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Cost-Benefit Analysis and Agency Independence

Michael A. Livermore†

The presidential mandate that agency rule makings be subjected to cost-benefit analysis and regulatory review is one of the most controversial developments in administrative law over the past several decades. There is a prevailing view that the role of cost-benefit analysis in the executive branch is to help facilitate control of agencies by the Office of Information and Regulatory Affairs (OIRA). This Article challenges that view, arguing that cost-benefit analysis in fact helps preserve agency autonomy in the face of oversight. This effect stems from the constraints imposed on reviewers by the regularization of cost-benefit-analysis methodology and the fact that agencies have played a major role in shaping that methodology. The autonomy-preserving effect of cost-benefit analysis has been largely ignored in debates over the institution of regulatory review. Ultimately, cost-benefit analysis has ambiguous effects on agency independence, simultaneously preserving, informing, and constraining agency power.

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INTRODUCTION

In a 1981 law-review article, *Cost-Benefit Analysis and the Separation of Powers*,¹ Professor Cass Sunstein worried that President Ronald Reagan's recently signed Executive Order requiring that the Office of Information and Regulatory Affairs (OIRA) in the White House review new regulations "accords enormous discretion to those who are charged with interpreting" the order's cost-benefit-analysis requirement.² Sunstein viewed the relevant "who" as being primarily the president and OIRA.³

This Article will argue that the past three decades show Sunstein (who directed OIRA from 2009 to 2012) to have been half right. The power to interpret the cost-benefit-analysis requirement is important. But it is agencies, rather than OIRA, that have taken the leading role in developing the methodology. The Environmental Protection Agency (EPA) in particular has promoted a wide range of methodological choices that have affected not only how environmental regulation is valued, but also the analyses carried out by other agencies and the conduct of centralized review by OIRA.

One telling example of EPA's methodological influence is the value assigned to mortality-risk reduction, sometimes called the "value of statistical life."⁴ The largest quantifiable benefit of

¹ Cass R. Sunstein, *Cost-Benefit Analysis and the Separation of Powers*, 23 *Ariz L Rev* 1267 (1981).

² *Id.* at 1276.

³ *Id.*

⁴ Environmental Protection Agency, *Guidelines for Preparing Economic Analyses* xv (Dec 17, 2010) ("EPA, 2010 Guidelines").

many environmental rules is reduction in life-threatening risk: air-quality regulations save hundreds of thousands of lives every year.⁵ Estimates of the value of these types of rules can differ by an order of magnitude,⁶ and EPA has devoted considerable resources to developing its preferred estimates.⁷ Based on that work, EPA has been able to defend monetary estimates of benefits from air-quality regulations of over \$1 trillion per year.⁸

Agency methodological influence has important consequences for understanding the role of cost-benefit analysis in the administrative state. The prevailing view is that cost-benefit analysis serves mainly as a mechanism for OIRA to assert authority over agencies, in service of presidential control over the executive branch.⁹ The real story is more complex. Over the past several decades, cost-benefit analysis has become regularized, which constrains how OIRA evaluates rules. Those constraints have, to an important extent, been shaped by agencies. This dynamic creates opportunities for agencies to use cost-benefit analysis as a bulwark against review. Within OIRA and agencies, career bureaucrats are better positioned than political appointees to influence cost-benefit-analysis methodology, a situation that may affect how political control is exercised. At the same time, the cost-benefit-analysis requirement incentivizes agencies to allocate internal resources, produce information, and interact with outside parties in ways that may affect their regulatory priorities. Influencing cost-benefit-analysis methodology also provides a mechanism for agencies to affect each other. Far from simply facilitating, in a straightforward way, the imposition of presidential control over the executive branch, cost-benefit analysis has a large number of subtle effects on agency

⁵ See Environmental Protection Agency, *The Benefits and Costs of the Clean Air Act from 1990 to 2020* 7-3 (Apr 2011) (“EPA, Second Prospective Study”) (finding that 85 percent of benefits from rules under the 1990 Clean Air Amendments will be from mortality-risk reduction in 2020).

⁶ See W. Kip Viscusi and Joseph E. Aldy, *The Value of a Statistical Life: A Critical Review of Market Estimates throughout the World*, 27 *J Risk & Uncertainty* 5, 54 (2003) (“[T]he historical impetus for the adoption of the [value of statistical life] methodology was that these values boosted assessed benefits by roughly an order of magnitude, improving the attractiveness of agencies’ regulatory efforts.”).

⁷ See generally Environmental Protection Agency, *Guidelines for Preparing Economic Analyses* (Sept 2000) (“EPA, 2000 Guidelines”).

⁸ EPA, Second Prospective Study at 7-9 table 7-5 (cited in note 5) (showing the central estimate of monetary benefits of regulation under the 1990 Clean Air Act Amendments in 2010 as \$1.3 trillion).

⁹ See, for example, Richard H. Pildes and Cass R. Sunstein, *Reinventing the Regulatory State*, 62 *U Chi L Rev* 1, 3 (1995).

behavior, with the overall effect ambiguous from the perspective of political control.

The presidential mandate that agency rule makings be subjected to cost-benefit analysis and regulatory review is one of the most controversial developments in administrative law over the past several decades. The discussion about the consequences of this move has occupied not only legal scholars and law-journal editors,¹⁰ but also academics representing a wide range of fields, from philosophy¹¹ to political science,¹² as well as public officials,¹³ advocacy organizations,¹⁴ and other opinion leaders.¹⁵

But this extensive empirical and normative literature has largely failed to recognize the degree to which agencies have shaped the methodology of cost-benefit analysis and, along with it, the practice of regulatory review. Cost-benefit analysis compiles risk analyses, engineering reports, economic models, and valuation studies to generate an overall assessment of regulatory impacts in economic terms. At least in its current form, this technique does not provide uncontested insights into the effects of regulation, even if the scientific predicates to cost-benefit analysis were clear.¹⁶ There are hard methodological choices in

¹⁰ See Don Bradford Hardin Jr, *Why Cost-Benefit Analysis? A Question (and Some Answers) about the Legal Academy*, 59 *Ala L Rev* 1135, 1136–37 (2008) (documenting the rise in cost-benefit-related legal scholarship from 27 articles in 1981 to 628 by 2005).

¹¹ See, for example, Elizabeth Anderson, *Value in Ethics and Economics* 190–216 (Harvard 1995); Mark Sagoff, *We Have Met the Enemy and He Is Us or Conflict and Contradiction in Environmental Law*, 12 *Envir L* 283, 286–88 (1982).

¹² See, for example, Joseph Cooper and William F. West, *Presidential Power and Republican Government: The Theory and Practice of OMB Review of Agency Rules*, 50 *J Polit* 864, 878–80 (1988); Terry M. Moe, *The Politicized Presidency*, in John E. Chubb and Paul E. Peterson, eds, *The New Direction in American Politics* 235, 235 (Brookings 1985).

¹³ See, for example, Office of Senator Mark R. Warner, Press Release, *Warner, Portman, Collins Introduce Legislation to Provide Regulatory Relief* (Aug 1, 2012), online at <http://www.warner.senate.gov/public/index.cfm/mobile/pressreleases?ID=c22c0a48-8ab7-46bb-894e-414b35220324> (visited May 15, 2014) (discussing a bill to authorize the president to extend regulatory-review requirements to independent agencies).

¹⁴ See, for example, OMB Watch, Press Release, *OMB Watch Calls on the Obama Administration to Revise Regulatory Process* (Jan 29, 2010), online at <http://dev.ombwatch.org/node/10738> (visited May 15, 2014) (“Currently, agencies are required to perform any number of analyses before writing new standards, including the notoriously unreliable cost-benefit analysis.”).

¹⁵ See, for example, Ruth Marcus, *Sledgehammer Politics*, *Wash Post* A19 (Apr 25, 2012).

¹⁶ For arguments concerning the general indeterminacy of cost-benefit analysis, see Duncan Kennedy, *Cost-Benefit Analysis of Entitlement Problems: A Critique*, 33 *Stan L Rev* 387, 388 (1981); Richard S. Markovits, *Duncan’s Do Nots: Cost-Benefit Analysis and the Determination of Legal Entitlements*, 36 *Stan L Rev* 1169, 1188–96 (1984). There is

any sophisticated analysis. How these choices are made can have extremely important effects on the results of cost-benefit analysis.

The central argument of this Article is that agencies have played an important role in the evolution of cost-benefit analysis, which poses a challenge to the prevailing view of cost-benefit analysis as primarily a means for the center to exert control over the periphery. Because it makes up such a substantial portion of OIRA's docket, EPA receives much of the focus here, although other agencies have also had an important influence. EPA has built substantial in-house economics capacity, which far dwarfs that of OIRA and has made significant methodological contributions, fostering the elaboration of concepts such as nonuse value and discounting that are fundamental to how cost-benefit analysis is carried out. These contributions have affected EPA's rule makings, how OIRA carries out its review, and the analytic practices of other agencies.

This Article will proceed in four Parts. Part I discusses the prevailing view that cost-benefit analysis is a mechanism for OIRA to exert control over agencies. This view is held by both proponents and opponents of regulatory review. Part I also examines recent literature on ways that agencies attempt to thwart OIRA review in individual rule makings. Finally, this Part introduces and defends a novel argument that the regularization of cost-benefit analysis into a standardized methodology actually constrains OIRA review, creating a safe harbor in which agencies are relatively protected from interference.

This safe harbor is particularly important because agencies are well positioned to influence cost-benefit-analysis methodology and in fact have been successful in doing so. Part II focuses in particular on EPA and the many advantages it has in influencing the development of cost-benefit analysis. These advantages include substantial economics capacity, the ability to fund outside research, and informational advantages during the process of review. Ways in which EPA differs from other agencies are also discussed. Part III charts the agency's influence over several of the most important questions in cost-benefit-analysis method-

substantial literature on scientific uncertainty in regulatory decision making as well. See National Research Council, *Science and Judgment in Risk Assessment* 160–87 (National Academy 1994). See also Wendy E. Wagner, *The Science Charade in Toxic Risk Regulation*, 95 Colum L Rev 1613, 1619–22 (1995).

ology, including how lifesaving benefits are valued and techniques for assigning monetary value to nonmarket goods.

Part IV discusses the consequences of the insights in Parts I, II, and III for understanding the place of cost-benefit analysis in the regulatory state. Effects within both the standard principal-agent framework and a deliberative model of intraexecutive relations are discussed. The upshot is that cost-benefit analysis does not simply promote presidential power, but has a wide range of complex and sometimes confounding effects on agency behavior. But if this conclusion is correct, it raises the question of why presidents have been so consistent in their support of cost-benefit analysis over the past three decades. Part IV.C provides potential explanations for this seeming paradox. Finally, Part IV.D discusses the importance of the descriptive observations in this Article for the broader normative debate over regulatory review and cost-benefit analysis.

I. COST-BENEFIT ANALYSIS AND AGENCY OVERSIGHT

Executive Order 12291, signed by President Ronald Reagan in 1981,¹⁷ established the structure for executive review of agency rule makings based on cost-benefit analysis.¹⁸ Under the order, agencies were required to conduct cost-benefit analysis of proposed rule makings that will have significant economic consequences and submit those analyses to OIRA for review. Agencies were also instructed to “refrain from publishing [their] . . . proposed rulemaking until such review is concluded.”¹⁹ With this order, OIRA took on a major oversight role, giving it a kind of veto power over agency rule making.

This new role for OIRA, which was viewed as a substantial expansion of presidential power over administrative agencies,²⁰

¹⁷ Executive Order 12291, 46 Fed Reg 13193 (1981).

¹⁸ For more information on antecedents to Reagan’s move, see Jim Tozzi, *OIRA’s Formative Years: The Historical Record of Centralized Regulatory Review preceding OIRA’s Founding*, 63 Admin L Rev 37, 40–62 (Special Edition 2011) (giving a historical overview of review before the Reagan administration). Cost-benefit analysis also has a history that long precedes the institution of regulatory review. See generally Jonathan B. Wiener, *The Diffusion of Regulatory Oversight*, in Michael A. Livermore and Richard L. Revesz, eds, *The Globalization of Cost-Benefit Analysis in Environmental Policy* 123 (Oxford 2013); W. Michael Hanemann, *Preface*, in Ståle Navrud, ed, *Pricing the European Environment* 9 (Oxford 1992) (discussing the role of water projects in development of cost-benefit analysis in United States).

¹⁹ 46 Fed Reg at 13195 (cited in note 17).

²⁰ See, for example, William F. West and Joseph Cooper, *Legislative Influence v. Presidential Dominance: Competing Models of Bureaucratic Control*, 104 Polit Sci Q 581,

has been hotly debated ever since. Although it remains controversial, this basic architecture has persisted for the past thirty years, through four subsequent presidential administrations from both political parties.²¹

In this institutional context, cost-benefit analysis is widely believed to help promote OIRA dominance over agencies. Whether by providing information for reviewers or masking political machinations behind a technocratic veneer, cost-benefit analysis is seen by both proponents and opponents of regulatory review as a tool for central reviewers to reduce the discretion of administrative agencies. Part I.A discusses this prevailing view.

Agencies are not assumed to submit willingly to the imposition of central control, and scholars have examined a number of ways in which agencies resist. Part I.B reviews recent scholarship on how agencies use their discretion over the form of rule making or the extent of regulatory-impact analysis that accompanies a rule to thwart review. The long-term effect of agency development on cost-benefit methodology, which seeks not to avoid review but to influence how it is carried out, has not yet been given adequate attention.

Part I.C argues that the institutional relationships between agencies and OIRA have incentivized the regularization of cost-benefit analysis over the past three decades. Now that cost-benefit analysis is a more or less standardized methodology, it constrains how both agencies and OIRA evaluate rules. Within the heartland of this standardized methodology, agencies enjoy a kind of safe harbor that protects them from overly intrusive review. This safe harbor becomes especially important when, as will be explored in Parts II and III, agencies are well positioned to influence its contours through methodological development.

590 (1990) (arguing that the Executive Order 12291 was among several important moves by presidents as well as courts toward greater presidential authority over regulatory decision making).

²¹ The executive order adopted by President Clinton in 1993 made several important reforms to the process but did not change the basic structure or the cost-benefit-analysis requirement. See generally Executive Order 12866, 58 Fed Reg 51735 (1993). President George W. Bush continued under the Clinton order, making only minor changes at the end of his term. See generally Executive Order 13422, 72 Fed Reg 2763 (2007). President Obama's executive order on regulatory review explicitly extends the Clinton order. See Executive Order 13563, 76 Fed Reg 3821, 3821 (2011).

A. OIRA Dominance

There are two standard justifications for regulatory review.²² The first is that OIRA helps promote presidential control over administrative agencies.²³ Defenders of regulatory review have argued that OIRA is a better proxy for presidential preferences than are agencies, and OIRA's role is to ensure that agency actions fall in line with the president's policy agenda.²⁴ According to this line of thinking, cost-benefit analysis helps facilitate presidential power by reducing information asymmetries between agencies and OIRA, allowing for more effective oversight.²⁵

The second standard justification for regulatory review is that it facilitates technocratic values by promoting economic efficiency or discouraging bureaucratic myopia.²⁶ Within this framework, cost-benefit analysis again serves as an oversight tool, helping to correct for cognitive biases facing agencies²⁷ and facilitating review by the dispassionate personnel at OIRA who are removed from the daily pressures facing agency staff.²⁸

Under both accounts, cost-benefit analysis is a means for the center to exert control over the periphery within the administrative state. The flow of influence is assumed to run from OIRA down to agencies. Though residual agency autonomy is expected, the purpose of cost-benefit analysis is to reduce the costs of OIRA oversight over regulatory decision making, cabin- ing agency discretion as much as possible within political or technocratic bounds given OIRA's time and resource constraints and the vast size of the federal bureaucracy.²⁹

²² See Michael A. Livermore and Richard L. Revesz, *Regulatory Review, Capture, and Agency Inaction*, 101 *Georgetown L J* 1337, 1340 (2013).

²³ See, for example, Elena Kagan, *Presidential Administration*, 114 *Harv L Rev* 2245, 2278–79 (2001).

²⁴ See Christopher C. DeMuth and Douglas H. Ginsburg, *White House Review of Agency Rulemaking*, 99 *Harv L Rev* 1075, 1081–82 (1986); John D. Graham, *Saving Lives through Administrative Law and Economics*, 157 *U Pa L Rev* 395, 465–66 (2008).

²⁵ See Eric A. Posner, *Controlling Agencies with Cost-Benefit Analysis: A Positive Political Theory Perspective*, 68 *U Chi L Rev* 1137, 1143 (2001).

²⁶ See DeMuth and Ginsburg, 99 *Harv L Rev* at 1080–82 (cited in note 24).

²⁷ See generally Cass R. Sunstein, *Cognition and Cost-Benefit Analysis*, 29 *J Legal Stud* 1059 (2000); Pildes and Sunstein, 62 *U Chi L Rev* 1 (cited in note 9).

²⁸ See Christopher C. DeMuth and Douglas H. Ginsburg, *Rationalism in Regulation*, 108 *Mich L Rev* 877, 902–03 (2010).

²⁹ This interpretation of cost-benefit analysis as reducing monitoring cost is based on a principal-agent interpretation of the executive branch. See Part IV.A.

The basic structure of review has features that are consistent with a view of OIRA dominance. OIRA has been referred to as the “toughest kid of the block” in intraexecutive conflicts.³⁰ The office has a number of formal powers, including the ability to delay rules, and its location within the Office of Management and Budget (OMB) gives it access to an even greater number of informal mechanisms of control.³¹ OIRA heads also sometimes claim to have a closer connection to presidential preferences than do political appointees within agencies.³² If this view is widespread within an administration, it surely increases OIRA’s bargaining power. Even agencies’ formal power to publish rules in the federal register absent OIRA review³³ is limited by practical realities. Personal and political loyalties ensure that the president’s demand that rules be submitted to OIRA is likely to be heeded in all but the most extraordinary circumstances.³⁴

But it is not always enough to be tough; the effective exercise of power requires smarts as well, and information about regulatory choices is a well-known advantage held by agencies.³⁵ Professor Eric Posner has argued that cost-benefit analysis facilitates the exercise of centralized authority by serving as an information-forcing tool. According to this view, cost-benefit analysis translates “an incomplete information game into a complete

³⁰ Sidney A. Shapiro, *Political Oversight and the Deterioration of Regulatory Policy*, 46 *Admin L Rev* 1, 12 (1994) (quoting James Miller III, the first director of OIRA).

³¹ See *id.* at 11 (discussing OMB’s ability to “refus[e] to clear congressional testimony, and reduc[e] the agency’s budget requests to be submitted to Congress”).

³² See DeMuth and Ginsburg, 108 *Mich L Rev* at 903–04 (cited in note 28) (“OIRA . . . is charged primarily with implementing the president’s policies in a way that the heads of the program agencies cannot be counted upon to do.”); Sally Katzen, *A Reality Check on an Empirical Study: Comments on “Inside the Administrative State,”* 105 *Mich L Rev* 1497, 1503–04 & n 41 (2007) (arguing that OIRA “answer[s] to the president,” and that differences of opinion between OIRA personnel and political appointees at agencies stem from the “broader lens” that OIRA staff applies).

³³ See Lisa Heinzerling, *Statutory Interpretation in the Era of OIRA*, 33 *Fordham Urban L J* 1097, 1114–15 n 118 (2006) (citing the EPA Administrators’ powers under the Clean Water Act).

³⁴ See Moe, *The Politicized Presidency* at 256–58 (cited in note 12) (discussing the growing importance of appointment power for ensuring loyalty of top agency officials).

³⁵ See Mathew D. McCubbins, Roger G. Noll, and Barry R. Weingast, *Administrative Procedures as Instruments of Political Control*, 3 *J L, Econ & Org* 243, 247 (1987) (“A consequence of delegating authority to bureaucrats is that they may become more expert about their policy responsibilities than the elected representatives who created their bureau.”).

information game,"³⁶ or at least a game with greater information.³⁷

Opponents of cost-benefit analysis tend to agree that it is a mechanism for controlling agencies.³⁸ The controversy has typically been less about whether cost-benefit analysis facilitates control by OIRA than about how, and about whether that outcome is normatively desirable. For Posner, cost-benefit analysis conveys information; for others, it serves to "legitimate presidential power";³⁹ still others view it as embedding particular substantive commitments consistent with presidential views.⁴⁰ While there is disagreement about the particulars, it is fair to characterize a dominant view, in which the role of cost-benefit analysis is to increase the power of reviewers at OIRA and facilitate the centralization of regulatory authority.⁴¹

B. Agency Resistance

Agencies have not been assumed to submit passively to the imposition of authority by the White House; indeed, they have many potential routes to avoid the imposition of OIRA control. Perhaps most important, the president and Congress share oversight authority, and agencies can exploit differences in policy preferences between their principals to generate greater discretion.⁴²

³⁶ Posner, 68 U Chi L Rev at 1158 (cited in note 25).

³⁷ Posner argues that a cost-benefit analysis can directly convey information through its contents or can serve as a signal to the president of the agency's priorities if it is costly to produce. See *id.* at 1160. Of course, given the scarcity of agency rule-making budgets, the mere pursuance of one rule rather than another signals priority. Reducing rule-making budgets would have the same effects as a costly analytic requirement: both force agencies to focus on a smaller set of rules.

³⁸ See Alan B. Morrison, *OMB Interference with Agency Rulemaking: The Wrong Way to Write a Regulation*, 99 Harv L Rev 1059, 1066 (1985) (lamenting "vast . . . resources spent in justifying proposed regulations to OMB").

³⁹ Cooper and West, 50 J Polit at 872 (cited in note 12).

⁴⁰ See DeMuth and Ginsburg, 99 Harv L Rev at 1082 (cited in note 24) (arguing that the cost-benefit standard and presidential preferences "will usually be complementary in practice").

⁴¹ Whether increasing OIRA's power facilitates presidential control is a separate question. See Nicholas Bagley and Richard L. Revesz, *Centralized Oversight of the Regulatory State*, 106 Colum L Rev 1260, 1307-12 (2006) (discussing the relationships between the president, OIRA, and agencies).

⁴² See James Q. Wilson, *Bureaucracy: What Government Agencies Do and Why They Do It* 237 (Basic Books 1989) ("No agency is free to ignore the views of Congress. An agency may, however, defer to the views of one part of Congress."). See also Bruce Ackerman, *The New Separation of Powers*, 113 Harv L Rev 633, 702-05 (2000) (describing fractured oversight of agencies); Thomas H. Hammond and Jack H. Knott, *Who Con-*

The informational advantages that agencies have with respect to regulation generally also apply to cost-benefit analysis. Fears that agencies will manipulate cost-benefit analysis to promote their agendas⁴³ mimic similar concerns with respect to agency science.⁴⁴ For example, Professors Matthew Adler and Eric Posner note that agencies may depart from textbook cost-benefit-analysis methodology, allowing them to use cost-benefit analysis to “rationalize decisions made on other grounds.”⁴⁵ As early as 1985, commentators worried that agencies could manipulate the alternatives analyzed to generate preferred results.⁴⁶ The concern runs in the other direction as well: for example, former Occupational Safety and Health Administration (OSHA) Administrator Frank White has written that OIRA used the existence of methodological controversies to impose its policy preferences on agencies.⁴⁷

Agencies’ ability to avoid review has also received attention. Agencies have considerable discretion over the form that policy making takes,⁴⁸ which could be used to thwart review. For example, rather than engage in a rule making (which is subject to review) an agency could shift enforcement priorities to achieve the same ends. Professor Jennifer Nou examines mechanisms that agencies can use to hamper OIRA review, such as submitting incomplete cost-benefit analyses or opting for guidance doc-

trols the Bureaucracy? Presidential Power, Congressional Dominance, Legal Constraints, and Bureaucratic Autonomy in a Model of Multi-institutional Policy-Making, 12 J L, Econ & Org 119, 140–42 (1996) (presenting a model for agency autonomy when faced with multiple principals).

⁴³ See, for example, Robert Haveman, *The Chicago O’Hare Expansion: A Case Study of Administrative Manipulation of Benefit-Cost Principles*, 23 Rsrch L & Econ 183, 184–86 (2007).

⁴⁴ See, for example, Wagner, 95 Colum L Rev at 1644–45 (cited in note 16) (discussing concerns that agencies “introduce science only after the fact in order to scientifically justify the predetermined standard”).

