

WINDMILLS AND HOLY GRAILS

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INTRODUCTION

Professor Pierce suggests that skeptics of cost-benefit analysis (“CBA”) ought to stop “tilting at windmills.” But, for me, the medieval metaphors come to mind in connection with CBA itself. As I see it, by imposing a formal CBA requirement on agency rulemaking, Presidents of both parties have, for decades, been tilting at the windmills of inefficient and wasteful regulation by chasing the holy grail of a measuring rod for efficiency.

Professor Pierce creates the impression that there is a widespread consensus in support of cost-benefit analysis (“CBA”) across all three branches of government that includes “all nine Justices of the Supreme Court” and even the most liberal members of Congress.¹ This is a misleading picture, but to understand why, it is important to define some key terms. CBA comes in many varieties, from an informal, intuitive weighing of qualitatively described pros and cons to a highly formal mathematical assessment grounded in welfare economics. Only the most formal of these approaches typically draw criticism from skeptics.² Additionally, consideration of costs can refer to a broad array of regulatory assessment methods that includes, but is not limited to, CBA.³ While there is a discernable pull toward the more formal

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1. Richard J. Pierce, Jr., *The Regulatory Budget Debate*, 19 N.Y.U. J. LEGIS. & PUB. POL’Y 249, 250 (2016).

2. Amy Sinden, *Formality and Informality in Cost-Benefit Analysis*, 2015 UTAH. L. REV. 93.

3. Amy Sinden, A “Cost-Benefit State?” Reports of Its Birth Have Been Greatly Exaggerated (Apr. 1, 2016) (unpublished manuscript) (on file with the *New York University Journal of Legislation and Public Policy*); see also E.J. MISHAN & EUSTON QUAH, *COST-BENEFIT ANALYSIS* 8 (5th ed. 2007) (distinguishing between CBA and cost-effectiveness analysis); Michael A. Livermore & Richard L. Revesz, *Rethinking*

and controversial varieties of CBA in the executive branch, the other two branches have taken a distinctly different view.⁴ Congress and the federal courts have frequently rejected calls for CBA, and when they have endorsed CBA, it has usually been of a less formal variety.⁵ Indeed, in its recent decisions on the subject, the Supreme Court has expressed considerable skepticism about more formal varieties of CBA.⁶

Thus, formal CBA of the kind called for in the executive orders,⁷ and which Professor Pierce appears to defend,⁸ continues to generate considerable controversy within and outside government. And for good reason. The literature critiquing this form of analysis is vast and deep.⁹ It has identified a number of fundamental theoretical difficulties with formal CBA and the normative standard of Kaldor-Hicks ef-

Health-Based Environmental Standards, 89 N.Y.U. L. REV. 1184, 1190 (2014) (explaining the distinction between CBA and feasibility standards, both of which involve considering costs).

4. Sinden, *supra* note 2.

5. *Id.*

6. *See infra* notes 39–53 and accompanying text.

7. Most agencies perform CBA not pursuant to any statutory command, but under a set of executive orders that require federal agencies to perform CBA on all “major” regulations (for example, those costing at least \$100 million per year). *See* Exec. Order No. 12,866 § 3(f)(1), 3 C.F.R. 638, 641 (1993), *reprinted in* 5 U.S.C. § 601 app. at 89–93 (2014); *see also* Exec. Order No. 13,563 § 6(b), 3 C.F.R. 215, 217 (2012), *reprinted in* 5 U.S.C. § 601 app. at 103–04 (2014).

