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COST-BENEFIT ANALYSIS AND ARBITRARINESS REVIEW

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Cost-Benefit Analysis and Arbitrariness Review

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Abstract

When an agency fails to engage in quantitative cost-benefit analysis, has it acted arbitrarily and hence in violation of the Administrative Procedure Act? At first glance, the question answers itself: Congress sometimes requires that form of analysis, but if it has not done so, then agencies have discretion to proceed as they see fit. But as recent decisions suggest, the underlying issues are far more complicated than they seem. The central reason is that for all its limitations, cost-benefit analysis is the best available method for testing whether regulations increase social welfare. Whenever a statute authorizes an agency to consider costs and benefits, its failure to quantify them, and to weigh them against each other, requires a non-arbitrary justification. Potential justifications include the technical difficulty of quantifying costs and benefits; the relevance of values such as equity, dignity, and fair distribution; and the existence of welfare effects that are not captured by monetized costs and benefits. These justifications will often be sufficient. But in some cases, they are not, and agencies should be found to have acted arbitrarily in failing to quantify costs and benefits and to show that the benefits justify the costs.

I. Introduction

In recent years, both the Supreme Court and lower courts have issued important decisions on the question whether agencies are required to engage in some form of cost-benefit analysis.[1] Some of those decisions raise difficult questions of statutory interpretation, asking whether Congress has explicitly tied the agency's hands. For example, do the words "appropriate and necessary" contemplate

* Robert Walmsley University Professor, Harvard University. I am grateful to Adrian Vermeule and Jacob Gersen for many discussions of this topic, and in particular to Vermeule for a discussion (and disagreement) that found its way into Cass R. Sunstein and Adrian Vermeule, Libertarian Administrative Law, 82 U. Chi. L. Rev. 393 (2015). Vermeule and Gersen should not of course be held responsible for my treatment here. I am also grateful to John Coates for many helpful discussions of cost-benefit analysis and its limits. Thanks to Gersen, Eric Posner, and Daphna Renan for valuable comments and to Lauren Ross for excellent research assistance and superb suggestions.

[1] Michigan v. EPA, 135 S. Ct. 2699 (2015); Business Roundtable v. SEC, 647 F3d 1144 (D.C. Cir. 2011); Nat'l Ass'n of Home Builders v. EPA, 682 F.3d 1032, 1040 (D.C. Cir. 2012); Corrosion Proof Fittings v. EPA, 947 F.2d 1201 (5th Cir. 1991); Center for Biological Diversity v. NHTSA, 538 F.3d 1172 (DC Cir 2008); Indus. & Fin. Mkts Ass'n v. CFTC, 67 F. Supp. 3d 373 (D.D.C. 2014). Thirty-eight recent cases are examined in Caroline Cecot and W. Kip Viscusi, Judicial Review of Agency Cost-Benefit Analysis, 22 Geo. Mason L. Rev. 575 (2015).

consideration of costs[2]? Does the word "feasible" require agencies to balance costs and benefits[3]? Other decisions involve arbitrariness review under the Administrative Procedure Act.[4] The question might be whether an agency's interpretation of the governing statute is unreasonable under *Chevron* Step 2[5]; it might involve arbitrariness as such.[6] The most general question is this: If agencies have discretion to consider costs and benefits in making regulatory choices, is it arbitrary, and therefore unlawful, for them to refuse to do so? If so, what, exactly, does this obligation entail?

With the continuing emergence of the cost-benefit state,[7] and what seems to be the general trend of recent decisions,[8] these questions will inevitably arise with increasing frequency in the future. In principle, a duty to engage in cost-benefit balancing, taken as an inference from the prohibition on arbitrariness, could be invoked as an objection to a dazzling assortment of regulations from diverse agencies, including the Environmental Protection Agency, the Department of Labor, the Department of Transportation, the Department of Treasury, the Department of Agriculture, the Securities and Exchange Commission, the Federal Communications Commission, and the Federal Trade Commission. Whenever an agency fails to calculate costs and benefits and to show that the latter justify the former, a litigant might contend that it has acted arbitrarily. Indeed, that objection is becoming increasingly common.[9]

In many cases, agencies do offer a public accounting of both benefits and costs, as required by Executive Order 13563[10]; but in many cases, they do no such

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[2] Michigan v. EPA, 135 S. Ct. 2699 (2015).

[3] American Textile Mfrs. Inst. v. Donovan, 452 U.S. 490 (1981). There the Court wrote: "Thus, § 6(b)(5) directs the Secretary to issue the standard that 'most adequately assures . . . that no employee will suffer material impairment of health,' limited only by the extent to which this is 'capable of being done.' In effect, then, as the Court of Appeals held, Congress itself defined the basic relationship between costs and benefits by placing the 'benefit' of worker health above all other considerations save those making attainment of this 'benefit' unachievable. Any standard based on a balancing of costs and benefits by the Secretary that strikes a different balance than that struck by Congress would be inconsistent with the command set forth in § 6(b)(5). Thus, cost-benefit analysis by OSHA is not required by the statute, because feasibility analysis is." Id. at 509.

[4] See, e.g., Business Roundtable, 647 F3d 1144 (D.C. Cir. 2011).

[5] See Chevron U.S.A., Inc. v. Natural Resources Defense Council, Inc., 467 U.S. 837 (1984),

[6] Because they do not raise different issues, I shall treat the two the same, referring in general to arbitrariness review.

[7] See Richard Revesz, Cost-Benefit Analysis and the Structure of the Administrative State: The Case of Financial Services Regulation (2016), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2733713; Cass R. Sunstein, The Cost-Benefit State (2002).

[8] See infra.

[9] See, e.g., supra note 1. For an illuminating, skeptical discussion in the context of financial regulation, see John C. Coates IV, Cost-Benefit Analysis of Financial Regulation: Case Studies and Implications, 124 Yale L.J. 882 (2015); for a more enthusiastic treatment, see Caroline Cecot and W. Kip Viscusi, Judicial Review of Agency Cost-Benefit Analysis, 22 Geo. Mason L. Rev. 575 (2015).

[10] 76 Fed. Reg. 3821 (Jan. 18, 2011).

thing.[11] Whether or not some kind of public accounting is available, there is often room to contend that the agency has not provided sufficient quantification,[12] or that it has failed to show that the benefits justify the costs.[13]

We could imagine a continuum of conclusions about how courts should respond to apparently inadequate cost-benefit analyses, reflecting judgments about two factors: (1) the appropriate intensity of judicial review and (2) the reasonableness, in principle, of agency decisions to depart from strict forms of cost-benefit analysis. It is important to separate those factors. If judicial review should be deferential,[14] judges ought to uphold a wide range of approaches, not because all of them are genuinely sensible, but because the judicial role is properly modest and humble. This is of course an institutional reason to allow agencies room to select their own approach (and to specify it as they wish). If, by contrast, departures from cost-benefit analysis are fully reasonable in principle, because important factors cannot be monetized or because that form of analysis does not deserve pride of place,[15] then courts should uphold such departures, even if judicial review is appropriately aggressive. This is a substantive reason to allow such departures.

For either institutional or substantive reasons, courts might adopt a minimalist position, which is that agencies are merely required to offer plausible reasons for whatever approach they select.[16] So long as they have done so, they are under no obligation to quantify costs or benefits or to compare them to each other. The minimalist position is that in essentially all cases, an agency might rationally decide that quantification is not helpful, possible, or worthwhile, or it might adopt a rule of decision that does not involve cost-benefit balancing at all.[17] Nonetheless, agencies do have to justify themselves.

At the opposite pole is the maximalist position, which holds that agencies act arbitrarily if they do not (1) quantify both costs and benefits and (2) show that the benefits justify the costs, unless (3) the statute requires otherwise or (4) they can make a convincing demonstration that in the particular circumstances,

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[11] See Jonathan Masur and Eric A. Posner, Unquantified Benefits: The Problem of Regulation Under Uncertainty (unpublished manuscript 2016). One reason is that independent agencies are not subject to the standard requirements imposed by executive order on executive agencies, and often they do not produce cost-benefit analyses. See Revesz, supra note 7; OMB, 2014 Report to Congress on the Benefits and Costs of Federal Regulations and Unfunded Mandates on State, Local, and Tribal Entities 34 – 37, 105 - 07 (2014), https://www.whitehouse.gov/sites/default/files/omb/inforeg/2014_cb/2014-cost-benefit-report.pdf.

[12] Id. at 80-98.

[13] See Business Roundtable, 647 F3d 1144 (D.C. Cir. 2011); see also Revesz, supra note 7.

[14] See Jacob Gersen and Adrian Vermeule, Thin Rationality Review, Mich. L. Rev. (forthcoming 2016).

[15] See Lisa Heinzerling and Frank Ackerman, Priceless (2008); Douglas Kysar, Regulating from Nowhere (2010).

[16] This position is one reading of FCC v. Fox Television, 556 U.S. 502 (2009). For reasons to support minimalism, see Coates, supra note 9.

[17] Int'l Union v. OSHA, 37 F.3d 665 (D.C. Cir. 1994) (upholding agency rejection of cost-benefit balancing in favor of feasibility analysis).

quantification is not possible. The maximalist view identifies quantitative cost-benefit analysis with non-arbitrariness, at least in the sense that an agency that rejects that form of analysis bears a heavy burden of justification. On the maximalist view, cost-benefit analysis is a necessary part of rational decisionmaking, at least as a presumption, and at least where it is feasible in light of available information.

