, government

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86. John P. Weyant, *Economic Models: How They Work & Why Their Results Differ*, in CLIMATE CHANGE: SCIENCE, STRATEGIES, & SOLUTIONS 193, 193–94 (Eileen Clausen ed., 2001).

87. CLIMATE CHANGE 1995: ECONOMIC AND SOCIAL DIMENSIONS OF CLIMATE CHANGE 183, 215 (J.P. Bruce et al. eds., 1996) (citing a variation in benefit of \$5 to \$125 in 1990 U.S. dollars per ton of reduction in greenhouse gas emissions).

88. SUNSTEIN, *supra* note 1, at 174.

89. *Id.* at 175–84.

90. *Id.* at 177.

91. *See id.*

92. *See id.* at 184–87.

93. *Id.* at 177.

94. *See id.* at 195.

95. *See id.* at 197, 199–200.

96. *Id.* at 200.

should impose substantive constraints on an individual's opting out of default rules, allowing departure, but only on certain terms.<sup>97</sup>

Sunstein's libertarian paternalism recommendations are quite sound. They are well considered, well defended, and provide reasonable opportunity for variation from minimal paternalism (default rules with no restrictions on departure) to more aggressive paternalism where necessary (procedural or substantive limits on departure). The plea for greater attention to information dissemination, and to the manner in which information is processed, so as to enable individuals to make rational choices on their own, is very well placed.

Sunstein does not pay much attention to the difficult details of implementing libertarian paternalism. Most significantly, decision makers would need to determine aggregate individual preferences (or perhaps the mode of all individual preferences), after accounting for bounded rationality and other cognitive limitations, in order to select appropriate default rules, and decision makers would need to make such determinations without letting their own cognitive limitations bias their decisions. Difficult tasks, but not necessarily insurmountable ones.

Our more substantial critique of the libertarian paternalism recommendation is that it is only tangentially related to the topics of fear and risk discussed throughout the rest of the book. Most significantly, libertarian paternalism can be relevant only for risks that are voluntarily incurred by individuals. Individuals cannot opt out of involuntary threats. Threats of global warming, terrorism, and nuclear power, for instance, lie outside the potential purview of a libertarian paternalist approach.

Even most voluntary risk behavior—for instance, smoking, driving, or wearing a seatbelt—is not amenable to a standard libertarian paternalist approach. The concrete examples that Sunstein does provide concerning libertarian paternalism involve employee savings decisions, other labor and employment law, and certain consumer protection laws (such as cooling-off periods).<sup>98</sup> These do entail risks in a certain sense, but they are hardly the types of threats and associated fears that form the basis of Sunstein's analysis in the rest of the book. Libertarian paternalism primarily applies where there is a contractual (or contract-like) relationship between individuals, a circumstance that offers only a tangential relationship to the main topic of *Laws of Fear*.

#### 4. *Sunstein's Laws of Fear*

In sum, we find Sunstein's three proposed laws of fear (the anti-catastrophe principle, cost-benefit analysis, and libertarian paternalism) relatively well reasoned but limited in application. As discussed above, it appears that, if taken literally, none of the laws apply to threats and fears

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97. *See id.*

98. *Id.* at 175–76, 197–99.

concerning global warming, skin cancer, terrorism, electromagnetic fields, tobacco smoking, genetically modified food, HIV/AIDS, driving, flying, nuclear power, taking or avoiding medication, cellular telephone use, or preemptive war (to note a broad and relatively comprehensive selection of most of the fears discussed in the book).

The Anti-Catastrophe Principle rarely applies because realistic threats of catastrophe usually have substantial response costs that may divert resources from more pressing needs. Sunstein's version of cost-benefit analysis can rarely be applied because willingness-to-pay is usually an unreliable metric, and most risks implicate rights or moral concerns, create external effects, or violate one of the other limitations Sunstein has identified. Libertarian paternalism rarely applies because most threats that cause risk and fear do not result from voluntary, contract-like relationships.

Perhaps we read Sunstein's laws too literally. Perhaps the proposed rules are meant to provide more of a general dialogue about ways to think about threats and popular fears that should be applied only holistically, rather than precisely. As noted, we found much of Sunstein's discussion lucid and insightful in this regard. The problem with considering Sunstein's laws of fear to be holistic concepts in this context, however, is two-fold. First, Sunstein presents the second half of the book as "Solutions" to the Precautionary Principle and other "Problems" identified in the first half of the book. His withering critique of the strong Precautionary Principle is based on a precise and literal interpretation of its text; his Solutions presumably should be subject to the same standard. Second, to the extent the proposed Solutions are taken more holistically than literally, we find them somewhat trivial. His central cost-benefit proposal would seem to boil down to a recommendation that we take into account all costs, benefits, distributional effects, and values in decision making—an open-ended solution that is hard to question, but also does not provide substantial guidance.

Beyond the limited real-world applicability of Sunstein's laws of fear, we also have two other significant concerns with the laws, as noted in the Introduction: the failure to adequately consider how the laws could practically be implemented from an institutional perspective and the failure to consider the difficulties of incorporating values and distributional effects into responses to threats.

### *B. Institution Matters*

Sunstein argues that in a democratic society, a government should inform and educate citizens about irrational risks.<sup>99</sup> Once informed, deliberative democracy can operate to produce an optimal governmental

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99. *See id.* at 181–84.

response to threats and risk. We agree in theory—but this recommendation is easier stated than achieved. Although Sunstein engages in an excellent exposition of the limitations of human cognition and social influence in estimating (or misestimating) risk, he pays less attention to limitations on government decision making. He does not address, for instance, the institutional arrangements that cause governments to respond to irrational fears of their citizens and that make it almost inevitable that governments act to meet short-term citizenry demands rather than long-term precautions or margins of safety against significant risks.<sup>100</sup> Hurricane Katrina again provides unfortunate examples, ranging from the inattention to fortifying the levees in New Orleans by local, state and federal authorities to the inability of various governmental entities to work together.

*Laws of Fear* thus overlooks consideration of how individuals behave in political institutions and how behavior in political settings affects the society at large.<sup>101</sup> By ignoring the role of political institutions, Sunstein gives little guidance to individuals seeking to implement his laws of fear within an institutional setting. Scholarship on public choice, institutional decision making, and the role of nongovernmental actors provides significant teaching on institutional responses to threats.

### 1. *Public Choice*

Sunstein contends that “so long as the government is democratically accountable and attempting to discourage people from running genuinely serious risks, there should be no objection in principle” to his proposals.<sup>102</sup> Sunstein’s premise is that democratic accountability will unprob-

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100. For example, in 1990, the EPA’s Science Advisory Board found that the “environmental risks considered most serious by the general public today are different from those considered most serious by the technical professionals charged with reducing environmental risk.” EPA SCIENCE ADVISORY BOARD, *REDUCING RISK: SETTING PRIORITIES AND STRATEGIES FOR ENVIRONMENTAL PROTECTION* 12 (1990). However, “the EPA’s priorities appear to be more closely aligned with public opinion” than with its own risk assessments. ENVIRONMENTAL PROTECTION AGENCY, *UNFINISHED BUSINESS: A COMPARATIVE ASSESSMENT OF ENVIRONMENTAL PROBLEMS* xix (1987).

Sunstein’s support for informing citizens about threats and risks runs into another problem as well. In certain instances, a government legitimately believes that citizens should not be informed about certain risks, as, for instance, where providing such information may lead to concerning spikes in public fear or where the information is kept secret for security reasons to investigate the risk. In other cases, governments may have little reliable information about risk to provide—such as about terrorism.

101. See, e.g., ROBERT AXELROD, *THE EVOLUTION OF COOPERATION* (1984); ROBERT O. KEOHANE, *AFTER HEGEMONY* (1984); Terry M. Moe, *The Politics of Bureaucratic Structure*, in JOHN E. CHUBB & PAUL E. PETERSON, *CAN THE GOVERNMENT GOVERN?* 267 (1989) [hereinafter *Politics of Bureaucratic Structure*]; Terry M. Moe, *Political Institutions: The Neglected Side of the Story*, J.L. ECON. & ORG., Special Issue 1990, at 213; Kenneth A. Shepsle & Barry R. Weingast, *Political Preferences for the Pork Barrel: A Generalization*, 25 AM. J. POL. SCI. 96 (1981). On the new economics of organization, see also OLIVER E. WILLIAMSON, *THE ECONOMIC INSTITUTIONS OF CAPITALISM: FIRMS, MARKETS, RELATIONAL CONTRACTING* (1985); Terry M. Moe, *The New Economics of Organization*, 28 AM. J. POL. SCI. 739 (1984).