8. Pierce, *supra* note 1, at 251–57.

9. *See, e.g.*, FRANK ACKERMAN & LISA HEINZERLING, PRICELESS: ON KNOWING THE PRICE OF EVERYTHING AND THE VALUE OF NOTHING (2004); ELIZABETH ANDERSON, VALUE IN ETHICS AND ECONOMICS 55–59 (1993); THOMAS O. MCGARITY, REINVENTING RATIONALITY: THE ROLE OF REGULATORY ANALYSIS IN THE FEDERAL BUREAUCRACY 134 (1991); MARK SAGOFF, THE ECONOMY OF THE EARTH: PHILOSOPHY, LAW, AND THE ENVIRONMENT 1–7 (1988); SIDNEY A. SHAPIRO & ROBERT L. GLICKSMAN, RISK REGULATION AT RISK: RESTORING A PRAGMATIC APPROACH 32 (2003); David M. Driesen, *The Societal Cost of Environmental Regulation: Beyond Administrative Cost-Benefit Analysis*, 24 ECOLOGY L.Q. 545, 579 (1997); John K. Horowitz & Kenneth E. McConnell, *A Review of WTA/WTP Studies*, 44 J. ENVTL. ECON. & MGMT. 426, 426–47 (2002); Jack L. Knetsch, *Environmental Policy Implications of Disparities Between Willingness to Pay and Compensation Demanded Measures of Values*, 18 J. ENVTL. ECON. & MGMT. 227, 227–37 (1990); Douglas A. Kysar, *Discounting . . . on Stilts*, 74 U. CHI. L. REV. 119, 119–20 (2007); Sidney A. Shapiro & Christopher H. Schroeder, *Beyond Cost-Benefit Analysis: A Pragmatic Reorientation*, 32 HARV. ENVTL. L. REV. 433 (2008); Amy Sinden, *In Defense of Absolutes: Combating the Politics of Power in Environmental Law*, 90 IOWA L. REV. 1405 (2005); *see also* Richard L. Revesz, *Environmental Regulation, Cost-Benefit Analysis, and the Discounting of Human Lives*, 99 COLUM. L. REV. 941, 955–86 (1999). For some early critiques, *see* ARTHUR SMITHIES, THE BUDGETARY PROCESS IN THE UNITED STATES 344–46 (1955); Robert Dorfman, *Forty Years of Cost-Benefit Analysis*, in ECONOMETRIC CONTRIBUTIONS TO PUBLIC POLICY 268 (Richard Stone & William Peterson eds., 1978).

ficiency that it purports to measure,¹⁰ most of which remain unresolved. But even putting these theoretical objections aside, in practice, attempting to measure efficiency using formal CBA is—to quote Justice Breyer—a “futile” pursuit.¹¹

I.

MORE THAN ONE WAY TO SKIN A CAT

Agencies employ a broad variety of techniques in setting and evaluating regulations, all of which involve considering costs in some way.¹² But that can mean many different things. Sometimes it means conducting CBA of some kind—that is, weighing and comparing the costs and benefits of a regulation. But it can also mean engaging in analytical techniques that are quite distinct from CBA.

One of these techniques is cost-effectiveness analysis, which takes a single regulatory goal or endpoint (for example, saving one human life) and compares the costs of reaching that goal under various regulatory alternatives.¹³ Rather than comparing overall social costs directly to overall social benefits, as in CBA, this technique simply compares the costs of various alternative methods for achieving a single regulatory benefit.¹⁴ Another technique is feasibility analysis. This is a standard-setting tool that considers only the costs of regulation.¹⁵ Rather than weighing costs against benefits, as in CBA, the agency sets the standard at the most stringent level that is technologically and economically feasible.¹⁶

10. Formal CBA that is grounded in welfare economics is usually understood as measuring Kaldor-Hicks efficiency. A government regulation is “efficient” in the Kaldor-Hicks sense if those who stand to benefit from the regulation could fully compensate those who stand to lose from it and still be better off. ANTHONY E. BOARDMAN ET AL., *COST-BENEFIT ANALYSIS: CONCEPTS AND PRACTICE* 32 (4th ed. 2011).

11. *Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208, 235 (2009) (Breyer, J., concurring in part and dissenting in part).

12. Amy Sinden, *Cost-Benefit Analysis*, in *ENCYCLOPEDIA OF ENVIRONMENTAL LAW: ENVIRONMENTAL DECISION MAKING* (Robert L. Glicksman et al. eds.) (forthcoming 2016).

13. See, e.g., MISHAN & QUAH, *supra* note 3, at 8; ENVTL. PROT. AGENCY, NAT’L CTR. FOR ENVTL. ECON., *GUIDELINES FOR PREPARING ECONOMIC ANALYSES*, at xi (2014) [hereinafter *GUIDELINES*], [http://yosemite.epa.gov/ee/epa/erm.nsf/vwAN/EE-0568-50.pdf/\\$file/EE-0568-50.pdf](http://yosemite.epa.gov/ee/epa/erm.nsf/vwAN/EE-0568-50.pdf/$file/EE-0568-50.pdf).

14. *GUIDELINES*, *supra* note 13, at xi.