Both the minimalist view and the maximalist view leave many open questions, but they suggest sharply opposed tendencies. By requiring at least some consideration of cost, the Supreme Court has made some movement beyond the minimalist position,[18] but it has hardly embraced cost-benefit maximalism, and in dicta, it pointedly raised the possibility that it would reject it.[19] By contrast, the United States Court of Appeals for the District of Columbia Circuit appears to have held that at least if an agency is required to consider costs, it is under an obligation to quantify both costs and benefits, and to make some kind of comparison between the two.[20] In its controversial decision in the *Business Roundtable* case, the court came close to embracing the maximalist view.[21]

My goal here is to explore the relationship between cost-benefit analysis and arbitrariness review. As we shall see, the range of imaginable disputes is extraordinarily wide, which makes it difficult to offer general pronouncements; but it is nonetheless possible to show how particular cases might be resolved. The simplest and most modest conclusion, consistent with the minimalist position, is that whenever the governing statute authorizes an agency to quantify costs and benefits and to weigh them against each other, its failure to do so requires a non-arbitrary justification. But a range of justifications may be available, including (1) the infeasibility of quantifying costs and benefits, given limitations in available information; (2) the relevance of values such as equity, dignity, and fair distribution; and (3) the existence of welfare effects that are not captured by monetized costs and benefits. Importantly, however, these justifications are not available or adequate in all circumstances, which means that even under cost-benefit minimalism, an

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[18] See Michigan v. EPA, 135 S. Ct. 2699, 2707 - 08 (2015) ("Section 7412(n)(1)(A) directs EPA to determine whether '*regulation* is appropriate and necessary.' (emphasis added.) Agencies have long treated cost as a centrally relevant factor when deciding whether to regulate. Consideration of cost reflects the understanding that reasonable regulation ordinarily requires paying attention to the advantages *and* the disadvantages of agency decisions. It also reflects the reality that 'too much wasteful expenditure devoted to one problem may well mean considerably fewer resources available to deal effectively with other (perhaps more serious) problems.' Against the backdrop of this established administrative practice, it is unreasonable to read an instruction to an administrative agency to determine whether 'regulation is appropriate and necessary' as an invitation to ignore cost." (citations omitted)).

[19] Id.

[20] Business Roundtable, 647 F.3d 1144 (D.C. Cir. 2011).

[21] For a flavor of the opinion: "Here the Commission inconsistently and opportunistically framed the costs and benefits of the rule; failed adequately to quantify the certain costs or to explain why those costs could not be quantified; neglected to support its predictive judgments; contradicted itself; and failed to respond to substantial problems raised by commenters. For these and other reasons, its decision to apply the rule to investment companies was also arbitrary." Id. at 1148–49.

agency's failure to engage in a degree of quantification, and to show that the benefits justify the costs, will sometimes leave it vulnerable under arbitrariness review – at least when the governing statute authorizes those steps.

For institutional reasons, courts should be cautious in this domain, especially in assessing agency judgments about both costs and benefits; those issues often raise highly technical issues for which judges lack specialized competence. In some domains of regulatory law, quantitative cost-benefit analysis is unusual, unsuitable, or unfamiliar, and it would be quite aggressive for courts to require it. In this light, there is no plausible defense of the maximalist position, broadly identifying arbitrariness with a failure to quantify.

At the same time, any decision not to quantify costs and benefits, or to show that the latter justify the former, does require some kind of explanation (at least if the governing statute does not rule cost-benefit analysis out of bounds). The central reason is that agencies should be increasing social welfare, and an assessment of costs and benefits provides important information about whether regulations would achieve that goal. Of course the judicial role is very far from primary. But where a reasonable objection is made to a regulation, suggesting that it would do more harm than good, courts legitimately demand some kind of justification. In some cases, that justification requires numbers.

II. Foundations

I begin with some background, exploring the basic motivation for the view that an agency's failure to undertake cost-benefit analysis might render it vulnerable under arbitrariness review, and two of the leading decisions on the point.

A. Social Welfare and Arbitrariness

Is it even plausible to suggest that an agency's failure to engage in cost-benefit analysis might be arbitrary within the meaning of the APA? On what assumptions? No one argues that it is arbitrary as a matter of law for agencies to decide to consider costs, or for them to turn statistical lives into monetary equivalents.[22] No one argues that it is arbitrary for an agency to reject "feasibility analysis," which would require regulation to the point where it is not economically or technologically feasible.[23] What makes cost-benefit analysis special, a kind of default position, such that any deviation potentially subjects agencies to a charge of arbitrariness?

[22] On that practice, see W. Kip Viscusi, Rational Risk Regulation (2004); W. Kip Viscusi, Fatal Tradeoffs (1992).

[23] For a critical assessment, see Jonathan Masur and Eric Posner, Against Feasibility Analysis, 77 U. Chi. L. Rev. 657 (2010).

Four points seem plain. First, an agency cannot simply refuse to take account of the "substitute risks" introduced by risk regulation.[24] Suppose, for example, that regulation of one pollutant would result in the introduction of another pollutant, which is even more dangerous. At least if the underlying statute does not require it to focus on only one pollutant, it would be arbitrary for an agency to refuse to consider that substitute risk.[25] Second, an agency may not impose costs for no benefits. If a rule would do no good at all, it is arbitrary.[26] Third, a wholesale refusal to consider costs would count as arbitrary.[27] Costs are harms, and an agency is obliged to take harms into account. Fourth, an agency may not impose very high costs for very small gains. Suppose that a regulation would cost $1 billion and deliver $1000 in monetized benefits. Unless the statute requires it to do so, the agency's decision to proceed would seem to be the very definition of arbitrary; at a minimum, it would have to explain itself.[28]

These points are straightforward, but they do not support the maximalist position, which imposes a presumptive duty both to quantify benefits and costs and to demonstrate that the benefits justify the costs. Indeed, that position might seem quite puzzling. The APA was enacted in 1946, and cost-benefit analysis has become entrenched within the executive branch of the federal government only since the 1980s.[29] Congress knows how to require cost-benefit balancing, and it sometimes does exactly that.[30] In the arc of administrative law, cost-benefit analysis is a relatively recent practice; it remains controversial.[31] If the Constitution does not enact Mr. Herbert Spencer's Social Statics,[32] does the APA enact OMB Circular A-4[33]?

No one suggests that apparent best practices, within the executive branch, must be followed by all administrative agencies, subject to a risk of judicial invalidation on arbitrariness grounds. The more modest claim is that agencies should attempt to produce more good than harm, and if the agency has not quantified the consequences, or if the quantified benefits are lower than the

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[24] Corrosion Proof Fittings v. EPA, 947 F.2d 1201 (5th Cir. 1991).
[25] See Am. Trucking Ass'ns v. EPA, 175 F.3d 1027, 1051-53 (D.C. Cir. 1999); CEI v. NHTSA, 956 F.2d 321 (D.C. Cir. 1992); see also American Water Works Ass'n. v. EPA, 40 F.3d 1266 (D.C. Cir. 1994). To be sure, some risks, said to follow from risk regulation, have a sufficiently complex causal connection to that regulation that agencies are not required to consider them. For example, air pollution regulation might increase unemployment, and unemployment increases risks (for those who are unemployed); but no case hold that it is arbitrary for agencies to decline to consider those risks.
[26] Chemical Manufacturers Assn. v. EPA, 217 F.3d 861 (D.C. Cir. 2000).
[27] See Michigan v. EPA, 135 S. Ct. 2699 (2015).
[28] Corrosion Proof Fittings, 947 F.2d 1201 (5th Cir. 1991).
[29] See Richard Revesz and Michael Livermore, Retaking Rationality (2008).
[30] Cf. infra note 94.
[31] For a defense, see Revesz and Livermore, Retaking Rationality, supra note 29; for criticism, see Lisa Heinzerling and Frank Ackerman, Priceless (2007).
[32] Lochner v. New York, 198 US 45 (1905) (Holmes, J., dissenting).
[33] OMB, Circular A-4 (2003), https://www.whitehouse.gov/omb/circulars_a004_a-4/ (2003) (offering guidance for cost-benefit analysis).

quantified costs, it is reasonable to question whether it is doing that.[34] Suppose that an agency proceeds with an automobile safety regulation without specifying the safety benefits or the relevant costs. If the regulation is challenged on the ground that the benefits might be minimal and the costs quite high, there is a strong objection on arbitrariness grounds, for a simple reason: the agency has not adequately explained itself. And if a rule would impose $900 million in costs and deliver $10 million in benefits, there would appear to be a serious problem. Why, exactly, would the agency proceed in the face of such numbers?

The motivation for this question is the view that *quantitative cost-benefit analysis is the best available method for assessing the effects of regulation on social welfare*.[35] The main virtue of that form of analysis is that it focuses attention on the human consequences of regulatory initiatives. To be sure, it is highly imperfect. The idea of social welfare is sharply contested, and it should not be identified with the outcome of quantitative cost-benefit analysis.[36] Specification of costs and benefits can be exceedingly challenging, and in some contexts, it is not possible. A regulation might have net costs in purely *monetary* terms, but it might produce net benefits in *welfare* terms.[37] Nonetheless, assessment of benefits and costs remains the most administrable way of capturing the welfare effects of regulations. An agency that declines to make such an assessment, or to show that the benefits justify the costs, should face a burden of justification.