102. SUNSTEIN, *supra* note 1, at 125.

lematically enact or define rules and policies discouraging people from running into serious risks. As Terry Moe has argued, however, “[the notion] that political actors might confine their attention to policymaking and turn organizational design over to neutral criteria or efficiency experts denies the realities of politics.”<sup>103</sup> It is in this sense that institutions matter, and not simply because elected politicians define these institutions and the rules that apply to their work. Instead, interest groups, rather than the electorate or the politicians independently, substantially influence the kinds of institutions and rules that politicians ultimately adopt.<sup>104</sup> Interest groups often have the resources, information, and expertise that politicians may not have readily available, and they can devote their time “entirely to the technical requirements of effective organization.”<sup>105</sup> Thus, when an interest group has broad congressional support for its choice of organizational form and rule structure, it then turns its attention to monitoring how agency experts implement the mandates. It also seeks to curtail the independent interests of these experts by denying them discretion with narrowly tailored rules that mandate what they can or cannot do and what process to follow. The means by which such groups attain their goals obviously vary and could involve promoting professionalism, judicialization, formal independence of the agency, and so on.<sup>106</sup> Of course, politicians too have interests in implementing bureaucratic structure, especially to ensure that they can intervene individually in an ad hoc manner to protect constituency interests.<sup>107</sup> Finally, even an interest group with broad congressional support has to contend with interest groups with opposing views, and with presidents whose views may not coincide.<sup>108</sup> This reality creates room for negotiation, accommodation, and compromise: hallmarks of bureaucratic organization.

Our point is simply that it is hard to square Sunstein’s otherwise defensible commitment to democratic government addressing issues of fear, with the often unrepresentative character of bureaucratic politics today. To the extent that institutions and bureaucracies in democratic governments like the United States operate as they do, democratic government is insufficient to operationalize Sunstein’s laws of fear. Again, as Terry Moe notes,

[b]ureaucratic structure emerges as a jerry-built fusion of congressional and presidential forms, their relative roles and particular fea-

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103. Moe, *Politics of Bureaucratic Structure*, *supra* note 101, at 280–81.

104. *Id.* at 269. But note that Moe acknowledges that politicians too make an imprint on bureaucratic structure and that they are not simply conduits for interest groups’ preferences. *Id.* at 277–78.

105. *Id.* at 270.

106. *Id.* at 271–75.

107. *Id.* at 278.

108. *Id.* at 280. *See also id.* at 281 (Moe notes that winning groups tend to see a President as a “major source of political uncertainty over and above the risks associated with the future power of the group’s opponents.”).

tures determined by the powers, priorities, and strategies of the various designers. . . . Bureaucracies do not emerge from analytical exercises in applied theory, nor do they emerge from public-spirited efforts to find the most effective structural means for achieving the goals of public policy. Politics has a way of overwhelming these sorts of . . . concerns and driving them out—even when the major interest groups claim to be forces for good government themselves.<sup>109</sup>

## 2. *Social Choice and Government Action*

Issues of institutional function raise additional concerns. Even if individuals behaved rationally and without the heuristics and biases that Sunstein examines in Part I of *Laws of Fear*, how does one extrapolate from the rational individual to analysis of social and political institutions that shape social choice? How social and political institutions influence the preferences and choices of individuals, and how individual preferences are institutionally aggregated into social choice are critical components of responses to threats, but these components are not significantly considered by Sunstein. Without addressing institutional context, Sunstein's laws of fear are trapped in the conceptual stage.

There is an alternative reading of Sunstein's laws of fear. Perhaps he assumes that the market will aggregate individual choices into social outcomes and that this is a desirable outcome. This assumption seems plausible because he appears to advocate the present distribution of entitlements as a baseline for assessing permissible and impermissible exchanges.<sup>110</sup> However, Sunstein acknowledges that measuring social cost and benefit in monetary rather than in welfare terms may actually lead to lower overall welfare and to distributional problems.<sup>111</sup> He addresses this distributional concern that a particular regulatory choice might affect the least well off more adversely<sup>112</sup> by summoning faith in the ability of democratic societies to spot and address these issues. This faith in democratic governance, however, is undermined by Sunstein's failure to address how choices made within political settings will affect distributional issues or implementation of his laws of fear.

Institutional context is critical because it can both ameliorate and exacerbate certain of the heuristic and bias concerns that Sunstein identifies in his critique of the precautionary principle. For instance, in Europe, unlike in the United States, more visible participation of green parties in the democratic process and a higher level of commitment to green consciousness has heavily favored increased environmental and

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109. *Id.* at 282, 324.

110. SUNSTEIN, *supra* note 1, at 152–53.

111. *Id.* at 168.

112. *Id.* at 168–71.

safety requirements.<sup>113</sup> In the United States, on the other hand, the two major parties have virtually locked up the political landscape at the national level. The Green Party has made little inroads. Other factors that have led to higher environmental awareness in Europe include the fact that regulations were introduced at the point of consumption as opposed to the point of production.<sup>114</sup> In addition, benefits conferred on recyclers and packagers gave producers an incentive to support green regulation.<sup>115</sup> These factors and other aspects of the European regulation have provided the context within which the precautionary principle has taken the particular character it has in Europe. For example, as Sunstein argues, it is not that Europeans use the precautionary principle more than Americans, it is only that they are more attuned to certain risks than others.<sup>116</sup> Where health protective measures were adopted without scientific support, the European Union has been standing guard. Thus, in *Re Purity*,<sup>117</sup> the European Court of Justice ruled against German regulations that proscribed the use of the label “beer” if it contained certain ingredients or additives. The Court argued that Germany had not shown that the regulations were aimed at advancing consumer health and safety and as such constituted an impermissible barrier to trade under the Treaty of Rome.<sup>118</sup>

One sees a similar trend within the World Trade Organization (WTO). Here the Agreement on Sanitary and Phytosanitary Measures (SPS) and the Agreement on Technical Barriers to Trade (TBT) check probability neglect by permitting WTO members to adopt sanitary or phytosanitary measures only to the extent that they are based on scientific principles and sufficient scientific evidence such as those contained in international standards, guidelines, or recommendations.<sup>119</sup> Moreover, Article 5.1 of the SPS Agreement requires that measures adopted by WTO members be based on an assessment of risk.<sup>120</sup> Thus, in the now famous *Hormones* decision, the Appellate Body ruled against the European Commission for maintaining restrictions on imported hormone-fed beef without a showing that the restrictions were based on sufficient scientific evidence or an assessment of risk.<sup>121</sup> The SPS Agreement is arguably designed to preempt heuristic-based thinking and to promote a

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113. Joel R. Paul, *Free Trade, Regulatory Competition and the Autonomous Market Fallacy*, 1 COLUM. J. EUR. L. 29, 61–62 (1995).

114. *Id.*

115. *Id.*

116. SUNSTEIN, *supra* note 1, at 14; *see infra* Part II.C.

117. Case C-178/84, *Comm'n v. Federal Republic of Germany*, 1987 E.C.R. 1227.

118. *Id.* at 1276.

119. The WTO Agreement on the Application of Sanitary and Phytosanitary Measures, available at [http://www.wto.org/english/tratop\\_e/sps\\_e/spsagr\\_e.htm#Article3](http://www.wto.org/english/tratop_e/sps_e/spsagr_e.htm#Article3). Article 2.2 also requires a measure to be supported by “sufficient scientific evidence.” *Id.* at art. 2.2.

120. *Id.* art. 5.1.

121. Appellate Body Report, *European Communities—Measures Concerning Meat and Meat Products WT/DS26/AB/R, WT/DS48/AB/R* (Jan. 16, 1998) (adopted Feb. 13, 1998). *See also* SUNSTEIN, *supra* note 1, at 68–69.



“deliberative, calculative [and] slower” process that would focus on issues of probability neglect entirely consistent with Sunstein’s recommendation of deliberative assessment of risk.<sup>122</sup>

Thus, a primary goal of this WTO framework, aside from promoting harmonization of standards, is to preempt the abuse of health, safety, and technical standards by ensuring that they are justified by scientific evidence or a statistical likelihood of the risk in question. This framework also reflects the fact that trade barriers today are mostly concentrated within the borders of WTO member countries, unlike in the past when tariff or border measures were more significant barriers.<sup>123</sup> The SPS Agreement and the TBT Agreement respond to this shift by establishing standards for assessing the scientific validity of sanitary, phytosanitary, and technical measures to protect health, safety, and the environment that have an effect on the WTO’s free trade mandate.<sup>124</sup> These standards, including the provisions of Article XX of GATT 1994,<sup>125</sup> allow countries to adopt health or safety measures that have extraterritorial effect only if they are justified by sufficient scientific evidence, scientific principles, and risk assessment.<sup>126</sup> The SPS Agreement also prohibits measures that are “arbitrary” and that make “unjustifiable” distinctions in levels of protection in comparable situations, where the distinctions result in “disguised restriction on international trade.”<sup>127</sup> Thus, due to

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122. Robert Howse, *Democracy, Science, and Free Trade: Risk Regulation on Trial at the World Trade Organization*, 98 MICH. L. REV. 2329, 2330 (2000), defends these rules by noting that they can and should be “understood not as usurping legitimate democratic choice for stricter regulations, but as enhancing the quality of rational democratic deliberation about risk and its control.” Further, he notes that “[t]here is more to democracy than visceral response to popular prejudice and alarm; democracy’s promise is more likely to be fulfilled when citizens, or at least their representatives and agents, have comprehensive and accurate information about risks, and about the costs and benefits associated with alternative strategies for their control.” *Id.*

123. Michael Trebilcock & Julie Soloway, *International Trade Policy and Domestic Food Safety Regulation: The Case for Substantial Deference by the WTO Dispute Settlement Body Under the SPS Agreement*, in *THE POLITICAL ECONOMY OF INTERNATIONAL TRADE LAW: ESSAYS IN HONOR OF ROBERT E. HUDEC* 537, 537 (Daniel L.M. Kennedy & James D. Southwick eds., 2002).