15. David M. Driesen, *Distributing the Costs of Environmental, Health, and Safety Protection: The Feasibility Principle, Cost-Benefit Analysis, and Regulatory Reform*, 32 B.C. ENVTL. AFF. L. REV. 1, 9 (2005).

16. See generally *id.* (arguing that the feasibility principle offers a rational alternative to CBA); Sidney A. Shapiro & Thomas O. McGarity, *Not So Paradoxical: The Rationale for Technology-Based Regulation*, 1991 DUKE L.J. 729 (critiquing Professor Sunstein’s arguments for the use of CBA instead of technology-based standards);

Feasibility standards are, in a sense, the flip side of the coin from health-based standards, which consider only the benefits of regulation to human or ecological health.¹⁷ In a number of environmental statutes, Congress has directed agencies to look at both sides of that coin by combining feasibility standards with health-based standards in a kind of two-step process. Thus, under the Clean Air Act's hazardous air pollutants program, the Environmental Protection Agency ("EPA") initially sets feasibility-based discharge limits and then re-evaluates those standards eight years later under a health-based approach.¹⁸ The Occupational Safety and Health Act requires the EPA to calculate two standards for toxics in the workplace—one based on a feasibility standard and one based on a health standard—and then to promulgate the least stringent of the two.¹⁹ Like CBA, this combined approach to standard-setting considers both the costs and the benefits of regulation.²⁰ Unlike CBA, however, it does not require a direct comparison of the two.²¹ It thereby avoids the myriad difficulties that arise in attempting to express environmental benefits in monetary terms.

Even within the category of CBA as I have defined it (weighing and comparing the costs and benefits of a course of action), there is a broad variety of approaches.²² At the informal end of the spectrum is the simple weighing of qualitatively described pros and cons.²³ On the other end is a highly technical and formal analytic method grounded in economic theory. This kind of formal CBA attempts to fully quantify and monetize all of the social costs and benefits of a whole range of regulatory options and then pinpoint the level of net welfare maximization.²⁴

see also Wendy E. Wagner, *The Triumph of Technology-Based Standards*, 2000 U. ILL. L. REV. 83, 86 (defending technology-based standards as "one of the most important innovations in U.S. environmental law").

17. *See* Livermore & Revesz, *supra* note 3, at 1190 (identifying CBA, health-based standards, and feasibility standards as the "three principal approaches for determining the stringency of environmental protection").

18. *See* 42 U.S.C. § 7412(d)–(f) (2014). The NAAQS/SIP process under the Clean Air Act also takes this form. The EPA first sets National Ambient Air Quality Standards ("NAAQS") under a health-based standard (at the level requisite to protect the public health), *see id.* § 7409(b)(1), but states subsequently implement those standards through State Implementation Plans that set largely feasibility-based discharge limits, *see id.* §§ 7411(a)(1), 7475(a)(4), 7503(a)(2).

19. *See* 29 U.S.C. § 655(b)(5) (2014); *Am. Textile Mfrs. Inst., Inc. v. Donovan*, 452 U.S. 490, 509 (1981).

20. *See* *Donovan*, 452 U.S. at 532.

21. *See id.* at 512.

22. Sinden, *supra* note 2, at 98–120.

23. *Id.*

24. *Id.*

Other than the general approach of juxtaposing positive and negative impacts, the two ends of this spectrum actually have very little in common.²⁵ Informal CBA relies on qualitative descriptions that are intuitively compared, and it gives no more than general guidance.²⁶ The most formal varieties of CBA, on the other hand, rely on numbers and mathematics and purport to provide precise answers.²⁷ Moreover, the two techniques play entirely different roles in the decision-making process. Formal CBA serves as a standard-setting tool, by which the agency chooses the efficient level of regulation from all possible alternatives.²⁸ Informal CBA, by contrast, acts only as a litmus test or secondary check on standard-setting decisions that have been made initially by other means.²⁹ Carefully distinguishing these varieties of CBA is crucial to avoiding confusion and analytic errors.³⁰

II.

A HOT POTATO

Once we understand the distinctions between various forms of CBA and ways of considering costs, the views of the federal government on these matters appear far less monolithic. The executive branch is driven largely by a series of executive orders pertaining to agency CBA. Since the 1980s, these orders have required federal agencies to subject major regulations to CBA under the oversight of the Office of Information and Regulatory Affairs (“OIRA”).³¹ The CBA that these orders contemplate is of a fairly formal variety, grounded in economic theory. Thus, the executive orders set up full monetization and net-benefits maximization as the goal, an approach that is reflected in the expectations and demands that OIRA places on the agencies.³²

25. *Id.* at 118–20.