To these points, it might be added that cost-benefit analysis can operate as a valuable check on the operations of misleading intuitions or behavioral biases within the national government, and also on the role of powerful private groups, trying to move federal policy in their favor. By broadening the viewscreen, cost-benefit analysis helps to overcome some of the unfortunate effects of selective attention, and by promoting a focus on actual consequences, it can quiet the noise generated by influential interest groups.[38] If the goal is to improve the human consequences of regulation, it is exceedingly important to overcome that selection attention and to quiet that noise. Cost-benefit analysis can be seen as the appropriate prescription for some of the characteristic maladies of the modern administrative state, stemming from interest-group power, narrow viewscreens, behavioral biases, and inadequate attention to likely consequences. And indeed,

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[34] See Int'l Union, United Auto., Aerospace & Agric. Implement Workers of Am., UAW v. OSHA, 938 F.2d 1310, 1321 (D.C. Cir. 1991) ("Thus, cost-benefit analysis entails only a systematic weighing of pros and cons, or what Benjamin Franklin referred to as a 'moral or prudential algebra.'").

[35] See Matthew Adler and Eric A. Posner, New Foundations for Cost-Benefit Analysis (2006); Cass R. Sunstein, Valuing Life (2015).

[36] See Matthew Adler, Welfare and Fair Distribution: Beyond Cost-Benefit Analysis (2011); Cass R. Sunstein, Cost-Benefit Analysis, Who's Your Daddy?, J Cost-Benefit Analysis (2016), available at http://journals.cambridge.org/action/displayAbstract?fromPage=online&aid=10151888.

[37] See John Bronsteen et al., Well-Being Analysis vs. Cost-Benefit Analysis, 62 Duke L.J. 1604 (2013).

[38] For arguments in this general direction, see Howard Margolis, Dealing With Risk (1996); W. Kip Viscusi, Rational Risk Policy (1996); Cass R. Sunstein, Valuing Life (2015); Cass R. Sunstein, Cognition and Cost-Benefit Analysis, 29 J. Legal Stud. 1152 (2000); Timur Kuran and Cass R. Sunstein, Availability Cascades and Risk Regulation, 51 Stan. L. Rev. 683 (1999).

presidents from Ronald Reagan to Barack Obama have essentially accepted that proposition.[39]

If the substantive argument on behalf of cost-benefit analysis is unconvincing, it would make no sense to require agencies to meet that burden. Those who reject the substantive argument, or deem it parochial or partisan, will have no enthusiasm for the view that a failure to produce such an analysis have to meet a burden of justification. In its most plausible form, the argument is that regulators cannot measure welfare directly, and an analysis of costs and benefits provides important clues about the welfare effects of regulatory interventions. And in fact, judicial decisions seem to be converging on that basic judgment.

B. Institutional Roles

Any account of arbitrariness review must, of course, be attuned to the weaknesses and strengths of the federal judiciary. Consider the difficult question whether regulatory impact analyses, produced by federal agencies under Executive Order 13563,[40] should be subjected to judicial review (as they currently are not[41]). If courts were unerring and if agencies made numerous mistakes, the argument for such review would be very strong, because it would correct those mistakes. But if courts are unable to understand the highly technical issues involved, and if agencies are already performing well, judicial review would be a blunder.

The problem would be compounded if, in practice, judicial policy preferences turned out to play a significant role in judicial decisions about whether agencies had made unreasonable calculations.[42] And of course it is inevitable that judicial review will increase delay and contribute to the "ossification" of the rulemaking process, potentially postponing life-saving initiatives.[43] In short, a judgment about the value of judicial scrutiny depends on an inquiry into the costs of decisions and the costs of errors. Such scrutiny will necessarily increase decision costs. Whether it will increase error costs depends on assessments of the likelihood of agency error and the likelihood of judicial correction.

Many of these questions raise empirical issues; they cannot be resolved in the abstract.[44] Because cost-benefit analysis often requires assessment of technical questions for which courts lack much competence, it does make sense to say that the judicial role should be deferential. Suppose, for example, that the question is the

[39] See Executive Order 12291; Executive Order 13563.
[40] 76 Fed. Reg. 3821 (Jan. 18, 2011).
[41] Id.
[42] For evidence to this effect, see Thomas Miles and Cass R. Sunstein, The Real World of Arbitrariness Review, 75 U. Chi. L. Rev. 761 (2008).
[43] For an influential early discussion, see Richard Pierce, Seven Ways to Deossify Agency Rulemaking, 47 Admin. L. Rev. 59 (1995).
[44] See Miles and Sunstein, supra note 41.

appropriate discount rate for benefits that will be enjoyed in the distant future,[45] or the appropriate monetary valuation of a statistical life, or the risks posed by particulate matter.[46] These are not questions for which judges are well-trained. And if we emphasize that resolution of some apparently technical questions requires judgments of policy and principle, then the argument for intense judicial scrutiny becomes weaker still.

Distrust of agency decisions can of course produce countervailing considerations. If agencies are systematically biased, or if serious errors of analysis are likely, then arbitrariness review might be heightened. But even if we think that such errors are rare – perhaps because of usually reliable processes within the executive branch[47] -- it might nonetheless make sense to say that courts should require some kind of justification for a blanket refusal to assess costs and benefits at all, or for a failure to make a minimally plausible demonstration that the benefits justify the costs. Endorsement of a position of this kind need not suggest enthusiasm for anything like careful judicial scrutiny of the particular judgments that go into cost-benefit analysis. In fact it is compatible with the view that there should be no scrutiny of such judgments at all. To be sure, it would be possible to argue in favor of some such scrutiny while insisting that it should be highly deferential.

In recent years, there has been an unmistakable tendency, on the part of some lower courts, toward aggressive judicial review of agency action, sometimes motivated by what appears to be a general skepticism about the place of regulatory agencies in the constitutional structure.[48] Judicial insistence on some form of cost-benefit analysis could reflect that skepticism, or it could have nothing to do with it. Often, of course, an investigation of costs and benefits shows that agency action is firmly justified or even that it should be more stringent. There is no logical or empirical connection between skepticism about administrative agencies and enthusiastic support for cost-benefit balancing. If courts are to understand the prohibition on arbitrariness to call for such balancing (so long as statutes authorize it), it is not because of global doubts about the administrative state, but because of a concern for social welfare and for fortifying, within the appropriate limits of the judicial role, the authority of analytical discipline in the administrative process --

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[45] See Richard L. Revesz, Environmental Regulation, Cost-Benefit Analysis, and the Discounting of Human Lives, 99 Columbia L. Rev. 941 (1999); David Weisbach and Dexter Samida, Paretian Intergenerational Discounting (2005), available at http://chicagounbound.uchicago.edu/law_and_economics/361/

[46] See EPA, Valuing Mortality Risk Reductions for Policy: A Meta-Analytic Approach (2016), available at https://yosemite.epa.gov/sab/sabproduct.nsf/0/0CA9E925C9A702F285257F380050C842/$File/VSL%20white%20paper_final_020516.pdf; Francesca Dominici et al., Particulate Matter Matters, 344 Science 257 (2014). A particularly challenging issue, poorly suited to judicial oversight, involves the social cost of carbon. See Michael Greenstone et al., Developing a Social Cost of Carbon for US Regulatory Analysis: A Methodology and Interpretation, 7 Rev Environ Econ Policy 23 (2013).

[47] See Cass R. Sunstein, The Office of Information and Regulatory Affairs: Myths and Realities, 126 Harv. L. Rev. 1838 (2013).

[48] See Sunstein and Vermeule, supra note *, for detailed discussion

not least to counteract the potential role of unreliable intuitions or powerful private groups in that process.

C. A Matrix

If the substantive and institutional points are put together, it might be useful to offer a matrix, capturing four imaginable positions[49]:

	Favoring Passive Judicial Role	Favoring Aggressive Judicial Role
Skeptical about cost-benefit analysis	No particular duty of justification (A)	Doubting use of cost-benefit analysis (B)
Enthusiastic about cost-benefit analysis	Cost-benefit minimalism (C)	Cost-benefit maximalism (D)

My primary focus here is on cells (C) and (D), with a preference for (C), but it should be clear that cells (A) and (B) are easily imaginable. For those who think that cost-benefit is unhelpful or infeasible, or that it points agencies in the wrong direction, cell (A) might seem the most attractive. If cost-benefit analysis is positively harmful, those who favor a strong judicial role might endorse cell (B). From 1946 until 1983 at the earliest,[50] judicial decisions in cells (C) and (D) could not be found, and it might well be fair to say that courts implicitly endorsed cell (A), even though judicial review was quite aggressive in other contexts.[51] Revealingly, it is difficult to find *any* decisions, past or present, that fall in cell (B), but for those who have a sharply negative view about cost-benefit analysis,[52] and who endorse strong judicial checks on agency action, that cell would have considerable appeal.

The fact that cell (B) seems broadly unattractive, and that cells (C) and (D) appear to be the serious current contenders, attests to the widespread triumph of at least some forms of quantitative analysis, as reflected in their endorsement within both Republican and Democratic administrations.[53] But it is important to acknowledge that over the last decades, there have been forks in the road, and that radically different paths might have been taken.

D. Leading Decisions

The number of decisions that scrutinize agency failure to engage in cost-benefit analysis, or to give adequate consideration to it, is large and growing.[54] For the future, two such decisions are especially important. The first, from the Supreme

[49] I am grateful to Daphna Renan for this suggestion.
[50] Motor Vehicles Mfrs. Ass'n v. State Farm, 463 U.S. 29 (1983), which could be seen as calling for some form of cost-benefit balancing as a check on arbitrariness.
[51] See Citizens to Preserve Overton Park v. Volpe, 401 U.S. 402 (1971).
[52] See Heinzerling and Ackerman, supra note; Kysar, supra note.
[53] See Cass R. Sunstein, Valuing Life (2014).
[54] See, e.g., supra note 1.