⁴⁵ Matthew D. Adler and Eric A. Posner, *Rethinking Cost-Benefit Analysis*, 109 Yale L J 165, 172 (1999).

⁴⁶ See, for example, J. Lon Carlson, John B. Braden, and David W. Martin, *Implications of Executive Order 12,291 for Discretion in Environmental Regulation*, 12 BC Envir Affairs L Rev 313, 315 (1985) (expressing concern that agencies had overly broad discretion in implementing the Reagan order).

⁴⁷ Mark E. Solomons, et al, *Agency Diplomacy: Relations with Congress and the White House, and Ethics in the Administrative Process*, 4 Admin L J 3, 25 (1990) (comments of Frank White).

⁴⁸ See M. Elizabeth Magill, *Agency Choice of Policymaking Form*, 71 U Chi L Rev 1383, 1386–90 (2004).

uments, rather than rule makings, to achieve policy goals.⁴⁹ On the basis of interviews and a partial empirical analysis concerning the later recharacterization of rules as “significant,” a recent student note concludes that agencies are, to some degree or another, manipulating the significance threshold to avoid OIRA’s scrutiny.⁵⁰

Attempts to avoid review are, at best, only partially successful, and OIRA remains a powerful force. Many former government officials have argued that OIRA regularly influences agency decision making.⁵¹ The most extensive evidence of agency personnel’s perspective on OIRA review was gathered by Professors Lisa Schultz Bressman and Michael P. Vandenbergh.⁵² On the basis of interviews with presidential appointees at EPA, the authors conclude that OIRA “exerts substantial influence on day-to-day issues.”⁵³ Quantitative analysis has come to similar

⁴⁹ Jennifer Nou, *Agency Self-Insulation under Presidential Review*, 126 Harv L Rev 1755, 1782–84, 1793–96 (2013).

⁵⁰ Note, *OIRA Avoidance*, 124 Harv L Rev 994, 1007–09 (2011). For a similar effort examining agency use of guidance documents, see Connor Raso, *Do Agencies Use Guidance Documents to Avoid Presidential Control?* 3–7 (American Bar Association, Gelhorn-Sargentich Law Student Essay Competition 2009), online at http://www.americanbar.org/content/dam/aba/migrated/adminlaw/awardsprogram/Connor_Raso_GS_Essay_Winner_authcheckdam.pdf (visited May 15, 2014).

⁵¹ See E. Donald Elliott, *TQM-ing OMB: Or Why Regulatory Review under Executive Order 12,291 Works Poorly and What President Clinton Should Do about It*, 57 L & Contemp Probs 167, 171–74 (Spring 1994) (recounting OIRA influence over rule making based on his time as EPA general counsel); Richard L. Revesz and Michael A. Livermore, *Retaking Rationality* 26, 28 (Oxford 2008) (citing John Daniel, chief of staff to the EPA Administrator under President Reagan, and James Tozzi, a career staffer at OMB who served during several presidential administrations); Donald R. Arbuckle, *OIRA and Presidential Regulatory Review: A View from Inside the Administrative State*, *66–73 (unpublished manuscript, May 2008), online at http://works.bepress.com/donald_arbuckle/1 (visited May 15, 2014) (depicting OIRA review as competently facilitating presidential oversight and interagency coordination); William F. West, *The Institutionalization of Regulatory Review: Organizational Stability and Responsive Competence at OIRA*, 35 Pres Stud Q 76, 86–91 (2005) (same). Justice Elena Kagan has argued that, based on her experience in the Clinton administration, the White House is able to exert substantial influence over agency decision making, in part through OIRA review. See Kagan, 114 Harv L Rev at 2246–52 (cited in note 23). Reflecting on his time as OIRA Administrator during the George W. Bush presidency, Professor John Graham has offered examples in which OIRA was influential in promoting stronger regulation. See Graham, 157 U Pa L Rev at 460 & nn 288–89 (cited in note 24).

⁵² See Lisa Schultz Bressman and Michael P. Vandenbergh, *Inside the Administrative State: A Critical Look at the Practice of Presidential Control*, 105 Mich L Rev 47, 62–64 (2006). See also Katzen, 105 Mich L Rev at 1498 (cited in note 32) (responding to Bressman and Vandenbergh).

⁵³ Bressman and Vandenbergh, 105 Mich L Rev at 69 (cited in note 52).

conclusions concerning the efficacy of regulatory review.⁵⁴ Most prominently, Professor Steven Croley's quantitative analysis of the OIRA review process during the period of 1981 to 2000 similarly found that OIRA does influence many rules, although any correlation between interest group influence and outcomes was not clear.⁵⁵

The manipulation of individual regulatory-impact analyses is somewhat different from the question that will occupy the balance of this Article, which has to do with cost-benefit-analysis methodology more generally. Whether a particular regulatory alternative was identified and analyzed during a single rule-making process, for example, may have important consequences for the rule at hand, but it is unlikely to have a lasting influence. Cost-benefit-analysis methodologies are applied beyond a single rule and cover questions that are repeatedly presented to agencies, such as how to value mortality-risk reductions. To the extent that agencies influence these methodologies, they will be able to affect rules even when OIRA is able to insist on rigorous application of cost-benefit analysis.

C. The Safe-Harbor Effect

While cost-benefit analysis is often assumed to facilitate OIRA control over agencies, there is an important way in which the methodology also *constrains* regulatory review. The existence of a substantive standard limits the types of issues that can legitimately be raised by reviewers and reduces the potential for

⁵⁴ A 2003 review by the Government Accountability Office (GAO) examined rules reviewed by OIRA in 2001 and 2002, finding that of seventy-one rules that were "changed" during the process of review, seventeen of them had been significantly altered. See Curtis W. Copeland, *The Role of the Office of Information and Regulatory Affairs in Federal Rulemaking*, 33 *Fordham Urban L J* 1257, 1282 (2006) (discussing the GAO report).

⁵⁵ See Steven Croley, *White House Review of Agency Rulemaking: An Empirical Investigation*, 70 *U Chi L Rev* 821, 873–75 (2003). Follow-up research to the Croley analysis using more recent data has largely confirmed his findings, though it sometimes draws different conclusions about the role of interest groups. See Rena Steinzor, Michael Patoka, and James Goodwin, *Behind Closed Doors at the White House: How Politics Trumps Protection of Public Health, Worker Safety, and the Environment* 15 (Center for Progressive Reform White Paper No 111ES, Nov 2011), online at http://www.progressivereform.org/articles/OIRA_Meetings_1111es.pdf (visited May 15, 2014) (arguing that OIRA's contacts with regulated entities compromises neutrality); Tiberiu Dragu, *Presidential Rulemaking: An Empirical Analysis* *2 (unpublished manuscript, Sept 2011), online at http://www.thecre.com/pdf/20111206_Presidential_Rulemaking_emprical.pdf (visited May 15, 2014) (finding that presidents tend to affect rule makings to a greater extent later in their administrations).

arbitrary interference in agency decision making. Because any concerns that OIRA may have with a regulation must be channeled into the language of cost-benefit analysis, the syntax and semantics of this language act as a limit on OIRA's power.

Of course, if cost-benefit analysis were infinitely flexible or were applied in an entirely ad hoc fashion, then this limit would not be meaningful. But that is not how the methodology of cost-benefit analysis has evolved. In fact, cost-benefit analysis has become a relatively standardized methodology that is applied in a consistent fashion over the course of many rule makings.⁵⁶

This system of regularization has come about to facilitate the smooth functioning of the regulatory-review process. Some amount of conflict between agencies and OIRA is an inevitable consequence of the system of regulatory review. If OIRA always simply deferred to agencies or agencies and OIRA shared preferences, there would be no need for the process of review. In reality, review matters because agencies and OIRA have different expertise, perspectives, and information. This diversity may help improve regulatory outcomes, but it also leads to interinstitutional disagreement.

Resolving these disputes is not always easy.⁵⁷ OIRA is granted substantial authority under the governing executive orders, but agencies are not placed in a subordinate role. A simple decision rule giving authority to OIRA to make methodological choices would require a substantial increase in OIRA's analytic capacity (in the face of potential opposition from Congress⁵⁸ and the prospect of agency resistance backed by claims of greater expertise). Because it is not agencies' job to simply execute marching orders from OIRA, disagreements must work their way up through internal bureaucratic channels. Disputes are referred up until, ultimately, the OIRA Administrator and political officials at the agency must attempt to resolve the conflict. If they cannot, direction from senior White House leadership is necessary: a costly, time-consuming, and generally undesirable out-

⁵⁶ See Part III for a discussion of the slow evolution of cost-benefit-analysis methodologies.

⁵⁷ See Cass R. Sunstein, *The Office of Information and Regulatory Affairs: Myths and Realities*, 126 Harv L Rev 1838, 1856-58 (2013) (describing process of "elevation" when controversies between agencies and OIRA cannot be resolved at the staff level).

⁵⁸ See Part IV.C.

come.⁵⁹ All parties have the incentive to attempt to resolve disputes without seeking such outside mediation.

Cost-benefit analysis helps avoid and resolve these disputes by establishing a standard set of norms that agencies and OIRA can apply to specific rule makings. As these norms are elaborated over time, they structure the rule-making proposals made by agencies and how OIRA review is carried out. In the course of this elaboration, new issues will arise, leading to the potential for further disputes. But once those disagreements are settled, inertia is likely to set in. Given the many pressing demands faced by agencies and OIRA, and the need to avoid constant seeking of direction from political leadership, risk-averse and resource-conscious managers are likely to frown on attempts to raise issues that have already been dealt with in the past. If a prior decision can be cited as controlling the current matter, internal bureaucratic forces are likely to encourage that it govern, absent a compelling reason to revisit the matter.⁶⁰

The regularization of cost-benefit analysis creates, in essence, a safe harbor for rules that are cost-benefit justified according to already-standardized analytic practices.⁶¹ Of course, this safe harbor is relevant only because of the existence of regulatory review. If OIRA review were eliminated, then no safe harbor would be necessary. But compared to a baseline in which OIRA review was applied in a standardless fashion, the existence of cost-benefit analysis helps cabin the exercise of review authority.⁶²

⁵⁹ During the Clinton years, the provision in the executive order granting the president the power to settle disputes between an agency and OIRA was used only once. See Kagan, 114 Harv L Rev at 2289 n 174 (cited in note 23).

⁶⁰ Precedent plays a resource-conserving function in courts. See Benjamin N. Cardozo, *The Nature of the Judicial Process* 149 (Yale 1921) (“[T]he labor of judges would be increased almost to the breaking point if every past decision could be reopened in every case.”). See also *Planned Parenthood of Southeastern Pennsylvania v Casey*, 505 US 833, 854 (1992) (“[N]o judicial system could do society’s work if it eyed each issue afresh in every case that raised it.”).

⁶¹ See Adrian Vermeule, *Conventions of Agency Independence*, 113 Colum L Rev 1163, 1203–14 (2013) (discussing the role of convention to limit the president’s power to direct agencies).

⁶² Perhaps the most well-known example of analysis altering an administration’s position was the lead phase-out rule during the Reagan administration, in which cost-benefit analysis was credited with saving EPA’s preferred rule. See generally Albert L. Nichols, *Lead in Gasoline*, in Richard D. Morgenstern, ed, *Economic Analyses at EPA: Assessing Regulatory Impact* 49 (Resources for the Future 1997) (providing a detailed account of the role of analysis in lead phase-out). Reflecting on his tenure at OIRA, John Graham describes instances in which agency cost-benefit analyses were used to help protective regulation survive political opposition from within the George W. Bush White

This safe harbor will be particularly powerful when there are long-established practices that provide guidance. When methodologies are less standardized, rule makings are more exposed during the process of review. One recent example is an EPA rule making on coal combustion waste. The cost-benefit analysis of that rule turned on the resolution of a novel methodology concerning the behavioral-economics effects of the rule on consumer markets for goods containing recycled coal ash.⁶³ Using the agency's preferred method, the strongest proposed alternative was best justified.⁶⁴ But the rule has since floundered, perhaps because the agency did not have a substantial body of research to support its position.⁶⁵ This outcome can be contrasted with other rules, of equal or greater economic significance, for which EPA was able to rely on established methodologies and ultimately pass review.⁶⁶

By defining the contours of the safe harbor through methodological development, agencies can expand the protection offered by cost-benefit analysis during the process of review. Agencies, and especially EPA, have devoted considerable time and effort to developing cost-benefit analysis. That effort is worthwhile even if cost-benefit analysis is not dispositive⁶⁷ and other considera-

House, including rules to reduce diesel engine exhaust and interstate air pollution and increase fuel efficiency. See Graham, 157 U Pa L Rev at 466–69, 472–81 (cited in note 24).

⁶³ Environmental Protection Agency, *Hazardous and Solid Waste Management System; Identification and Listing of Special Wastes; Disposal of Coal Combustion Residuals from Electric Utilities*, 75 Fed Reg 35128, 35211–18 (June 21, 2010) (discussing costs and benefits of the proposed rule and potential for a “stigma” effect to reduce beneficial use of coal ash).

⁶⁴ *Id.*

⁶⁵ Michael Patoka, *Ash Time Goes By: Administration Continues Foot-Dragging on Coal Ash Rule as Toxic Landfills and Ash Ponds Grow by 94 Million Tons Each Year*, CPRBlog (Center for Progressive Reform July 24, 2013), online at <http://progressivereform.org/CPRBlog.cfm?idBlog=109A8444-BFBB-6891-C205C8277C3118ED> (visited May 15, 2014) (criticizing the Obama administration for failing to move quickly to adopt coal ash rule).

⁶⁶ Compare Environmental Protection Agency, *Regulatory Impact Analysis for the Federal Implementation Plans to Reduce Interstate Transport of Fine Particulate Matter and Ozone in 27 States; Correction of SIP Approvals for 22 States 1* (2011) (estimating annual net quantified benefits between \$110 billion and \$280 billion) and Environmental Protection Agency, *Regulatory Impact Analysis for the Final Mercury and Air Toxics Standards 8-2 table 8-1* (2011) (estimating annual net quantified benefits between \$27 billion and \$80 billion), with Environmental Protection Agency, *Regulatory Impact Analysis: Final National Ambient Air Quality Standard for Ozone 10 figure S1.4* (2011) (showing potential for costs to exceed benefits).

⁶⁷ It is to be expected that, at least frequently, when “an administration’s political preferences conflict with economic analysis, analysis loses.” Stuart Shapiro, *Unequal*

tions play a role. So long as cost-benefit analysis is a factor, agencies will rationally devote resources to methodological development. As long as the harbor functions most of the time, allowing for only the occasional errant wave, agencies will have incentives to invest in building it out.

The following two Parts describe why agencies are well positioned to influence cost-benefit-analysis methodology and examine specific methodological issues in which agencies have had considerable success in shaping how cost-benefit analysis is carried out.

II. EPA'S ADVANTAGES

Over the past several decades, agencies have played a major role in shaping the methodology of cost-benefit analysis. Part III will examine specific areas in which EPA has had success in influencing cost-benefit-analysis methodology. This Part will discuss some of the sources of that agency's influence over cost-benefit analysis, focusing on three areas: Section A discusses the agency's greater economics capacity, Section B examines the agency's ability to fund outside research, and Section C reviews the agency's substantial information advantages during the rule-development process.

EPA, whose rules make up a large share of OIRA's docket, is particularly relevant, but other agencies have also invested in substantial economics capacity, and their efforts are likely to have had effects on cost-benefit-analysis methodology. The Department of Transportation, in particular, stands out as an agency that is often subjected to OIRA review and has a long practice of robust cost-benefit analysis in support of its rule makings.⁶⁸ But EPA may be a special case, and the final Section discusses factors that distinguish EPA from many other agencies. Even if EPA is special, its success is important in its own right and indicates, at the very least, the potential for other

Partners: Cost-Benefit Analysis and Executive Review of Regulations, 35 *Envir L Rptr* 10433, 10439 (2005).

⁶⁸ See W. Norton Grubb, Dale Whittington, and Michael Humphries, *The Ambiguities of Benefit-Cost Analysis: An Evaluation of Regulatory Impact Analyses under Executive Order 12291*, in V. Kerry Smith, ed, *Environmental Policy under Reagan's Executive Order: The Role of Benefit-Cost Analysis* 121, 131 (North Carolina 1984) (noting the DOT and EPA both had adopted cost-benefit-analysis guidelines); Viscusi and Aldy, 27 *J Risk & Uncertainty* at 54 (cited in note 6) (stating that the DOT "was a leader in valuing mortality risk reductions").

agencies to influence cost-benefit analysis and therefore the nature of regulatory review.⁶⁹

A. Economics Capacity

In part as a response to the cost-benefit-analysis requirement and OIRA review, EPA has made substantial investments in building its environmental-economics capacity.⁷⁰ Economists directly employed by the agency conduct internal research and analysis on a range of questions—from how firms respond to environmental mandates to the risk preferences of Americans—and continually engage with the peer reviewed economics literature as contributors, consumers, and funders. A sophisticated layer of consultants has sprouted up around the agency, responding to a continual flow of demand for research and analysis, especially in support of individual rule makings. A large cadre of academics in the field of environmental economics has been supported by the agency, both directly (in the form of research grants) and indirectly (by providing career opportunities for graduating students and a constant stream of data and research questions with important public policy implications).

It is easy to lose sight of EPA's capacity in environmental economics because the agency is so large, and economics makes up a relatively small portion of what the agency does. In his extensive study of economic analysis at EPA, Richard Morgenstern characterizes EPA's culture as "a legal culture, buttressed, in large part, by scientific considerations and, to a far lesser extent, by economic factors."⁷¹ EPA has over seventeen thousand employees;⁷² according to the agency's website, "more than half are

⁶⁹ Agency influence may not always point in the same direction. Viscusi and Aldy, 27 *J Risk & Uncertainty* at 54 (cited in note 6) (noting that DOT's estimates of the value of mortality risks "ha[ve] continued to lag behind the estimates in the literature" perhaps because of an "anchoring effect" associated with "an era in which the present value of lost earnings was the dominant approach").

⁷⁰ See Grubb, Whittington, and Humphries, *Ambiguities of Benefit-Cost Analysis* at 145–54 (cited in note 68) (surveying and evaluating steps taken by EPA in response to the Reagan order); Matthew C. Stephenson, *Bureaucratic Decision Costs and Endogenous Agency Expertise*, 23 *J L, Econ & Org* 469, 476–77 (2007) (discussing how manipulation of "enactment cost" for agencies can produce incentives to invest in expertise).

⁷¹ Richard D. Morgenstern, *The Legal and Institutional Setting for Economic Analysis at EPA*, in Morgenstern, ed, *Economic Analyses at EPA* 5, 12 (cited in note 62).

⁷² Environmental Protection Agency, *FY 2012 EPA Budget in Brief* 11 (2011).

engineers, scientists, and policy analysts.”⁷³ Of the employees with graduate degrees, the most commonly held degrees are in law, engineering, and the sciences, with economics degrees making up only around 2 percent of the degrees held.⁷⁴

Compared to other disciplines at the agency, then, economists are relatively scarce, but in absolute terms, “there are probably more economists working on environmental issues employed at the EPA than at any other single institution in the world.”⁷⁵ Estimates of personnel actively engaged in environmental economics at the agency range from 89 to 120.⁷⁶ By way of comparison, OIRA employs a total of around fifty staff members, many of whom are not economists.⁷⁷ The largest percentage of EPA economists is located within the Office of the Administrator, which includes the Office of Policy⁷⁸ and which plays a major role in EPA rule making.⁷⁹ EPA’s policy office has been characterized as a “mini-OMB” within the agency.⁸⁰

The National Center for Environmental Economics (NCEE) in the Office of Policy is staffed with dozens of economists and is

⁷³ Environmental Protection Agency, *How Many People Work for the EPA?*, online at <http://publicaccess.supportportal.com/link/portal/23002/23012/Article/17588/How-many-people-work-for-the-EPA> (visited May 15, 2014).

⁷⁴ Morgenstern, *Legal and Institutional Setting for Economic Analysis* at 15 table 2 (cited in note 71).

⁷⁵ *Id.* at 14.

⁷⁶ The National Center for Environmental Economics (NCEE) used job classifications to estimate that EPA employed eighty-nine economists in 2009. NCEE, *Number of EPA Economists in 2009* (on file with author). The estimate of 120 is from an internal EPA “Economics Forum” list, “which is a group of EPA staff having interest/responsibility for economic work.” Email from Brett Snyder to J. Scott Holladay (July 14, 2011) (on file with author). This number comports with a 1996 figure reported by Morgenstern of 116 EPA employees with economics graduate degrees. Morgenstern, *Legal and Institutional Setting for Economic Analysis* at 15 table 2 (cited in note 71). Some individuals with economics graduate degrees may be engaged in budget creation that is not related to environmental economics, while some with a noneconomic graduate degree, such as a Master of Public Policy, may be heavily involved with environmental-economics-related research or analysis. See Email from Snyder to Holladay (cited in note 76).

⁷⁷ See OIRA, *Frequently Asked Questions*, online at <http://www.reginfo.gov/public/jsp/Utilities/faq.jsp> (visited May 15, 2014).

⁷⁸ Email from Snyder to Holladay (cited in note 76). The Office of Air and Radiation also employs a substantial number of economists, with the other program offices (such as the Office of Water) employing a smaller number. *Id.*

⁷⁹ See Thomas O. McGarity, *Reinventing Rationality: The Role of Regulatory Analysis in the Federal Bureaucracy* 256–61 (Cambridge 1991) (discussing the influence of the policy office over the course of several administrators).

⁸⁰ *Id.* at 256.

the clearinghouse for economics within the agency.⁸¹ It carries out a number of economics-related duties, including consulting with other offices on analytical questions, conducting research on a wide range of environmental-economics questions, preparing and updating agency-wide guidance on cost-benefit analysis, funding external research, and serving as a training ground for economists who go on to take other positions within the agency and the federal government.⁸² It is the culmination of efforts, begun in 1983 (not long after the Reagan order was issued), to consolidate economic activities under the policy office so that it could play a greater role in regulatory-impact analysis.⁸³

Economists at program offices also play important roles.⁸⁴ The program offices bear most of the burden of preparing regulatory-impact analyses for individual rules—in which the theory of cost-benefit analysis intersects with practical reality. Economists within the program offices work directly on those analyses and supervise the work of outside consultants. They also engage in research on crosscutting economic questions⁸⁵ and have taken the lead on developing best-practice handbooks and guidance on economic issues of particular concern to their topic area.⁸⁶

Outside consultants are also extremely important. They take on a substantial portion of the economics workload at EPA, especially in the preparation of regulatory-impact analyses. To

⁸¹ NCEE was created during an internal reorganization of the agency's economics personnel in 2000. Predecessors of the current organization stretch back almost to the origins of EPA. See NCEE, *Organization and History*, online at <http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/Organization.html> (visited May 15, 2014). These include the Benefits Branch, which existed within what was then the Office of Policy, Planning and Evaluation in the mid-1980s and the Implementation Research Division at the Office of Research and Development in the early 1970s. *Id.* As of this writing, there were twenty-eight economists at NCEE. NCEE, *Staff Profiles*, online at <http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/Staff.html> (visited May 15, 2014).

⁸² See NCEE, *Alumni - Former NCEE Staff*, online at <http://yosemite.epa.gov/ee/epa/eed.nsf/87f47db4cfc956d7852575a6006ab365/c0167733a3872e3d852576a2007643fe!OpenDocument> (visited May 15, 2014).

⁸³ See Alan Carlin, *Appendix 1: History of Economic Research at the EPA*, in Robert C. Anderson and Paul Kobrin, *Introduction to Environmental Economics Research at EPA* (Environmental Protection Agency Aug 2006), online at <http://yosemite.epa.gov/EE/epa/eed.nsf/dcee735e22c76aef85257662005f4116/2f68aa9ffb75364b8525779700781a24!OpenDocument> (visited May 21, 2014) (noting move of economics research program from EPA's Office of Research and Development to the Office Policy, Planning and Evaluation to respond to demands of Reagan order).

⁸⁴ See Environmental Protection Agency, *Economics & Cost Analysis Support*, online at <http://www.epa.gov/ttnecas1/index.html> (visited May 15, 2014).

⁸⁵ See generally, for example, Bryan J. Hubbell, *Implementing QALYs in the Analysis of Air Pollution Regulations*, 34 *Envir & Res Econ* 365 (2006).