26. *Id.* at 96.

27. *Id.*

28. *Id.* at 98–120.

29. *Id.*

30. See generally Amy Sinden, *Cost-Benefit Analysis, Ben Franklin, and the Supreme Court*, 4 U.C. IRVINE L. REV. 1175 (2014).

31. Executive Order 12,866, issued by President Clinton in 1993, is still in effect. 3 C.F.R. 638, 639 (1993), *reprinted in* 5 U.S.C. § 601 app. at 89–93 (2014). It replaced a similar order issued by President Reagan in 1981. Exec. Order No. 12,291, 3 C.F.R. 127 (1982), *revoked by* Exec. Order No. 12,866 § 6, 3 C.F.R. at 649. President Obama issued Executive Order 13,563, which “supplement[s] . . . and reaffirms.” 3 C.F.R. 215, 216 (2012), *reprinted in* 5 U.S.C. § 601 app. at 104 (2014).

32. See Sinden, *supra* note 2, at 147–52, 164–65.

Congress and the courts, on the other hand, have largely taken a more jaundiced view of formal CBA.³³ In the vast majority of our environmental statutes, Congress has rejected CBA altogether in favor of feasibility standards, health-based standards, or some combination of the two.³⁴ And in those few instances in which Congress has directed agencies to use CBA, the required methodology has usually been of an informal variety.³⁵ Republicans in Congress continue to introduce bills that would codify a formal CBA decision rule for agency rulemakings (along with other bad ideas, like the cost-only “regulatory budgets” that Professor Pierce aptly criticizes).³⁶ But despite decades of trying, they have never succeeded in passing such a bill.³⁷

Similarly, the federal courts have often interpreted environmental statutes to preclude CBA entirely, and when they have endorsed agency use of CBA it has almost always been of an informal variety.³⁸ Indeed, the 2009 case *Entergy v. Riverkeeper*³⁹ marked the first time the Supreme Court endorsed agency use of CBA. The Court departed from its earlier presumption against CBA. But it also went to some

33. *Id.* at 129–47.

34. *Id.* at 129–32; see SHAPIRO & GLICKSMAN, *supra* note 9, at 32; Lynn E. Blais, *Beyond Cost/Benefit: The Maturation of Economic Analysis of the Law and Its Consequences for Environmental Policymaking*, 2000 U. ILL. L. REV. 237, 238–40; Thomas O. McGarity, *Media-Quality, Technology, and Cost-Benefit Balancing Strategies for Health and Environmental Regulation*, 46 L. & CONTEMP. PROBS. 159, 160–61 (1983).

35. See Sinden, *supra* note 2, at 131–34.

36. The idea of cost-only regulatory budgeting is patently absurd, for reasons that would be obvious to any freshman economics student. It is akin to asking a business to make investment decisions by looking only at the expense side of the ledger and ignoring revenues.

37. The Unfunded Mandates Reform Act of 1995, Pub. L. No. 104-4, 109 Stat. 48 (codified as amended in scattered sections of 2 U.S.C.), which was enacted as part of the Congress’s “contract with America,” requires agencies to prepare CBAs of major rules but does not make CBA the rule of decision. See Victor B. Flatt, *Environmental “Contraction” for America? (or How I Stopped Worrying and Learned to Love the EPA)*, 29 LOY. L.A. L. REV. 585, 588 n.7 (1996). And nothing in this statutory text indicates that the CBA must be particularly formal. It simply requires a “written statement containing . . . a qualitative and quantitative assessment of the anticipated costs and benefits.” 2 U.S.C. § 1532(a) (2014).

38. See Sinden, *supra* note 2, at 134–47. These cases, along with others endorsing agency consideration of costs more generally, have led Professor Pierce to identify a “pro-cost canon.” See Richard J. Pierce, Jr., *The Appropriate Role of Costs in Environmental Regulation*, 54 ADMIN. L. REV. 1237, 1246–48 (2002). This is not inconsistent with the distaste for formal CBA that I and others discern in the case law. See Jonathan Cannon, *The Sounds of Silence: Cost-Benefit Canons in Entergy Corp. v. Riverkeeper, Inc.*, 34 HARV. ENVTL. L. REV. 425, 454–60 (2010); Sinden, *supra* note 2, at 134–47.