124. See Jennifer Schultz, *Current Development: The GATT/WTO Committee on Trade and the Environment—Toward Environmental Reform*, 89 AM. J. INT’L L. 423, 426–29 (1995).

125. General Agreement on Tariffs and Trade, Oct. 30, 1947, 62 Stat. A-11, 55 U.N.T.S. 194 [hereinafter GATT], available at [http://www.wto.org/english/docs\\_e/legal\\_e/gatt47\\_e.pdf](http://www.wto.org/english/docs_e/legal_e/gatt47_e.pdf). Article XX of GATT 1994 provides exceptions to the obligations of a members’ WTO obligations by allowing Members to adopt measures, “necessary to protect human, animal or plant life or health,” *id.* art. XX(b); “necessary to secure compliance with laws or regulations which are not inconsistent with the provisions of this Agreement,” *id.* art. XX(d); “relating to the conservation of exhaustible natural resources if such measures are made effective in conjunction with restrictions on domestic production or consumption,” *id.* art. XX(g). The preamble to Article XX requires that health, safety, and environmental measures are not used for arbitrary or unjustifiable discrimination between countries, or for a disguised restriction on international trade. For a discussion of the precautionary principle in relation to Article XX, see Laurent A. Ruessmann, *Putting the Precautionary Principle in its Place: Parameters for the Proper Application of a Precautionary Approach and the Implications for Developing Countries in Light of the Doha WTO Ministerial*, 17 AM. U. INT’L L. REV. 905 (2002).

126. Michelle K. McDonald, Note: *International Trade Law and the U.S.-E.U. GMO Debate: Can Africa Weather this Storm?*, 32 GA. J. INT’L & COMP. L. 501, 525–26 (2004).

127. The WTO Agreement on the Application of Sanitary and Phytosanitary Measures, available at [http://www.wto.org/english/tratop\\_e/sps\\_e/spsagr\\_e.htm#](http://www.wto.org/english/tratop_e/sps_e/spsagr_e.htm#).

institutional factors, European use of the precautionary principle at times contains precisely the guards against heuristics and biases that Sunstein recommends.<sup>128</sup>

Robert Howse echoes Sunstein in arguing that, if done openly, seeking scientific information upon which to base regulatory choices adds to, rather than subtracts from, deliberative democracy.<sup>129</sup> But here, one would have to agree with Sunstein that risk assessments are not entirely sufficient to enable democratic choice. There are still concerns about inequitable or differential burdens and benefits, as well as about qualitative and quantitative descriptions of harms.<sup>130</sup> This last point raises the difficulty of balancing burdens and benefits across national boundaries. Sunstein's laws of fear are rooted within a nation-state model. Thus, balancing burdens and benefits could conceivably be achieved through democratic institutions to prevent inequity. His approach, however, unlike that of the WTO, does not address balancing benefits and burdens across national boundaries or in shared areas (such as certain waters).<sup>131</sup> International regimes and institutions are another necessary component to operationalizing the laws of fear.

### 3. *Nongovernmental and Other Institutions*

*Laws of Fear* does not significantly consider the role of nongovernmental institutions and substate actors in analyzing threats and responses. It is not just federal governments or regional institutions like the European Union that have invoked the precautionary principle. Pri-

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128. These rules provide an additional benefit—they help to overcome domestic special interest groups seeking regulatory measures unsupported by scientific evidence. WTO, *Ten Benefits of the WTO Trading System: Lobbying*, available at [http://www.wto.org/english/thewto\\_e/whatis\\_e/10ben\\_e/10b09\\_e.htm](http://www.wto.org/english/thewto_e/whatis_e/10ben_e/10b09_e.htm) (last visited May 25, 2003); see also STEPHANIE ANN LENWAY, *THE POLITICS OF U.S. INTERNATIONAL TRADE: PROTECTION, EXPANSION AND ESCAPE* 54 (1985) (arguing that trade regime rules “constrain the influence of domestic pressure groups”). *But cf.* C. MICHAEL AHO & JONATHAN DAVID ARONSON, *TRADE TALKS: AMERICA BETTER LISTEN!* 10 (1986). The findings in this study demonstrate that this argument is not unassailable.

129. Howse, *supra* note 122, at 2329, 2333. Howse further argues that “[w]hat is critical is whether the ‘science’ in question can contribute to democratic rationality—transparent deliberation about policy among citizens and their representatives that does not exclude from consideration any reasoned claim.” *Id.* at 2343.

130. SUNSTEIN, *supra* note 1, at 55.

131. An example of a shared regime in the context of the international law of shared resources and transboundary waters is the 1997 United Nations Convention on the Law of the Non-Navigational Uses of International Watercourses (NUIW). G.A. Res. 51/229, U.N. Doc. A/RES/51/229 (July 8, 1997). Article 5 of the NUIW embodies the principle of equitable and reasonable utilization of international watercourses and has been argued to codify an existing customary international law norm. See also Gabcikovo-Nagymaros Project (Hung./Slovk.), 1997 I.C.J. REP. 1, paras. 141–47 (Sept. 25), *reprinted in* 37 I.L.M. 162, 168, 190 (1998). These treaties and emerging state practice demonstrate some movement away from absolute territorial sovereignty in addressing the sharing of benefits and burdens across national boundaries. See also Gabriel E. Eckstein, *Protecting a Hidden Treasure: The U.N. International Law Commission and the International Law of Transboundary Ground Water Resources*, 5 AM. U. SUSTAINABLE DEV. L. & POL’Y 5 (2005) (discussing the 2004 Draft Convention on the Law of Transboundary Aquifer Systems by the International Law Commission, which builds upon the 1997 Watercourse Convention).

vate institutions such as corporations, nongovernmental organizations, and local authorities play an increasingly important role in discussion and implementation of the precautionary principle. Nongovernmental organizations and private actors have been at the forefront in bringing attention to the adverse effects of global warming.

For example, in 1991, a shareholder of DuPont, a leading producer of ozone-depleting products, sued the company for excluding from its proxy materials a shareholder proposal that would have required DuPont to accelerate by one year its phase-out of chlorofluorocarbons (CFCs) and halons. The second part of the proposal would have required the company to present to the shareholders reports detailing its research and development efforts to find environmentally sound substitutes and its marketing plans for those substitutes.<sup>132</sup> Although this particular shareholder activist challenge was unsuccessful, it illustrates how interactions between nongovernmental organizations *inter se* or with individuals and investors are sites within which debates and applications of the precautionary principle occur. In this case, DuPont, which had planned to phase out CFCs by 1995, spent over \$240 million in developing alternatives to CFCs and announced plans to shut down the "largest CFC plant in the world."<sup>133</sup>

Some corporations, like ExxonMobil, have invested in challenging the science seeking to show that climate change arises in part due to the use of fossil fuels.<sup>134</sup> In contrast, other corporations, such as BP/Amoco, have sought to provide information about their activities and their efforts to curb ozone-depleting emissions.<sup>135</sup> BP/Amoco's approach has involved making procedural gestures supportive of gathering more information on global warming and exploring what to do about it. It has also joined the Global Climate Change's Business Environmental Leadership Council, which includes American corporations that have promised to reduce greenhouse gases while seeking to remain profitable.<sup>136</sup> In June 2005, GE Chairman Jeffrey Immelt announced that GE would spend more than \$1.5 billion annually to research conservation, pollution and emission of greenhouse gases.<sup>137</sup> Other major U.S. corporations joined GE in making similar commitments.<sup>138</sup> Religious groups, as well as local

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132. *Roosevelt v. E.I. Du Pont de Nemours & Co.*, 958 F.2d 416, 417 (D.C. Cir. 1992).

133. *Id.* at 427.

134. Marc Le Menestrel et al., *Processes and Consequences in Business Ethical Dilemmas: The Oil Industry and Climate Change* 8, available at <http://ssrn.com/abstract=311546>. ExxonMobil's opposition to global climate change measures have, in turn, resulted in a broad alliance of environmental and consumer, nongovernmental organizations against ExxonMobil seeking to boycott its products. See AFX News Limited, *U.S. Activists Launch Boycott of ExxonMobil Over Global Warming Stance*, July 12, 2005, available at <http://www.forbes.com/markets/feeds/afx/2005/07/12/afx2135486.html> (last visited Aug. 3, 2005).

135. Le Menestrel, *supra* note 134, at 11.

136. *Id.*

137. Dan Vergano, *The Debate's Over: Globe is Warming*, USA TODAY, June 13, 2006, at A1.

138. *Id.*

authorities and state governments across the United States, are currently engaged in initiatives to address global warming.<sup>139</sup> These examples are offered not to criticize or endorse any particular action, but rather to demonstrate that widespread activities of nongovernmental and subgovernmental actors play a critical role in how the precautionary principle or other laws of fear are implemented on the ground. Discussion of such concepts requires not only a focus on the vertical relationship between the regulators and the regulated, but also consideration of a whole range of horizontal and indirect horizontal relationships as well.