⁸⁶ See Part III.A.

give a sense of the scale, of the sixty-five regulatory analyses prepared between 1995 and 1996, consultants were employed on over 85 percent.⁸⁷ Between 1985 and 1986, they were employed on over 90 percent of the analyses.⁸⁸

The agency has created a peer review system dedicated to economic questions through a standing committee of the Science Advisory Board. The Environmental Economics Advisory Committee was established in 1990⁸⁹ and has included a large number of leading scholars in the field. Since its inception, it has provided peer review support and advice for EPA's economics efforts on a large number of topics, including discount rates,⁹⁰ multiple valuation techniques,⁹¹ best practices,⁹² and retrospective review.⁹³

B. Support for Research

In President Richard Nixon's executive order creating the Environmental Protection Agency, the two primary "roles and functions" given to EPA were "[t]he establishment and enforcement of environmental protection standards" and "[t]he conduct of research on the adverse effects of pollution and on methods and equipment for controlling it."⁹⁴ From the beginning, that research mission has included economic questions: within a year of its creation, EPA had funded research examining the relationship between property values and air pollution in Chicago⁹⁵ and

⁸⁷ This estimate is based on the information contained in the Environmental Economics Report Inventory and was compiled by Chris Anderson. NCEE, *Environmental Economics Reports Inventory Database*, online at <http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/EnvironmentalEconomicsReports.html> (visited May 15, 2013) ("EERI").

⁸⁸ See *id.*

⁸⁹ Sheila M. Cavanagh, Robert H. Hahn, and Robert N. Stavins, *National Environmental Policy during the Clinton Years* 8 n 11 (Resources for the Future Discussion Paper No 01-38, Sept 2001).

⁹⁰ See, for example, EPA Science Advisory Board, Letter to EPA Administrator Lisa P. Jackson 11–14 (Sept 24, 2009) (discussing perspectives on discounting).

⁹¹ See, for example, EPA Science Advisory Board, *Valuing the Protection of Ecological Systems and Services* 43–57 (2009) (advising EPA on valuation techniques).

⁹² See, for example, EPA Science Advisory Board, Letter to EPA Administrator Stephen L. Johnson 8–13 (Aug 22, 2006) (reviewing practices used to draft guidance for Regulatory Environmental Models).

⁹³ See, for example, EPA Science Advisory Board, Letter to EPA Administrator Carol M. Browner 59–61 (March 30, 1995) (analyzing review procedures).

⁹⁴ Reorganization Plan No 3 of 1970, in 2 *Environmental Statutes* 1582, 1588 (Government Institutes 2008).

⁹⁵ See generally Thomas D. Crocker, *Urban Air Pollution Damage Functions: Theory and Measurement* (1971).

a study examining how willingness to pay for improved water quality varied with income in Boston.⁹⁶

NCEE has compiled databases of environmental-economics-research reports carried out or funded by EPA. The largest repository of research not directly related to regulatory-impact analyses is the Environmental Economics Report Inventory, which currently stands at over 660 reports prepared between 1971 and 2011.⁹⁷ The research included in this database covers both empirical and theoretical analysis addressing a wide variety of issues, from tax subsidies and investment behavior in polluting industries (1997)⁹⁸ and the income-distribution effects of pollution control (1973)⁹⁹ to the economic effects of acidification on fishing (1985).¹⁰⁰ EPA offices carried out some of this research directly—about one hundred entries in the database—but most was conducted by outside actors, either independent consultants or academics.¹⁰¹

The NCEE Environmental Economics Report Inventory is augmented by a separate database of research funded by EPA's Office of Research and Development and its partners, most notably the National Science Foundation (NSF). The NSF/EPA Funding for Environmental Economics database includes more than 150 additional research projects funded in the period 1991 to 2004.¹⁰² These projects covered a wide range of topics, from monetary estimates of the value of avoided infant exposure to

⁹⁶ See generally Marc J. Roberts, *A Study of the Measurement and Distribution of Costs and Benefits of Water Pollution Control* (1971).

⁹⁷ See EERI (cited in note 87). This database is not complete and is missing reports from certain years. See also Alan Carlin, *Preface*, in Robert C. Anderson and Paul Kobrin, *Regulatory Economic Analysis at the EPA* (NCEE June 2000), online at <http://yosemite.epa.gov/ee/epa/eed.nsf/2602a2edfc22e38a8525766200639df0/002f723d6189d45e852577f800072d66!OpenDocument> (visited May 21, 2014).

⁹⁸ See generally Abt Associates, *A Profile of Tax Subsidies and Investment Behavior in Six Major Polluting Industries* (1997).

⁹⁹ See generally Nancy S. Dorfman and Arthur Snow, *Who Bears the Cost of Pollution Control? The Impact on the Distribution of Income of Financing Federally Required Pollution Control* (National Technical Information Service 1973).

¹⁰⁰ See generally Daniel M. Violette, *A Model Estimating the Economic Impacts of Current Levels of Acidification on Recreational Fishing in the Adirondack Mountains* (BiblioGov 1985).

¹⁰¹ See EERI (cited in note 87) (sorted by "Research Organization"), online at <http://yosemite.epa.gov/ee/epa/erm.nsf/vwFKR?OpenView&Start=1&Count=100&RestrictToCategory=E> (visited May 15, 2014).

¹⁰² See NCEE, *Research Funding*, online at <http://yosemite.epa.gov/ee/epa/eed.nsf/Webpages/ResearchFunding.html> (visited May 15, 2014) ("NSF/EPA Database").

nitrites in drinking water¹⁰³ to the effect of certain air-pollution requirements on employer/employee relationships.¹⁰⁴

Additional economic research carried out or funded by NCEE is collected in a working-paper series that has run from 2001 and covers staff research on such topics as property value and underground storage tanks¹⁰⁵ and the effect of latency on willingness to pay to avoid mortality risk.¹⁰⁶ As of mid-2012, there were roughly one hundred research projects published as working papers. Economics research is also carried out by the program offices in relation to specific regulatory-impact analyses.¹⁰⁷

Resources to fund external economics research during the past several decades have fluctuated between several hundred thousand dollars up to \$4 million per year.¹⁰⁸ This represents a very small portion of EPA's overall budget, and even of the agency's research budget.¹⁰⁹ But compared to OIRA's research

¹⁰³ See John Loomis, et al, *A Comparison of Actual and Hypothetical Willingness to Pay of Parents and Non-parents for Protecting Infant Health: The Case of Nitrites in Drinking Water*, 41 J Ag & Applied Econ 697, 710 (2009).

¹⁰⁴ See generally Gordon Scott Bonham, *Economic and Social Impact of Employees Commute Requirements of the Federal Clean Air Act Amendments of 1990* (1993), online at <http://yosemite.epa.gov/ee/epa/eed.nsf/41565cd88a5ab1a3852575a6006ab35e/ffb36a83831bd004852575a7005e9357?OpenDocument> (visited May 15, 2014).

¹⁰⁵ See generally Dennis Guignet, *What Do Property Values Really Tell Us? A Hedonic Study of Underground Storage Tanks*, 81 Land Econ 211 (2013).

¹⁰⁶ See generally Anna Alberini, et al, *Willingness to Pay for Mortality Risk Reductions: Does Latency Matter?*, 32 J Risk & Uncertainty 231 (2006).

¹⁰⁷ These are included in a different database. See NCEE, *Regulatory Economic Analyses Inventory*, online at <http://yosemite1.epa.gov/ee/epa/eed.nsf/webpages/RegulatoryImpactAnalyses.html> (visited May 15, 2014) ("REAI"). See also Anderson and Kobrin, *Regulatory Economic Analysis at the EPA* § 5 (cited in note 97), online at <http://yosemite1.epa.gov/ee/epa/eed.nsf/dcee735e22c76aef85257662005f4116/4d65f41594cb6591852577f800072d4d?OpenDocument> (visited May 15, 2014) (providing economic assessments of various water regulations).

¹⁰⁸ Carlin, *Appendix 1* (cited in note 83) (providing estimates of research dollars from 1971 to 2009). Nominal funding levels seem to have remained somewhat consistent, meaning that in real terms, research funding has declined. In the first period in the Carlin analysis (1971–75), "[r]esources averaged about \$3 million per year." *Id.* Assuming that figure has not been indexed for inflation, that would amount to roughly \$12.5 million in 2011 dollars (adjusted for inflation). See Bureau of Labor Statistics, *CPI Inflation Calculator*, online at http://www.bls.gov/data/inflation_calculator.htm (visited May 15, 2014) ("BLS Inflation Calculator").

¹⁰⁹ EPA's budget has largely fluctuated between \$8 billion and \$10 billion in 2013 dollars. See *EPA's Budget and Spending*, online at <http://www2.epa.gov/planandbudget/budget> (visited May 15, 2014) (adjusted using BLS Inflation Calculator (cited in note 108)). EPA's proposed budget for "research and innovation" for 2013 was \$576 million, of which \$81 million is dedicated to Science to Achieve Results (STAR) grants, which funds research economics as well as other fields. EPA, News Release, *EPA's FY 2013 Budget Proposal Focuses on Core Environmental and Human Health Protections* (Feb 13, 2012),

budget, which is essentially nil, it is nevertheless significant.¹¹⁰ Major institutional recipients included academic institutions with environmental-economics departments, consultants, and think tanks, especially Resources for the Future.¹¹¹

The general topics of this research have remained relatively consistent over the years. The development of tools to assign monetary values to environmental benefits has likely been the greatest recipient of research dollars.¹¹² A large number of other questions occupy a second tier of research concerns, including the effect of market-incentive approaches, methods for cost estimation, and industrial analysis.¹¹³ The primary difference over time has been in the level of detail and sophistication of the

online at <http://yosemite.epa.gov/opa/admpress.nsf/324e040292e1e51f85257359003f533a/d38e604ef465557a852579a3005f4630!OpenDocument> (visited May 15, 2014). EPA's funding for economics research is dwarfed by other federal institutions. For an example of a much larger institutional research budget, see National Institute of Health, *NIH Awards by Location & Organization*, online at <http://report.nih.gov/award/index.cfm> (visited May 15, 2014).

¹¹⁰ The primary offices funding the research were the Office of Policy and Office of Research and Development. See Alan Carlin, *Appendix 1* (cited in note 83). The Office of Policy has also been known as the Office of Policy, Planning and Evaluation, and the Office of Policy, Economics and Innovation. Granting programs were consolidated within NCEE in 2008. *Id.*

¹¹¹ See EERI (cited in note 101) (sorted by "Research Organization").

¹¹² See Alan Carlin, *Appendix 2: Analysis of the Distribution of Research Reports Prepared under the EPA Economic Research Program by Subject and Period, 1971-1989*, in Anderson and Kobrin, *Environmental Economic Analysis* (cited in note 83) (noting a shift in the period after the Reagan order toward greater research devoted to benefits quantification and monetization).

¹¹³ See *id.* Compare Resources for the Future, *A Program of Economics Research on Improving Estimation of Benefits from Reduced Pollution* vii–viii (February 1981) (identifying research areas as: improving "econometric-epidemiological methods" aimed at establishing dose-response relationships for human health and environmental contamination; using market data to identify willingness to pay to avoid morbidity and mortality risk; improving survey techniques for stated preference studies; and using surveys for "hard-to-approach categories of benefits" such as visibility and existence value), with Environmental Protection Agency, *Environmental Economics Research Strategy ES-3* (Dec 2005) (identifying research areas as valuation of human health benefits, valuation of ecological benefits, compliance behavior, market instruments, and benefits of environmental-information disclosure).

questions that are asked¹¹⁴ and the occasional waxing and waning of research interest.¹¹⁵

Assessing the totality of the impact of EPA's research agenda on the practice of cost-benefit analysis is difficult, but it is clear that in the long march of progress in building the field of environmental economics—generating data, perfecting measurement and statistical techniques, and constructing theoretical foundations—EPA has been a major contributor.¹¹⁶ To give a very rough-and-ready sense of the relationship between EPA and leading researchers in the field, of the five economists most cited in environmental-economics journals, three have at some point received funds listed in the NSF/EPA Environmental Economics Database and the Environmental Economics Research Inventory.¹¹⁷ The two most cited economists, Richard T. Carson and Michael W. Hanemann, together received seventeen grants. Other important figures within the environmental-economics community who have received substantial research support from EPA include Thomas D. Crocker (thirty-seven grants or contracts), Maureen L. Cropper (twelve grants or contracts), A. Myrick Freeman (seven grants or contracts), V. Kerry Smith (twen-

¹¹⁴ Contrast Resources for the Future, *A Program of Economics Research* at 45–49 (cited in note 113) (identifying elementary methodological questions concerning mortality and morbidity-risk-reduction valuation), with EPA, *Environmental Economics* at 3-3 (cited in note 113) (identifying more complex research questions such as the interaction between mortality-risk value and other variables such as age and health status, the illness that accompanies mortality risks (such as illness from cancer), and risk characteristics such as voluntariness).

¹¹⁵ For example, topics that were beginning to gain prominence in the early 1980s, such as the efficacy of trading programs, had by 2005 become major areas of research, and other issues—behavioral issues around voluntary compliance and the value of environmental information—had not yet been conceived. See EPA, *Environmental Economics* at 2-6 (cited in note 113).

¹¹⁶ An example of the kind of subtle influence the agency has had on the profession is support for the environmental economist A. Myrick Freeman III during the period of time before his publication of *The Benefits of Environmental Improvement: Theory and Practice* (Resources for the Future 1979), which would become an important touchstone that generated research topics for well over a decade. See V. Kerry Smith, *Foreword*, in A. Myrick Freeman III, *The Measurement of Environmental and Resource Values: Theory and Methods* xiii, xiii–xiv (Resources for the Future 2d ed 2003).

¹¹⁷ Compare Maximilian Auffhammer, *The State of Environmental and Resource Economics: A Google Scholar Perspective*, 3 *Rev Envir Econ & Pol* 251, 262 (2009) (providing list of most cited authors), with EERI (cited in note 87) (sorted by “Author”), online at <http://yosemite.epa.gov/ee/epa/erm.nsf/Author> (visited May 15, 2014); NSF/EPA Database (cited in note 102) (sorted by “Investigators”), online at <http://yosemite.epa.gov/ee/epa/eed.nsf/Webpages/ResearchFundingI.html> (visited May 15, 2014).

ty-three grants or contracts), and W. Kip Viscusi (twenty-six grants or contracts).¹¹⁸

C. Individual Regulatory-Impact Analyses

Disaggregating the influence of OIRA and EPA in determining the content of individual regulatory-impact analyses is difficult. Nevertheless, there can be little doubt that EPA plays *some* role in deciding important methodological questions, either because OIRA does not engage on an issue, because EPA is able to influence the staff at OIRA, or because the agency is able to have its decisions respected even in the face of some opposition from OIRA.

EPA has compiled its regulatory-impact analyses and the documents supporting those analyses into the Regulatory Economic Analyses Inventory. By 2000, when the Environmental Law Institute was contracted to provide an overview of the database, it included over 1,200 documents, of which 320 were classified as impact analyses.¹¹⁹ These analyses cover the entire range of regulatory topics within EPA's jurisdiction and include impact analyses of rules¹²⁰ as well as many research reports carried out on particular topics in service of general policy-office regulatory agendas.¹²¹ This massive body of work, covering cost-benefit analysis in practice, is where many of the methodological issues around cost-benefit analysis arise and are worked out.

Although it is difficult to know the relative influence of OIRA and EPA over specific regulatory-impact analyses, EPA brings many important advantages to the table. First and foremost, it is charged with actually conducting the analysis in the first instance, gathering the relevant data, and selecting alternatives. There is an extensive internal procedure that governs

¹¹⁸ EERI (cited in note 117) (sorted by "Author"); NSF/EPA Database (cited in note 117) (sorted by "Investigators"); NCEE, *NCEE Working Paper Series* (sorted by "Authors"), online at <http://yosemite.epa.gov/ee/epa/eed.nsf/webpages/WorkingPapersByAuthor.html> (visited May 15, 2014).

¹¹⁹ See Anderson and Kobrin, *Regulatory Economic Analysis* § 1 (cited in note 107107).

¹²⁰ See, for example, Environmental Protection Agency, *Air Pollutant Emission Standards and Guidelines for Municipal Waste Combustors: Revision and Update of Economic Impact Analysis and Regulatory Impact Analysis* 4-1 to -13 (Nov 1990).

¹²¹ For example, a 1978 report on "air pollutant control techniques for phosphate rock processing industry" by a contractor in service of the Office of Air Quality Planning and Standards was part of an effort to facilitate state and local regulation. See David M. Augenstein, *Air Pollutant Control Techniques for Phosphate Rock Processing Industry* ii (National Technical Information Service 1978).

the internal rule-making process, managed by an interoffice taskforce, with multiple steps for gathering and analyzing data, compiling information, and structuring decision making by political appointees, all of which culminates in the selection of alternatives and, ultimately, the cost-benefit analysis.¹²² While OIRA has a role to play in that process, it is relatively thin and relatively late.¹²³ Typically, OIRA does not see the regulatory-impact analyses until they have been fully drafted, thereby having to deal with a status quo that can be difficult to reverse.¹²⁴

In addition, the sheer resources that EPA can bring to bear in support of a rule making vastly outstrip OIRA's. EPA has a team of professionals charged with preparing the regulatory-impact analysis, often augmented by outside consultants. OIRA has a single desk officer, or at most a small group within the office. Some additional information may be available from interest groups and other agencies and White House offices, but neither outside groups nor other offices are likely to be intimately familiar with the details of the regulatory-impact analysis.

Of course, OIRA brings important advantages as well, chief among them the ability to say no, at least for a while.¹²⁵ But from the perspective of cognition and information processing, EPA has substantial advantages.¹²⁶ On the issue of alternatives selection, for example, if agency personnel do not include nonobvious alternatives in the regulatory-impact analysis, these options may not become known to OIRA. And even when known alternatives exist, it is difficult, though not impossible, to force the agency to consider a major alteration of its initial options set.¹²⁷ On the myriad other questions of lower importance, about

¹²² See Jeffrey S. Lubbers, *A Guide to Federal Agency Rulemaking* 241–53 (ABA 4th ed 2006) (outlining the internal rule-making process).

¹²³ See *id.* at 251–53.

¹²⁴ See *id.*

¹²⁵ In some ways, this makes OIRA analogous to courts. See, for example, *EME Homer City Generation v Environmental Protection Agency*, 696 F3d 7, 12 (DC Cir 2012) (reversing the second attempt by EPA to institute emissions trading regime under interstate pollution provision of Clean Air Act), *revd and remd Environmental Protection Agency v EME Homer City Generation, L.P.*, 134 S Ct 1584 (2014).

¹²⁶ For this reason, OIRA must often rely on outside parties, including regulated industry, to provide information. See Mathew D. McCubbins, Roger G. Noll, and Barry R. Weingast, *Structure and Process, Politics and Policy: Administrative Arrangements and the Political Control of Agencies*, 75 Va L Rev 431, 434 (1989).

¹²⁷ See Richard D. Morgenstern and Marc K. Landy, *Economic Analysis: Benefits, Costs, Implications*, in Morgenstern, ed, *Economic Analyses at EPA* 455, 473–74 (cited in note 62) (discussing the problem of economic analysis occurring too late in the rule-

which those outside the agency have even less information and fewer incentives to interfere in the agency's decision making are even lower, it seems likely that EPA's discretion over the shape of individual regulatory-impact analyses is even greater.

D. Is EPA Special?

Before examining how EPA's advantages have translated into influence over the shape of cost-benefit analysis, it is worth considering whether and in what ways EPA is different from other administrative agencies. If EPA is not typical, observations about how EPA has influenced cost-benefit-analysis methodology will not be universally generalizable. Understanding the ways in which EPA is special can help establish the limits of the claims in this Article and clarify the conditions under which agencies are more or less likely to be able to exert methodological influence.

Perhaps most obviously, EPA has extensive rule-making capacity and experience. Between 1990 and 2010, 328 economically significant rules proposed by EPA were reviewed by OIRA.¹²⁸ The only agency with a larger number of economically significant rules reviewed was the Department of Health and Human Services, with 516. The Department of Agriculture had a similar number of economically significant rules, with 312.¹²⁹ The only other agency to break 100 rules was the Department of Transportation, with 187 economically significant rules.¹³⁰ EPA's experience translates into both expertise and opportunity.

The agency also regulates in a highly technical area, so it is relatively difficult for outsiders to evaluate the agency's judgments on many issues. Professor Thomas McGarity provides a compellingly mind-boggling list of the various types of technical expertise that the agency must bring to bear on a single air-quality rule making, which requires experts in "toxicology, epidemiology, and the etiology of lung diseases," "atmospheric chemistry," "air pollution dispersion modeling," "stationary source technology," "mobile source technology," "transportation

making process). Regulatory stringency is one major area in which the options can be obvious and OIRA can have a major impact on the alternatives presented.

¹²⁸ Office of Information and Regulatory Affairs, *Review Counts*, online at <http://www.reginfo.gov/public/do/eoCountsSearchInit?action=init> (visited May 15, 2014) (searched from Jan 1, 1990, to Jan 1, 2010).

¹²⁹ *Id.*

¹³⁰ *Id.*

and urban planning,” “economics,” “environmental law,” “enforcement,” and “politics.”¹³¹ With such varied and specialized technical expertise in play, a habit of deference to agency judgment would be easy to develop.

The agency’s political context matters.¹³² There is a thick interest group constellation surrounding EPA, with a wide range of industry actors (often on both sides of a regulatory issue) as well as relatively well-funded interest groups that promote stronger environmental regulation. This large number of groups affected by EPA regulation may give the agency some degree of latitude to set its own agenda, “secure in the knowledge that somebody out there is likely to be their ally.”¹³³ At the same time, the agency is likely to face criticism no matter its course of action, which can drain time and resources, and EPA will be subject to shifting political direction when elections reshape control over the White House and Congress.¹³⁴ Although interest groups can sometimes hinder the agency, EPA is in a stronger position to control its own fate than agencies that are captured by a single client or those that lack organized political support.¹³⁵ Furthermore, EPA regulation covers quality-of-life issues, such as air quality, that affect all US residents. Politicians that oppose EPA are justifiability sensitive to being cast in an antienvironmental light. EPA’s authority also touches on matters that, at least periodically, are raised to the level of high salience within the broader electorate.¹³⁶

EPA is also different in that, unlike the mandates at some agencies, there is a strong and widely recognized economic justification for environmental regulation. It has been known for decades that pollution is a source of market failure—an appro-

¹³¹ Thomas O. McGarity, *The Internal Structure of EPA Rulemaking*, 54 L & Contemp Probs 57, 60–61 (Autumn 1991).

¹³² For a pessimistic perspective on how EPA’s political context has thwarted the success of the agency, see Richard J. Lazarus, *The Tragedy of Distrust in the Implementation of Federal Environmental Law*, 54 L & Contemp Probs 311, 315–17 (Autumn 1991).

¹³³ Wilson, *Bureaucracy* at 81 (cited in note 42).

¹³⁴ *Id.*

¹³⁵ Wilson refers to the former as resulting from “client” politics and the latter as resulting from “entrepreneurial” politics. *Id.* at 76–77.

¹³⁶ See, for example, Friederike Schultz, et al, *Strategic Framing in the BP Crisis: A Semantic Network Analysis of Associative Frames*, 38 Pub Rel Rev 97, 101–03 (2012) (examining the public relations strategy deployed by BP to reduce reputational harm associated with the 2010 Deepwater Horizon oil spill).

priate target for government intervention.¹³⁷ Debates within the economics community concern not *whether* environmental regulation is necessary, but rather second-order questions such as how to value the benefits associated with ecosystem protection. EPA's position can be compared to agencies such as the Department of Labor or the Securities and Exchange Commission (SEC), in which the economic case for regulation is more highly contested within the economics profession.¹³⁸

EPA may also enjoy a special status within associated professional communities, including environmental economics, environmental law, toxicology, and ecology. It is reasonable to hypothesize that there may be a dispositional difference between, for example, individuals drawn to environmental versus financial economics. If so, environmental economists may be more favorably disposed to EPA regulation than financial economists are toward the SEC, even aside from the strength of the relative justifications for government intervention. This should not be overdrawn to imply that environmental professionals regularly subvert norms of objectivity, rationality, dispassion, and empiricism to forward their subjective ideological whims. But it is a potential feature of EPA's operating environment that is worth considering.