39. *Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208 (2009).

pains to make clear that the brand of CBA it endorsed was relatively informal and that more “rigorous form[s]” of CBA might be “preclude[d].”⁴⁰ Justice Breyer built on this theme in a concurring opinion, reiterating the informality of the CBA pursued by the EPA in the case at bar and highlighting the dangers of formal CBA:

The EPA’s reading of the statute would seem to permit it to describe environmental benefits in non-monetized terms and to evaluate both costs and benefits in accordance with its expert judgment and scientific knowledge. *The Agency can thereby avoid lengthy formal cost-benefit proceedings and futile attempts at comprehensive monetization*; take account of Congress’ technology-forcing objectives; and still prevent results that are absurd or unreasonable in light of extreme disparities between costs and benefits.⁴¹

Thus, it should be clear by now that when “all nine Justices of the Supreme Court” equate reasonable regulation with *consideration of costs*,⁴² that is a very different matter from a unanimous endorsement by the Supreme Court of CBA, especially the formal variety of CBA called for in the executive orders.⁴³ In fact, in the case Professor Pierce references, *Michigan v. EPA*, the Court did not specify what kind of cost consideration was required of the agency. It held simply that the EPA could not “deem costs irrelevant” to its decision on whether to regulate hazardous air pollutants from power plants.⁴⁴ As we have seen, deeming costs relevant can mean a lot of different things in agency decision-making.⁴⁵

Justice Scalia, writing for the majority, actually evidenced a fair bit of confusion on this score, referring at various points in the opinion to what the agency had not done and ought to have done as “cost-effectiveness,” “cost-benefit analysis,” or simply “consider[ing]

40. *Id.* at 223.

41. *Id.* at 235 (Breyer, J., concurring in part and dissenting in part) (emphasis added) (citations omitted).

42. Pierce, *supra* note 1, at 250.

43. Professor Pierce overstates his case a bit when he characterizes the Court’s view as consistent with the idea that “it would be ‘unreasonable’ for *any* agency to issue a major rule without first considering its costs.” *See id.* (emphasis added). Justice Kagan’s dissent for the four liberal Justices did not box itself in to quite that extent. Kagan was careful to say that “[c]ost is *almost* always a relevant . . . factor in regulation,” *Michigan v. EPA*, 135 S. Ct. 2699, 2716 (2015) (Kagan, J., dissenting) (emphasis added), and thus avoided calling into doubt a number of previous cases in which the Court has held costs to be irrelevant. *See Whitman v. Am. Trucking Ass’n*, 531 U.S. 457, 470–71 (2001); *Tenn. Valley Auth. v. Hill*, 437 U.S. 153, 184–88 (1978); *Union Elec. Co. v. EPA*, 427 U.S. 246 (1976).

44. *See Michigan*, 135 S. Ct. at 2712 (majority opinion).

45. Sinden, *supra* note 12.

cost.”⁴⁶ But ultimately, he left it “up to the agency to decide . . . how to account for cost.”⁴⁷ Moreover, at those places in the opinion where he did appear to be talking about CBA, he described a fairly informal variety, specifically, one that simply ensures costs are not grossly disproportionate to benefits.⁴⁸ And at one point, in what might perhaps be read as a nod to Justice Breyer’s concurring opinion in *Riverkeeper*,⁴⁹ he included an explicit disclaimer as to formal CBA: “We need not and do not hold that the law unambiguously required the Agency, when making this preliminary estimate, to conduct a formal cost-benefit analysis in which each advantage and disadvantage is assigned a monetary value.”⁵⁰

Justice Kagan, writing in dissent for the four liberal Justices, endorsed cost consideration, reasoning that “[c]ost is almost always a relevant—and usually, a highly important—factor in regulation.”⁵¹ But she explicitly reiterated and joined in the majority’s explicit disclaimer of formal CBA.⁵² Indeed, in her view, deeming costs relevant did not require CBA of any sort. In this instance, the sequential health-then-feasibility standard that the EPA had applied was sufficient.⁵³

CONCLUSION

It is relatively easy to find indications of widespread support for more informal varieties of CBA or for the general idea of considering costs in connection with regulation.⁵⁴ But formal CBA of the kind countenanced by the executive orders and pushed for by OIRA remains contested inside and outside of government.⁵⁵ And it remains contested for good reason. Formal CBA confronts a host of unresolved

46. *Michigan*, 135 S. Ct. at 2704, 2710–11.