Court itself, strongly suggests that a failure to consider costs at all is *per se* arbitrary. The second, from the D.C. Circuit, suggests, far more controversially, that it might be arbitrary for an agency to fail to quantify costs and benefits (if it is feasible to do so) or to demonstrate that the benefits justify the costs.

1. *Mercury*. In an important decision involving mercury regulation, all nine members of the Supreme Court seemed to converge on a simple principle: *Under the APA, it is arbitrary for an agency to refuse to consider costs*.[55] By itself, that principle seems quite modest. But it is far less so than it might appear. At a minimum, it implicitly requires agencies to weigh costs against benefits, at least in some sense; it is not possible to "consider" costs without engaging in such weighing. And with that implicit requirement, the Court may also have required agencies to make some effort to quantify costs, at least if it is feasible to do so. Is it possible to "consider" costs without knowing what they are? To be sure, the Court did not embrace the maximalist position, but its holding can easily be read to make trouble for any agency that fails to show that the benefits of a regulation justify the costs.

The case itself involved not the APA, but a provision of the Clean Air Act that requires the EPA to list hazardous pollutants, for later regulation, if it is "appropriate and necessary" to do so.[56] EPA contended that it had the authority to base its listing decision only on considerations of public health (and hence to decline to consider costs). In its view, the words "appropriate and necessary" were ambiguous, and a cost-blind interpretation was legitimate. By a five-to-four vote, the Court disagreed. It held that the "EPA strayed far beyond" the bounds of reasonableness in interpreting the statutory language "to mean that it could ignore cost when deciding whether to regulate power plants."[57] In a passage of special relevance to the topic here, the Court added, "One would not say that it is even rational, never mind 'appropriate,' to impose billions of dollars in economic costs in return for a few dollars in health or environmental benefits. . . . Consideration of cost reflects the understanding that reasonable regulation ordinarily requires paying attention to the advantages and the disadvantages of agency decisions." [58]

These words seem quite general and not limited to a particular provision of the Clean Air Act. In light of the context, it would not be impossible to understand them as restricted to that statute. But that would be a mistake. While rejecting the majority's particular conclusion, Justice Kagan's dissent, joined by three other members of the Court, was more explicit on the general point, contending, "Cost is almost always a relevant—and usually, a highly important—factor in regulation. *Unless Congress provides otherwise, an agency acts unreasonably in establishing 'a*

[55] Michigan v. EPA, 135 S. Ct. 2699 (2015).
[56] Id. at 2704–05.
[57] Id. at 2707.
[58] Id.

standard-setting process that ignore[s] economic considerations.'"[59] It added that "an agency must take costs into account in some manner before imposing significant regulatory burdens." The dissenters clearly adopted a background principle that would require agencies to consider costs unless Congress prohibited them from doing so. There is every reason to think that the majority – which did, after all, invalidate the EPA's regulation -- would embrace that principle as well.

At the same time, the Court declined to endorse cost-benefit maximalism, and in dicta, it pointedly suggested that it might well reject it.[60] In the key passage, the Court said: "We need not and do not hold that the law unambiguously required the Agency, when making this preliminary estimate, to conduct a formal cost-benefit analysis in which each advantage and disadvantage is assigned a monetary value. It will be up to the Agency to decide (as always, within the limits of reasonable interpretation) how to account for cost."[61] This passage brackets the question whether the Clean Air act required a "formal cost-benefit analysis," but it is highly ambiguous. Surely it would not be sufficient for an agency simply to announce that it has simply "considered" costs and decided to proceed. It would have to explain that decision in some way. The Court seemed to be suggesting that such an explanation could be given even if the agency does not produce "a formal cost-benefit analysis."[62]

Even with this qualification, *Michigan v. EPA* has the great virtue of identifying the fatal weakness in a tempting objection to any effort to question an agency's failure to engage with costs and benefits. The objection would be that courts lack the authority to impose procedural requirements beyond those in the APA,[63] and cost-benefit analysis is a procedural requirement, not found in the APA, which thus cannot be imposed by courts. The problem with the objection is that under the APA, an arbitrary decision is unlawful. If an agency ignores costs, or imposes a risk that is greater than the risk that it is reducing, it would seem to be acting arbitrarily. The fact that courts cannot add procedural requirements is irrelevant. At the same time, it must be acknowledged that *Michigan v. EPA* was a narrow ruling, and it hardly embraced cost-benefit maximalism.

2. *Proxy access*. By contrast, the United States Court of Appeals for the District of Columbia Circuit appears to have held that if an agency is statutorily authorized to consider costs and benefits, it is under an obligation (1) to quantify both of them and (2) to make some kind of comparison, at least if these steps are feasible.[64] In its

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[59] Id. at 2716–17 (Kagan, J., dissenting) (emphasis added). The dissent rejected the majority's conclusion in large part because the EPA had considered costs at a later stage in its processes, when it was deciding on the appropriate level of stringency. Id. at 2719-21.
[60] Id. 2710–11 (majority opinion).
[61] Id. at 2711.
[62] For illustrations, see below.
[63] See Vermont Yankee Nuclear Power Corp. v. NRDC, 435 U.S. 518 (1978).
[64] Business Roundtable v. SEC, 647 F.3d 1144 (D.C. Cir. 2011). Some of the discussion here draws on Sunstein and Vermeule, Libertarian Administrative Law, supra note *. An instructive, brief treatment of the issue of feasibility can be found in Federal Communications Commission v. Fox Television

controversial decision in the *Business Roundtable* case, the court emphasized the importance of quantification.[65]

The decision involved the complex question of "proxy access" in corporate-shareholder voting: Must proxy materials sent to shareholder-voters by publicly traded firms include nominees of the shareholders, or may they be confined to the slate of nominees designated by the incumbent directors? In a 2009 rulemaking, the SEC decided to require shareholder proxy access. It accompanied its decision with a lengthy cost-benefit analysis that considered (as required by statute) its effects on "efficiency, competition, and capital formation."[66] Some elements of its analysis were not quantified.

The DC Circuit invalidated the regulation on numerous grounds, most of which fell into one of two general categories. The first was that the agency was required either to provide a quantitative cost-benefit analysis or to explain why doing so would not be feasible.[67] The second was that the evidence failed to support the Commission's conclusion that the rule's benefits would outweigh its costs.[68] These holdings seem to support a much broader proposition, which is that SEC

Stations, Inc., 556 U.S. 502, 519-20 (2009): "There are some propositions for which scant empirical evidence can be marshaled, and the harmful effect of broadcast profanity on children is one of them. One cannot demand a multiyear controlled study, in which some children are intentionally exposed to indecent broadcasts (and insulated from all other indecency), and others are shielded from all indecency. It is one thing to set aside agency action under the Administrative Procedure Act because of failure to adduce empirical data that can readily be obtained. It is something else to insist upon obtaining the unobtainable. Here it suffices to know that children mimic the behavior they observe—or at least the behavior that is presented to them as normal and appropriate. Programming replete with one-word indecent expletives will tend to produce children who use (at least) one-word indecent expletives. Congress has made the determination that indecent material is harmful to children, and has left enforcement of the ban to the Commission. If enforcement had to be supported by empirical data, the ban would effectively be a nullity." The Court's words here are plausibly invoked in many cases in which a litigant objects that an agency has failed to quantify the benefits of regulation. Cf. Coates, supra note (contending that in the domain of financial regulation, cost-benefit analysis is often not feasible).

[65] "Although the Commission acknowledged that companies may expend resources to oppose shareholder nominees, it did nothing to estimate and quantify the costs it expected companies to incur; nor did it claim estimating those costs was not possible, for empirical evidence about expenditures in traditional proxy contests was readily available. Because the agency failed to 'make tough choices about which of the competing estimates is most plausible, [or] to hazard a guess as to which is correct,' we believe it neglected its statutory obligation to assess the economic consequences of its rule." Business Roundtable, 647 F.3d at 1150 (citations omitted) (quoting Pub. Citizen v. Fed. Motor Carrier Safety Admin., 374 F.3d 1209, 1221 (D.C. Cir. 2004)).

[66] Id. at 1146 (noting that this analysis was required by "Section 3(f) of the Exchange Act and Section 2(c) of the Investment Company Act of 1940, codified at 15 U.S.C. §§ 78c(f) and 80a-2(c), respectively").

[67] On some of the complexities with the idea of feasibility, see Masur and Posner, Against Feasibility Analysis, supra note 23.

[68] See Business Roundtable, 647 F.3d at 1149 (rebuking the agency for "neglect[ing] to support its predictive judgments"); id. at 1151 (criticizing the agency's use of mixed empirical evidence") (quotation marks omitted).

regulations are at serious risk of invalidation unless they are accompanied by a clear demonstration that the quantified benefits justify the quantitative costs.[69]

For the court, one problem is that on its face, the underlying statute imposes no such requirement. True, the SEC must consider the effects of a regulation on "efficiency, competition, and capital formation." But that requirement does not, by itself, mandate a formal analysis of benefits or a comparison between costs and benefits. Indeed, it is not entirely clear that, to show the requisite consideration, the agency must provide a quantitative analysis of costs. Perhaps the agency could consider them in purely qualitative terms.[70]

In the face of these objections, the best justification for the court's approach would take the following form. To consider the effects of a rule on "efficiency, competition, and capital formation," the Commission must go beyond vague, general conclusions. If the available evidence permits quantification, it would be arbitrary not to quantify. The obligation to consider those effects requires a serious effort, consistent with what the evidence allows, and a serious effort requires numbers. It would also be arbitrary—within the meaning of the APA—for the agency to proceed if the effects on "efficiency, competition, and capital formation" were adverse and significant, at least if they were not justified by compensating quantified benefits. It would follow that, if a rule has net costs (or no net benefits) or if the Commission cannot show that a rule will have quantified benefits (if relevant evidence is available), the court should invalidate that rule as arbitrary.