Finally, EPA has a relatively strong sense of mission compared to many other agencies.¹³⁹ For a variety of reasons, government institutions often have difficulty establishing the kind of widely shared and "warmly endorsed" culture that "confers a feeling of special worth" on bureaucratic work.¹⁴⁰ But exceptions exist, especially when special conditions at an agency's founding "imprint" characteristics on agency structure and culture that

¹³⁷ See A.C. Pigou, *The Economics of Welfare* 159–63 (Macmillan 1920) (developing the concept of externalities).

¹³⁸ See Stephen Nickell, *Unemployment and Labor Market Rigidities: Europe versus North America*, 11 *J Econ Persp* 55, 66–67 (Summer 1997) (discussing theories on how employee protection may result in unemployment and providing empirical analysis with mixed results); Henry T.C. Hu, *Efficient Markets and the Law: A Predictable Past and an Uncertain Future*, 4 *Ann Rev Fin Econ* 179, 206–07 (2012) (discussing how economic theory interacts with financial regulation).

¹³⁹ See Wilson, *Bureaucracy* at 95 (cited in note 42).

¹⁴⁰ *Id.* Difficulties include multiple competing goals, a hothouse political atmosphere, and even intentional steps taken by Congress to overload an agency with tasks while undermining its ability to effectively carry out its work. See Terry Moe, *The Politics of Bureaucratic Structure*, in John E. Chubb and Paul E. Peterson, eds, *Can the Government Govern?* 267, 275–79 (Brookings 1989).

persist despite potentially adverse subsequent developments.¹⁴¹ When EPA was created, Congress was in the midst of adopting major bipartisan pieces of legislation that established, in EPA, expansive powers to remake the economy in a more environmentally friendly direction. This congressional action occurred against the political backdrop of the second-wave environmental movement and a broader social and cultural recognition of environmental values.¹⁴² William Ruckelshaus, the agency's first administrator, was also a bipartisan and charismatic leader who was in a position to communicate a clear sense of EPA's mission to personnel and the broader public.¹⁴³ The basic circumstances of EPA's founding were especially favorable to the development of a clear organizational mission.

All of these factors may combine to produce an agency that is particularly well positioned to exert influence within the executive branch. EPA's experience may well not represent the norm in how agencies interact with OIRA or the methodology of cost-benefit analysis. But the EPA case is important—both in its own right, given the agency's large regulatory output, and as a demonstration of the possibilities for agencies in general to influence cost-benefit-analysis methodology.

III. EPA'S INFLUENCE

The following Sections examine instances in which EPA influence on the methodology can be traced. Of course, no individual case is completely clear-cut. It is possible that similar choices would have been made without EPA playing an important role: there is no counterfactual against which the actual evolution of the methodology can be compared. But the substantial agency resources that have been devoted and the relationship between the final outcomes and the agency's reasonably clear preferences are highly evocative of substantial influence. Part III.A discusses EPA's long tradition of establishing cutting-edge, best-practice guidelines that support the agency's preferred

¹⁴¹ See Christopher Marquis and András Tilcsik, *Imprinting: Toward a Multilevel Theory*, 7 *Acad Mgmt Annals* 195, 200–04 (2013).

¹⁴² See Samuel P. Hays, *Beauty, Health, and Permanence: Environmental Politics in the United States, 1955–1985* 527–43 (Cambridge 1987) (examining social and political consequences of second-wave environmental movements).

¹⁴³ See generally Raanan Lipshitz and Leon Mann, *Leadership and Decision Making: William R. Ruckelshaus and the Environmental Protection Agency*, 11 *J Leadership & Org Stud* 41 (2005) (providing history of Ruckelshaus's terms as EPA administrator and examining his leadership style).

methodologies and end up being broadly influential within the executive branch. Parts III.B and III.C discuss specific methodological issues: first, the value of statistical life; and second, the contingent valuation technique used to value nonmarket goods. The final Section discusses instances in which EPA has been able to influence other agencies or interagency processes concerning valuation of regulatory benefits.

A. Best-Practice Guidelines

Over the past three decades, the methodology of cost-benefit analysis has evolved considerably. In particular, a revolution in estimating and valuing regulatory benefits has allowed more complete and economically meaningful analyses to be conducted.¹⁴⁴ Over the same period, OIRA and agencies have improved the best-practice guidelines that are used to inform individual regulatory-impact analyses. These guidelines are meant to contain an updated assessment of the state of the art in cost-benefit-analysis methodology. Although in individual cases regulatory-impact analyses can depart from the recommendations of the guidelines, they have a very strong anchoring effect.¹⁴⁵

OIRA has issued four separate guidance documents: in 1981,¹⁴⁶ 1987,¹⁴⁷ 1996,¹⁴⁸ and 2003.¹⁴⁹ In addition, the Clinton order that continues to govern regulatory review (signed in 1993) includes many elements that can be understood as best-practice guidance. EPA has issued updated guidelines roughly every ten

¹⁴⁴ See Richard T. Carson, *Contingent Valuation: A Comprehensive Bibliography and History* 3–12 (Elgar 2011).

¹⁴⁵ See, for example, Viscusi and Aldy, 27 *J Risk & Uncertainty* at 54 (cited in note 6) (finding that the Federal Aviation Administration's low value of a statistical life may reflect an anchoring effect). But see Jerry Ellig, Patrick A. McLaughlin, and John F. Morrall III, *Continuity, Change, and Priorities: The Quality and Use of Regulatory Analysis across US Administrations*, 7 *Reg & Governance* 153, 154 (2013) (arguing that detailed guidance to agencies has not led to high-quality regulatory analysis).

¹⁴⁶ Office of Management and Budget, *Interim Regulatory Impact Analysis Guidance*, 11 *Envir Rptr (BNA)* 258 (1981) ("OMB, 1981 Interim Guidance").

¹⁴⁷ Office of Management and Budget, *Regulatory Impact Analysis Guidance, in Regulatory Program of the United States Government* 561 (OMB 1988) ("OMB, 1987 Guidance").

¹⁴⁸ Office of Management and Budget, *Economic Analysis of Federal Regulations under Executive Order 12866* (Jan 11, 1996), online at http://www.whitehouse.gov/lomb/inforeg_riaguide (visited May 15, 2014) ("OMB, 1996 Guidance").

¹⁴⁹ Office of Management and Budget, *Regulatory Analysis*, Circular A-4 (Sept 17, 2003).

years,¹⁵⁰ and other agencies have issued occasional best-practice guidance of their own.

The development of these guidelines has been an iterative process in which OIRA tends to issue progressively more detailed guidance, with agencies (and especially EPA) filling in the many interstices that exist in the interim. There are two important consequences of this process. First is that the agencies' more specific guidance governs the wide range of issues left open by OIRA. Second, when OIRA approaches the drafting of updated, and more specific, guidelines, the agency documents serve as an important baseline that anchor discussions and provide substantive justification for particular methodological choices that have already been made by agencies. In addition, all of the primary research and literature reviews done to support the agency documents are available and agency personnel, consultants, and even interest groups have come to rely on them. While OIRA is free to depart from the path that agencies have already chosen, agency guidelines form part of the "intellectual milieu" surrounding the development of new guidance by OIRA.¹⁵¹ This is especially the case when, at least from the 1987 iteration forward, OIRA staff and leadership consulted extensively with agencies, both formally and informally, when developing new guidance. For the most recent update of OIRA's guidance in 2003, there was a particularly robust consultation process, with a formal group convened to provide feedback for OIRA that was chaired by two agency economists, Al McGartland from EPA and Randy Lutter from the Food and Drug Administration (FDA).

The first best-practice guidance on regulatory cost-benefit analysis for federal agencies was OMB's *Interim Regulatory Impact Analysis Guidance*, issued in 1981.¹⁵² That document was a page and a half long and provided only the barest outline of how analysis should be conducted. When guidance was given, there was little, if any, supporting justification. For example, the discussion of discounting simply stated that "[a]n annual discount rate of 10 percent should be used" for costs and benefits, with no

¹⁵⁰ See generally Environmental Protection Agency, *Guidelines for Performing Regulatory Impact Analysis* (Dec 1983) ("EPA, 1983 Guidelines") (including both 1983 and 1991 versions); EPA, 2000 Guidelines (cited in note 7); EPA, 2010 Guidelines (cited in note 4).

¹⁵¹ Telephone interview with John D. Graham, Dean, Indiana University School of Public and Environmental Affairs (Aug 16, 2012).

¹⁵² OMB, 1981 Interim Guidance (cited in note 146).

further explanation.¹⁵³ Contemporaneous commentators criticized the *Interim Guidance* as underspecified, arguing that it “could not possibly be construed as a substitute for a benefit-cost manual” and left agencies to “effectively assum[e] OMB’s responsibility in this area.”¹⁵⁴

EPA’s first set of guidelines, issued shortly thereafter in 1983,¹⁵⁵ was substantially longer and previewed several central methodological debates that would prove to be of continued importance.¹⁵⁶ These included the monetary valuation of public health benefits,¹⁵⁷ discounting of future costs and benefits,¹⁵⁸ and the treatment of qualitative costs and benefits¹⁵⁹ and distributional effects.¹⁶⁰ In each of these areas, EPA staked out positions that it would build support for over the subsequent decades, in almost all cases seeing its views vindicated in successive iterations of OIRA guidance documents.

¹⁵³ Id at 259.

¹⁵⁴ See Grubb, Whittington, and Humphries, *Ambiguities of Benefit-Cost Analysis* at 130–31 (cited in note 68).

¹⁵⁵ EPA, 1983 Guidelines at M2 (cited in note 150) (stating that it is meant to “help analysts at [EPA] prepare [regulatory-impact analyses] that satisfy OMB’s requirements”).

¹⁵⁶ The main document was sixteen pages long—short by contemporary standards, but much longer than OIRA’s guidance at the time. In addition, there were methodological appendices included in the original guidance, which almost immediately went under revision. Ann Fisher, *An Overview and Evaluation of EPA’s Guidelines for Conducting Regulatory Impact Analyses*, in Smith, ed, *Environmental Policy under Reagan’s Executive Order 99*, 100 (cited in note 68).

¹⁵⁷ EPA, 1983 Guidelines at M8–M9 (cited in note 150).

¹⁵⁸ EPA recommended use of “a lower social rate of discount” and “directly comparing benefits to future generations with costs to the current generation” without discounting as alternatives to standard discounting. Id at M13.

¹⁵⁹ EPA’s 1983 Guidelines state that “the analysis of benefits should cover the entire spectrum of benefits, from those that can be assigned a dollar value to those that can only be described qualitatively.” Id at M5. The Guidelines also caution that

[t]he net benefit estimate should be carefully evaluated in light of all the effects that have been excluded because they could not be assigned a dollar value. Thus, *immediately* following a net benefit calculation, all benefits and costs that can only be quantified, as well as all benefits and costs that can only be qualitatively described, should be presented and evaluated.

Id at M12 (emphasis added).

¹⁶⁰ The 1983 Guidelines state that “regulatory decisions should address distributional issues” and that “[a]nalysis can reveal the likely distribution of benefits and costs among groups” but they “cannot determine whether the distribution is equitable or how distributional issues are to be weighted.” Therefore, EPA states that “the [regulatory-impact analysis] is best viewed as a document that organizes information . . . while leaving considerable latitude to decision makers in selecting the preferred regulatory approach.” Id at M15–M16.

Discounting provides a stark example. In its 1981 *Interim Guidance*, OMB issued a terse instruction to agencies to use a 10 percent discount rate, along with language allowing “other discount rates . . . to test the sensitivity of the results.”¹⁶¹ The 10 percent number was likely taken from a 1972 OMB guidance document on discount rates called Circular A-94.¹⁶² Over the course of the next several years, through its guidance documents¹⁶³ and outside research,¹⁶⁴ EPA challenged the validity of the 10 percent rate and began building the conceptual argument for lower rates in the environmental context.

In its 1984 Discounting Appendix to its cost-benefit-analysis guidelines, EPA built a discounting framework that was based on lower, consumption-based (as opposed to capital-based) rates of discounting and explicitly recognized the intergenerational discounting problem. When OMB issued its *Regulatory Impact Analysis Guidance* in 1987, it had adopted EPA’s approach of recognizing the difference between the opportunity cost of capital and the consumption rate of interest, though it maintained the 10 percent default rate.¹⁶⁵ Five years later, OMB substantially revised the 1972 discounting guidance Circular A-94 and lowered the overall discount rate used by the government to 7 percent.¹⁶⁶ When OIRA updated its guidelines again in 1995, after the Clinton order was adopted, there was a substantial discussion of the disadvantages of a pure opportunity-cost-of-capital

¹⁶¹ OMB, 1981 *Interim Guidance* at 259 (cited in note 146).

¹⁶² Office of Management and Budget, *Discount Rates to Be Used in Evaluating Time-Distributed Costs and Benefits*, Circular No A-94 Revised (Mar 27, 1972).

¹⁶³ EPA issued two updated appendices to its 1983 Guidelines focused specifically on discounting, one in 1984 and one in 1989. See EPA, 1983 Guidelines at C2, 2 (cited in note 150). These documents examined and compared multiple discounting methodologies, introduced the concept of risk and portfolio theory into the discounting discussion (in support of a lower risk-free rate), and identified a substantial secondary literature in support of EPA choices. *Id.* at C3–C15, 2–9. The 1989 appendix also clarified and endorsed a specific discounting model to deal with complex time-tradeoff choices when regulations had effects on both investment and consumption, and even developed a “menu-driven computer program that can be run on any DOS-based personal computer” to aid in discounting calculation. *Id.* at 5.

¹⁶⁴ See, for example, Resource and Environmental Economics Laboratory at the University of Wyoming, *Regulatory Impact Analysis: Guidance on the Appropriate Rate of Discount* 8–20 (1982).

¹⁶⁵ Compare EPA, 1983 Guidelines at C5 (cited in note 150), with OMB, 1987 Guidance at 566 (cited in note 147).

¹⁶⁶ Office of Management and Budget, *Guidelines and Discount Rates for Benefit-Cost Analysis of Federal Programs*, Circular A-94, 8–12 (Oct 29, 1992) (including a discussion of best practices for cost-benefit analysis that somewhat tracks the OMB’s 1987 guidance).

approach and of problems posed by intergenerational costs and benefits¹⁶⁷ that mirrored similar concerns raised earlier by EPA.¹⁶⁸

By 2003, with release of the (currently governing) A-4 Circular, OMB had gone even further. The A-4 Circular explicitly endorsed use of both a 3 percent and a 7 percent discount rate and included a substantial discussion of the special problems of intergenerational discounting, noting that economic research supported use of “the minimum discount rate having any substantial positive probability” over very long time horizons and recognizing that discount rates as low as 1 percent were potentially “appropriate.”¹⁶⁹ In essence, by 2003, OIRA had adopted the discounting approach developed by EPA in 1984.

Qualitative and distributional effects tell a similar story. Before the Clinton order was adopted, there was an “extensive” consultation process involving relevant agencies, during which multiple drafts of the order were distributed for comment and substantial edits were made.¹⁷⁰ The most important methodological advances in the Clinton order were the emphasis on “qualitative measures”—which the order states may be “difficult to quantify, but nevertheless essential to consider”¹⁷¹—and the “expansive and eclectic list of the kinds of benefits that must be taken into account,”¹⁷² which included not only environmental and public health benefits but also “distributive impacts” and “equity.”¹⁷³ While both distribution and qualitative impacts were

¹⁶⁷ See OMB, 1996 Guidance at Part III.A.3.b (cited in note 148) (“[E]conomic welfare is ultimately determined by consumption; investment affects welfare only to the extent that it affects current and future consumption.”); id at Part III.A.3.c (“intergenerational analysis”). This document also introduced concerns about “relative price changes” driven by “increasing scarcity of certain environmental resources,” an issue that was later dropped by OMB in the 2003 A-4 Circular, but which economists now argue can be extremely important for long-time-horizon environmental-economics analysis. Id at Part III.A.3.a. See also Thomas Sterner and U. Martin Persson, *An Even Sterner Review: Introducing Relative Prices into the Discounting Debate*, 2 Rev Envir Econ & Pol 61, 68 (2008).

¹⁶⁸ EPA, 1983 Guidelines at M13 (cited in note 150).

¹⁶⁹ OMB, Circular A-4 at 36 (Sept 17, 2003) (cited in note 149).

¹⁷⁰ Telephone Interview with Sally Katzen, Visiting Professor, New York University School of Law (July 12, 2012).

¹⁷¹ Executive Order 12866 at 51735 (cited in note 21).

¹⁷² Pildes and Sunstein, 62 U Chi L Rev at 44 (cited in note 27).

¹⁷³ Executive Order 12866 at 51735 (cited in note 21). Many of the other important reforms within the order were directed at the procedure of executive review—for example by setting formalized deadlines to avoid delay. See id at 51742. Professors Pildes and Sunstein, writing in 1995, argue that the Clinton order reflected “ambivalence and caution toward” cost-benefit analysis because “the list of factors that must be included in

discussed in the Reagan order and subsequent OIRA guidance,¹⁷⁴ the Clinton order places substantially greater emphasis on these issues, essentially adopting the position taken by EPA in its 1983 Guidelines.¹⁷⁵

The guidelines adopted by EPA in 2000¹⁷⁶ represented the first genuinely complete benefit-cost manual, reaching a level of specificity on a wide range of methodological questions that is unlikely to be duplicated by any OIRA guidance document in the foreseeable future. Peer review played an important role in the development of the 2000 Guidelines, with the agency's Science Advisory Board Environmental Economics Advisory Committee "provid[ing] substantial input on the content and organization of the document [and] reviewing the materials for accuracy in both economic theory and practice."¹⁷⁷ The overall assessment of reviewers was that the Guidelines "succeed[] in reflecting methods and practices that enjoy widespread acceptance in the environmental economics profession."¹⁷⁸ When OIRA updated its

this analysis is broadened significantly, with open-ended and potentially ambiguous variables." Pildes and Sunstein, 62 U Chi L Rev at 44 (cited in note 27). For Pildes and Sunstein, the ambivalence tracked misgivings within the broader public "rooted in deeper forces having to do with fundamental questions about the nature of 'rational' choice among competing policies." Id at 45.

¹⁷⁴ The Reagan order states that for descriptions of both costs and benefits, "effects that cannot be quantified in monetary terms" and "the identification of those likely to receive [them]" should be included. Executive Order 12291 at 13194 (cited in note 17). The 1981 *Interim Regulatory Impact Analysis Guidance* stated that "to whom [benefits] would accrue" and "who would bear [] cost[s]" should be included in the regulatory-impact analysis. OMB, 1981 Interim Guidance at 259 (cited in note 146). Similarly, while the guidance places an emphasis on quantification, it also states that "favorable effects" and costs that cannot be quantified should be "described." Id.

¹⁷⁵ Compare Executive Order 12866 at 51735 (cited in note 21) ("Costs and benefits shall be understood to include both quantifiable measures . . . and qualitative measures of costs and benefits that are difficult to quantify, but nevertheless essential to consider."), with EPA, 1983 Guidelines at M5 (cited in note 150) ("[T]he analysis of benefits should cover the entire spectrum of benefits, from those that can be assigned a dollar value to those that can only be described qualitatively."). EPA had established an interest in distributional effects and was funding studies on the subject as early as 1974. One study compared command-and-control regulation with market-based alternatives, finding that the market mechanisms were less costly but resulted in undesirable distributional effects. See generally Tayler H. Bingham and Allen K. Miedema, *Allocative and Distributive Effects of Alternative Air Quality Attainment Policies* (Research Triangle Institute 1974). A second study, funded in the same year, examined how government assistance could be used to help ease local employment shocks associated with environmental regulation. See generally A. Myrick Freeman III, *Evaluation of Adjustment Assistance Programs with Application for Pollution Control* (EPA 1974).

¹⁷⁶ EPA, 2000 Guidelines (cited in note 7).

¹⁷⁷ Id at i.

¹⁷⁸ Id.

guidance in the A-4 Circular, this document provided an important backdrop and was cited in public comments during the development of the OIRA document.¹⁷⁹

The most recent EPA Guidelines, issued in 2010, again demonstrate the agency's substantial expertise on environmental cost-benefit-analysis questions. The document includes a new section on calculating baselines; an updated discussion on discounting, with a special emphasis on intergenerational equity; and a substantially expanded examination of best practices for estimating distributional effects and how regulations will affect specific industrial sectors.¹⁸⁰

The release of these extensive field-wide guidelines represents only part of a broader agency effort to identify best practices for economic analyses. More specific guidelines have been developed on valuation of children's health effects,¹⁸¹ non-cancer health effects,¹⁸² and drinking water regulations,¹⁸³ for example. The policy offices have developed their own guidelines on economic analyses that provide more in-depth discussion of issues of particular relevance to their area.¹⁸⁴ And research funded by EPA has been directed at literature reviews and surveys designed to identify and justify best practices for analysis.¹⁸⁵

Overall, the general impression is clear: it is the agencies' job to develop the guidance that defines the state of the field for cost-benefit analysis. While OIRA evaluates and validates the choices made by agencies, there is an important authorial role in developing best-practice guidelines that provides agencies with substantial power to shape how cost-benefit analysis is conducted.

¹⁷⁹ See, for example, Letter from Wesley P. Warren, Senior Fellow for Environmental Economics, Natural Resources Defense Council, to Lorraine Hunt, Office of Information and Regulatory Affairs (May 5, 2003) (on file with author).

¹⁸⁰ See generally EPA, 2010 Guidelines (cited in note 4).

¹⁸¹ See generally Environmental Protection Agency, *Children's Health Valuation Handbook* (2003).

¹⁸² See generally Environmental Protection Agency, *Handbook for Non-cancer Health Effects Valuation* (Dec 2000).

¹⁸³ See generally Environmental Protection Agency, *Assessing the Benefits of Drinking Water Regulations: A Primer for Stakeholders* (2002).

¹⁸⁴ See, for example, Environmental Protection Agency, Office of Air Quality Planning and Standards, *OAQPS Economic Analysis Resource Document 1-1 to -2* (1999).

¹⁸⁵ See generally, for example, ICF Incorporated, *Baseline Concepts for Regulatory Impact Analysis* (1982).

B. Value of Statistical Life

The largest benefit from many regulations, at least in monetary terms, is from reductions in mortality risk.¹⁸⁶ Estimating the value of mortality-risk reductions is therefore foundational to the enterprise of cost-benefit analysis.

The obvious difficulties of assigning a value to mortality risk were apparent before President Reagan established the cost-benefit-analysis requirement, and methodologies to do so had existed for a number of years. The most common methodology around the time of EPA's founding in 1970 was the human-capital approach, which calculated the value of a reduction in mortality risk with reference to the earning potential of the population exposed to that risk.¹⁸⁷ An even more "cold-blooded" approach subtracted consumption, so that only net productivity served as the basis for calculating the value of risk reduction.¹⁸⁸

EPA's 1983 Guidelines ignored the human-capital approach in favor of a willingness-to-pay approach, which seeks to understand how much consumption an individual would forgo in order to avoid a mortality risk. From an economic standpoint, this model has much more to recommend it.¹⁸⁹ Rather than examining the value of risk reduction from the perspective of others—as in the net human-capital approach—the willingness-to-pay methodology examines the ex ante value that the risk bearer assigns to it. This approach is consistent with the underlying economic principles of cost-benefit analysis, which are based on whether a policy generates sufficient benefits (as measured by the beneficiaries) to compensate for the costs (as measured by the burdened parties).

Use of the willingness-to-pay methodology is widely accepted today, both within administrative agencies and in the broader community of economists, but at the time the basic structure of cost-benefit analysis at EPA was being put in place, this out-

¹⁸⁶ See note 5 and accompanying text.

¹⁸⁷ E.J. Mishan, *Evaluation of Life and Limb: A Theoretical Approach*, 79 *J Polit Econ* 687, 687–88 (1971) (noting "repeated expressions of dissatisfaction with the [human-capital] method").

¹⁸⁸ *Id.* at 688–89, 690.

¹⁸⁹ See *id.* at 691 (stating alternatives to willingness-to-pay methodology are not "consistent with the basic rationale of the economic calculus used in cost-benefit analysis").

come was far from obvious.¹⁹⁰ Professors W. Kip Viscusi and Joseph E. Aldy recount an incident in the early 1980s when OSHA utilized the human-capital approach in a hazard communication rule because “in its view life was too sacred to value.”¹⁹¹ OIRA rejected the rule as too costly and OSHA appealed to then-Vice President George H.W. Bush; Viscusi was called in to settle the economic dispute, finding that the rule was cost-benefit justified when the value-of-statistical-life methodology was used.¹⁹² The rule was ultimately adopted.