In sum, we felt that *Laws of Fear* did not adequately consider the role of institutions in the implementation of any laws of fear. In addition to influencing individual preferences, the manner in which institutions aggregate individual preferences is complex and open to a wide variety of possibilities and defects. Studies reveal, for instance, that group decision making can be more susceptible to heuristics and biases than individual decision making.<sup>140</sup> Proper implementation of laws of fear will require far more than curing individual irrationality.

### C. Value Matters

Our final category of concern with Sunstein's laws of fear is the failure to adequately account for the integration of values and distributional effects in decision making.<sup>141</sup> As Sunstein recognizes, individual fears and attitudes towards threats and risk are not based solely on scientific or statistical understanding of risks.<sup>142</sup> Rather, such attitudes or preferences are influenced significantly by individuals' cultural, social, and political beliefs and concerns. Thus, individual risk preferences are based on beliefs concerning what a given risk-producing activity is perceived to mean to an individual, whether what it means is acceptable to that individual, and how the underlying activity is perceived to impact society.<sup>143</sup>

One of the best supported frameworks for understanding risk preferences is the "cultural theory of risk preference."<sup>144</sup> Pursuant to cultural

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139. *Id.*

140. Norbert L. Kerr et al., *Bias in Judgment: Comparing Individuals and Groups*, 103 PSYCHOL. REV. 687, 692-93 (1996) (whether decision-making groups are more or less prone to bias than individuals is a complex issue without simple trends—group decision making can exacerbate or ameliorate bias in manners that are not yet understood); see Samuel Issacharoff, *Behavioral Decision Theory in the Court of Public Law*, 87 CORNELL L. REV. 671, 672-73 (2002) (noting the lack of experimental studies concerning how individual behavioral phenomena manifest themselves in complex institutional settings); Mandel, *supra* note 13, at 181.

141. Dan Kahan, Paul Slovic, Donald Braman, and John Gastil also review Sunstein's book and provide an exceptional account of the importance of considering cultural cognition and values in this context. Dan M. Kahan et al., *Fear of Democracy: A Cultural Evaluation of Sunstein on Risk*, 119 HARV. L. REV. 1071 (2006).

142. The following discussion draws from Mandel, *supra* note 13, at 144-47.

143. See generally Mary DOUGLAS & AARON WILDAVSKY, RISK AND CULTURE: AN ESSAY ON THE SELECTION OF TECHNOLOGICAL AND ENVIRONMENTAL DANGERS 8-10 (1982).

144. Mandel, *supra* note 13, at 144-47.

theory, individual cultural variation concerning risk preference is assessed along two dimensions: how strongly individuals should be bound by group membership and decisions, and the desired amount of and variety of prescriptions on individual action and behavior.<sup>145</sup> These two dimensions define four quadrants, each of which represents a different cultural worldview: hierarchist (prefers strong group boundaries and numerous prescriptions), egalitarian (prefers strong group boundaries but few prescriptions), individualist (prefers weak group boundaries and few prescriptions), and solidarist (prefers weak group boundaries and numerous prescriptions).<sup>146</sup>

Hierarchists support traditional and institutionalized authority and will support a risk-producing activity where it is backed by expert or official authority.<sup>147</sup> They are most fearful of risks related to social deviance or upsetting the social order, not of technological or environmental risks.<sup>148</sup> Egalitarians reject social stratification, favoring a culture of voluntary association and collective action.<sup>149</sup> They will oppose risks that are perceived to create human health or environmental threats without volition, or where they may have a disparate impact based on an individual's wealth, status, or power.<sup>150</sup> Individualists support individual autonomy and therefore will favor self-regulation and free markets; concomitantly, their greatest fear is market failure.<sup>151</sup> Solidarists perceive that individuals have little control over what happens to them, leading them to favor collective responsibility in the form of regulatory and social welfare programs for individual protection.<sup>152</sup>

The cultural theory of risk preference has been supported by a wealth of empirical studies and theoretical analysis.<sup>153</sup> The empirical

145. Aaron Wildavsky, *Choosing Preferences by Constructing Institutions: A Cultural Theory of Preference Formation*, 81 AM. POL. SCI. REV. 3, 6 (1987).

146. *Id.*

147. DOUGLAS & WILDAVSKY, *supra* note 143, at 138; Wildavsky, *supra* note 145, at 6–7.

148. Karl Dake, *Orienting Dispositions in the Perception of Risk*, 22 J. CROSS-CULTURAL PSYCHOL. 61, 66–67 (1991).

149. *Id.*

150. DOUGLAS & WILDAVSKY, *supra* note 143, at 139; Dan M. Kahan & Donald Braman, *More Statistics, Less Persuasion: A Cultural Theory of Gun-Risk Perceptions*, 151 U. PA. L. REV. 1291, 1297–98 (2003); Wildavsky, *supra* note 145, at 6–7, 14.

151. DOUGLAS & WILDAVSKY, *supra* note 143, at 138–39; Wildavsky, *supra* note 145, at 6, 14.

152. Kahan & Braman, *supra* note 150, at 1303; Wildavsky, *supra* note 145, at 6–7.

153. Dake, *supra* note 148, at 70–74 (concluding that cultural worldviews “are related pervasively and strongly with [thirty-six varied types of societal, technological, economic, and environmental] concerns”); Ellen Peters & Paul Slovic, *The Role of Affect and Worldviews as Orienting Dispositions in the Perceptions and Acceptance of Nuclear Power*, 26 J. APPLIED SOC. PSYCHOL. 1427, 1439 (1996) (finding that “the egalitarian [worldview] was strongly related to concerns about technology and the environment, while persons [with the hierarchical/solidarist] and the individualist [worldviews] . . . show far less concern about these same issues”); Wildavsky, *supra* note 145, at 13–15 (concluding that cultural theory better predicts and explains individual preferences concerning twenty-five technologies than various political theories, personality theories, economic theories, actual risk knowledge, or a range of demographic variables); see also *Risk Perception Research—An Introduction*, in CROSS-CULTURAL RISK PERCEPTION: A SURVEY OF EMPIRICAL STUDIES 11, 22, 38–40 (Ortwin Renn & Bernd Rohr-

studies find that cultural worldview is a better predictor of risk perception than many standard demographic characteristics, including political party affiliation, political orientation, gender, race, religion, geography, wealth, and education.<sup>154</sup>

These findings reveal that no cultural worldview is inherently risk-averse or risk-seeking in the abstract.<sup>155</sup> Rather, each worldview is concerned about particular types of risks. Each worldview is expected to be risk-averse with respect to the risks it is most concerned about, but risk-neutral or risk-seeking with respect to other risks. Sunstein provides apt examples of this phenomenon in discussing how different countries have strongly differing reactions to the same threats.<sup>156</sup>

We do not contend that cultural theory provides a complete or perfect framework for understanding risk perception. Its relatively absolutist approach to risk preferences is unrealistic; individuals cannot be neatly boxed in a four-worldview matrix (though recognizing multiple preference dimensions is an improvement over the traditional account of a single liberal-conservative continuum). Perhaps more critically, cultural theory fails to account enough for the influence of scientific knowledge on risk preferences and discourse. Greater scientific understanding certainly influences individual risk perception and preferences, even where it does not affect the cultural meaning of a certain action or activity.<sup>157</sup>

Nevertheless, cultural theory teaches a substantial amount about the subject of *Laws of Fear*.<sup>158</sup> Cultural theory reveals that even fully-actualized attitudes towards threats, risk, and fear are influenced by social, cultural, and political beliefs and concerns, not just risk statistics.<sup>159</sup> Relatedly, fear and risk preferences are functionalist in that individuals conform their views of an activity to how they value that activity, not

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mann eds., 2000) (compiling studies showing variations in risk perception among individuals from ten different countries).

154. Dan M. Kahan et al., *A Cultural Critique of Gun Litigation*, in *SUING THE GUN INDUSTRY: A BATTLE AT THE CROSSROADS OF GUN CONTROL AND MASS TORTS* 105, 112–13 (Timothy D. Lytton ed., 2005); Kahan & Braman, *supra* note 150, at 1298, 1305–08 (finding that “cultural orientation scales have a bigger impact on gun control attitudes than does any other demographic variable”); Dake, *supra* note 148, at 71–73; see Peters & Slovic, *supra* note 153, at 1447. *But see Risk Perception Research—An Introduction*, *supra* note 153, at 36 (citing studies, including Peters and Slovic, that did not find significant worldview influence).

155. See Kahan et al., *supra* note 154, at 110 (giving examples of how one’s worldview affects risk tolerance with respect to various issues).

156. SUNSTEIN, *supra* note 1, at 20–23. For example, Sunstein notes that Europe is more concerned about hormones in beef whereas the United States is more concerned about mad cow disease. *Id.* at 20.

157. Mandel, *supra* note 13, at 153–57.

158. See generally Kahan et al., *supra* note 154 (discussing the role of cultural cognition in risk perception and fear).