So understood, *Business Roundtable* can be taken to have offered a plausible reading of the interaction between the governing statute and the APA. The ruling would not, however, be based purely on the APA; the explicit requirement to consider effects on "efficiency, competition, and capital formation" is critical. Moreover, the court acknowledged that quantification might not be possible – and hence can be taken to give the Commission an escape route in cases of ignorance or uncertainty. But because the court devoted a great deal of space to explaining its view that the Commission had acted arbitrarily, it did create a warning for any agency that fails to compare costs and benefits – at least if it is authorized to do so.

The broadest reading of *Business Roundtable*, going well beyond its particular context and in evident tension with relevant dicta in *Michigan v. EPA*, that in order to avoid a serious charge of arbitrariness, an agency is obliged to quantify both costs and benefits and to show that the former justify the latter. To be sure, quantification is not necessary if it is impossible. But if quantification is impossible, are agencies necessarily permitted to proceed? Always? If the costs of regulation are very high and the benefits unquantifiable, are the agencies authorized to go forward? *Business Roundtable* does not answer these questions.

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[69] Id. at 1148–49.

[70] For a skeptical discussion, see Masur and Posner, Unquantifiable Benefits, supra note 11.

DI. Easy Cases

With *Michigan* and *Business Roundtable* as background, two sets of cases are easy. If Congress expressly forbids an agency to consider costs, or requires it to regulate to the point of feasibility without balancing benefits and costs, then the issue is at an end.[71] The APA's prohibition on arbitrariness is irrelevant. And if an agency is required to consider benefits and costs or lawfully elects to do so, then senseless or unreasonable judgments will result in invalidation.

A. Statutory Prohibitions

Suppose that a statute prohibits agencies from considering costs and requires them to proceed whenever there is a finding of significant harm. In issuing ambient air quality standards under the Clean Air Act, the EPA is essentially constrained in that way; it must issue standards "requisite to protect the public health," with an "adequate margin of safety."[72] In promulgating occupational safety and health standards involving toxic substances and harmful physical agents, the Department of Labor must regulate significant risks "to the extent feasible," without balancing costs and benefits.[73] Under Executive Order 13563,[74] both EPA and DOL must nonetheless produce regulatory impact analyses, which will catalogue costs and benefits. But those analyses are not subject to judicial review.[75] It follows that if the agencies fail to engage in quantified cost-benefit analysis under the relevant statutes, an arbitrariness challenge could not possibly succeed. True, the EPA might be vulnerable if it does not show that a standard is "requisite to protect the public health," and OSHA must show that the regulated risk is "significant."[76] But neither agency is permitted to weigh costs against benefits.

The general point is that arbitrariness review takes place against the backdrop of relevant statutes. If a statute says that costs are irrelevant or that they can be considered only in a specified way, the APA's ban on arbitrariness has no independent force (so long as the agency has complied with such directives).[77]

At this point, it is important to note an apparent anomaly: We have seen that in *Michigan*, the Court can be taken to have held that it is arbitrary for an agency to refuse to consider costs,[78] even though Congress sometimes directs agencies not to consider costs. Does this mean that the Supreme Court has implicitly held that

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[71] See Whitman v. Am. Trucking Ass'ns, Inc., 531 U.S. 457 (2001).
[72] See 42 U.S.C. §7409(b)(1); Whitman v. Am. Trucking Ass'ns, Inc., 531 U.S. 457 (2001).
[73] 29 U.S.C. § 655(b)(5); Indus. Union Dep't v. Am. Petroleum Inst. (The Benzene Case), 448 U.S. 607 (1980).
[74] 76 Fed. Reg. 3821 (Jan. 18, 2011).
[75] Id.
[76] Indus. Union Dep't v. Am. Petroleum Inst. (The Benzene Case), 448 U.S. 607 (1980).
[77] See Nat'l Ass'n of Mfrs. v. SEC, 748 F3d 359 (D.C. Cir. 2014).
[78] Michigan v. EPA, 135 S. Ct. 2699 (2015).

Congress has behaved arbitrarily? And if so, does a ban on consideration of costs raise serious constitutional questions under rationality review[79]?

To both questions, the best answer is a firm "no." To see why, we need to distinguish between unlawful arbitrariness under the APA and unlawful arbitrariness under the Constitution. At least as a general rule, it is not arbitrary or irrational, in the constitutional sense, for Congress to forbid consideration of costs, and no decision suggests that it is. Congress might rationally conclude that national ambient air quality standards should be set only on the basis of considerations of public health, with cost playing a role at stages of implementation.[80] Similarly, Congress might rationally conclude that a feasibility approach is better, on welfare grounds, than one based on cost-benefit balancing.[81] It would be frivolous to raise a constitutional challenge to statutory standards that do not require or authorize that form of balancing.[82]

It is important in this regard that rationality review under the Constitution is highly deferential – far more so than arbitrariness review under the APA.[83] For that reason, there is no incongruity in saying that a congressional prohibition on considering costs is acceptable as a matter of constitutional law even though an agency's refusal to consider costs is unacceptable as a matter of administrative law.

What emerges from the doctrine, then, is that any decision not to consider costs must come from the national legislature; it cannot be made by an agency acting on its own. In this respect, the prohibition on failing to consider costs, imposed via arbitrariness review, is a kind of clear statement principle, in a sense a nondelegation canon[84]: *Congress must itself prohibit consideration of costs, and it must do so in explicit terms*. Taken as a nondelegation canon, that idea has considerable appeal, because it requires the national legislature, with its unique constitutional position, to make the decision in favor of disregarding costs altogether.[85]

B. Funny Numbers

[79] Williamson v. Lee Optical Co., 348 U.S. 483 (1955),
[80] See Cass R. Sunstein, Is the Clean Air Act Unconstitutional?, 98 Mich. L. Rev. 303 (1999).
[81] See infra Part VI.
[82] At least this is so outside of quite extreme cases. We could imagine a constitutional challenge to a statute that imposed significant costs for no or trivial benefits, certainly if no explanation is available for Congress' decision to do that.
[83] See Motor Vehicles Mfrs. Ass'n v. State Farm, 463 U.S. 29 (1983).
[84] See Cass R. Sunstein, Nondelegation Canons, 67 U. Chi. L. Rev. 315 (2000).
[85] For related discussion, see Cass R. Sunstein, Cost-Benefit Default Principles, 99 Mich. L. Rev. 165 (2001)

Now suppose that a statute requires or authorizes an agency to consider costs and benefits,[86] and that the agency does so, but that it also makes unexplained and apparently arbitrary choices.[87] Imaginable examples include:

(a) failing to discount either costs or benefits[88];
(b) failing to apply the same discount rates to benefits as to costs[89];
(c) double-counting certain costs or benefits;
(d) ignoring and thus entirely failing to take account of important costs or benefits[90];
(e) making apparently irrational judgments about the effects of a regulations, such as the number of premature deaths to be prevented;
(f) monetizing certain benefits, such as a statistical life or a reduction in morbidity, in an unexplained and apparently irrational way.[91]

In all of these cases, an agency would be at a risk of losing on arbitrariness grounds. If an agency is obliged to consider costs and benefits or chooses to do so, and if its judgments are arbitrary, then those judgments will be struck down.[92] To be sure, and for reasons given above, the judicial role should be highly deferential. The house of cost-benefit analysis has many rooms, and as we have seen, the choice among competing approaches typically raises difficult technical issues for which courts lack competence. The endorsement of cost-benefit analysis within the executive branch reflects an institutional judgment as well as a substantive one: Officials within that branch have the personnel and the capacity to engage those technical issues, which often involve both science and economics.[93]

Because courts are in a very different position, a high degree of deference is warranted. Within the broad bounds of reason, an agency might make a large

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[86] See, for example, Safe Drinking Water Act Amendments of 1996, Pub L No 104- 182, 110 Stat 1613, 1621, codified at 42 USC § 300g-1(b)(3)(C)(i)(I) (requiring agency findings on "quantifiable and unquantifiable" health risks and benefits); Unfunded Mandates Reform Act of 1995 § 423(c)(2), Pub L No 104-4, 109 Stat 48, 54, codified at 2 USC § 658b(c)(2) (requiring "a qualitative, and if practicable, a quantitative assessment of costs and benefits anticipated from the Federal mandates"); Unfunded Mandates Reform Act § 202(a)(2), 109 Stat at 64, codified at 2 USC § 1532(a)(2) (requiring "qualitative and quantitative assessment of the anticipated costs and benefits"); Clean Air Act Amendments of 1990, Pub L No 101-549, 104 Stat 2399, 2691, codified as amended at 42 USC § 7612(a) (requiring the agency to "consider the costs, benefits and other effects associated with compliance with each standard issued").

[87] See, e.g., Nat'l Ass'n of Home Builders v. EPA, 682 F.3d 1032, 1040 (D.C. Cir. 2012) ("[W]hen an agency decides to rely on a cost-benefit analysis as part of its rulemaking, a serious flaw undermining that analysis can render the rule unreasonable.").

[88] Corrosion Proof Fittings, 947 F.2d 1201 (5th Cir. 1991).