Although EPA’s 1983 Guidelines had passed over the human-capital approach altogether, by the time of the drafting of the agency’s 1988 Appendix on benefits valuation, the approach had made something of a comeback. It was apparently considered sufficiently prominent that the drafters determined it needed to be addressed. In that document, EPA states that “[t]here is no general agreement about the appropriate monetary value for the benefits of mortality reduction.”¹⁹³ The Appendix then goes on to point to the human-capital method as “[o]ne approach to determin[ing] the benefit of a statistical life saved”¹⁹⁴ and cites research using the methodology. But the 1988 Appendix emphasizes the criticism that the human-capital method “fails to reflect the correct measure of benefits: individuals’ total willingness to pay to reduce health risks.”¹⁹⁵

EPA’s 1988 Benefits Appendix was developed at roughly the same time that OIRA issued its 1987 Guidance. The OIRA guidance also states that, when goods are not directly traded on markets, “the willingness-to-pay valuation methodology is conceptually superior” to alternatives.¹⁹⁶ By the time of the 2010 guidelines, EPA could reject the human-capital approach in a cursory fashion, stating that it “has largely been rejected as an inappropriate measure of the value of reducing mortality risks.”¹⁹⁷ This is one area in which EPA’s preferences for how risks should be valued were very clearly respected.

¹⁹⁰ See T.C. Schelling, *The Life You Save May Be Your Own*, in Samuel B. Chase, ed., *Problems in Public Expenditure Analysis* 127, 148–58 (Brookings 1968) (discussing alternative valuation methods).

¹⁹¹ Viscusi and Aldy, 27 *J Risk & Uncertainty* at 54 (cited in note 6).

¹⁹² *Id.*

¹⁹³ EPA, 1983 Guidelines at A15 (cited in note 150).

¹⁹⁴ *Id.* at A16.

¹⁹⁵ *Id.*

¹⁹⁶ OMB, 1987 Guidance at 569 (cited in note 147).

¹⁹⁷ EPA, 2010 Guidelines at 7-10 (cited in note 4).

Arriving at the theoretical basis for mortality-risk reduction as willingness to pay hardly settles the matter, however. In its 1983 Guidelines, EPA discusses indirect and direct measures for actually estimating willingness to pay. The indirect method estimates an “implicit cost per statistical life saved” based on the cost of the rule and its expected effects.¹⁹⁸ The direct method that is discussed is based on the increased wages that employees demand to face higher workplace risks.¹⁹⁹ The 1983 Guidelines state that existing research on workplace risks points to “a value for a statistical life of roughly \$400,000 to \$7,000,000 (in 1982 dollars).”²⁰⁰ Translated to 2011 dollars, the figures in the 1983 Guidelines are roughly \$1 million as a lower estimate and \$16 million as an upper estimate.²⁰¹ Determining where the estimate falls within this order of magnitude range would remain of paramount importance for determining the results of cost-benefit analysis of agency policy over the next several decades.

There are several important questions in the value-of-statistical life methodology that are deeply contested. The first, and most basic, is the unit of analysis—whether total lives or some other measure. One prominent alternative is the “life-years” approach. The human condition implies that regulatory interventions that save lives are, ultimately, able only to delay death. Some commentators have argued that a methodology that takes into account the additional life expectancy associated with a regulation would better reflect its social value.²⁰² Thus, a rule that avoided the preventable death of a twenty-year-old person who would otherwise have a life expectancy of fifty more years would be valued more highly than a rule that would avoid the death of a seventy-year-old person with a much shorter life expectancy.²⁰³ One method that has been proposed to do this is the life-years measure, which values each year of additional life expectancy equally.²⁰⁴ Others would take age or health status into account and adjust monetary benefits in some other way.²⁰⁵ The

¹⁹⁸ EPA, 1983 Guidelines at M9 (cited in note 150).

¹⁹⁹ See *id.*

²⁰⁰ *Id.*

²⁰¹ BLS Inflation Calculator (cited in note 108).

²⁰² See Viscusi and Aldy, 27 *J Risk & Uncertainty* at 50–53 (cited in note 6).

²⁰³ See Cass R. Sunstein, *Lives, Life-Years, and Willingness to Pay*, 104 *Colum L Rev* 205, 206 (2004).

²⁰⁴ See Michael J. Moore and W. Kip Viscusi, *The Quantity-Adjusted Value of Life*, 26 *Econ Inquiry* 369, 373 (1988).

²⁰⁵ See *id.* at 383–85.

use of life-years falls into a more general category of questions concerning whether characteristics of the risk-bearer, such as age, wealth, health status, race, or gender, should be taken into consideration when setting monetary values for mortality-risk reduction. These questions remain an area of intense interest in the methodology of cost-benefit analysis.²⁰⁶

EPA has played an important role in evaluating the life-years approach and ultimately rejecting it, at least for the time being. As early as 1984, EPA had commissioned and received a report reviewing different models on “[t]he valuation of the life shortening aspects of risk.”²⁰⁷ That report found a number of formal difficulties with taking age into account when valuing mortality risk, and its results were not consistent with a life-years model.²⁰⁸ Over twenty years later, evaluating variations on the life-years model remained a priority for EPA economics research, and an internal white paper produced by an economist at the Office of Air Quality Planning and Standards examined practical difficulties of implementing the methodology.²⁰⁹

There were two important moments in particular that helped place life-years on the methodological back burner: EPA’s 2000 Guidelines and the “senior death discount” debate during the George W. Bush administration. The 2000 Guidelines included a lengthy discussion of the life-years approach and some of the formal and empirical difficulties of putting it into practice.²¹⁰ Based on a review of the relevant literature, the Guidelines determined that the value of statistical life approach is “an appropriate default approach for valuing” mortality-risk reduction, with life years relegated to a secondary role.²¹¹ The following year, EPA’s Science Advisory Board, reviewing the agency’s

²⁰⁶ See, for example, EPA, 2010 Guidelines at B-4 to -6 (cited in note 4).

²⁰⁷ Leigh Harrington, *The Valuation of the Life Shortening Aspects of Risk* 1 (Sept 17, 1984), online at [http://yosemite.epa.gov/ee/epa/erm.nsf/vwAN/EE-0297.pdf/\\$file/EE-0297.pdf](http://yosemite.epa.gov/ee/epa/erm.nsf/vwAN/EE-0297.pdf/$file/EE-0297.pdf) (visited May 15, 2014).

²⁰⁸ See *id.* at 5, 22 figure 6.

²⁰⁹ See Hubbell, 34 *Envir & Res Econ* at 379–81 (cited in note 85) (discussing Quality Adjusted Life Years, an extension of the life-years methodology that takes illness and disability into account).

²¹⁰ See EPA, 2000 Guidelines at 59–100 (cited in note 7).

²¹¹ *Id.* at 93–94. The OMB guidance at the time also provided a substantial discussion of the life-years model, concluding that “there are theoretical advantages to using a value of statistical life-year-extended approach” but that current research had not developed a method for valuation without “drawbacks.” OMB, 1996 Guidance at Part III.B.5.c (cited in note 148). Those guidelines largely left the choice of value of statistical life or value of statistical life-years to the agencies. *Id.* at Part III.B.5.b.

retrospective analysis of costs and benefits of the Clean Air Act, went even further, stating: “[Value of statistical life] is the conceptually appropriate method for assessing the benefits of avoided premature mortality. Alternative measures, such as the value of a statistical life-year . . . are not consistent with the standard theory of individual willingness-to-pay for mortality risk reduction.”²¹² OIRA revisited the issue of life-years in its 2003 A-4 Circular. In that document, OIRA presents life-years as an alternative methodology, while recognizing its limitations and noting that EPA’s Science Advisory Board found that, more generally, “available literature does not support adjustments” to the value of statistical life based on rule-specific risk characteristics.²¹³

The senior-discount debate was one of the few cases in which conflict over methodological questions in cost-benefit analysis genuinely spilled over into the public arena. During the George W. Bush administration, EPA included life-years in an analysis of the Clear Skies Act, a major environmental legislative initiative of the administration, as well as in an analysis of an air-quality rule concerning off-road vehicles.²¹⁴ Because the life-years method has the effect of reducing the value attributed to mortality-risk reductions of older people, it was dubbed the “senior death discount” and opposed by environmental organizations as well as representatives for senior citizens.²¹⁵ The story was covered in major newspapers, and eventually the administration was forced to abandon the approach.²¹⁶ It is unclear what role, if any, personnel at EPA played in this drama, but it is certainly conceivable that environmentalists received at least

²¹² Environmental Protection Agency, Science Advisory Board, Advisory Council for Clean Air Compliance Analysis, *Review of the Draft Analytical Plan for EPA’s Second Prospective Analysis - Benefits and Costs of the Clean Air Act, 1990-2020* 26 (September 2001). OIRA revisited the issue of life-years in its 2003 A-4 Circular.

²¹³ See OMB, Circular A-4 at 30 (Sept 17, 2003) (cited in note 149).

²¹⁴ See Environmental Protection Agency, *Technical Addendum: Methodologies for the Benefit Analysis of the Clear Skies Act of 2003* 38–39 (Sept 2003); Environmental Protection Agency, *Control of Emissions from Nonroad Large Spark-Ignition Engines, and Recreational Engines (Marine and Land-Based)*, 67 Fed Reg 68242 (Nov 8, 2002). Senior administration officials, notably then OIRA Administrator John Graham, had been proponents of the life-years approach. See generally John D. Graham and Jianhui Hu, *Using Quality Adjusted Life Years in Regulatory Analysis: Definitions, Methods, Applications and Limitations* (Canada 2008).

²¹⁵ See Revesz and Livermore, *Retaking Rationality* at 79 (cited in note 51); Letter from David Certner, Director of Federal Affairs, AARP, to Lorraine Hunt, Office of Information and Regulatory Affairs (May 5, 2003), online at <http://www.whitehouse.gov/sites/default/files/omb/inforeg/2003report/346.pdf> (visited May 15, 2014).

²¹⁶ Revesz and Livermore, *Retaking Rationality* at 79 (cited in note 51).

unofficial encouragement in their public fight against a methodology that the agency had attempted to abandon years before.

Other methodological questions are somewhat more esoteric, but nonetheless extremely important for arriving at a valuation. The two basic methodologies for determining willingness to pay for mortality risk—wage-differential studies and stated preferences—were discussed in EPA's 1988 Appendix. The first is based on wage rates for jobs presenting different mortality risks, described in a landmark 1976 paper by Professors Richard Thaler and Sherwin Rosen.²¹⁷ This paper was cited favorably in the 1988 Appendix, as were studies by Olson and Viscusi applying the methodology.²¹⁸ The 1988 Appendix also discusses "contingent valuation" techniques that "directly elicit individual preferences" through questionnaires, favorably citing EPA-funded reports on the topic by Daniel M. Violette and Lauraine G. Chestnut.²¹⁹ The decision as to whether both represent legitimate tools or whether one should be preferred can have very important consequences.

The 2000 Guidelines were again influential. After examining the advantages and disadvantages of different techniques, EPA selected twenty-six studies of value of statistical life,²²⁰ of which twenty-one relied on the wage-premium technique. The wage studies generated an average value of \$6.3 million (in 1997 dollars), while the survey method generated an average value of \$3.5 million. The central estimate that EPA settled on was the mean of the results, \$5.8 million²²¹—much closer to the labor market study estimate. Of course, this represented a discretionary decision; other paths were available. EPA could have averaged the results from the two techniques or used only the contingent-valuation (or labor market) studies. A median value,

²¹⁷ See generally Richard Thaler and Sherwin Rosen, *The Value of Saving a Life: Evidence from the Labor Market*, in Nestor E. Terleckyj, ed, *Household Production and Consumption* 265 (Columbia 1976).

²¹⁸ EPA, 1983 Guidelines at A16 (cited in note 150).

²¹⁹ *Id.* at A16 (cited in note 150). See generally Daniel M. Violette and Lauraine G. Chestnut, *Valuing Risks: New Information on the Willingness to Pay for Changes in Fatal Risks* (Feb 1986) (updating a 1983 study); Daniel M. Violette and Lauraine C. Chestnut, *Valuing Reductions in Risks: A Review of the Empirical Estimates* (June 1983).

²²⁰ This list had been used previously by EPA. See Environmental Protection Agency, *The Benefits and Costs of the Clean Air Act, 1970 to 1990* 45 (1997). For both analyses, EPA drew the list of studies from W. Kip Viscusi's work. See W. Kip Viscusi, *Fatal Tradeoffs: Public and Private Responsibilities for Risk* 52-54 (Oxford 1992).

²²¹ EPA used a Weibull distribution, which had little effect compared to a simple average. EPA, 2000 Guidelines at 90 (cited in note 7).

which was lower, could have been chosen. Ultimately, it fell to EPA to make a final decision.

The value chosen in the 2000 Guidelines remains EPA's default, updated for inflation.²²² But the agency continues to move forward in developing mortality-risk-valuation methodologies: in 2011, NCEE released a substantial white paper discussing the use of a "cancer premium" to increase the monetary value of mortality-risk reduction in cases in which cancer risks are reduced, to reflect the dread and morbidity that is associated with that particular class of harms.²²³ In addition, the Science Advisory Board Environmental Economics Committee continues to review potential mechanisms to include population characteristics—and especially age—in valuation techniques.²²⁴

Beyond affecting the value that the agency itself uses to value mortality-risk reduction, EPA's efforts to develop the value of statistical life have influenced OIRA as well. In 2002, shortly after EPA released its updated guidance, OIRA began using a default value of \$5 million when agencies did not supply their own measures. This was substantially higher than the \$1 million value promoted by OIRA career personnel during deliberations over EPA's 2000 Guidelines. The 2003 Circular A-4 guidance a year later endorsed values between \$1 million and \$10 million, a range drawn from the studies used by EPA for its guidelines.

When the Department of Transportation updated its default value in 2008, it was advised by OIRA that "the practices of other Federal agencies are consistent with higher values," and OIRA noted in particular other agencies that "follow[] the lead of EPA," which at the time was using a value of up to \$7 million.²²⁵ Ultimately, the Department of Transportation (DOT) raised its default value from \$3 million to \$5.8 million, a substantial increase for an agency that has tended to lag in its mortality risk valuations.²²⁶ The role of OIRA in spurring that agen-

²²² EPA, 2010 Guidelines at B-1 to -2 (cited in note 4).

²²³ NCEE, *Valuing Mortality Risk Reductions for Environmental Policy: A White Paper* *4 (SAB Review Draft, Dec 2010), online at [http://yosemite.epa.gov/ee/epa/eeerm.nsf/vwAN/EE-0563-1.pdf/\\$file/EE-0563-1.pdf](http://yosemite.epa.gov/ee/epa/eeerm.nsf/vwAN/EE-0563-1.pdf/$file/EE-0563-1.pdf) (visited May 14, 2014).

²²⁴ See, for example, EPA, 2010 Guidelines at B-2 n 4 (cited in note 4).

²²⁵ Department of Transportation, *Revised Departmental Guidance: Treatment of the Value of Preventing Fatalities and Injuries in Preparing Economic Analyses* *2 (Feb 2008), online at http://www.faa.gov/regulations_policies/policy_guidance/benefit_cost/media/Revised%20Value%20Of%20Life%20Guidance%20February%202008.pdf (visited May 15, 2014).

²²⁶ *Id.* at *3.

cy toward higher values, and promoting the studies and estimates used by EPA, shows the long-term persuasive power of EPA's economic research. A recent review by OIRA of the mortality-risk values used by several agencies, including OSHA, the FDA, and the Department of Homeland Security (DHS), found that "in recent years, actual agency practice has [generally] avoided significant inconsistencies" in mortality-risk valuation, noting the influence of EPA in the area and highlighting several areas in which the agency planned to continue elaborating the methodology.²²⁷

Perhaps most notable, agencies are given a wide berth on the issue by OIRA, providing a substantial degree of discretion that has been reflected at various times in differences in valuations.²²⁸ Given the substantial effort that EPA has expended developing its own values and the impressive case supporting its choices—largely relying on peer reviewed literature—it would be extremely difficult for OIRA to impose a different value on the agency. Though efforts to harmonize mortality values across agencies may be useful,²²⁹ OIRA would have difficulty directing such a process, for practical and political reasons. It is likely therefore that agencies will continue to have the most influence on the value that is chosen and that any harmonization that does occur will be through agencies' own efforts.

C. Nonmortality Benefits and Stated-Preference Studies

Mortality-risk reduction is a major benefit for many regulations, but there are a number of other important regulatory benefits. There are nonmortality health-related risks, such as asthma or waterborne illness. Further, in the environmental context, there are many nonhealth benefits that are both tangible (such as visibility, recreational opportunities, and habitat for pollinators) and intangible, including many of the benefits associated with wilderness area preservation in remote areas.

²²⁷ Office of Management and Budget, *2012 Report to Congress on the Costs and Benefits of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities* 18 n 20 (2012).

²²⁸ Viscusi and Aldy, 27 *J Risk & Uncertainty* at 54 (cited in note 6).

²²⁹ See Letter from Michael A. Livermore and Jason A. Schwartz, Institute for Policy Integrity, New York University School of Law, to Office of Information and Regulatory Affairs Administrator Cass Sunstein 7–9 (June 11, 2012), online at http://www.whitehouse.gov/sites/default/files/omb/inforeg/2012_cb/comments/ipi-2012-draft-report-to-congress-comments.pdf (visited May 15, 2014).

Though the theoretical willingness-to-pay standard still applies, many of these nonmortality benefits pose particularly vexing measurement problems. The labor market analysis discussed in Part III.B has become the primary methodology for estimating mortality-risk-reduction value, but for the most part, revealed-preference methods are not as effective for nonmortality benefits. Even nonmortality health-risk preferences are difficult to measure through behavior in labor markets.²³⁰ The closest candidate is the travel-cost methodology, which estimates the value of recreational opportunities.²³¹ Under this approach, the value of recreation can be estimated by examining the amount of time and resources that individuals are willing to spend to take advantage of it.²³² Travel time has been used in cost-benefit analyses of some rule makings, but its applicability is relatively limited.²³³

An attribute that cannot be even theoretically observed in markets of at least some environmental goods is so-called existence value. Though some portion of the value of environmental goods derives from their use—timber or recreation for forests, drinking or swimming for freshwater bodies, commercial and recreational fishing for oceans—there is a well-documented phenomenon that many people express a positive willingness to pay to protect resources that they will never use.²³⁴ This nonuse value is associated with a preference for a resource to continue to exist, regardless of whether it provides any consumption opportunity. This existence value can be quite large: for example, existence-value surveys done at the time of the Exxon Valdez oil spill showed a national willingness to pay to protect the Prince William Sound in the billions of dollars.²³⁵

²³⁰ See Charles Brown, *Equalizing Differences in the Labor Market*, 94 Q J Econ 113, 131–33 (1980).

²³¹ See, for example, V. Kerry Smith, William H. Desvousges, and Matthew P. McGivney, *The Opportunity Cost of Travel Time in Recreation Demand Models*, 59 Land Econ 259, 260–62 (1983).

²³² See, for example, John Loomis, Shizuka Yorizane, and Douglas Larson, *Testing Significance of Multi-destination and Multi-purpose Trip Effects in a Travel Cost Method Demand Model for Whale Watching Trips*, 29 Ag & Res Econ Rev 183, 183–85 (2000).

²³³ See, for example, William H. Desvousges and V. Kerry Smith, *The Travel Cost Approach for Valuing Improved Water Quality: Additional Considerations 1-4 to -5* (1984).

²³⁴ See Tom Crowards, *Nonuse Values and the Environment: Economic and Ethical Motivations*, 6 Envir Values 143, 143–45 (1997).

²³⁵ See Richard T. Carson, et al, *Contingent Valuation and Lost Passive Use: Damages from the Exxon Valdez Oil Spill*, 25 Envir & Res Econ 257, 278 (2003).

Given that observation of market behavior cannot serve as the basis for many nonmortality benefits, stated-preference studies (in other words, contingent valuation) are the only alternative. Because of the prevalence of difficult-to-measure goods in the environmental field, “[i]t is hard to overestimate the central importance of contingent valuation to modern environmental economics.”²³⁶ A recent bibliography of contingent valuation found over 7,500 papers, almost all of which are in the environmental field.²³⁷ Environmental-economics conferences and journals typically have major portions devoted to new contingent-valuation studies.²³⁸

In a major review of the history of contingent valuation conducted by Professors Richard Carson and W. Michael Hanemann in 2005, the authors find that “[f]unding from the U.S. Environmental Protection Agency has played a particularly important role in contingent valuation’s development.”²³⁹ Relatively early on in the agency’s history, it “began to fund a program of research with the avowed methodological purpose of determining the promise and problems of the [contingent valuation] method.”²⁴⁰ Initially, funding was meant to undertake basic testing of the method and “establish its theoretical underpinnings.”²⁴¹ After the Reagan order gave “sharper focus” to EPA’s cost-benefit-analysis efforts, the agency’s interest “shifted to ascertaining just how effectively contingent valuation could be used for policy purposes.”²⁴²

Professor Clifford S. Russell argues that the “most dramatic sea change of the past 30 years” in environmental economics was a shift in attitude from a situation in which contingent valuation “was not taken at all seriously by the profession” to one in which “journal editors complain of being flooded by papers about [the technique].”²⁴³ Russell “would give a large share of the credit (or blame if you happen to think badly of the approach) to

²³⁶ Richard T. Carson and W. Michael Hanemann, *Contingent Valuation*, in Karl-Göran Mäler and Jeffrey R. Vincent, eds, 2 *Handbook of Environmental Economics* 821, 826 (Elsevier 2005). This piece provides a very useful overview and introduction to contingent valuation, its history, and current issues.

²³⁷ Carson, *Contingent Valuation* at vi (cited in note 144).

²³⁸ See Carson and Hanemann, *Contingent Valuation* at 826 (cited in note 236).

²³⁹ *Id.* at 838.

²⁴⁰ *Id.*

²⁴¹ *Id.*

²⁴² Carson and Hanemann, *Contingent Valuation* at 838 (cited in note 236).

²⁴³ Clifford S. Russell, *Thirty Years of Water and Environmental Economics*, 116 *J Contemp Water Rsrch & Educ* 67, 69 (2000).

Alan Carlin at EPA” for “find[ing] and protect[ing] the money that supported most of the early efforts.”²⁴⁴ These early efforts produced the basic outline of the methodology and validated that it could be used without “pervasive strategizing in the responses.”²⁴⁵ Even the name “contingent valuation” was “devised to avoid the word ‘survey’ which was a red flag to OMB reviewers.”²⁴⁶

The Exxon Valdez oil spill in 1989 brought contingent valuation out into the spotlight, as the technique was used to provide a monetary estimate of the natural resource damages caused by the spill. Faced with substantial liability, a reputational disaster, and the threat of ongoing litigation and future regulation, the oil industry “mounted an aggressive public relations campaign intended to convince policy makers that contingent valuation in any form was too unreliable to be used for any purpose.”²⁴⁷

Two EPA-supported projects helped the technique weather the storm. First was an assessment of the methodology commissioned in 1983, which included a review panel with figures such as Nobel Prize-winning economists Kenneth Arrow and Daniel Kahneman.²⁴⁸ The final assessment, released in 1986, found that although there were a number of important challenges, the methodology held promise as a way to examine values that would otherwise be very difficult to measure.²⁴⁹ The second was an EPA cooperative agreement²⁵⁰ involving Robert Mitchell, then at Resources for the Future, and Professor Richard Carson, which resulted in the 1989 book coauthored by Mitchell and Carson, *Using Surveys to Value Public Goods: The Contingent Valuation Method*.²⁵¹ That book, considered the “bible” of the field,²⁵² “put forth a coherent theoretical framework” for the

²⁴⁴ Id.

²⁴⁵ Id.

²⁴⁶ Id.

²⁴⁷ Carson and Hanemann, *Contingent Valuation* at 840 (cited in note 236).

²⁴⁸ Id at 838.

²⁴⁹ Ronald G. Cummings, David C. Brookshire, and William D. Schulze, I.B *Valuing Environmental Goods: A State of the Arts Assessment of the Contingent Valuation Method* 2 (Institute for Policy Research 1986).

²⁵⁰ See generally Robert Cameron Mitchell and Richard T. Carson, *The Use of Contingent Valuation Data for Benefit/Cost Analysis in Water Pollution Control* (1986).