159. See *Risk Perception Research—An Introduction*, *supra* note 153, at 34–40 (recognizing that socio-psychological factors have substantial influence on risk perception and noting that despite cultural theory’s shortcomings, recognizing the influence of values and worldviews on risk perception is a major accomplishment).

simply the scientific risk profile of the activity.<sup>160</sup> Individual fears are integrated with value judgments about the activity causing the fear: “[certain] controversies over science and technology are struggles over meaning and morality, over the distribution of resources, and over the focus of power and control.”<sup>161</sup>

Because individual attitudes towards threats and fear depend significantly on values, any framework for responding to threats and fear that fails to provide a competent mechanism for dealing with differences in values is inadequate. Sunstein explicitly recognizes the importance of values in determining how society should respond to threats: “Of course the public’s values should ultimately play a large role.”<sup>162</sup> In accord, both his Anti-Catastrophe Principle and cost-benefit laws note that distributional effects should be considered.<sup>163</sup> But he fails to provide an explanation for how individual values, and most critically, differences in values, should be accounted for or incorporated into the analysis.

The question of how to incorporate values presents difficulties. Sunstein amply explains how numerous heuristics bias individual fears and willingness-to-pay metrics. These biases lead to “irrational” fears: overconcern about certain threats, underconcern about others.<sup>164</sup> The evidence Sunstein provides for these influences is the extent to which individual fears deviate from a scientific understanding of the underlying risk.<sup>165</sup> But recognizing the effect of cultural worldviews reveals that part of this deviation may be due to differences in values, rather than bounded rationality biases. Appropriately accounting for values (in a manner Sunstein approves<sup>166</sup>) requires teasing apart what portion of the difference between public fear of an activity and the statistical risk of the activity is due to rational judgment about values versus what portion is due to bounded rationality, a seemingly impossible task on a practical basis.<sup>167</sup>

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160. Dake, *supra* note 148, at 65.

161. Dorothy Nelkin, *Science Controversies: The Dynamics of Public Disputes in the United States*, in *HANDBOOK OF SCIENCE AND TECHNOLOGY STUDIES* 445 (Shiela Jasanoff et al. eds., 1995).

162. SUNSTEIN, *supra* note 1, at 2; *see also id.* at 126 (“Democratic governments should respond to people’s values . . .”); *id.* at 129, 147, 226.

163. *Id.* at 126, 147.

164. *Id.* at 36–49.

165. *Id.* at 36–53.

166. “In a democracy, people’s reflective values prevail. But values, and not errors of fact, are crucial.” *Id.* at 2; *see also* Cass R. Sunstein, *Cognition and Cost-Benefit Analysis*, 29 *J. LEGAL STUD.* 1059, 1078 (2000) (noting the need to distinguish between lay judgments that result from factual mistakes and those that result from value judgments).

167. As an example, consider genetically modified food. Are certain individuals fearful of genetically modified food for “improper” heuristic reasons due to the availability heuristic (caused perhaps by the StarLink corn fiasco), probability neglect (low risk of a large problem), and systems neglect (ignoring the hunger, nutritional, and environmental risks of not using genetically modified food), or are the same individuals fearful for “proper” value reasons, such as concerns about the impact of genetically modified crop use on small family farms and the industrialization and monopolization of agriculture?

Responding to threats of global warming, terrorism, and genetically modified food requires difficult and unavoidable choices about how to distribute costs, benefits, and risk among individuals, populations, and generations. It also requires tough and inescapable choices about what activities our society believes are valuable and permissible. Leaving these value decisions and debates to the margin (or tacking them on at the end) risks inconsequentialism.

Several times, Sunstein underscores the need for formulating societal responses to threats through a deliberative democratic process. “[W]ell-functioning governments aspire to be *deliberative democracies*,” he notes as the first rule of democratic government for responding to fear.<sup>168</sup> In Sunstein’s view, such deliberation will mitigate irrational fear. Cost-benefit analysis, however, may thwart deliberation in general, and deliberation about values in particular. Providing an initial cost-benefit result as a starting point will skew deliberation to that number and away from discussion of values that might support a different result.<sup>169</sup> Deliberation among individuals with differing values and fears, on the other hand, can lead individuals to better understand differing points of view.<sup>170</sup> The National Issues Convention, for example, brought together a national random sample of more than 400 U.S. citizens to spend four days in small group discussions on political issues including family policy, foreign policy, and economic policy.<sup>171</sup> A significant number of people changed their position on every one of the fifty-nine issues they were polled about as a result of their deliberation.<sup>172</sup> Further, the average position of all participants displayed a statistically significant shift on half of the position questions.<sup>173</sup> The Convention participants were not provided with a dictated starting point to work from (as Sunstein effectively proposes), but with materials on a variety of differing viewpoints, none of

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Further confounding the analysis, perhaps certain value judgments should not be incorporated, to the extent they promote values (for example, discrimination) that society considers inappropriate. Dan M. Kahan et al., *Gender, Race, and Risk Perception: The Influence of Cultural Status Anxiety* 30 (Yale Law Sch. Pub. Law, Working Paper No. 86, 2005), available at <http://ssrn.com/abstract=723762>.

168. SUNSTEIN, *supra* note 1, at 1.

169. Ackerman & Heinzerling, *supra* note 30, at 1567, 1583–84.

170. See Mandel, *supra* note 13, at 178–81 (discussing the role of dialogue and deliberation in resolving disputes over the use and regulation of various technologies).

171. Maxwell McCombs & Amy Reynolds, *Preface* to *THE POLL WITH A HUMAN FACE: THE NATIONAL ISSUES CONVENTION EXPERIMENT IN POLITICAL COMMUNICATION* ix, ix–x (Maxwell McCombs & Amy Reynolds eds., 1999).

172. James S. Fishkin & Robert C. Luskin, *Bringing Deliberation to the Democratic Dialogue*, in *THE POLL WITH A HUMAN FACE*, *supra* note 171, at 3, 25–27.

173. *Id.* at 25. Perhaps equally important for successful deliberative democracy, the Convention participants behaved in a manner conducive to productive dialogue and deliberation—both the participants and observers perceived that the participants showed respect for the opinions of others, listened to each other, and enjoyed talking to people with different backgrounds and political beliefs. Tom W. Smith, *The Delegates’ Experience*, in *THE POLL WITH A HUMAN FACE*, *supra* note 171, at 39, 46.



which served as a starting point.<sup>174</sup> Well-functioning democratic deliberation concerning value judgments requires freedom from initial anchors.

Deciding how to respond to complex, highly uncertain threats that are imbued with significant value considerations (such as terrorism, global warming, and genetically modified food) requires free democratic deliberation about social values and social meaning. This cause is not furthered by a cost-benefit analysis that produces a potentially manipulated starting point of minimal determinacy, that already appears to implement a given set of values, and that is prone to causing cognitive biases, perhaps eclipsing and rendering unnecessary the very deliberative democratic discussions that are necessary for society to determine how to handle fears, risks, and threats in the first instance.

#### *D. The Zambia Genetically Modified Corn Example*

Sunstein's own example of the Zambian government's refusal of U.S. corn aid helps illustrate concretely some of the difficulties we see in his laws of fear proposal. Sunstein rightly observes that Zambia rejected U.S. food aid because there was no way to guarantee that it was free of genetically modified corn produced substitute (and perhaps statistically greater) risks for Zambia's population, such as starvation.<sup>175</sup> Sunstein fails to take into account, however, the politics of food aid that also informed Zambia's decision. For Zambia, receiving food aid was not a long-term solution to their problem—the inability to produce crops for national demand or at profit. Their decision to reject the U.S. corn also was likely informed by a decision not to support the subsidization of corn farming in the United States, which floods world markets with cheap grain, effectively undermining the ability of low cost producers of corn in places like Zambia to profitably produce.<sup>176</sup> On this point, neighboring Zimbabwe also rejected corn aid that may have included genetically modified corn, in part because stringent regulation of genetically modified crops in Europe would frustrate Zimbabwe's future corn exports to Europe.<sup>177</sup>

Thus, whether there would be starvation if the grain aid were rejected was not the only threat or risk; decision makers also had to take into account the long-term interests of Zambian and Zimbabwean farmers who have to compete with subsidized foreign crops. The grain aid, for instance, may have undermined long-term solutions to food security for subsistence purposes within their local economy. Regarding Sun-

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174. See Fishkin & Luskin, *supra* note 172, at 11.

175. SUNSTEIN, *supra* note 1, at 31–32.

176. See, e.g., Alwyn Scott, *Agriculture Subsidies of U.S., EU Plant Seeds of Discord*, SEATTLE TIMES, Dec. 11, 2005, at F3.

177. See Rick Weiss, *Starved for Food, Zimbabwe Rejects U.S. Biotech Corn*, WASH. POST, July 31, 2002, at A12 (noting in part the hindrance of future exports of corn to Europe as a possible reason for the Zimbabwe government's rejection of food aid, including genetically modified corn).

stein's analysis, it is also worth noting that Zambia's rejection of U.S. crops did not exhaust their alternatives—other solutions to the problem were available.<sup>178</sup> Further, Africa has a high acreage of biotechnology crops and is seeking more technology transfer to build on this capacity.<sup>179</sup> Success along the latter lines would reduce dependence on aid handouts and create a sustainable solution to hunger and possibly poverty.<sup>180</sup> Thus it is inappropriate to pose the issue as simply a choice between receiving food aid to help starving Zambians and rejecting food aid because the food might contain genetically modified components.