[89] Id.

[90] Business Roundtable, 647 F3d 1144 (D.C. Cir 2011).

[91] Corrosion Proof Fittings, 947 F.2d 1201 (5th Cir. 1991).

[92] Advocates for Highway & Auto Safety v. FMCSA, 429 F.3d 1136 (D.C. Cir. 2005) (finding the FMCSA's assertion that its new rule would generate a "sufficient benefit" to be nonsensical given the FMCSA's "patently illogical" assumptions).

[93] See Cass R. Sunstein, The Most Knowledgeable Branch, U. Pa. L. Rev. (forthcoming 2016).

number of discretionary choices.[94] The only point is that the prohibition on arbitrariness imposes some constraints on those choices.

IV. Unquantified Alternatives

Let us now turn to more difficult issues, for which existing cases give unclear guidance, and on which reasonable people might differ. Suppose that an agency calculates the costs and the benefits of its proposed action and makes no mistakes in its calculations – but that *it fails to calculate the costs and benefits of one or more alternatives to that proposed action*. If the agency simply ignores a reasonable alternative, it is acting arbitrarily.[95] But imagine that the agency has given a purely qualitative rather than quantitative account of why the alternative is not desirable, without offering numbers. Is that also arbitrary? At first glance, the answer seems obvious: It is hardly arbitrary to decline to give numbers; agencies are under no obligation to quantify the costs and benefits of rejected alternatives. In general, that is indeed the right answer under the APA. But the issue is not quite so straightforward.

A. Asbestos and its Discontents

In an important decision, a court of appeals went some way toward holding that if an agency rejects an alternative without quantifying its costs and benefits, it is acting arbitrarily.[96] In *Corrosion Proof Fittings v. EPA*, the EPA banned asbestos under the Toxic Substances Control Act (TSCA); it also explained why the ban was, on balance, amply justified by an assessment of costs and benefits.[97] In the process, it offered a qualitative account of why less aggressive approaches, such as disclosure and labeling requirements, would be inferior to a ban. But for those alternatives, it provided no numbers. The court held that the decision was unlawful for that reason.[98]

Importantly, the holding was not rooted in the APA. It followed, or so the court said, from the distinctive requirements of TSCA,[99] which can be taken to call for cost-benefit balancing[100] and explicitly directs the agency to use the "least

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[94] See Cass R. Sunstein, The Arithmetic of Arsenic, 90 Geo. L.J. 2265 (2002); Michael Greenstone et al., Developing A Social Cost of Carbon for U.S. Regulatory Analysis, 7 Rev. Envtl. Econ. 23 (2013).
[95] Motor Vehicles Mfrs. Ass'n v. State Farm, 463 U.S. 29 (1983).
[96] Corrosion Proof Fittings, 947 F.2d 1201 (5th Cir. 1991).
[97] Id.
[98] Id. at 1215 – 18.
[99] 15 U.S.C. §§ 2601 – 2629 (2006).
[100] 15 U.S.C. § 2601 (c) (requiring the EPA to "carry out this chapter in a reasonable and prudent manner [after considering] the environmental, economic, and social impact of any action"). Note that these words do not explicitly require a quantitative assessment of costs and benefits or a demonstration that benefits outweigh or justify costs. An obligation to consider "the environmental, economic, and social impact" does no such thing, and in general, a reference to "unreasonable risk of injury" (see note 93 infra) need not be taken to impose a requirement of quantitative cost-benefit analysis. I am bracketing these issues here.

burdensome" requirement necessary.[101] In the court's view, it is unlawful, in light of that particular language, for the agency to fail to quantify the costs and benefits of the rejected approach.[102]

It is not at all obvious that the court was right. An agency's obligation to use the least burdensome alternative does not, by itself, require a *quantitative analysis of the costs and benefits of that alternative*, even under a statute that requires cost-benefit analysis of the ultimate policy choice. True, the agency must analyze the costs and benefits of that choice. True, the agency cannot ignore less burdensome alternatives. It must discuss them and offer some account of why it has not selected them. But an agency can do that without providing numbers. TSCA does not, in terms, say that EPA must do a cost-benefit analysis not only of the approach it chooses but also of less burdensome alternatives to that approach.

The most modest reading of the court's analysis, and the narrowest, would emphasize that under a statute that explicitly requires (1) cost-benefit balancing and (2) use of the least burdensome alternative, an agency faces a burden of justification in the face of a plausible argument that that alternative is better, in the sense that it has higher net benefits. At a minimum, the agency must give some explanation of why it has rejected that alternative. A mere conclusion is insufficient. The simplest and best way for the agency to offer the requisite explanation is to provide numbers. Without seeing the costs and benefits of disclosure and labeling requirements, it would not be possible to compare them to a ban. In *Corrosion Proof Fittings*, the EPA was simply too conclusory. Putting the court's decision in the most sympathetic light, it demanded numbers as a way of requiring the agency to go beyond unhelpful abstractions.

A less modest and more interesting reading of *Corrosion Proof Fittings*, and the broadest, is that in light of the distinctive requirements of TSCA, the agency was essentially under a burden of showing that its own approach maximized net benefits. A demonstration that benefits exceeds costs would not be sufficient to meet that burden, because an approach that has net benefits might have lower net benefits than some other approach. To be sure, a statutory requirement that benefits justify costs, alongside a mandate to use the least burdensome alternative,

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[101] 15 U.S.C §2605(a) ("If the Administrator finds that there is a *reasonable basis* to conclude that the manufacture, processing, distribution in commerce, use, or disposal of a chemical substance or mixture, or that any combination of such activities, presents or will present an *unreasonable risk of injury* to health or the environment, the Administrator shall by rule apply one or more of the following requirements to such substance or mixture to the extent necessary *to protect adequately* against such risk using the *least burdensome* requirements.") (emphasis added).

[102] Corrosion Proof Fittings, 947 F.2d at 1217 ("Under TSCA, the EPA was required to evaluate, rather than ignore, less burdensome regulatory alternatives. TSCA imposes a least-to-most-burdensome hierarchy. In order to impose a regulation at the top of the hierarchy—a total ban of asbestos—the EPA must show not only that its proposed action reduces the risk of the product to an adequate level, but also that the actions Congress identified as less burdensome also would not do the job. The failure of the EPA to do this constitutes a failure to meet its burden of showing that its actions not only reduce the risk but do so in the Congressionally-mandated *least burdensome* fashion.").

is not an explicit requirement that an agency choose the approach with the highest net benefits. But when combined with the APA, perhaps it is close enough. Perhaps it is arbitrary, under such a statute, not to choose the approach that maximizes net benefits.

Of course numbers need not be given if it is impossible to do so. And in some cases, alternatives can be reasonably rejected without numbers. The problem is that in *Corrosion Proof Fittings*, the agency did not adequately explain itself.

B. Alternatives and the APA

How would this analysis apply in an APA case, without the distinctive requirements of TSCA? Consistent with the maximalist position, it might be suggested that *an agency acts arbitrarily whenever it fails to explain, with quantitative cost-benefit analysis, why it has not chosen a less burdensome alternative*. That position is far too strong, but it is important to see exactly why.

Consider a stylized example, based on an actual rulemaking.[103] Imagine that the Department of Transportation is deciding how to improve rear visibility so as to reduce the incidence of "backover crashes." It has three alternatives, each of which is explicitly mentioned in the governing statute: (1) mandating installation of cameras, which is the most expensive and also the most effective approach; (2) requiring side-view mirrors to be larger, which is the least expensive and least effective approach; and (3) requiring installation of sonar, which ranks between cameras and mirrors in terms of both cost and effectiveness. Suppose that the agency chooses cameras. If it says nothing about mirrors and sonar, it has acted arbitrarily. But does it have to quantify their costs and benefits? The statute does not explicitly make cost-benefit analysis the rule of decision, and while it refers to the three alternatives, it does not require the agency to choose the least burdensome approach.

To make the case as easy as possible for DOT, assume that it explains that mirrors would do essentially nothing about the problem, that its judgment to that effect survives rationality review, but that it has not quantified the effects of relying on mirrors. Would it be arbitrary for it to fail to do so? That would be an implausible conclusion. If the agency has rationally concluded that mirrors would be ineffective – that it would impose significant costs for essentially no benefits -- it is hardly irrational for it to reject the option of mirrors.[104] No quantification is necessary. The

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[103] NHTSA Announces Final Rule Requiring Rear Visibility Technology, NHTSA (Mar. 31, 2014), http://www.nhtsa.gov/About+NHTSA/Press+Releases/2014/NHTSA+Announces+Final+Rule+Requiring+Rear+Visibility+Technology; Federal Motor Vehicle Safety Standards; Rear Visibility, 79 Fed. Reg. 19178 (Apr. 7, 2014), available at https://www.federalregister.gov/articles/2014/04/07/2014-07469/federal-motor-vehicle-safety-standards-rear-visibility. For discussion, see Cass R. Sunstein, The Most Knowledgeable Branch, U. Pa. L. Rev. (forthcoming 2016).

[104] The rear visibility case has an unusual characteristic, which is that all of the relevant approaches have net costs; none has net benefits. In those circumstances, the standard task is to choose the

strongest counterargument would be that without numbers, it is not possible to know which approach has highest net benefits (or lowest net costs), and a non-arbitrary judgment that mirrors would be "ineffective" does not provide sufficient information. As a matter of policy, that position is not unreasonable.[105] But as a reading of the arbitrariness requirement, it is unacceptably aggressive, because it is hardly arbitrary for an agency to conclude that it should not choose an ineffective means of satisfying a statutory requirement (supposing that the judgment of ineffectiveness is itself reasonable).