²⁵¹ See generally Robert Cameron Mitchell and Richard T. Carson, *Using Surveys to Value Public Goods: The Contingent Valuation Method* (Resources for the Future 1989).

²⁵² Russell, 116 J Contemp Water Rsrch & Educ at 69 (cited in note 243).

methodology and “played a central role in defining the practice of contingent valuation.”²⁵³

The EPA-commissioned assessment, publication of the Mitchell and Carson book, and industry pressure and criticism ultimately culminated in the most important defining moment for contingent valuation when a different agency—the National Oceanic and Atmospheric Administration (NOAA)—convened a blue-ribbon panel in 1992, chaired by Kenneth Arrow and Robert Solow (also a Nobel Prize-winning economist), to review the economics literature, hear expert testimony, and determine whether the methodology was sufficiently advanced to be used for public policy. The NOAA panel was concerned with elements of the contingent-valuation technique and discussed certain problems, such as responses that were not consistent with rational-choice theory, the fact that participants acted without a meaningful budget constraint, and information problems.²⁵⁴ But the NOAA panel did not reject the methodology, finding instead that it could “convey useful information” and “produce estimates reliable enough to be [used]” in government processes.²⁵⁵ The work that had been done by EPA and a broad group of economists outside the agency had been vindicated.

After the NOAA report, EPA continued to fund a significant number of studies using the contingent-valuation technique both to develop specific valuations for certain types of goods and to respond to the concerns about the methodology raised in the report. An analysis by Cummings and Osborn in 1996 attempted to identify survey and interview strategies to address the problem that participants in contingent-valuation studies respond to hypothetical situations rather than genuine market choices.²⁵⁶ A multiuniversity team was funded to examine how different contingent-valuation techniques compared to market data concerning a green-pricing program offered by Niagara Mohawk Power

²⁵³ Carson and Hanemann, *Contingent Valuation* at 839 (cited in note 236).

²⁵⁴ See National Oceanic and Atmospheric Administration, Natural Resource Damage Assessments under the Oil Pollution Act of 1990, 58 Fed Reg 4601, 4604–05 (1993).

²⁵⁵ *Id.* at 4610. The NOAA panel was concerned with litigation and the use of contingent value to set damages, but its methodological findings were not limited to those circumstances, and it has been understood to be a broader vindication of the methodology.

²⁵⁶ Ronald G. Cummings and Laura L. Osborne, *Valuing Environmental Damages with Stated Preference Methods: New Approaches that Yield Demonstrably Valid Values for Non-priced, Environmental Goods* (1996), online at <http://yosemite.epa.gov/ee/epa/eed.nsf/025a7218b79687da852575a6006ab361/6491a74cfb755fee852575a7005e9315!OpenDocument> (visited May 15, 2014).

Corporation.²⁵⁷ Morbidity risks were also an important portion of the research agenda, which included a study on infertility risk associated with exposure to endocrine-disrupting chemicals.²⁵⁸

The work that EPA has done to bolster contingent valuation has been used not only in the agency's own cost-benefit analysis; it has been influential at OIRA as well. The 1996 OIRA Guidance cited the Mitchell and Carson "bible"²⁵⁹ of contingent valuation, describing it as "a valuable discussion on the potential strengths and pitfalls associated with the use of contingent-valuation methods."²⁶⁰ The 1996 Guidance also noted that contingent valuation was "increasingly common" and that "the practice of contingent valuation is rapidly evolving," while also discussing reasons why "analytical care" must be exercised.²⁶¹

An even more extensive discussion of the contingent-valuation methodology was included in OIRA's 2003 A-4 Circular. OIRA recognized that these studies "have also been widely used in regulatory analyses by Federal agencies" and included a list of nine best practices (governing topics such as sampling methods and the need for "the survey instrument [to] be designed to probe beyond general attitudes") that should be followed by agencies.²⁶² The A-4 Circular includes a number of caveats about the use of contingent valuation, including a concern that "[t]he challenge in designing quality stated-preference studies is arguably greater for non-use values" and the warning that "a number based on a poor quality study is not necessarily superior to no number at all."²⁶³ The guidance also states that "[o]ther things equal, you should prefer revealed preference data over stated preference data because [the former] are based on actual decisions."²⁶⁴ EPA, in a subsequent regulatory-impact analysis of a water-quality rule in 2004, characterized OIRA's position as "guarded acceptance of stated preference methods."²⁶⁵

²⁵⁷ William Schulze, et al, *Can Contingent Valuation Measure Passive-Use Values?* 28–62 (1999).

²⁵⁸ See generally George Van Houtven and V. Kerry Smith, *Valuing Reductions in Environmental Sources of Infertility Risk Using the Efficient Household Framework* (1997).

²⁵⁹ Russell, 116 J Contemp Water Rsrch & Educ at 69 (cited in note 243).

²⁶⁰ OMB, 1996 Guidance at Selected Further Readings (cited in note 148).

²⁶¹ *Id.* at Part III.B.3.

²⁶² OMB, Circular A-4 at 22–23 (Sept 17, 2003) (cited in note 149).

²⁶³ *Id.* at 24.

²⁶⁴ *Id.*

²⁶⁵ Environmental Protection Agency, Office of Water, *Economic and Environmental Benefits Analysis of the Final Effluent Limitations Guidelines and New Source Perfor-*

Contingent valuation of environmental harms remains an important component of cost-benefit analysis and therefore EPA's research agenda.²⁶⁶ In a recent controversial rule making, EPA proposed standards governing the cooling-water-intake systems at power plants to avoid unnecessary fish mortality that occurs when fish are inadvertently sucked into water-cooled facilities.²⁶⁷ The regulatory-impact analysis in support of the rule indicated that the quantified and monetized benefits associated with all regulatory options were lower than the estimated costs.²⁶⁸ Subsequent to the rule making, EPA conducted a contingent-valuation study to determine "willingness to pay [] for improvements to fishery resources" affected by the rule.²⁶⁹ In its notice of data availability making the results of the survey public, EPA argues that "[s]tated preference methods have . . . been tested and validated through years of research and are widely accepted by . . . government agencies and the U.S. courts as reliable techniques for estimating non-market values."²⁷⁰ Initial results that EPA has gathered show an implicit valuation of a one-percentage-point improvement in different measures of fish mortality between \$1.40 and \$9.34 per household per year; multiplied by the total number of relevant households, some of the more stringent regulatory options (which nearly eliminate fish mortality) could result in monetized benefits of tens of billions of dollars.²⁷¹

mance Standards for the Concentrated Aquatic Animal Production Industry Point Source Category 8-18 n 23 (2004).

²⁶⁶ One recent agency-funded project includes a willingness-to-pay survey in the Adirondack Mountains and the Southern Appalachian Mountain region to estimate values for reductions in ecological harms associated with acid rain. See Environmental Protection Agency, *2008 Progress Report: Valuation of Regional Ecological Response to Acidification and Techniques for Transferring Estimates*, online at http://cfpub.epa.gov/ncer_abstracts/index.cfm/fuseaction/display.abstractDetail/abstract/7726/report/2008 (visited May 15, 2014).

²⁶⁷ See generally Environmental Protection Agency, National Pollutant Discharge Elimination System—Cooling Water Intake Structures at Existing Facilities and Phase I Facilities, 76 Fed Reg 22174 (2011).

²⁶⁸ *Id.* at 22268.

²⁶⁹ Environmental Protection Agency, National Pollutant Discharge Elimination System—Proposed Regulations to Establish Requirements for Cooling Water Intake Structures at Existing Facilities; Notice of Data Availability Related to EPA's Stated Preference Survey, 77 Fed Reg 34927, 34929 (2012).

²⁷⁰ *Id.* at 34930 (quotation marks omitted), quoting John C. Bergstrom and Richard C. Ready, *What Have We Learned From over 20 Years of Farmland Amenity Valuation Research in North America?*, 31 Rev Ag Econ 21, 26 (2009).

²⁷¹ See Memorandum from Erik Helm, Environmental Protection Agency, to the Section 316(b) Existing Facilities Rule Record (June 5, 2012) (discussing methodology for

D. Interagency Influence

The cost-benefit-analysis methodology creates multiple opportunities for agencies to interact with each other. Agencies can explicitly seek guidance from one another and borrow or rely on each other's work. Agencies can coordinate to attempt to influence OIRA or, alternatively, they can take opposing viewpoints and attempt to convince each other, potentially with OIRA performing a mediating role. In each of these cases, the methodological advances or preferences of one agency can diffuse throughout the administrative system.

EPA's work on the value of statistical life, for instance, has been widely influential. One example is the case of the DOT, which had used a relatively low value (\$2.5 million in 1993) based on a smaller sample of studies than EPA, but which, over time, gradually began to include higher estimates, bringing the agency more in line with EPA.²⁷² In 2008, the DOT released new guidance that required a Value of a Statistical Life estimate of \$5.8 million, substantially higher than the previous figure and closer to the figure used by EPA at that time.²⁷³ When the newly created DHS commissioned a report on the value of mortality-risk reduction, the analysis relied heavily on EPA's 2000 Guidelines directly and used the basic framework and much of the same research, in addition to relying on more updated work conducted by the same researchers.²⁷⁴ Ultimately, DHS has used the \$6.3 million value-of-statistical-life estimate from that analysis in several rule makings as part of its effort to improve its cost-benefit-analysis practice.²⁷⁵ Variation among agencies in their valuation of statistical life remains significant, but many agencies are moving in the direction of EPA's higher estimates.²⁷⁶

aggregating results in Sections 7 and 8 and providing information in Tables 3, 15, and 22).

²⁷² Memorandum from Tyler D. Duvall, Assistant Secretary for Transportation Policy to Secretarial Officers and Modal Administrators *1 (Feb 5, 2008) online at http://www.acea-online.org/TIGER_2011/docs/Value_of_Life_memo_1.pdf (visited May 15, 2014).

²⁷³ *Id.*

²⁷⁴ See Lisa Robinson, *Valuing Mortality Risk Reductions in Homeland Security Regulatory Analyses* 12–16 (2008).

²⁷⁵ DHS has used the \$6.3 million figure in breakeven analyses. Department of Homeland Security, Passenger Weight and Inspected Vessel Stability Requirements, 75 Fed Reg 78064, 78079 (2010); Department of Homeland Security, Carbon Dioxide Fire Suppression Systems on Commercial Vessels, 77 Fed Reg 33860, 33868 (2012).

²⁷⁶ Compare Letter from Michael A. Livermore, et al, Institute for Policy Integrity to Office of Information and Regulatory Affairs Administrator Cass Sunstein 6–7 (May 10,

A particularly striking recent example in which techniques and concepts that had been pioneered by EPA were used in an extremely different context was a rule making by the Department of Justice (DOJ) to reduce instances of sexual assault in correctional facilities.²⁷⁷ This rule was promulgated pursuant to the Prison Rape Elimination Act of 2003²⁷⁸ (PREA) and finalized in May 2012. The rule establishes requirements for prisons, jails, juvenile facilities, community corrections facilities, and temporary-holding facilities in eleven areas, including training and education, screening for risk of abuse, reporting, medical and mental healthcare, and audits. According to its text, the purpose of the rule “is to prevent, detect, and respond to sexual abuse in confinement facilities.”²⁷⁹

The DOJ, while cognizant that “placing a monetary value on reducing the number of sexual abuse victim[s] presents considerable methodological difficulties,” nevertheless moved forward with a sophisticated regulatory-impact analysis that included estimates of both costs and benefits.²⁸⁰ In its analysis, the DOJ adopted the willingness-to-pay standard urged by OIRA in its A-4 Circular (and earlier promoted by EPA).²⁸¹ In deriving its estimates, the DOJ relied on the concept of existence value, which, as discussed above, received substantial support by EPA in the

2012) (noting variation among three rules adopted by different agencies in the year 2011: \$6 million for a Federal Motor Carrier Safety Administration rule, \$7.9 million for an FDA rule, and \$8.7 million for an EPA rule), with Viscusi and Aldy, 27 *J Risk & Uncertainty* at 55 table 12 (cited in note 6) (highlighting rules adopted by different agencies during the 1980s and 1990s with value of statistical lives varying between \$1 million and \$6.3 million (in 2000 dollars)).

²⁷⁷ See generally Letter from Michael A. Livermore, et al, Institute for Policy Integrity to Robert Hinchman, Office Legal Policy, Department of Justice (Apr 4, 2011), online at http://policyintegrity.org/documents/Policy_Integrity_PREA_Comments_4_4_11.pdf (visited May 15, 2014) (regarding the proposed rule making).

²⁷⁸ Pub L No 108-79, 117 Stat 972, codified at 42 USC §§ 15601–09.

²⁷⁹ Department of Justice, National Standards to Prevent, Detect, and Respond to Prison Rape, 77 Fed Reg 37106, 37106 (2012) (issuing the rule for final administrative review).

²⁸⁰ Department of Justice, *Prison Rape Elimination Act Regulatory Impact Assessment* 39 (2012). DOJ faced criticism for this move. See Lisa Heinzerling, *Cost-Benefit Jumps the Shark: The Department of Justice's Economic Analysis of Prison Rape*, Georgetown Law Faculty Blog (June 13, 2002), online at http://gulcfac.typepad.com/georgetown_university_law/2012/06/cost-benefit-jumps-the-shark.html (visited May 15, 2014). But see Rick Hills, *In Defense of Cost-Benefit Analysis: Lesson from Recent Rules for Preventing Prison Rape*, PrawfsBlawg (June 16, 2012), online at <http://prawfsblawg.blogs.com/prawfsblawg/2012/06/in-defense-of-cost-benefit-analysis-lessons-from-recent-rules-for-preventing-prison-rape.html> (visited May 15, 2014).

²⁸¹ DOJ, *Prison Rape Elimination Act Regulatory Impact Assessment* at 40 (cited in note 280).

environmental context. The DOJ defined the existence value relevant for the PREA rule makings as arising because “it is worth something to people to know that they live in a crime-free (or crime-reduced) society.”²⁸² Rather than attempting to value, ex post, realized sexual assaults, the willingness-to-pay model adopted by the DOJ parallels the value-of-statistical-life approach that EPA has used for many years by taking an ex ante, risk-based perspective.²⁸³

The DOJ settled on a value of \$310,000 in 2011 dollars for each instance of sexual assault that was averted by the rule.²⁸⁴ To arrive at that value, the agency relied on a study by Professor Mark A. Cohen and coauthors.²⁸⁵ The authors of that analysis (which was funded by a DOJ grant) utilized the contingent-valuation methodology that they state was “developed in the environmental economics literature.”²⁸⁶ The authors found the methodology attractive because it “has been used extensively to place dollar values on nonmarket goods such as improvements in air quality, saving endangered species and reducing the risk of early death—social benefits that do not have direct market analogs.”²⁸⁷ The authors point to “literally hundreds of [contingent valuation] studies, meta-analyses and textbooks” and cite directly to the Mitchell and Carson book, the EPA-funded project on stated preference studies discussed above.²⁸⁸

The importance of EPA in making possible the analysis that was relied on in the PREA rule is easy to see. Without EPA’s support, the pervasiveness of the contingent-valuation method would have been substantially lower, and there would have been much less theoretical and empirical work to undergird the Cohen, et al, study. Both the research methods—refined over many years—and the theory behind contingent valuation had been well established by the time of the Cohen, et al, study, the methodology had been endorsed by OIRA, and it had weathered major industry attacks. Though it is possible that Cohen, et al,

²⁸² Id.

²⁸³ See EPA, 1983 Guidelines at M8–M9 (cited in note 150).

²⁸⁴ More specifically, the \$310,000 figure was applied to the gravest type of sexual assault in a hierarchy that was developed by the agency. DOJ, *Prison Rape Elimination Act Regulatory Impact Assessment* at 42 (cited in note 280).

²⁸⁵ Id at 40, citing Mark A. Cohen, et al, *Willingness-to-Pay for Crime Control Programs*, 42 *Criminol* 89, 98 (2004).

²⁸⁶ Cohen, et al, 42 *Criminol* at 91 (cited in note 285).

²⁸⁷ Id.

²⁸⁸ Id at 91 & n 3, citing Mitchell and Carson, *Using Surveys to Value Public Goods: The Contingent Valuation Method* (cited in note 251).

could and would have developed the methodology whole cloth, it was much easier to use the off-the-rack version that was, essentially, provided by EPA.

A final recent example of agencies influencing each other through cost-benefit-analysis methodology is provided by an interagency process convened to establish a monetary estimate for the value of greenhouse gas reductions. In 2007, the Ninth Circuit held that the DOT fuel-efficiency standards for light trucks in model years 2008–2011 violated the Administrative Procedure Act’s “arbitrary and capricious” standard because the agency failed to adequately account for the social value associated with greenhouse gas reductions.²⁸⁹ The agency had cited substantial uncertainty about the correct valuation in justifying its failure to include an estimate in its cost-benefit analysis, but the court found this argument unpersuasive, stating that “while the record shows that there is a range of values, the value of carbon emissions reduction is certainly not zero.”²⁹⁰ The case, along with the large number of greenhouse gas regulations anticipated in the wake of the Supreme Court’s *Massachusetts v Environmental Protection Agency*²⁹¹ decision, created a need for a consistent valuation for climate change damages that could be used in cost-benefit analyses.²⁹²

The Obama administration responded to this need by convening an interagency taskforce charged with developing a consistent, government-wide “social cost of carbon” to be used in future rule makings.²⁹³ This group, which met over the course of many months,²⁹⁴ ultimately released its findings as an appendix

²⁸⁹ *Center for Biological Diversity v National Highway Traffic Safety Administration*, 508 F3d 508, 533 (9th Cir 2007), vacd 538 F3d 1172 (9th Cir 2008).

²⁹⁰ *Center for Biological Diversity*, 508 F3d at 533.

²⁹¹ 549 US 497 (2006).

²⁹² In addition, many environmental rules that are not directly targeted at greenhouse gas emissions have the “ancillary benefit” of reducing emissions, which should also be accounted for in cost-benefit analyses of those rule makings. See Dallas Burtraw and Michael A. Toman, *Estimating the Ancillary Benefits of Greenhouse Gas Mitigation Policies in the US*, in Organisation for Economic Co-operation and Development, *Ancillary Benefits and Costs of Greenhouse Gas Mitigation* 481, 482–84 (2000).

²⁹³ Interagency Working Group on Social Cost of Carbon, United States Government, *Appendix 15A: Social Cost of Carbon for Regulatory Impact Analysis under Executive Order 12866* 1 (2010) (“SCC Taskforce”).

²⁹⁴ The taskforce was first mentioned in a Department of Energy rule making concerning energy-efficiency requirements for vending machines. Letter from Institute for Policy Integrity and Environmental Defense Fund (EDF) to Environmental Protection Agency Administrator Lisa Jackson (Nov 27, 2009), online at http://policyintegrity.org/documents/SCC_Comments_EPAFINAL.pdf (visited May 15, 2014).

to the regulatory-impact analysis of a joint rule making between the DOT and EPA establishing fuel-efficiency standards for automobiles.²⁹⁵ Participants in the interagency group included several White House offices—including OIRA, the Council on Environmental Quality, and the Council of Economic Advisors—as well as a large number of agencies, including not only EPA and DOT, but also the Department of Energy, NOAA, and the Department of the Treasury.²⁹⁶

The social-cost-of-carbon estimate is based on “integrated assessment models” that attempt to translate the effects predicted by complex climactic models into economic terms.²⁹⁷ For example, if increased temperatures and water scarcity will negatively affect agricultural production, the value of that lost productivity is used. The harm of sea-level rise can be calculated by examining the value of the lands that are exposed to inundation. This approach was pioneered by Professor William D. Nordhaus, who developed the first large-scale models.²⁹⁸ There are several particularly important issues that were decided by the taskforce. These include the choice of models, the type of discounting used, the discount rate, the treatment of catastrophic effects, and whether nondomestic effects are considered. Each of these decisions can have very large effects on the ultimate value.

The deliberations over the social cost of carbon were not open to the public, so it is difficult to know what influence any particular agency had on that process. But EPA had the greatest level of expertise on all of the relevant questions: to the extent that technical arguments were persuasive, EPA was extremely well positioned to make them. Some of the final decisions also reflected long-standing EPA positions, such as the use of a risk-free consumption discount rate. Indeed, the final document included consideration of a discount rate of 2.5 percent,²⁹⁹ which is lower than current OIRA guidance.³⁰⁰ There is also a mechanism to account for catastrophic damages through use of a higher value that represented a ninety-fifth-percentile damage estimate.³⁰¹ The taskforce also considered a methodology to account for un-

²⁹⁵ See generally SCC Taskforce (cited in note 293).

²⁹⁶ *Id.*

²⁹⁷ *Id.* at 5.

²⁹⁸ See William D. Nordhaus, *Managing the Global Commons: The Economics of Climate Change* 7–21 (MIT 1994).

²⁹⁹ SCC Taskforce at 24 (cited in note 293).

³⁰⁰ OMB, Circular A-4 at 33 (Sept 17, 2003) (cited in note 149).

³⁰¹ See SCC Taskforce at 32–34 (cited in note 293).

certainty in the discount rate, which has the effect of according greater value to the long-range interests.³⁰² While it is extremely likely that EPA did not prevail on all of the methodological positions that it forwarded—and the final document probably does not reflect agency preferences on many questions—it is unlikely that its presence did not play an important role in shaping the ultimate outcome.

The influence of EPA's role in these deliberations may also extend well beyond the face of the taskforce document. There are many valid criticisms of the methodological choices in the final taskforce guidance,³⁰³ and on its own terms, the document is meant to be "updated over time to reflect increasing knowledge of the science and economics of climate impacts."³⁰⁴ There are several areas in which questions are explicitly left open for future inquiry.³⁰⁵ Arguments presented and honed during these discussions, even if not ultimately reflected in the final document, are likely to resurface at a later time.

IV. COST-BENEFIT ANALYSIS IN THE REGULATORY STATE

Agencies' ability to influence the methodology of cost-benefit analysis casts into doubt the prevailing view that the technique is primarily a tool to bring agencies under presidential control by helping OIRA assert authority over agencies. The real effects of cost-benefit analysis on agency autonomy and political control are more complex and will be the focus of this Part.

The main theoretic framework that is used to understand the place of agencies in the constitutional structure is the principal-agent model. In an influential account, Professor Eric Posner argues that cost-benefit analysis is best understood within that framework as a means for the president to better control agencies by reducing information asymmetries.³⁰⁶ Part IV.A will apply the insights of the prior sections of this Article to the principal-agent model, ultimately arriving at a more nuanced account of the role of cost-benefit analysis.

³⁰² *Id.* at 23–24.

³⁰³ See generally Letter from Institute for Policy Integrity and EDF to Jackson (cited in note 294).

³⁰⁴ SCC Taskforce at 1 (cited in note 293).

³⁰⁵ "The sensitivity of the results to other aspects of the models (e.g., the carbon cycle or damage function) is also important to explore in the context of future revisions to the SCC but has not been incorporated into these estimates." SCC Taskforce at 6 (cited in note 293).

³⁰⁶ See Posner, 68 *U Chi L Rev* at 1142–43 (cited in note 25).

Part IV.B relaxes the assumption within the standard principal-agent model that agencies and political principals have fixed, nonmalleable preferences and argues that, under this more realistic model of executive branch relations, cost-benefit analysis is usefully understood as serving a deliberative function. The consequences of agency control over methodological development within this deliberative model are then discussed.

If cost-benefit analysis does not, as argued here, promote presidential power in a straightforward fashion, the consistency of presidential support for the practice presents something of a mystery. Part IV.C provides several potential explanations for why presidents have continued to support cost-benefit analysis and have at least accepted that agencies will play the primary role in developing the methodology.

The final Section focuses on how the more complete picture of the development of cost-benefit-analysis methodology provided in this Article should influence normative debates about the desirability of regulatory review and cost-benefit analysis. It suggests that the current arrangement, far from being a capitulation in favor of presidentially dominated agencies, is a complex compromise between conflicting normative conceptions of the role of agencies and political oversight in a democratic polity. The middle ground achieved by the current allocation of responsibilities over cost-benefit analysis, while satisfying to strong partisans of neither political control nor agency independence, has proven to be a workable and relatively stable solution given the reality of conflicting tensions in the modern administrative state.