The Zambian aid denial must also be viewed from their perception of the relationship concerning biotechnology between northern industrial countries and southern largely agrarian countries. Developing countries have argued that the strong patent rights of biotechnology seed companies compensates and encourages only patent holders in industrialized countries.<sup>181</sup> By contrast, the extraterritorial protection of the patent rights of huge seed companies by industrialized countries leaves the knowledge and innovation of developing country farmers vulnerable and underprotected. Under this conceptualization, the knowledge and innovation of developing country farmers is vulnerable because it is capable of being appropriated by large biotechnology seed companies and transformed into patent protection, and transfers of knowledge from the rich biodiversity resources of developing countries goes unrewarded under the current regimes of intellectual property rights.<sup>182</sup> Developing countries like Zambia take issue with the lopsided nature of contemporary intellectual property regimes to the extent that indigenous expertise and biodiversity resources are underprotected relative to the rewards that accrue to commercial interests of biotechnology seed companies.<sup>183</sup>

The analysis of the Zambian food aid scenario reveals difficulties with Sunstein's Anti-Catastrophe Principle and cost-benefit analysis. Sunstein's exhortation that laws of fear should be evaluated on a wide screen in consideration of all risks obscures the fact that one is rarely

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178. SUNSTEIN, *supra* note 1, at 31–32.

179. Press Release, Europa Bio, Delegation of Developing Country Scientists and Farmers Visit Europe to Give Their Views on Plant Biotechnology (Jan. 29, 2003), available at [http://archives.foodsafetynetwork.ca/agnet/2003/1-2003/agnet\\_january\\_30-2.htm](http://archives.foodsafetynetwork.ca/agnet/2003/1-2003/agnet_january_30-2.htm).

180. See, e.g., JEFFREY SACHS, THE END OF POVERTY: ECONOMIC POSSIBILITIES FOR OUR TIME 233–36 (2005) (discussing sustainable solutions to poverty in Africa).

181. Keith Aoki, *Weeds, Seeds & Deeds: Recent Skirmishes in the Seed Wars*, 11 CARDOZO J. INT'L & COMP. L. 247, 308–11 (2003).

182. See Vandana Shiva, *Farmers' Rights and the Convention on Biological Diversity*, in *BIODIPLOMACY: GENETIC RESOURCES AND INTERNATIONAL RELATIONS* 107, 109–10 (Vicente Sanchez and Calestous Juma eds., 1994); see also Keith Aoki, *Malthus, Mendel and Monsanto: Intellectual Property and the Law and Politics of Global Food Supply: An Introduction*, 19 (2) J. ENVTL. L. & LITIG. 397, 413 (2004); Aoki, *supra* note 181, at 257–59 (2003); Ikechi Mgbeoji, *Patents and Traditional Knowledge of the Uses of Plants: Is a Communal Patent Regime Part of the Solution to the Scourge of Bio Piracy?*, 9 IND. J. GLOBAL LEGAL STUD. 163, 167 (2001).

183. See Abdulqawi Yusuf, *Technology and Genetic Resources: Is Mutually Beneficial Access Still Possible?*, in *BIODIPLOMACY: GENETIC RESOURCES AND INTERNATIONAL RELATIONS*, *supra* note 182, at 233–34.

aware of *all risks*. Similarly, the Zambian example underscores the importance of institutions and values in operationalizing laws of fear. Zambia's decision depended on complex institutional relationships within its own government and with the United States and Europe; it also depended on complex value considerations regarding food security, trade, starvation, and other alternatives. We do not know whether it was irrational for Zambia to reject the U.S. food aid. But we do know that to answer this question, one would have to examine not only the issues of scientific risks that may be posed by such food aid and hunger, but also the integrally intertwined issues of food security, intellectual property rights, biodiversity resources, international trade, and other geopolitical considerations as well.

Sunstein's attempt to construct laws of fear is a valiant effort at an extremely difficult and important challenge, but one that we believe falls short in the end. It may be that fear and threats are so diverse and imbued with social meaning that the best we can achieve are partially applicable general standards and norms, not precise laws of fear.

#### IV. RECONSTRUCTING THE PRECAUTIONARY PRINCIPLE?

As stated in the Introduction, we believe that Sunstein's critiques of what he defines as the weak and strong versions of the precautionary principle are impressive. He argues convincingly that strong versions are simply incoherent and provide no rule of decision, particularly where risk assessments are limited by scientific uncertainty.<sup>184</sup> In such application, he argues that regulating to safeguard health, safety, and environmental risks would work to paralyze scientific progress, including new and useful inventions,<sup>185</sup> as well as limit existing technologies "that make human lives easier, more convenient, healthier, and longer."<sup>186</sup>

We think there is, however, a significant gap in Sunstein's deconstruction. He limits his analysis to particular, self-selected weak and strong versions of the precautionary principle,<sup>187</sup> and does not evaluate moderate versions of the precautionary principle. Moderate versions can recognize the precautionary principle as a statement of a norm, or pare down a strong version into a form that is based more upon risk, dominated by science, and cost-sensitive.<sup>188</sup> These medium versions are more

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184. SUNSTEIN, *supra* note 1, at 14–15.

185. *Id.* at 24.

186. *Id.* at 25.

187. In fact, the strong version that Sunstein discusses may be somewhat of a red herring. There are few, if any, actual examples of the strong precautionary principle holding up new innovations or radically scaling back on established comforts (though we agree that strong forms are stated and claimed in various manners).

188. See John S. Applegate, *The Taming of the Precautionary Principle*, 27 WM. & MARY ENVTL. L. & POL'Y REV. 13 n.6, 15, 34 (2002); see also John S. Applegate, *The Prometheus Principle: Using the Precautionary Principle to Harmonize the Regulation of Genetically Modified Organisms*, 9 IND. J. GLOBAL LEGAL STUD. 207, 241–44 (2001).

than weak-form truisms, but do not suffer from strong-form incoherence. It is these visions that we consider in the following discussion.

Sunstein treats the precautionary principle as a criterion for decision making that must give policy makers concrete and specific guidance in real cases. Instead of viewing the precautionary principle as dictating strict rules for action, however, it is also possible to view it as providing hortatory or recommendatory principles. From this vantage point, rather than providing a precise rule of decision, the principle is a soft norm that is not binding on decision makers. In this context, the principle is a statement of values, not a binding legal obligation.<sup>189</sup>

Viewed this way, the principle may function best in the face of uncertain risks by providing guidance to governmental and other actors in at least two respects. First, the principle recommends that, in the face of risks and absence of full scientific information about the probability of such risks, as much information as possible be provided to decision makers and to the public in advance of a decision.<sup>190</sup> Seen this way, the principle provides inspiration for alerting ourselves to risks that, though not immediately catastrophic, may nevertheless become catastrophic in the future. The opportunity provided by seeking as much information as possible, particularly by those forecasting certain risks not immediately known, in turn helps to overcome cognitive and other biases that Sunstein worries about.<sup>191</sup> From this perspective, the principle is an open-ended transparency or process safeguard that does not require any particular regulatory result. We expect that Sunstein would support this preference for information gathering and dissemination in general.

The second respect in which a moderate/soft-norm precautionary principle can provide guidance is the manner in which it can be adopted within “policy and political discourse”<sup>192</sup> to frame discussions about the impact of certain technologies and products on human health and the

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189. See PATRICIA BIRNIE & ALAN BOYLE, *INTERNATIONAL LAW AND THE ENVIRONMENT* 120 (2d ed. 2002); James Cameron & Juli Abouchar, *The Status of the Precautionary Principle in International Law*, in *THE PRECAUTIONARY PRINCIPLE AND INTERNATIONAL LAW: THE CHALLENGE OF IMPLEMENTATION* 265 (David Freestone & Ellen Heys eds., 1996); PHILIPPE SANDS, *PRINCIPLES OF INTERNATIONAL ENVIRONMENTAL LAW* 272–75 (2003). Birnie and Boyle define the precautionary principle as follows:

[S]tates cannot rely on scientific uncertainty to justify inaction when there is enough evidence to establish the possibility of a risk of serious harm, even if there is as yet no proof of harm. . . . [I]n determining whether and how far to apply “precautionary measures,” states [may take into account] their capabilities, their economic and social priorities, the cost effectiveness of preventive measures, and the nature and degree of the environmental risk.

BIRNIE & BOYLE, *supra*, at 120.

190. The 1992 Rio Declaration defines the precautionary principle as follows: “Where there are threats of serious or irreversible damage, lack of full scientific certainty shall not be used as a reason for postponing cost-effective measures to prevent environmental degradation.” Rio Declaration on Environment and Development, 14 June 1992, UN Doc. A/Conf. 151/25 (1992), *reprinted in* 31 I.L.M. 876 (1992) at Principle 15.