Now suppose that DOT chooses cameras over sensors, concluding that cameras would be "significantly more effective" and that "the additional expense is well justified." Is that level of abstraction sufficient to survive rationality review? A challenger might well ask: What, concretely, do these claims mean? On what are they based? Certainly the agency should be required to do more than to announce its conclusions. It is not implausible to think that it must support its claims with numbers – ranges if not point estimates - unless it can explain why it has failed to do so. The question is what such an explanation might look like; I now turn to that question.

V. Refusing to Quantify

We now turn to the most difficult issues. An agency refuses to quantify (some or all) costs and benefits, and a litigant objects that its refusal to do so is arbitrary. When is that objection convincing?

A. Uncertainty and Defensible Ignorance

Suppose that the agency declines to quantify certain benefits and costs on the ground that it is not feasible to do so. Let us begin with cases in which the agency claims that it lacks enough evidence or knowledge to justify anything like a specification of benefits, even before it begins the task of attempting to monetize them. The EPA might say, for example, that in light of the limits of existing information, it cannot quantify the benefits, in terms of numbers of certain kinds of cancers reduced, of more stringent regulation of arsenic in drinking water.[106] Scientists cannot give a point estimate, nor do they have confidence in any kind of range.[107] Is that a problem?

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approach that has lowest net costs. Under the approach I am exploring, the approach with the lowest net costs would be best (and any other choice would be presumptively arbitrary), just as the approach with the highest net benefits would be best (and any other choice would be presumptively arbitrary). At least this would be so if the governing statute authorizes the agency to choose the approach with the lowest net costs or the highest net benefits.

[105] See Masur and Posner, Unquantifiable Benefits, supra note 11.

[106] See 66 Fed. Reg. 6976, 7009 (Jan. 22, 2001); see also Sunstein, The Arithmetic of Arsenic, supra note 86. In the important context of financial regulation, see Coates, supra note.

[107] Realistically, they will have a lower bound (0) and probably an upper bound. But the range might be very high. See the EPA's refusal to quantify with respect to specified cancers caused by arsenic, discussed in Sunstein, The Arithmetic of Arsenic, supra note 86.

Under arbitrariness review, the initial question is simple: Is the agency's explanation unreasonable? Because agencies have technical expertise, a challenger would face a heavy burden here (though it could imaginably succeed[108]). If the agency has adequately explained its failure to quantify, the issue would seem to be at an end. As the D.C. Circuit said in 2015: "The appellants further complain that CFTC failed to put a precise number on the benefit of data collection in preventing future financial crises. But the law does not require agencies to measure the immeasurable. CFTC's discussion of unquantifiable benefits fulfills its statutory obligation to consider and evaluate potential costs and benefits."[109] If this principle holds for a statute that requires consideration of costs and benefits, it certainly holds under arbitrariness review more generally.

B. Acting Amidst Uncertainty: Simple Cases

Suppose that the agency has rationally concluded that certain benefits are unquantifiable, and has nonetheless, or therefore, decided to proceed. That decision raises a separate question. *Is it arbitrary to proceed where certain benefits cannot be measured*?

The simplest cases arise when an agency rationally says (1) that the quantifiable benefits of a new regulation exceed the quantifiable costs, but also (2) that there are other, unquantifiable benefits that should be taken account.[110] Just as above, it might explain that (2) on the ground that scientists cannot specify their magnitude in light of limits in existing knowledge. There is nothing arbitrary here. First, the failure to specify unquantifiable benefits might be the height of reasonableness; under imaginable assumptions, specification, rather than the

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[108] On the possibility that quantification is not feasible, see Federal Communications Commission v. Fox Television Stations, Inc., 556 U.S. 502, 519-20 (2009). For general discussion, see Coates, supra note 9. For a rare case in which an agency lost on an issue of this general kind, see Chlorine Chemistry Council v. EPA, 206 F.3d 1286 (D.C. Cir. 2000) (finding that data did not support agency's decision to use a no-threshold, linear dose response curve). Cf. Am. Trucking Ass'ns v. EPA, 175 F.3d 1027, 1051 - 53 (D.C. Cir. 1999) ("[It] seems bizarre that a statute intended to improve human health would, as EPA claimed at argument, lock the agency into looking at only one half of a substance's health effects in determining the maximum level for that substance. . . . Legally, then, EPA must consider positive identifiable effects of a pollutant's presence in the ambient air in formulating air quality criteria under § 108 and NAAQS under § 109. EPA's other arguments are technical, and are of two sorts: those that allegedly show petitioners' studies to be fatally flawed and those that allegedly show specific inflation of results in these studies. We need only consider the first sort, for EPA chose to give the studies no weight at all.").

[109] Inv. Co. Inst. v. Commodity Futures Trading Comm'n, 720 F.3d 370, 372–75 (D.C. Cir. 2013). See generally Coates, supra note 9. Whether or not the argument is convincing as a matter of policy, it is convincing as a matter of judicial review of agency action. On the policy issue, see Eric Posner and E. Glen Weyl, Cost-Benefit Analysis of Financial Regulations (2015), available at http://www.yalelawjournal.org/forum/cost-benefit-analysis-of-financial-regulations

[110] Cf. the EPA's difficulty in quantifying some of the benefits related to regulating arsenic in drinking water, discussed supra note 98 – 99.

opposite, would be arbitrary.[111] Second, the quantifiable benefits exceed the quantifiable costs, and so the agency's decision to proceed is not itself arbitrary.

C. Acting Amidst Uncertainty: Predictive Judgments Without Numbers

Sometimes agencies make predictive judgments about the likely effects of their actions, speaking in qualitative terms without quantifying either costs or benefits. For example, the FCC might adopt a regulation to protect children from exposure to obscene words on television; the Department of Justice might require new steps to make buildings accessible to those who use wheelchairs; the Equal Employment Opportunity Commission might ban discrimination on the basis of sexual orientation; the Federal Trade Commission might require energy efficiency labels for appliances. In all of these cases, and many more, cost-benefit analysis might be possible, but might seem to strain existing knowledge, and also to be an awkward fit with the relevant statutes and regulations.

Note preliminarily that under existing executive orders, a full-scale regulatory impact analysis, with a detailed account of costs and benefits, is required only for regulations with an annual economic impact of at least $100 million.[112] To be sure, benefits must always "justify" costs,[113] but for regulations with modest economic effects, a comprehensive analysis is not required. These ideas have no standing in court, but they suggest an important point, which is that the argument for a detailed catalogue of costs and benefits is greatly weakened when the economic impact is not large. One reason is that in such cases, the social need for such a catalogue is reduced, and so too are the social benefits. Cost-benefit analysis itself has both costs and benefits, and the costs of analysis might exceed the benefits.

In some cases, moreover, it is hardly arbitrary for agencies to make predictive judgments, based not on empirical evidence and numbers, but on reasonable qualitative assumptions about likely outcomes.[114] The easiest cases arise when evidence is unavailable. True, predictive judgments might be turned into projections of costs and benefits, but it would be extravagant to say that numbers are always necessary to avoid a charge of arbitrariness. If the FCC takes steps to strengthen or weaken existing restrictions on obscenity, it might well be *helpful* to quantify costs, but the benefits might be thought to defy quantification, and a more qualitative approach is hardly arbitrary.[115] If an agency adopts new regulations to reduce discrimination on the basis of disability or sexual orientation, a quantitative cost-benefit analysis might well be valuable, but it would be exceedingly difficult to

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[111] For some qualifications, see Masur and Posner, Unquantifiable Benefits, supra note 11 (arguing that quantification is always possible, even if it involves guesses).
[112] See Executive Order 12866.
[113] Id.
[114] See the valuable discussion of qualitative or conceptual cost-benefit analysis in Coates, supra note 9.
[115] See note supra. For relevant discussion, see Coates, supra note 9.

argue that a failure to provide one is arbitrary under the APA. An agency can adequately explain itself without such an analysis.

The same conclusion might well apply when an agency imposes a disclosure requirement in order to promote informed choices. To be sure, the agency must say *something* to explain its decision, and a cost-benefit analysis can provide that explanation. In imaginable circumstances – involving, say, an evidently expensive mandate of highly questionable value to consumers – such an analysis might be necessary in order to rebut the charge of arbitrariness.[116] But it would be implausible to say that whenever a statute requires or authorizes an agency to mandate disclosure, a quantitative analysis of costs and benefits is required by the APA.

The larger point here is that the range of agency action is exceptionally wide, and agencies can reasonably decide that quantitative analyses are not well-suited to all contexts. Where the stakes are relatively low, such an analysis might not be necessary. Where an agency is making reasonable predictive judgments, such an analysis might also be unnecessary – and it might not be feasible. Of course the underlying statute matters a great deal. Within the constraints that it contains, a great deal depends on the costs of decisions and the costs of errors. If a litigant makes a plausible argument that an agency has acted arbitrarily, imposing serious burdens for no gain, its best defense might involve a catalogue of costs and benefits. And if a litigant argues that the agency has acted arbitrarily in failing to offer such a catalogue, a great deal depends on the costs and benefits of doing exactly that. In some cases, the costs of a quantitative analysis would exceed the benefits -- or so an agency might non-arbitrarily conclude. But in other cases, reliable numbers are available, and the benefits of cost-benefit analysis will so obviously exceed the costs that the agency's approach will indeed be arbitrary. Let us now see why that might be so.