A. The Principal-Agent Model

The dominant theoretical approach for understanding political control of agencies is the principal-agent model.³⁰⁷ Under the

³⁰⁷ See Charles K. Rowley and Robert Elgin, *Government and Its Bureaucracy: A Bilateral Bargaining versus a Principal-Agent Approach*, in Charles K. Rowley, Robert D. Tollison, and Gordon Tullock, eds, *The Political Economy of Rent Seeking* 267, 285–88 (Kluwer 2010); Posner, 68 U Chi L Rev 1137, 1142–43 (cited in note 25); Gary J. Miller, *The Political Evolution of Principal-Agent Models*, 8 Ann Rev Polit Sci 203, 207–08 (2005); McCubbins, Noll, and Weingast, 3 J L, Econ & Org at 246–48 (cited in note 35). But see William A. Niskanen Jr, *Bureaucracy and Representative Government* 45–77 (Aldine 1971) (offering monopoly supplier model of agencies); Steven P. Croley, *Regulation and Public Interests: The Possibility of Good Regulatory Government* 81–101 (Princeton 2008) (arguing that the structure of administrative law is designed to balance participation and limit the dominating influence of special interests in regulatory proceedings).

principal-agent model of administrative agencies, the president and Congress are the political principals, while agencies are charged with acting on their behalf. Because the political principals cannot monitor agencies perfectly, there is some residual discretion, creating space between the desires of the principals and the ultimate policy outcome. Principals invest in monitoring until marginal monitoring costs equal the marginal benefits of control.

There is a relatively simple way to apply the principal-agent model to regulatory review. The president owns the residual responsibility for implementing statutes but must delegate substantial regulatory powers to agencies.³⁰⁸ The inability of the president to directly monitor agencies creates the need for intermediary institutions that occupy the middle rung of a "principal/supervisor/agent" ladder.³⁰⁹ Under this model, OIRA serves as an (imperfect) proxy for the president.³¹⁰ Professor Eric Posner argues that cost-benefit analysis fits into the principal-agent framework by reducing information asymmetries between principals and agents, thereby facilitating political control.³¹¹

The analysis of Parts II and III—showing agency influence over cost-benefit-analysis methodology—reduces the power of Posner's analysis. Most obviously, if agents are charged with the development of cost-benefit-analysis methodology, its informational value for principals will be reduced. This would have the consequence of increasing monitoring costs and exacerbating principal-agent difficulties.

This effect would occur even though the development of cost-benefit analysis occurs within the shadow of OIRA review. Under the principal-supervisor-agent account, OIRA is the ultimate customer for agencies' cost-benefit analyses. This position would give OIRA substantial demand-side power: when it had methodological preferences, agencies would have incentives to conform to those preferences. Conducting cost-benefit analysis that OIRA rejected as illegitimate would not be in the agency's interest.

³⁰⁸ See Eugene F. Fama and Michael C. Jensen, *Separation of Ownership and Control*, 26 *J L & Econ* 301, 302-03 (1983) (describing how separation of ownership and management gives rise to principal-agent problem in business firms).

³⁰⁹ Jean Tirole, *Hierarchies and Bureaucracies: On the Role of Collusion in Organizations*, 2 *J L, Econ & Org* 181, 187-205 (1986) (showing that a simple model of principal-agent-supervisor generates complex potential coalitions).

³¹⁰ See Bagley and Revesz, 106 *Colum L Rev* at 1307-10 (cited in note 41) (questioning OIRA's ability to proxy presidential preferences).

³¹¹ Posner, 68 *U Chi L Rev* at 1143 (cited in note 25).

OIRA could leverage its position to, at least partially, overcome some of the advantages held by agencies discussed in Part II.³¹²

But the same dynamic discussed in Part I.C that accounts for the safe-harbor effect also limits OIRA's ability to impose its methodological preferences. OIRA and agencies must jointly resolve disputes over cost-benefit-analysis methodology, while minimizing the need for arbitration from higher-level political officials.³¹³ One strategy for reducing conflict over these questions is to adopt generally applicable norms to be applied in specific cases. By making reference to a neutral set of norms, OIRA and agencies can construct themselves as participants in a rational dialogue over how best to realize those norms, rather than as combatants in a politically fraught battle of wills that would require constant intervention.

The economic discipline, as a well-defined epistemic community, provides an attractive practical solution to this problem. Although there certainly may have been actors within agencies who did not accept the legitimacy of economic rationality as an arbiter of regulatory policy, economics has become the *de facto* language of regulatory review.³¹⁴ The link between cost-benefit analysis and the economic discipline is now often taken for granted, but it was not inevitable—there are many areas of government decision making that do not hew nearly as closely to mainstream economic thought. Instead, this link was the solution to the very specific dilemma facing agencies and OIRA of how to jointly settle a large number of open methodological questions in a collaborative fashion.

But as the system of regulatory review has evolved, nearly all disputes between agencies and OIRA on cost-benefit-analysis methodological questions have come to be resolved by reference to the views of the professional economics community. The party with the stronger claim to reflecting those views tends to dominate, and cases in which either an agency or OIRA is able to impose a methodological choice that is clearly out of line with mainstream economic thought are few and far between.³¹⁵

³¹² OIRA could also play different agencies off of each other, essentially free riding on the economics capacities of friendly agencies to generate support for its positions.

³¹³ See Part I.C.

³¹⁴ This need not have been the case. See Sunstein, 23 *Ariz L Rev* at 1276 (cited in note 1).

³¹⁵ The most prominent example of a departure is the use of average values for willingness to pay for mortality-risk reduction, instead of a measure that was indexed to wealth. There is a robust finding that higher income is associated, unsurprisingly, with a

Agencies' methodological influence, then, also springs from their stronger position to convince outside experts. Because economists have such an outsize role, there are obvious incentives to attempt to influence them.³¹⁶ Agencies' internal economics capacity and ability to fund outside research provide much greater leverage to do so. If convincing philosophers that there is a moral obligation to provide a minimum level of environmental care for all citizens would help facilitate the process of regulatory review, EPA would support philosophy conferences, encourage publication in peer reviewed philosophy journals, and engage in its own philosophical research. But economists, not philosophers, are the relevant community. While EPA's involvement may not ultimately decide what the economics community determines is the correct answer to any given question, it can almost guarantee that highly credentialed representatives of the community will give it consideration.

It might be thought that, by demanding that cost-benefit analyses conform to the dictates of welfare economics, OIRA has in essence deputized the economics profession as an external monitor on agencies, extending OIRA's authority over agencies. This may be true to some extent, but in the process OIRA has ceded control to an outside group that it cannot predict and that agencies are in a strong position to influence. The history of methodological development discussed in Part III highlights how mainstream economic views have evolved in EPA's favored direction and shows several high-profile instances in which OIRA ultimately bowed to these external professional views.

Even if OIRA had no choice but to feign acceptance of agency appeals to mainstream economics, it could still reject them in-

higher willingness to pay to avoid mortality risks. Viscusi and Aldy, 27 *J Risk & Uncertainty* at 36 (cited in note 6). Though an income-adjusted value of statistical life based on the demographic characteristics of the exposed population would therefore be justified from an efficiency perspective, it would raise normative egalitarian concerns and likely spark political opposition. It is telling that EPA's 2010 Guidelines recommend adjustment of benefits figures to reflect national income growth, but not based on population characteristics. 2010 EPA Guidelines at B-4 to -5 (cited in note 4).

³¹⁶ The incentive to influence economists exists not only for agencies, but also for interest groups seeking to convince agencies. As discussed in Part III.C, one of the most successful efforts to revise agency cost-benefit-analysis practices was conducted by the oil industry in the wake of the Exxon Valdez oil spill. By sponsoring a conference on contingent-valuation methodology, with respected economists as participants, this interest group was able to place contingent valuation in severe danger. Imbalanced participation in expert-driven processes can distort how this accountability mechanism affects agencies, a problem that has occurred with cost-benefit analysis. Revesz and Livermore, *Retaking Rationality* at 9-12 (cited in note 51).

ternally and substitute its own values, in essence creating “two sets of books” of regulatory costs and benefits. But the safe-harbor effect undermines this strategy. If, as a practical matter, OIRA finds it difficult to object to rules that pass a cost-benefit test according to methodologies largely developed by agencies, cost-benefit analysis will continue to be an impediment to the free exercise of review power, whatever OIRA’s books happen to say. The overall effect of cost-benefit analysis within the principal-supervisor-agent model would be to increase the residual discretion held by agencies.

The real world of agency relationships is also more complex than a simple principal-supervisor-agent model would suggest.³¹⁷ Senior leadership at agencies is composed of political appointees loyal to the president;³¹⁸ OIRA’s claim to better represent presidential preferences in intraexecutive debates is therefore shaky.³¹⁹ Often, during the course of review, a career bureaucrat at OIRA will evaluate choices made by political appointees at agencies. This inverts the standard principal-agent relationship. The relationships of career staff at OIRA and career staff at agencies are not obviously well characterized by the principal-agent model. Within agencies and OIRA, the presence of both career staff and political appointees creates the possibility of internal principal-agent dynamics.

Furthermore, there is a multiple-principal problem in the American system. Congress is sometimes characterized as the *main* principal that dictates the work of agencies.³²⁰ Interest groups also have an important role in the American political

³¹⁷ Daniel B. Rodriguez, *The Positive Political Dimensions of Regulatory Reform*, 72 Wash U L Q 1, 39–40 (1994) (noting that “decisionmakers in public agencies are involved in a myriad of different relationships” more complex than the principal-agent model implies).

³¹⁸ See Donald P. Moynihan and Alasdair S. Roberts, *The Triumph of Loyalty over Competence: The Bush Administration and the Exhaustion of the Politicized Presidency*, 70 Pub Admin Rev 572, 573–74 (2010); David J. Barron, *From Takeover to Merger: Reforming Administrative Law in an Age of Agency Politicization*, 76 Geo Wash L Rev 1095, 1097 (2008) (arguing that politicization is a fact that must be taken into account in administrative law scholarship). But see Robert F. Durant and William G. Resh, “*Presidentializing*” the Bureaucracy, in Robert F. Durant, ed, *The Oxford Handbook of American Bureaucracy* 545, 561–62 (Oxford 2011) (questioning the efficacy of politicization as a control mechanism).

³¹⁹ See Bagley and Revesz, 106 Colum L Rev at 1308 (cited in note 41).

³²⁰ See, for example, Barry R. Weingast and Mark J. Moran, *Bureaucratic Discretion or Congressional Control? Regulatory Policymaking by the Federal Trade Commission*, 91 J Polit Econ 765, 792 (1983) (arguing that congressional committees exert considerable influence over agencies).

system, and the broader public can be thought of as a kind of ultimate principal to which all government officials are (or should be) ultimately accountable. This multiple-principal problem not only muddies, from a normative perspective, lines of authority, but also allows agents greater freedom of motion to express their preferences.³²¹

Within this network of principal-agent relationships, reducing information asymmetries through cost-benefit analysis would shift the balance of power in complex ways. Political appointees within agencies and OIRA may indeed benefit from information disclosure, which would facilitate political control. But in cases of conflict between OIRA and political staff at agencies, there is an ambiguous effect. Regulatory-impact analysis may be used by technocrats at OIRA to undermine the desires of political appointees at agencies. In addition, Congress and the broader public can also access this information, which facilitates their ability to hold agencies to account, potentially exacerbating the multiple-principals problem.

The safe-harbor effect and agency influence over the methodology have complicated effects within this more fully articulated model of principal-agent relationships. In particular, it is career bureaucrats that are best positioned to influence cost-benefit-analysis methodology. Methodological development takes years, but the length of tenure for a typical political appointee is quite short.³²² Political appointees are also, in general, poorly positioned to understand the methodological complexities of cost-benefit analysis. For the same reasons, even the power that OIRA exercises over the technique is largely held by careerists.

If it is the career bureaucracy that shapes the methodology, the information value of cost-benefit analysis would be reduced for political principals, including political appointees within agencies and the White House, Congress, and the public. Political principals will often not be aware of, or decide not to concern themselves with, methodological complexity, preferring to focus on the bottom line in an analysis. In those cases, they are all but abdicating their oversight authority to the accrued past decisions of career bureaucrats within agencies and OIRA. Given cognitive limitations and the time pressures faced by many po-

³²¹ See generally Hammond and Knott, 12 J L, Econ & Org 119 (cited in note 42).

³²² See James P. Pfiffner, *Political Appointees and Career Executives: The Democracy-Bureaucracy Nexus in the Third Century*, 47 Pub Admin Rev 57, 60 (1987) (referring to political appointees as "birds of passage").

litical principals, this result may be all but a foregone conclusion. Political principals are also constrained by norms of conformity to past practice and the need to avoid unnecessary disputes: deferring to past interpretations of cost-benefit analysis and avoiding interference with rules that clearly pass a cost-benefit test may be the easiest course of action in many cases. At the very least, in a multiple-principal environment, principals that favor an agency proposal falling within the safe harbor will be at an advantage.

This Section has painted a fairly complex picture of how the principal-agent model informs our understanding of the role of cost-benefit analysis in the administrative state. This picture contrasts sharply with the prevailing view, which has the advantage of parsimony but is ultimately misleading. To summarize the argument presented here: even when cost-benefit analysis helps reduce information asymmetries in the executive branch, the result will sometimes simply be to favor certain principals at the expense of others, or certain agents at the expense of other agents or even principals. Furthermore, the safe-harbor effect and agency methodological influence mean that agents can often use cost-benefit analysis to keep their own principals in line. Ultimately, the net effect of the cost-benefit-analysis requirement on the relative balance of power between principals and agents is ambiguous and deeply unpredictable.

B. A Deliberative Model

This Section builds on the prior discussion by relaxing an important assumption of the principal-agent model. In the standard model, principals and agents are assumed to have relatively stable, nonmalleable preferences and seek to maximize the satisfaction of those preferences subject to their constraints. Any influence that agents or principals might have on each other's preferences are outside the model. But there are reasons to believe that, at least within the executive branch, actors influence each other's preferences on a regular basis through information provision, socialization and acculturation, normative pressure, or simply reasoned argument.³²³ If preferences are at

³²³ As noted by Professor Jodi Short, “[a]gencies are disciplined not solely by the constraints of rationality, legal doctrine, and political power, but also by the social and institutional environments in which they are embedded.” Jodi L. Short, *The Political Turn in American Administrative Law: Power, Rationality, and Reasons*, 61 *Duke L J* 1811, 1816 (2012).

least somewhat subject to these kinds of influences, then relationships within the executive branch can be thought of as having a deliberative component,³²⁴ involving collaboration toward shared goals rather than perpetual conflict.³²⁵ This kind of deliberation and collaboration may be strongest among political appointees,³²⁶ but influence among careerists and between careerists and political appointees may also be common.³²⁷ Regulatory design also frequently raises purely technical questions that are better understood as collaborative problem-solving challenges than as political contests.³²⁸

³²⁴ An important component of genuine deliberation is the ability of participants to change their preferences based on new information. See James S. Fishkin, *When the People Speak: Deliberative Democracy and Public Consultation* 39 (Oxford 2009) (stating that “[d]eliberation requires that participants sincerely weigh the issues on their merits [and] . . . decide in the end on the basis of the force of the better argument”) (quotation marks omitted); Joshua Cohen, *Deliberation and Democratic Legitimacy*, in Alan Hamlin and Philip Pettit, eds., *The Good Polity: Normative Analysis of the State* 17, 22 (Blackwell 1989) (describing ideal deliberative procedure as one in which participants “state their reasons . . . with the expectation that those reasons . . . will settle the fate of their proposal”).

³²⁵ Professors Terry Moe and Scott Wilson discuss the ability of presidents, through their personnel choices, to “produce a genuine team,” in which “opportunism and conflict of interest are greatly reduced.” Terry M. Moe and Scott A. Wilson, *Presidents and the Politics of Structure*, 57 *L & Contemp Probs* 1, 16–17 (Spring 1994). The bureaucratic apparatus in this view is meant to “mitigate the problems faced by teams—by promoting coordination, information-sharing, and applications of suitable expertise among individuals who share the same mission.” *Id.* at 17.

³²⁶ For Moe and Wilson, the team model “applies with most force” to the most senior advisory level within the White House because of a strong expectation of loyalty to the president, although “the boundaries of the institutional presidency are unclear at the margins.” *Id.*

³²⁷ Individuals within agencies with “a persistent, patterned way of thinking about [their] central tasks [] and human relationships” may be well positioned to exert influence on each other across appointee/careerist lines. Wilson, *Bureaucracy* at 91 (cited in note 42). Norms of responsiveness to political appointees may also become embedded in agency culture, so that careerists willingly shift their preferences depending on political direction. See *id.* at 275 (noting that during the Reagan administration, “in many agencies . . . the careerists served the policies of their ideologically distant chiefs”). When agencies have a strong sense of mission that is shared by the president and political appointees, then influence and collaboration is also likely. See *id.* at 95 (defining agency mission and giving examples). See also Pfiffner, 47 *Pub Admin Rev* at 61 (cited in note 322) (noting that presidential appointees generally feel that career bureaucrats are responsive after elections install different political leadership); Grace Hall Saltzstein, *Bureaucratic Responsiveness: Conceptual Issues and Current Research*, 2 *J Pub Admin Rsrch & Theory* 63, 69–76 (1992) (clarifying definition of responsiveness and discussing empirical work in the area).

³²⁸ An example of a problem-solving challenge that was badly misperceived as a political contest was a portion of an EPA rule making on nitrogen dioxide. Professor Rena Steinzor argued at the time that OIRA had “weakened” the rule and that “[t]he consequences for the public health are real.” Rena Steinzor, *EPA’s New NO₂ Rule: A Tale of*

At least one purpose of regulatory review in the deliberative model would be to facilitate the exchange of information and arguments across agencies and between agencies and the White House. Cost-benefit analysis can serve this purpose by providing a standardized format to facilitate intrabranch dialogue about regulatory ends and means. Impact analysis aggregates and diffuses information, provides advanced notice and allows time and opportunity for internal comment and coordination, and brings to bear expertise located in the regulatory agency as well as dispersed within other agencies and the White House. Cost-benefit analysis may also help agencies identify the factors that are widely agreed upon within the executive branch to be relevant to a particular rule making.³²⁹

Under this deliberative model, it could easily make sense for agencies to be delegated a leading role in developing the methodology of cost-benefit analysis. Agencies have subject matter expertise, familiarity with the regulatory questions under consideration, and institutional capacity to devote the necessary analytic resources to fleshing out the technique. If deliberation is facilitated by charging the most sophisticated and expertise-laden actor with methodological development, then agencies are the obvious choice.

But even if intrabranch relations are understood in a collaborative light, there are good reasons to anticipate a safe-harbor effect. Some disagreement between OIRA and agencies will remain, even if relations are good: disagreement is at the heart of deliberation, and, as discussed in Part I.C, without conflict, regulatory review has no purpose. The same need to resolve those disputes amicably will incentivize the development of a safe harbor of established cost-benefit-analysis methodologies.

OMB Interference, CPRBlog (Center for Progressive Reform Jan 29, 2010), online at <http://www.progressivereform.org/CPRBlog.cfm?idBlog=7B6070A2-E4D9-CEE5-4D6EF5-DF5B19FB12> (visited May 15, 2014). The issue was the number and placement of roadside monitors for the pollutant, which is primarily associated with automobiles. OMB had asked the agency to consider raising the threshold size for a community to receive a monitor from 350,000 to 500,000 people. Ultimately, EPA agreed with OIRA and used the remaining monitoring stations to target specific vulnerable communities. Gina McCarthy, then Assistant Administrator for Air at EPA, was quoted as saying that the change avoided placing monitors "in the middle of nowhere" and that it allowed the agency to "design the monitoring system in a better way than we had proposed." Brad Johnson, *EPA Official: OMB Involvement in NO2 Standard Was a "Significant Win" for Public Health*, Climate Progress Blog (Feb 12, 2010), online at <http://thinkprogress.org/climate/2010/02/12/174563/epa-omb-no2-win> (visited May 15, 2014).

³²⁹ See Sunstein, 29 J Legal Stud 1059, 1093–94 (cited in note 27).

The safe-harbor effect and agency methodological influence have important implications in the deliberative model. If agencies are the primary entities charged with developing the terms of the discourse, they can do so in a way that tilts that discourse in their favored direction. This is not necessarily the result of bad faith: when choices are called for, agencies will make them in a way they view to be correct. But the accumulated result will likely be a methodology that tends to be kind to the regulations that agencies are inclined to propose. Stated a slightly different way, if the terms of the debate are set by the agency, those terms will favor the kinds of argument that agencies themselves find persuasive, which are exactly those arguments that inform their own internal decision making. Ultimately, preferences that are shaped by a deliberative framework developed by agencies are likely to lean in the agencies' direction.

In the deliberative model, the safe-harbor effect may be less a prudential barrier to intrusive review than a signal that less scrutiny is needed. Analytic resources are scarce, and if agencies can persuasively argue that their proposals are justified according to established and generally accepted cost-benefit norms, the reasonable thing for actors in the executive branch to do is focus on more controversial matters. It would not make sense to spend time second-guessing a proposal that is, in the end, likely to be worthy of widespread support. Coupled with agency control over the methodology, this deliberative safe-harbor effect may be a soft, but very effective, form of insulation for agency rule making.

But the preference-shaping effects of cost-benefit analysis may also operate on the agency as well. The selection of economics as the language of cost-benefit analysis drives agencies to produce particular kinds of information.³³⁰ Theoretical models must be developed that can translate empirical information about physical regulatory effects (such as dose-response curves for toxic pollutants) into terms that are cognizable within cost-benefit analysis (like willingness to pay). Those theoretical models can be critiqued, defended, and revised. There is also a very

³³⁰ See Matthew C. Stephenson, *Information Acquisition and Institutional Design*, 124 Harv L Rev 1422, 1452 (2011) (noting how institutional design, including "a system in which the agent's freedom of action is conditional on the agent's research effort," can generate incentives for information production). See also Emerson H. Tiller, *Resource-Based Strategies in Law and Positive Political Theory: Cost-Benefit Analysis and the Like*, 150 U Pa L Rev 1453, 1457-58 (2002) (arguing that Congress imposes analytic burdens as a way to increase decision costs for disfavored agencies).

large amount of empirical information—engineering, toxicological, economic, behavioral—that must be collected and analyzed. Techniques for empirical estimation, default values, scientific models, and statistical methods must all be developed and refined over time.

The types of knowledge production agencies engage in may affect their regulatory decision making, especially over time.³³¹ Because agencies must continually collect information to anticipate regulatory costs, they may gain insights into how those costs can be reduced. As scientific knowledge about the relative harm associated with different air pollution increases, agency regulatory efforts may shift to more dangerous activities. In his extensive study of cost-benefit analysis at EPA, Richard Morgenstern found that, when analysis was important for revising a rule making, it was largely through its influence on agency decision makers directly, not because of some threat from OIRA or fear of public controversy or interest group pressure.³³²

The evaluation of regulations according to standard economic criteria may also have broad influence on executive-branch perspectives on regulatory questions. This effect was anticipated by early supporters of OIRA review.³³³ Professors Elizabeth Magill and Adrian Vermeule argue that reliance on cost-benefit analysis by courts and OIRA will “expand[] the range within which economists, scientists, and other nonlegal professionals effectively choose agency policy.”³³⁴ Professor Thomas McGarity has conducted the most extensive research to date on the effect of cost-benefit analysis on bureaucratic culture within US administrative agencies. He argues that it promotes an approach he terms “comprehensive analytic rationality” at the expense of

³³¹ See Richard Lazarus, *The National Environmental Policy Act in the U.S. Supreme Court: A Reappraisal and a Peek behind the Curtains*, 100 *Georgetown L J* 1507, 1536–65 (2012) (demonstrating how the National Environmental Policy Act has influenced government decision making).

³³² See Morgenstern and Landy, *Economic Analysis: Benefits, Costs, Implications* at 457–59 (cited in note 127).

³³³ Writing in 1986, long-time defenders of cost-benefit analysis and regulatory review Judge Douglas Ginsburg and Christopher DeMuth predicted that “[t]he greatest benefit of OMB review [] may result from the agency mechanisms established to respond to the kinds of questions that OMB raises.” DeMuth and Ginsburg, 99 *Harv L Rev* at 1085 (cited in note 24).

³³⁴ Elizabeth Magill and Adrian Vermeule, *Allocating Power within Agencies*, 120 *Yale L J* 1032, 1051 (2011). See also Short, 61 *Duke L J* at 1864 (cited in note 323) (“An organization can be shaped in significant ways by empowered internal constituencies that are committed to a particular set of values.”).