47. *Id.* at 2711.

48. *Id.* at 2707.

49. *Entergy Corp. v. Riverkeeper, Inc.*, 556 U.S. 208, 235 (2009) (Breyer, J., concurring in part and dissenting in part).

50. *Michigan*, 135 S. Ct. at 2711. This apparent preference for less formal CBA is consistent with the views that Justice Scalia expressed in a lecture at the University of Houston in 1987. See Antonin Scalia, *Responsibilities of Regulatory Agencies Under Environmental Laws*, 24 HOUS. L. REV. 97, 101 (1987) (distinguishing between CBA in the “narrow sense” and a broader form, and endorsing the broader form: “[w]hat I mean by cost-benefit analysis is simply a weighing of all the desirable effects of a proposed action against all the undesirable effects, whether or not they are susceptible of being expressed in economic terms”).

51. *Michigan*, 135 S. Ct. at 2716 (Kagan, J., dissenting).

52. *Id.* at 2717 (“[A]ccounting for costs . . . [a]s the Court notes . . . does not require an agency to conduct a formal cost-benefit analysis.”).

53. *Id.* at 2718–23.

54. Sinden, *supra* note 2, at 120–29.

55. Sinden, *supra* note 2, at 120–47.

theoretical difficulties: it flattens the variety of human experience into a monetary metric,⁵⁶ undercounts the preferences of the poor vis-à-vis the rich,⁵⁷ devalues the lives of our children and grandchildren,⁵⁸ ignores distributional inequities,⁵⁹ fails to account for low-probability catastrophic outcomes,⁶⁰ and it rests on a vision of human nature and behavior that has been shown to be fundamentally flawed and internally inconsistent.⁶¹

But even putting aside the myriad theoretical difficulties, it is simply unworkable given the current state of scientific knowledge. Most of the time, it leaves significant categories of benefits out of the equation.⁶² Indeed, I am just now finishing work on an empirical study indicating that in over three-quarters of its CBAs, the EPA refrains from quantifying whole categories of benefits that the agency itself describes as “important,” “significant,” or “substantial.”⁶³ Thus, with only partial information, formal CBA produces results that are misleading at best and hopelessly indeterminate at worst. Accordingly, with due respect for my friend Professor Pierce and the many other smart and thoughtful colleagues who take a different view, I’ll keep my lance sharpened when it comes to formal CBA.

56. ANDERSON, *supra* note 9, at 55–59; SAGOFF, *supra* note 9, at 1–7; Cass R. Sunstein, *Incommensurability and Valuation in Law*, 92 MICH. L. REV. 779, 841–42 (1994).

57. RICHARD A. POSNER, *ECONOMIC ANALYSIS OF LAW* 13 (5th ed. 1998); C. Edwin Baker, *The Ideology of the Economic Analysis of Law*, 5 PHIL. & PUB. AFF. 3, 6 (1975); Duncan Kennedy, *Cost-Benefit Analysis of Entitlement Problems: A Critique*, 33 STAN. L. REV. 387, 422–44 (1981); Arthur A. Leff, *Economic Analysis of Law: Some Realism About Nominalism*, 60 VA. L. REV. 451, 478–79 (1974).

58. Lisa Heinzerling, *Discounting Our Future*, 34 LAND & WATER L. REV. 39, 40–41 (1999); Kysar, *supra* note 9, at 119–20; Revesz, *supra* note 9, at 955–86.

59. Sinden, *supra* note 12.

60. Daniel A. Farber, *Uncertainty*, 99 GEO. L.J. 901 (2011); Martin L. Weitzman, *On Modeling and Interpreting the Economics of Catastrophic Climate Change*, 91 REV. ECON. & STAT. 1 (2009).

61. DANIEL KAHNEMAN & AMOS TVERSKY, *CHOICES, VALUES, AND FRAMES* (2000); Amartya Sen, *The Possibility of Social Choice*, 89 AM. ECON. ASS’N 349 (1999); Tuba Tuncel & James K. Hammitt, *A New Meta-Analysis on the WTP/WTA Disparity*, 68 J. ENVTL. ECON. & MGMT. 175 (2014).

62. Amy Sinden, *The Problem of Unquantified Benefits* (Dec. 17, 2015) (unpublished manuscript) (on file with the *New York University Journal of Legislation and Public Policy*).

63. *See id.*