191. See David A. Dana, *A Behavioral Economic Defense of the Precautionary Principle*, 97 NW. U. L. REV. 1315, 1327–31 (2003).

192. *Id.* at 1329.

environment. By providing a language in which the issues of environmental and health impacts can be considered alongside other priorities, the precautionary principle helps form part of the discursive terrain on which inextricably linked issues of costs and benefits of new and improved technologies, on the one hand, and their impacts on the environment and human health, on the other, get discussed. In a sense, the precautionary principle injects the democratic preferences of citizens within discussions often framed primarily by an economic logic of benefits and costs. In appropriate cases, the decision makers may be persuaded to take protective measures notwithstanding scientific uncertainty of the risk posed by certain conduct, while paying attention to questions of costs and benefits and the full screen of risks posed by taking such protective measures.

As a soft norm, the precautionary principle does not require a predetermined threshold of risk to be triggered, nor does it necessarily require the proponent of a measure to produce scientific proof of safety and efficacy. In short, the principle can serve simultaneously to provide a *process* and *opportunity* of calling health and environmental risks to our attention without predetermining any particular outcome. As a principle rather than as a rule, it helps guide the discretionary powers of decision makers.

A recent study of actual application of European Union environmental principles, including the precautionary principle, concluded that the status of the principle was “subtler than more simplistic views, which presents the principles as, on the one hand, no more than political statements, or on the other as a binding set of legal norms, which must be respected at all times.”<sup>193</sup> The results of the actual application of the precautionary principle in Europe are analogous to our discussion of the precautionary principle as a soft norm. Indeed, as the lead chapter of the study notes, European Union environmental principles such as the precautionary principle are “essentially exhortatory statements not intended in themselves to be legally enforceable, though they may colour the interpretation of other duties.”<sup>194</sup>

The application of the precautionary principle in the European Union is also tempered by the fact that it must be balanced against the application of other (sometimes conflicting) principles, not to mention binding norms.<sup>195</sup> For example, precautionary measures ought to meet

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193. Richard Macrory, *Principles in Practice*, in *PRINCIPLES OF EUROPEAN ENVIRONMENTAL LAW* 8 (Richard Macrory et al. eds., 2004).

194. *Id.* at 5. The chapter argues that “environmental principles are only likely to have real legal bite where they are referred to in more detailed national environmental legislation or in policy documentation. In a number of countries, they can be described as only implicitly affecting the structure and content of environmental laws as in Denmark.” *Id.* at 7.

195. In the EU context, the precautionary principle is not regarded as a binding legal norm. See Gerd Winter, *The Legal Nature of Environmental Principles in International, EC and German Law*, in *PRINCIPLES OF EUROPEAN ENVIRONMENTAL LAW*, *supra* note 193, at 21.

the requirements of the principle of proportionality, which requires that “measures adopted by the Community institutions should not exceed what is appropriate and necessary in order to attain the legitimate objectives pursued by the measures in question . . . .”<sup>196</sup> Proportionality also requires that where a less onerous alternative exists, it is the best alternative to adopt. In *Pfizer*, a case widely acknowledged as authoritatively stating European Union law, the European Union Court of First Instance included cost-benefit analysis as an element of proportionality in assessing whether the withdrawal of an antibiotic was appropriate to achieve the stated animal and human health objectives.<sup>197</sup> Such an analysis had to be undertaken prior to the adoption of measures such as the withdrawal of antibiotics from the European Union market.<sup>198</sup> In *Pfizer*, the withdrawal of the antibiotic was upheld, although there was no scientific proof of the link between antibiotics as growth promoters and the development of resistance in humans.<sup>199</sup> Nevertheless, the *Pfizer* court took into account that such a link was “corroborated by a certain amount of reliable scientific data” and that it was therefore “for the council, on a proposal from the Commission, to exercise its discretion and assume its political responsibilities in the face of a particularly complex and delicate situation.”<sup>200</sup> Thus, although risk assessment must meet the requirements of excellence, independence, and transparency, European Union institutions are not prevented “from taking preventive measures, at very short notice if necessary, when such measures appear essential given the level of risk to human health which the authority has deemed unacceptable for society.”<sup>201</sup> However, even though the political organs of the Union have discretion to so act even in the absence of scientific proof, the European Court of Justice can review such decisions if they do not meet the test of reasonableness—whether the “exercise of such discretion is vitiated by a manifest error or misuse of powers or whether the Community institutions clearly exceeded the bounds of their discretion.”<sup>202</sup> For example, Community institutions cannot promulgate a measure that is predicated on “purely hypothetical risk” or a zero-tolerance approach to risk.<sup>203</sup>

It is in this sense that Joanne Scott argues that the precautionary principle does not justify regulation absolutely, but only contingently or

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196. Joanne Scott, *The Precautionary Principle before the European Courts*, in PRINCIPLES OF EUROPEAN ENVIRONMENTAL LAW, *supra* note 193, at 62.

197. Case T-13/99, *Pfizer Animal Health v. Council*, 2002 E.C.R. II-3305, ¶ 410.

198. *Id.* at II-3457. Other constraints in this regard include the requirement of scientific risk assessment. See Scott, *supra* note 196, at 64.

199. *Pfizer*, 2002 E.C.R. at II-3337–39, II-3375.

200. *Id.* at II-3468, ¶ 443.

201. *Id.* ¶ 160. In addition, the scientific evidence upon which decisions are made “must be taken in light of the best scientific information available and be based on the most recent results of international research.” Scott, *supra* note 196, at 61.

202. *Pfizer*, 2002 E.C.R. at II-3305, ¶ 406.

203. *Id.* ¶ 143.

conditionally.<sup>204</sup> Her extensive analysis of European Union case law specifically responds to Sunstein's critique of the precautionary principle and concludes that as applied by the courts, it "would seem unlikely" that the principle "will threaten the paralysis in the manner feared by Cass Sunstein."<sup>205</sup> Indeed, if we conceptualize the principle as simply a soft norm that creates space for political actors to take into account and "exercise their judgment with respect to risk,"<sup>206</sup> then the arbitrary use of the strong principle that Sunstein is so critical of is largely allayed. The role of institutions in application of the precautionary principle in Europe is critical to understanding the framework and is illustrative of how moderate, soft-norm versions of the principle may be applied rationally.

This is not to argue that the European Union's application of the precautionary principle has been problem free. One of the potential problems arises from conclusory statements of European courts suggesting, though not requiring, that the precautionary principle was mandatory rather than permissive.<sup>207</sup> To the extent that the case law has not actually resulted in enhancing the precautionary principle to give it a bite more than its soft-norm nature, this is not a reason to worry about its judicial transformation into a strong form that Sunstein is rightly concerned about. An even bigger problem arises in relation to the European Union's aggressive use of environmental and health regulations, without the sufficiency of risk assessment or probability of risk assessments required under European Union law, in its relations with other (particularly developing) countries.<sup>208</sup> In these respects, the European Union's application of the precautionary principle should not be taken as a model of the principle as a soft norm.

One check on the European Union's use of environmental and health standards to keep certain products out of its market without the kind of risk assessment necessary to justify such standards is WTO law. WTO law arguably incorporates the precautionary principle indirectly as a soft norm in Article 5.7 of the SPS Agreement, which allows WTO members to take *temporary measures* where science is insufficient to

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204. Scott, *supra* note 196, at 60.

205. *Id.* at 64.

206. *Id.* at 62.

207. *Id.* at 53.

208. Certain European Union regulations have resulted in keeping cut flowers and other plant products, particularly from sub-Saharan Africa, out of the European Union market. Take the example of regulations on minimum residue levels (MRLs) for cut flowers from Kenya and other African producers. The stringency of the EU's phytosanitary measures or MRLs have made the import of cut flowers and plants more time-consuming, costly, and bureaucratic, yet the EU has predicated these zero-tolerance policies on insufficient scientific evidence. Unfortunately, African producers have little market power or leverage to use against the EU's adoption of these regulations. These countries fear that they will lose the preferential access some of their products have into the EU if they contest the legality of these measures. See James Gathii, *A Critical Appraisal of the NEPAD Agenda in Light of Africa's Place in the World Trade Regime in an Era of Market Centered Development*, 13 *TRANSNAT'L L. & CONTEMP. PROBS.* 179, 204-10 (2003).

permit risk assessment.<sup>209</sup> The temporariness of the measures that are permitted acknowledges the fact that countries must continue to seek scientific information to justify maintaining such measures on a long-term basis.<sup>210</sup> Since the *Hormones* decision, the European Union is moving towards case-by-case risk assessment to avoid permanent moratoriums where there is scientific uncertainty.<sup>211</sup> However, by virtue of the disparity in bargaining power between developing countries and the European Union, it is unlikely that a WTO solution, even if theoretically available, will result in the European Union lowering certain barriers to trade.