“techno-bureaucratic rationality.”³³⁵ These two versions of rationality have several different characteristics that, ultimately, may shape regulatory outcomes.³³⁶ He finds that though cost-benefit analysis has not led to a complete transformation, there have been many important effects, especially at EPA.³³⁷ These effects may have grown in recent years as the methodology has become more entrenched.

Allowing for the possibility of deliberation within the executive branch expands even further the importance of the safe-harbor effect and agency methodological influence for understanding the role of cost-benefit analysis in the regulatory state. Not only can cost-benefit analysis be used to protect agents from political oversight, it might also be a means for agents to affect the preferences of the principals. Cost-benefit analysis would then be a means for agents to both shield their discretion and project influence.

C. Presidential Power

Under both the principal-agent and deliberative models discussed above, cost-benefit analysis has ambiguous effects on political control, and agency influence over the methodology protects the prerogatives and projects the influence of career bureaucrats. While there are some long-term effects on agency behavior, especially as a culture influenced by cost-benefit analysis develops and agencies continue to produce the kinds of information that cost-benefit analysis demands, it is not clear that these long-term effects particularly accord with presidential preferences. There are especially good reasons to believe that the direction of these deliberative, long-term effects were not anticipated by the founders of the system of regulatory review, who largely had an antiregulatory perspective: in many cases, the influence of cost-benefit analysis may have been to increase regulatory zeal as large regulatory benefits were discovered.

But this account creates something of a puzzle, since presidents have created and supported a system that seems to have

³³⁵ McGarity, *Reinventing Rationality* at 5 (cited in note 79).

³³⁶ Techno-bureaucratic characteristics are: mission orientation, action orientation, restricted planning horizons, bounded options, turf consciousness, and an engineer's professional perspective. Comprehensive analytical characteristics are: neutrality, objectivity, quantitative orientation, comprehensiveness, thoroughness, consistency, openness, and an economist's professional perspective. *Id.* at 6–13.

³³⁷ See *id.* at 303–08.

such equivocal effects on their political power. Even assuming that cost-benefit analysis provides information needed to carry out regulatory review, why would the president not seek to better control both the information (to avoid worsening the multiple-principals problem) and the development of the methodology?

1. Objective or ideological hypotheses.

One possibility is that the drafters of the system of regulatory review believed cost-benefit analysis to be an objective, empirical endeavor, akin to scientific discovery, and that agencies could be charged with developing the methodology without fear of affecting outcomes.³³⁸ A related possibility is that economics, although perhaps somewhat flexible, imbeds a specific ideological outlook, and in particular an antiregulatory outlook, that comported with the views of the Reagan administration that implemented it. According to this thinking, even if agencies were charged with methodological development, they could not scrub the technique of antiregulatory bias and may even end up internalizing some of that ideological perspective.

Both the objective and the ideological hypotheses are hampered by their reliance on a high level of determinacy within cost-benefit analysis or economic rationality. Certainly cost-benefit analysis, broadly construed, cannot be understood to be either an objective or even a particularly ideologically loaded criterion, because it is so underspecified. As argued by Sunstein, a broad “utilitarian approach to regulation [allows] nearly any result [to] be justified regardless of whether it maximizes wealth.”³³⁹ Cost-benefit analysis could, in theory, embrace a wide range of criteria,³⁴⁰ such as subjective satisfaction,³⁴¹ objective well-being,³⁴² or human capabilities.³⁴³ These other criteria are

³³⁸ Of course, even scientific fact is not free from political influence. See, for example, *60 Minutes: Rewriting the Science* (CBS Television Broadcast Mar 19, 2006) (examining the role of the White House in suppressing public disclosure of agency scientific findings relating to climate change during the George W. Bush administration).

³³⁹ Sunstein, 23 *Ariz L Rev* at 1276 (cited in note 1).

³⁴⁰ See Michael A. Livermore, *Can Cost-Benefit Analysis Go Global?*, 19 *NYU Envir L J* 146, 150–53, 178, 184–87 (2012) (discussing metrics that can be used in cost-benefit analysis).

³⁴¹ See John Bronsteen, Christopher Buccafusco, and Jonathan S. Masur, *Well-Being Analysis vs. Cost-Benefit Analysis*, 62 *Duke L J* 1603, 1617 (2013).

³⁴² See Matthew D. Alder, *Well-Being and Fair Distribution: Beyond Cost-Benefit Analysis* 61 (Oxford 2011).

not fanciful, but they have been forwarded by serious scholars and even adopted by governmental bodies.³⁴⁴ Given this range of criteria, cost-benefit analysis would seem to embrace, at least potentially, many ideological shades.

Even assuming economic-efficiency criteria, objectivity and strong ideological valiance are both questionable. The large number of methodological disputes discussed in Part III, many of which remain at least theoretically open, testify to either a lack of objectively correct answers or very poor epistemic access to those answers—either way leaving many questions open. Any inherent ideological bias in cost-benefit analysis is a subject of dispute,³⁴⁵ and the malleability of the technique is problematic for such a view.

It is possible, nevertheless, that the architects of the OIRA review structure believed cost-benefit analysis and economic rationality to be objective or deliver obvious ideological results.³⁴⁶ But even if this was the case, the continuity of the current allocation of responsibilities, which has lasted through presidencies with profoundly different political preferences, is hard to explain. Path dependency might account for the persistence of the system to some degree. But if the current allocation of responsibility does not reflect institutional features of the presidency, rather than the ideological outlook of an individual president, there would be recurrent threats to its stability.

2. Accommodation.

Even if the drafters of the Reagan order recognized the importance of methodological development, funding for an aggressive research budget for OIRA to support application of the cost-benefit standard would have been difficult to secure. Congress-

³⁴³ Martha C. Nussbaum, *Capabilities and Human Rights*, 66 *Fordham L Rev* 273, 279–85 (1997); Amartya Sen, *Capability and Well-Being*, in Martha Nussbaum and Amartya Sen, eds, *The Quality of Life* 30, 31–32 (Clarendon 1993).

³⁴⁴ The UN Human Development Index is strongly informed by Sen's capabilities approach. See United Nations Development Programme, *The Real Wealth of Nations: Pathways to Human Development* 13–14 (2010) (providing assessment of several factors meant to replace gross domestic product as a measure of development).

³⁴⁵ See Revesz and Livermore, *Retaking Rationality* at 173–75 (cited in note 51) (arguing that cost-benefit analysis can be used to promote strong environmental and public health protections).

³⁴⁶ If they believed that cost-benefit analysis would typically show that regulation was not well justified, history has shown them to have been incorrect. See, for example, OMB, *2012 Report to Congress on the Costs and Benefits of Federal Regulations* at 3 (cited in note 227).

sional preferences at the time tended to be highly skeptical of the regulatory-review regime.³⁴⁷ Indeed, funding for OIRA's entire regulatory-review operation was cut temporarily by Congress, because of fears of presidential overreach.³⁴⁸ Only after the OIRA Administrator was made subject to Senate confirmation was funding restored.³⁴⁹

OIRA is also located within OMB, making it subject to a number of OMB cultural constraints. Located in the Executive Office of the President—which is largely composed of political appointees that shift during presidential transitions—OMB has a very large career staff. The office has tried to develop a “strong professional culture” of technocratic expertise in part because of the need to serve presidents of widely differing preferences.³⁵⁰ Its unusual status as a group of career staff within the Executive Office of the President has resulted in a general tendency to tread carefully with Congress and to not “plead too forcefully for sizable increases in [] resources in spite of its significant functions.”³⁵¹ There is a resulting cultural tendency toward lightness of staff and a need to look to agencies for substantive research and analysis that may have affected how OIRA was structured and operates.

President Reagan also faced agency resistance to the imposition of regulatory review. Political scientists describe a “cycle of accommodation” between new presidential administrations and the existing federal bureaucracy in which “initial suspicion and hostility” on the part of incoming political appointees is gradually replaced by a relationship of “mutual respect and trust.”³⁵² This road is not always smooth.³⁵³ Where accommodation cannot be made, conflict can easily move from the staid cor-

³⁴⁷ See Copeland, 33 *Fordham Urban L J* at 1266–69 (cited in note 54) (describing congressional disapproval of OIRA regulatory review).

³⁴⁸ *Id.* at 1267. OIRA was still able to carry out its functions: it maintained its statutory authority under the Paperwork Reduction Act and OMB was able to fund review through its broader appropriation. *Id.*

³⁴⁹ *Id.* at 1268.

³⁵⁰ B. Guy Peters, *Governing from the Centre(s): Governance Challenges in the United States*, in Carl Dahlström, B. Guy Peters, and Jon Pierre, eds, *Steering from the Centre: Strengthening Political Control in Western Democracies* 123, 133 (Toronto 2011)

³⁵¹ Shelly Lynne Tomkin, *Inside OMB: Politics and Process in the President's Budget Office* 11 (Sharpe 1998).

³⁵² Pfiffner, 47 *Pub Admin Rev* at 60 (cited in note 322).

³⁵³ Bruce Ingersoll, *Burford Out; Agency Is in 'a Shambles'*, *Spokane Chronicle* 1 (Mar 10, 1983) (describing the resignation of Reagan's first EPA Administrator, whose tenure was characterized by strong internal and external opposition).

ridors of agencies into the political battlefield, with negative consequences for both political appointees and agencies.

Given that some tension will exist between the current bureaucracy and new political masters—especially those that seek to unsettle long-standing practices—much turns on how conflict is channeled. If it cannot be managed internally, bureaucrats have a wide range of external tools that can be used if needed to protect their interests. Congress is an obvious outlet, and career personnel often have links to important constituencies that can be activated. Additionally, the media can be used to great effect to embarrass the president and his appointees. Revolt on the part of the federal bureaucracy is something that the president and political appointees would strongly want to avoid.

When OIRA review was established by the Reagan order, it left both career and political appointees at agencies open to the possibility that a more consolidated principal would exercise effective control. But because there was a clearly designated standard for how review would be exercised, there were internal channels for agencies, and in particular career bureaucrats at agencies, to protect their autonomy.

When those channels are blocked, and methodological choices are imposed in an overtly political manner, it opens the president to genuine risks. The best example of this is the senior death discount debate discussed above. A heavy-handed imposition of the life-years methodology, which was not well grounded in the empirical literature and lacked support within the agency, resulted in very public conflict. Members of Congress weighed in, interest-group pressure was brought to bear, and unfavorable reports ran in the press. Though, of course, there was no formal involvement of the agency, it is quite possible that at least some agency personnel played a role. Ultimately, political officials who supported age-related adjustments to mortality risk reduction were forced to back down.³⁵⁴ When EPA's traditional role in overseeing methodological developments was threatened, a political toll was exacted on the George W. Bush administration, a mistake that should leave a lasting imprint.

Under this account, the cost-benefit-analysis requirement, and the degree of control that it afforded to the federal bureau-

³⁵⁴ The ultimate resolution of this controversy, of course, turned on many factors, including the fact that senior citizens represent a relatively well-organized interest group with substantial voting power. Other methodological disputes may not present such politically favorable circumstances for agency-favoring outcomes.

cracy, helped support the institution of regulatory review.³⁵⁵ Because the review process created an internal channel for agencies to protect their autonomy, it helped prevent wholesale revolt against increased presidential control, battles for which there would no doubt have been willing patrons in Congress and among interest groups and that would have played out in very public fashion. At a time when the executive branch is viewed as ever more unitary,³⁵⁶ this provides a useful reminder that persuasion remains one of the most important presidential powers.³⁵⁷ Embedded in one of the most aggressive structural assertions of presidential authority over the regulatory process is an allocation of responsibility over methodological development that encouraged agencies to accept it. By ceding a measure of control, while channeling agency efforts internally within the executive branch, an agency-driven cost-benefit-analysis requirement has helped allow the institution of OIRA review to survive.

D. The Desirability of Cost-Benefit Analysis

This Article has focused on describing how agencies shape cost-benefit-analysis methodology and has argued that the safe-harbor effect coupled with agency power over the methodology complicates substantially the role of cost-benefit analysis in agency-OIRA-president interactions.

Positive descriptions of power relations in the administrative state cannot help but implicate normative concerns. The conflicting demands of accountability and competence, the imperfection of our democratic and bureaucratic institutions, and more generally, competing conceptions about the role of government all create fertile ground for strongly differing views of how

³⁵⁵ This need not have been an intentional choice on the part of the drafters; indeed, it would have taken considerable foresight on their part to anticipate how this system would develop. See Milton Friedman, *Essays in Positive Economics* 21–22 (Chicago 1953) (providing the famous billiard-player example to illustrate that behavior need not be intentional to be described through rationality conditions).

³⁵⁶ See generally Steven G. Calabresi and Christopher S. Yoo, *The Unitary Executive: Presidential Power from Washington to Bush* (Yale 2008) (arguing that from the time of the founding, presidents have sought to impose their will on the executive branch).

³⁵⁷ There is a longtime view that presidents are successful not through the exercise of their formal powers, but through “resourceful pursuit of bargaining and cooperation” in the separation-of-powers system. Moe and Wilson, 57 *L & Contemp Probs* at 13 (cited in note 325), citing Richard E. Neustadt, *Presidential Power: The Politics of Leadership from FDR to Carter* 10 (Wiley 1980) (“[P]residential power is the power to persuade.”).

society should structure administrative and regulatory decision making.

Of course, many of the normative debates over cost-benefit analysis turn on the substantive content of the standard. Objections have been raised, for example, that cost-benefit analysis requires a morally objectionable commodification of goods that belong outside the market sphere.³⁵⁸ Proponents of the standard have argued that because it tracks effects on human welfare, cost-benefit analysis provides morally valuable information to decision makers.³⁵⁹ This Article makes no particular contribution to these long-standing debates.

But many of the criticisms and defenses of cost-benefit analysis are about power. Some of the most prominent defenders of the technique explicitly link cost-benefit analysis to the (democratically desirable) exercise of presidential authority over agencies.³⁶⁰ Critics fear that cost-benefit analysis facilitates political control over agencies, a process they see as interfering with the ability of the bureaucracy to exercise expertise in pursuance of publicly minded, congressionally endorsed goals.³⁶¹ Both agree that cost-benefit analysis is a tool for OIRA to exercise authority over administrative agencies, but they differ on the question of the desirability of that effect.

Agencies' role in shaping cost-benefit analysis complicates this picture. The argument presented here could be read to imply that the polarity in this particular normative debate is backwards. Perhaps proponents of agency autonomy should embrace cost-benefit analysis as a mechanism for agencies to expand their rule making prerogative. Conversely, perhaps opponents of agency authority should regard cost-benefit analysis as an impediment to realizing their goals. The 2012 Republican presidential candidate Mitt Romney seems to agree with this view:

Where standards are put in place to constrain the issuance of regulations—such as requiring the use of cost-benefit analysis—they tend to be vulnerable to manipulation and also disconnected from the central issue confronting our

³⁵⁸ See Anderson, *Value in Ethics and Economics* at 190–216 (cited in note 11).

³⁵⁹ See Eric A. Posner and Matthew D. Adler, *New Foundations of Cost-Benefit Analysis* 25–39 (Harvard 2006).

³⁶⁰ See DeMuth and Ginsburg, 99 *Harv L Rev* at 1088 (cited in note 24).

³⁶¹ See Cooper and West, 50 *J Polit* at 880 (cited in note 12); Heinzerling, 33 *Fordham Urban L J* at 1100 (cited in note 33).

country today, namely, generating economic growth and creating jobs. The end result is an economy subject to the whims of unaccountable bureaucrats pursuing their own agendas.³⁶²

A move by a prominent and ambitious Democratic governor³⁶³ to eliminate the cost-benefit standard in New York state indicates that any newfound realization that cost-benefit analysis can preserve agency autonomy (and hostility toward this effect) is not a one-party affair.³⁶⁴

Whether proponents or opponents of presidential control should embrace cost-benefit analysis, then, may turn on a political judgment and may shift with the times. When presidential prestige is relatively high, there may be a temptation on the part of the White House to abandon cost-benefit analysis in favor of a more direct assertion of authority. In those cases, defenders of agency autonomy may be forced to fight for cost-benefit analysis as an at least partial check on centralized control. If presidential prestige wanes, there may be a greater willingness on the part of agency-oriented interests to attempt to overturn the entire system of review, cost-benefit analysis included. The current compromise, with formal review cabined by a substantive standard largely in the hands of agencies to develop, has persisted for three decades, but there is no guarantee that it will last forever.³⁶⁵

³⁶² See Michael A. Livermore and Richard L. Revesz, *Three Stages in the Use of Cost-Benefit Analysis as a Tool for Evaluating U.S. Regulatory Policy* 5 (Max Weber Lecture No 2012/05), quoting Mitt Romney, *Believe in America: Mitt Romney's Plan for Jobs and Economic Growth* 55 (2011).

³⁶³ Danny Hakim, *Cuomo for President? Who Said That? Well, Dad*, NY Times A1 (July 8, 2012).

³⁶⁴ In New York state, there was a robust practice of regulatory review, based on cost-benefit analysis and conducted by a somewhat independent body in the executive branch, the Governor's Office of Regulatory Reform (GORR). This institutional arrangement was established by a Republican governor, George Pataki, in 1994 and was carried forward by Governors Eliot Spitzer and David Paterson, both Democrats. But when Andrew Cuomo took office in a landslide victory, with single-party dominance of both houses of the legislature, he simply eliminated GORR and the cost-benefit-analysis requirement, transferring the regulatory-review power to political officials within his administration. Executive Order 14, NY Comp Codes R & Regs Title 9, § 8.14 (2011). The New York State Administrative Procedure Act does require that costs and benefits be considered in rule making, but there is no requirement of formal cost-benefit analysis and no executive enforcement mechanism. New York State Administrative Procedure Act of 1975 § 202-a(3)(b)-(c).

³⁶⁵ The methodology of cost-benefit analysis, though, is likely "here to stay," regardless of its role in the regulatory-review process. Revesz and Livermore, *Retaking Rationality* at 11 (cited in note 51). Agencies have invested a great deal to develop the method-

There are other important questions presented by the analysis in this Article. One, an empirical question with deep normative shades, asks whether agencies have used their position of control over cost-benefit analysis to manipulate it in a pro- or antiregulatory direction, or have instead engaged in a relatively neutral program of methodological development. The presence of the professional economics community limits, to some degree, the ability of agencies to conform cost-benefit analysis entirely to its whims, but important discretion remains.

There is a substantial literature that examines agency motivations, with many conflicting views on what agencies will do when given discretion.³⁶⁶ Some view agencies as inclined toward empire building.³⁶⁷ Adherents of this view may hypothesize that agencies engage in manipulation to expand their authority. Others view agencies as subject to capture by the regulated community;³⁶⁸ they may view agency influence as tilting in an antiregulatory direction. Still others view agencies more as complex collections of individuals embedded in bureaucratic structures rich in—sometimes conflicting—incentives, norms, and practices.³⁶⁹ Adherents of this view may hypothesize that agency influence over the development of cost-benefit analysis will have no clear pro- or antiregulatory bias, but will instead reflect the particular civil servants involved, political direction at key moments, and the cognitive, personnel, and resource constraints facing agencies. A more extensive history of the development of cost-benefit analysis than the one offered here would be necessary to settle this question.³⁷⁰

ology and it provides a useful tool to analyze impacts as well as a way to justify regulatory choices that agencies should be loath to abandon.

³⁶⁶ See Niskanen, *Bureaucracy and Representative Government* at 192–93 (cited in note 307); Michael E. Levine and Jennifer L. Forrence, *Regulatory Capture, Public Interest, and the Public Agenda: Toward a Synthesis*, 6 *J L, Econ & Org* 167, 167–72 (1990) (proposing that agencies may pursue private interests, the true public interest, or idiosyncratic views of the public interest); Joseph P. Kalt and Mark A. Zupan, *Capture and Ideology in the Economic Theory of Politics*, 74 *Am Econ Rev* 279, 298 (1984).

³⁶⁷ See, for example, Niskanen, *Bureaucracy and Representative Government* at 36–42 (cited in note 307).

³⁶⁸ See, for example, Rachel E. Barkow, *Insulating Agencies: Avoiding Capture through Institutional Design*, 89 *Tex L Rev* 15, 21 n 23 (2010) (defining capture and citing several prominent sources).

³⁶⁹ See, for example, B. Dan Wood and Richard W. Waterman, *Bureaucratic Dynamics: The Role of Bureaucracy in a Democracy* 1–11 (Westview 1994); Wilson, *Bureaucracy* at 81 (cited in note 42).

³⁷⁰ The two most detailed histories that are available, by Morgenstern and McGarity, strongly favor the final hypothesis. See Richard D. Morgenstern, *Conducting an Eco-*

An additional question involves the desirability of accountability by agencies to communities of outside experts. Putting aside the particular characteristics of the economics profession, there can exist a tension between expert accountability and public accountability if, in the process of rendering their analyses cognizable to experts, agencies make them incomprehensible to the public.³⁷¹ More important is the question of whether expert accountability is a positive development at all, or instead reflects an undemocratic imposition of elite preferences onto agency decision making.

A final question concerns the knowledge production that agencies engage in while developing cost-benefit-analysis methodology and carrying out specific regulatory-impact analyses. Knowledge production may seem like an overall laudatory exercise, but it also represents a significant commitment of agency resources. Few are likely to argue that research dollars spent understanding the connection between particulate-matter exposure and mortality are wasted. But the same consensus may not manifest for theoretical treatises on the reliability of survey methods to elicit preferences on the value of grizzly bears in national parks. If cost-benefit analysis—at least as currently practiced—asks the wrong questions, then the time and money dedicated to answering them is not well spent. On the other hand, if cost-benefit analysis is a reasonably good tool for focusing agency investigations on the issues that matter, it can have substantially beneficial effects on regulatory policy.

CONCLUSION

This Article has argued that the role of cost-benefit analysis in the administrative state has been largely misunderstood. Although it is often thought of as a mechanism for centralized reviewers within OIRA to impose their authority on agencies, in fact, cost-benefit analysis also has an important mediating role that should not be ignored.

nomic Analysis: Rationale, Issues, and Requirements, in Morgenstern, ed, *Economic Analysis at EPA* 25, 25–46 (cited in note 71); McGarity, *Reinventing Rationality* at 17–25 (cited in note 79).

³⁷¹ This issue may be overblown if certain types of information included in a cost-benefit analysis, such as “order-of-magnitude judgments,” can be digested by the public. Nathaniel O. Keohane, *The Technocratic and Democratic Functions of the CAIR Regulatory Analysis*, in Winston Harrington, Lisa Heinzerling, and Richard D. Morgenstern, eds, *Reforming Regulatory Impact Analysis* 33, 48 (Resources for the Future 2009).

It has been agencies, not OIRA, that have taken the primary responsibility for developing the methodology of cost-benefit analysis and applying it to their particular regulatory contexts. As a consequence, agencies have many important pathways to affect not only the outcomes of particular rule makings, but also the basic principles and practices for counting costs and benefits. And, indeed, they have taken advantage of those pathways: EPA, the focus of this Article, has affected the methodology in myriad ways that have, in turn, affected how OIRA conducts its review and other agencies conduct their analysis.

There are several practical consequences of the reality of agency control over the development of cost-benefit analysis. By providing a safe harbor, the cost-benefit standard preserves some degree of agency autonomy. It also encourages agencies to engage in knowledge production, and makes both agencies and OIRA accountable to a specific group of outside experts. The overall effect on agency independence is ambiguous.

If agency influence over cost-benefit-analysis methodology mutes OIRA's power, why have presidents allowed this system to persist? This Article suggests that by channeling agency resistance to the imposition of centralized authority within the executive branch, in which it poses fewer political problems for the president, the current allocation of responsibilities helps preserve the legitimacy of regulatory review. The negative political consequences for the George W. Bush administration associated with the senior-discount debate provides a shot across the bow for any president who forgets that agencies have plenty of alternative routes to preserve their autonomy, if necessary, and that no president is well served by revolt within the federal bureaucracy.

The normative implications are cloudier. The common assumption that cost-benefit analysis and agency independence are mutually antagonistic (a proposition that has informed the views of both proponents and opponents of the methodology) is overly simplistic. But whether one believes agency control over cost-benefit analysis promotes or undermines democratic accountability or regulatory quality should turn not only on judgments about the desirability of agency independence but on beliefs about the political alternatives to the current arrangement, judgments about the nature of cost-benefit analysis, and predictions about whether the knowledge production associated with cost-benefit analysis informs or subverts public deliberation.