Similarly supporting the use of the precautionary principle as a soft norm under the SPS Agreement, a confidential panel report on the EC-Canada genetically modified organisms (GMOs) dispute has held that the authority to undertake provisional measures under Article 5.7 of the SPS Agreement is not an exception to the requirements of risk assessment or sufficiency of scientific evidence.<sup>212</sup> In this case, Canada, the United States, and Argentina challenged the European Union's moratorium on GMOs based in part on insufficient scientific evidence of risks.<sup>213</sup> The panel held that the lack of a risk assessment ineluctably means that

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209. The status of the precautionary principle under WTO law is also arguably a soft norm. This is reflected in the Ministerial Statement following the Doha meeting of WTO Trade Ministers in which it was stated that the Ministers were "convinced that the aims of upholding and safeguarding an open and nondiscriminatory multilateral trading system, and acting for the protection of the environment and the promotion of sustainable development can and must be mutually supportive." See WTO, Doha Ministerial Declaration (Nov. 14, 2001), available at [http://www.wto.org/english/thewto\\_e/minist\\_e/min01\\_e/mindecl\\_e.htm](http://www.wto.org/english/thewto_e/minist_e/min01_e/mindecl_e.htm) ¶ 6. The opposition of the United States and a small group of countries prevented the principle's exact status from being acknowledged in the Declaration.

210. Similarly, Article 11.8 of the Cartagena Biosafety Protocol in part provides that [l]ack of scientific certainty due to insufficient scientific information and knowledge regarding the extent of the potential adverse effects of a living modified organism on the conservation and sustainable use of biodiversity in the Party of import, taking also into account risks to human health, shall not prevent that party from taking a decision, as appropriate . . . to avoid or minimize such potential adverse effects. Convention on Biological Diversity, Cartagena Protocol on Biosafety, at Article 11: Procedure for Living Modified Organisms Intended for Direct Use as Food or Feed, or for Processing, <http://www.biodiv.org/biosafety/articles.asp?a=bsp-11>.

211. See Marc L. Busch & Robert Howse, *A (Genetically Modified) Food Fight: Canada's WTO Challenge to Europe's Ban on GM Products*, C.D. Howe Institute, Commentary No. 186, Sept. 2003, at 4, <http://www.cdhowe.org>.

212. See Interim Reports of the Panel, *European Communities—Measures Affecting the Approval and Marketing of Biotech Products*, WT/DS291/Interim, WT/DS292/Interim, WT/DS293/Interim ¶ 4.265 (Feb. 7, 2006), available at [http://www.foei.org/media/2006/WTO\\_report\\_descriptive.pdf](http://www.foei.org/media/2006/WTO_report_descriptive.pdf) (noting that "Article 5.7 'operates as a qualified exemption from the obligation under Article 2.2 not to maintain SPS measures without sufficient scientific evidence'" and that it "does not exist as an option that can be freely chosen . . ."); see also Press Release, *Leaked WTO report: US misled world on "victory"* (Feb. 28, 2006), available at [http://www.foe.co.uk/resources/press\\_releases/leaked\\_wto\\_report\\_us\\_misle\\_28022006.html](http://www.foe.co.uk/resources/press_releases/leaked_wto_report_us_misle_28022006.html).

213. See Interim Reports of the Panel, *supra* note 212, ¶ 4.634 (Canada challenged the EU's failure to submit risk assessment evidence in relation to the five safeguard measures it had imposed.); *id.* ¶ 4.816 (The United States challenged the EU's lack of scientific proof in supporting its measures.); *id.* ¶ 4.657 (Argentina opposed the EU's lack of scientific evidence.).



there was insufficient evidence of risk.<sup>214</sup> The report also indicates a preference towards making WTO member countries operate transparently and accountably in making risk-assessment decisions.<sup>215</sup> Similarly, the evolving nature of European institutions, particularly in their adoption of due process guarantees to strengthen the transparency and accountability of their permission system to import goods into Europe and also by ensuring that decisions made are predicated on scientific principles and evidence, is only possible because of the belief in the precautionary principle as embodying certain values.<sup>216</sup> Here then, the precautionary principle becomes less a precise guide for action than an inspiration towards certain types of conduct that reflect particular value choices.

The SPS Agreement appears to take this intermediate or soft-law approach to the precautionary principle. It does not require WTO members to attain any level of sanitary or phytosanitary measures, either high, low, or otherwise.<sup>217</sup> Instead, the WTO requires members only to ensure that such regulations are necessary to attain a chosen level of safety and that they be based on a risk assessment in accordance with Article 5.1 of the SPS Agreement.<sup>218</sup> Thus the whole question of “how safe is safe” is left to the political judgment of WTO members.<sup>219</sup>

In this respect, one of the difficulties of Sunstein's laws of fear is that they foreground risk assessment and cost-benefit analysis, while they keep the social or political management of risk in the background. The proposals for assessing risk are based on overdisciplining the political and regulatory process and leaving extremely limited room for political management of risk. Such political management is crucial, for without it there would be little political support for precaution in the first instance. Institutional discretion is necessary. As Daniel Farber has argued in this context, building “high walls against the exercise of discretion” in such cases “may well prove unsuccessful.”<sup>220</sup> Ultimately, in light of the divisiveness and polarization associated with regulating safety and related

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214. *Id.* ¶ 4.576 (The panel noted that scientific evidence is insufficient if it does not allow the performance of risk assessment, indicating the lack of risk assessment inevitably implies lack of scientific evidence.).

215. See New Jewels Buried in 1000+ Pages GMO, International Economic Law and Policy Blog, [http://worldtradelaw.typepad.com/ielpblog/2006/03/new\\_jewels\\_buri.html](http://worldtradelaw.typepad.com/ielpblog/2006/03/new_jewels_buri.html).

216. Busch & Howse, *supra* note 211, at 3–4 (explaining that it was not so much the scientific basis upon which the overwhelming European public opposition to GM products, which resulted in the European ban on GM products, that was at issue in the U.S. lead case against the EC in the WTO. Rather, the question presented was whether the ban was justified “given the scientific knowledge and methodologies currently available for assessing the risks posed by individual GMOs on a case-by-case basis.”).

217. See The WTO Agreement on the Application of Sanitary and Phytosanitary Measures, *supra* note 119, art. 2.

218. *Id.* art. 5.1.

219. Daniel A. Farber, *The Case Against Clarity*, in *THE POLITICAL ECONOMY OF INTERNATIONAL TRADE LAW 576* (Daniel L.M. Kennedy & James D. Southwick eds., 2002).

220. *Id.* at 577.

issues, having clear prohibitions in rules such as the SPS Agreement or in domestic regulations would limit negotiation and bargaining concerning precisely the virtues that a soft or hortatory conception of the precautionary principle would advantageously promote. Such regulation in the context of sharply differing views of the stakes, however, might ideally be implemented through voluntary compliance, negotiation, compromise, or bargaining, as is now widely acknowledged in both the domestic and international context.<sup>221</sup>

## V. CONCLUSION

Sunstein's *Laws of Fear* is a significant and rewarding contribution to the debate over how to confront threats of all variety. In particular, it breaks new ground in the ongoing dialectic pitting the precautionary principle against cost-benefit analysis as primary frameworks for responding to risk. Sunstein's critique of weak and strong forms of the precautionary principle is powerful and devastating.

We were less convinced by Sunstein's proposed laws of fear—a set of recommendations to replace the precautionary principle. We found his laws of fear evocative and well-defended, but limited in scope. The caveats and limitations that hedge the laws of fear inhibit their application to the broad range of threats he discusses in the book. In addition, Sunstein says little or nothing about the role of institutions in responding to threats, yet institutional and organizational factors will invariably influence the operation of the proposed laws of fear. Finally, though Sunstein clearly notes the importance of values and distributional effects in societal threat decisions, the laws of fear lack a method for taking these factors into account. Sunstein promotes the chief advantage of cost-benefit analysis over the precautionary principle as its “wide rather than narrow viewscreen.”<sup>222</sup> Our discussion reveals that this viewscreen may not actually be so wide, and it may not be applicable to many risks. This being the case, it is worth revisiting the precautionary principle.

It may be fruitful to borrow the strong points of Sunstein's laws of fear to argue in favor of a moderate form of the precautionary principle as a soft norm, rather than as a precise rule. The precautionary principle understood as a soft norm would serve to provide a process and opportunity of calling uncertain health and environmental risks to attention without predetermining any particular outcomes. Seen this way, the principle's purpose would be to guide the discretionary powers of decision makers. Thus its role would not be to justify regulation absolutely, but only contingently or conditionally. Its application would be contin-

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221. ABRAM CHAYES & ANTONIA HANDLER CHAYES, *THE NEW SOVEREIGNTY: COMPLIANCE WITH INTERNATIONAL REGULATORY AGREEMENTS* 3–10 (1995); JERRY L. MASHAW, *GREED, CHAOS AND GOVERNANCE: USING PUBLIC CHOICE TO IMPROVE PUBLIC LAW* 140–48 (1997).

222. SUNSTEIN, *supra* note 1, at 130.

gent and conditional because it would be preceded by an awareness of as full a screen of all risks on all sides as possible, as well as paying attention to issues of costs, benefits, values, and distributional effects. Our proposal may not provide the precise guidance or results Sunstein desires, but a system as complex as the universe of real-world threats may not be susceptible to such precision; in this situation, the soft norm of a moderate precautionary principle may provide the optimal level of guidance achievable.