D. Acting Amidst Uncertainty: Harder Cases

Some of the hardest problems arise when the agency agrees to consider costs, acknowledging that it is arbitrary not to do so, but *chooses to proceed even though the quantifiable benefits of its action are far lower than the quantifiable costs*. By itself, that choice would be arbitrary unless it is explained. A mere statement of the agency's intentions and preferences is not sufficient. If the agency lacks evidence, it might nonetheless be able to show that it has made a reasonable predictive judgment, consistent with the underlying statute; if evidence is unavailable, or if it is not feasible to collect it, there is nothing unreasonable about that.[117] But imposition of costs far in excess of benefits requires some kind of justification.

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[116] On this issue, see Christine Jolls, Debiasing Through Law and the First Amendment, 67 Stan. L. Rev. 1411 (2015).

[117] In the area of exposure to "indecent" words, the Court appears to have said that where the agency's predictive judgment is reasonable, and where evidence is not available, no empirical

1. Breakeven Analysis

One of the most promising approaches here involves "breakeven analysis." Under that approach, an agency explores how high the unquantified benefits would have to be in order for the benefits to justify the costs.[118] The simplest way for an agency to explain its decision to proceed, in the face of (1) quantified costs that exceed quantified benefits and (2) unquantifiable benefits, is to engage in that form of analysis.

In the rear visibility regulation itself, DOT acknowledged a shortfall of about $200 million: the monetized costs were between $546 million and $620 million, and the monetized benefits around $265 million and $396 million.[119] In explaining its decision to proceed, the agency referred to a range of (what it saw as) unquantifiable values, including equity (the lives of small children were at risk), parental anguish (in some cases, parents were responsible for the deaths of their own children), and increased ease of driving.[120] Let us simply stipulate that these values were indeed unquantifiable.

Was the agency's identification of the relevant values sufficient to survive arbitrariness review? There is a good argument that it was, at least in light of the fact that the monetary shortfall, while significant, was not egregious. Without running afoul of the proscription on arbitrariness, an agency could make a plausible judgment that the list of factors was sufficient to make up that shortfall. But without a great deal of difficulty, it could have undertaken a more formal analysis.

For example, the Department properly referred to the increased ease and simplification of driving. Suppose that for each driver, the relevant improvement is valued at merely $30, taken as a reasonable lower bound. Suppose too that the regulation would apply to 60,000 cars that would otherwise lack cameras. If so, it would produce $180 million in additional benefits. At that point, the monetized benefits become very close to the monetized costs.

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support will be required. See Federal Communications Commission v. Fox Television Stations, Inc., 556 U.S. 502, 519-20 (2009). For an interesting discussion with far-reaching implications, see Adrian Vermeule, Rationally Arbitrary Agency Decisions (2013), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2239155. I cannot discuss Vermeule's illuminating discussion in detail here, but my own view is that the overwhelming majority of regulatory decisions involve potentially or actually evidence-based judgments, making relatively little space for rational arbitrariness (as he sees it).

[118] See Cass R. Sunstein, The Limits of Quantification, 102 Cal. L. Rev. 1369 (2014).

[119] Federal Motor Vehicle Safety Standards; Rear Visibility, 79 Fed. Reg. 19,178, 19,178 - 79 (Apr. 7, 2014); see also Sunstein, The Limits of Quantification, supra note 105, at 1371.

[120] Federal Motor Vehicle Safety Standards; Rear Visibility, 79 Fed. Reg. 19,178, 19, 235 - 26 (Apr. 7, 2014); see also Cass R. Sunstein, The Limits of Quantification, supra note 105, at 1371.

The Department might have added that some work suggests that parents value a young child's life at $18 million[121] – a number that would add $45 million to its existing benefits figure. At that point, the benefits and costs are essentially equivalent. And indeed, that $18 million figurer captures the parents' valuation of children's lives, not children's valuation of their lives. It would have been an unusual step, but the Department might have undertaken a sensitivity analysis with values, for a statistical child's life, of $18 million and $27 million – with the latter adding $90 million, leaving a shortfall of $110 million. Recall finally that we are speaking here of parents who would not only (only!) lose their children, but who would also be directly responsible for that loss. How much would it be worth to reduce the risk of that eventuality?

With an analysis of this kind, the Department's decision to proceed seems entirely reasonable – not because of a mere list of what intuition suggests are unquantifiable benefits, but because once we speak of lower bounds and expected ranges, the arbitrariness objection starts to lose its force. It would be excessive to say that in cases of this kind, an agency would be required to engage in breakeven analysis to avoid invalidation on arbitrariness grounds. But we could imagine much harder cases, in which some such analysis would be indispensable.

Simple though it is, the example is easily generalizable. At least in the face of significant costs, exceeding quantifiable benefits, it may not be enough for an agency to announce that some benefits of the regulation are not quantifiable – unless Congress has directed the agency to proceed. But if the agency has made a non-arbitrary judgment that the benefits are not quantifiable, the agency would be on firm ground if it engaged in a reasonable breakeven analysis.[122] If the agency failed to engage in any such analysis, and simply listed one or more unquantifiable benefits, it might not be acting arbitrarily, but in some cases, the answer might not be clear.[123] As the costs grow, it becomes harder to say that such a list is sufficient to justify agency action in the face of an arbitrariness challenge.

Suppose, for example, that an agency has imposed a cost of $600 million with a regulation that will reduce the risk of a financial crisis by some unquantifiable amount. To survive a claim of arbitrariness, it would be best for the agency to

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[121] See Sean Williams, Statistical Children, 30 Yale J. Reg. 63 (2013), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2176463

[122] See also the qualified endorsement, in Coates, supra note 9, of "conceptual" cost-benefit analysis (CBA), on the ground that it might "be useful for financial agencies to frame the questions that they face in evaluating regulations in terms of conceptual CBA, so as to stimulate and guide research . . . . The question, then, is how to encourage financial regulators to engage in meaningful, detailed conceptual CBA for its own sake—which should enhance public understanding and may also assist regulators themselves—but also be- cause more and better conceptual CBA should stimulate research on quantita- tive CBA by making more apparent the key quantities to be estimated, and so by stimulating academics to think harder about research designs that would permit that quantification." Id. at 1010.

[123] Masur and Posner, Unquantifiable Benefits, supra note 11, offers valuable discussion.

engage in some kind of breakeven analysis, which is eminently doable.[124] But in light of the sheer magnitude of a financial crisis, a court should not require breakeven analysis as a precondition for validation.[125]

2. Equity, Dignity, and Fair Distribution

The agency might say that even though monetized costs exceed monetized benefits, considerations of *equity, dignity,* or *fair distribution* justify its action.[126] It might contend that those considerations cannot be monetized, but that they nonetheless matter. Suppose, for example, that an agency is adopting a regulation to make buildings accessible to people who use wheelchairs. Imagine that the monetized costs of the regulation are $600 million and that the monetized benefits are $300 million. Imagine that the agency nonetheless proceeds, arguing that the purpose of the regulation is to make buildings accessible, and the fact that monetized costs exceed monetized benefits is neither here nor there. Is that arbitrary?

The initial question involves the underlying statute. Let us simply stipulate that the agency has discretion to proceed or not to proceed, and how aggressively to proceed, and that it is authorized to take costs and benefits into account in making those decisions. At first glance, it is hard to say that the agency has acted arbitrarily. The Americans With Disabilities Act, for example, does not state that cost-benefit analysis is the rule of decision (and indeed, there is a plausible argument that even if costs and benefits are relevant, the agency could not lawfully interpret it to embrace that decision rule[127]). If the agency wishes to give significant weight to wheelchair accessibility, without turning it into some monetary equivalent, it is hardly acting arbitrarily.

The strongest response would be that considerations of equity, dignity, or fair distribution cannot possibly be priceless. With a regulation of this kind, the agency is implicitly deciding that wheelchair accessibility has a value, or at least a reasonable lower bound. Perhaps the relevant valuation is sensible; perhaps it is not. At the very least, that question can be asked as a result of arbitrariness review. To make the issue as stark as possible, suppose that the implicit valuation, for annual access by a person who uses a wheelchair, is $10 million. Many agencies value a human life at $9 million.[128] Can a year of wheelchair accessibility be worth as much as a human life?

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[124] See Eric A. Posner and E. Glen Wehl, Benefit-Cost Paradigms in Financial Regulation (2014), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2346466; Sunstein, The Limits of Quantification, supra note 105.

[125] For detailed discussion, see Coates, supra note 9.

[126] Note that Executive Order 13563 explicitly refers to these values.

[127] Cf. Vande Zande v. Wisconsin Dep't of Admin., 44 F.3d 538 (7th Cir. 1995); Cass R. Sunstein, Cost-Benefit Analysis without Analyzing Costs or Benefits: Reasonable Accommodation, Balancing, and Stigmatic Harms, 74 U. Chi. L. Rev. 1895 (2007).

[128] See EPA, Valuing Mortality Risk Reductions for Policy: A Meta-Analytic Approach, supra note 45.

With an actual regulation, the Department of Justice engaged in breakeven analysis. Its calculation was that if either society or wheelchairs were willing to pay a very small amount per bathroom visit – for one part of the regulation, in the vicinity of 5 cents,[129] and for another part, in the vicinity of $2.20 – the regulation would be worthwhile.[130] It asked what wheelchairs users would have to be willing to pay for the relevant benefits,[131] and what society would have to be willing to pay to provide them,[132] in order for the relevant requirements to have a net present value of zero. It concluded that the relevant amounts could be very small and nonetheless achieve the breakeven or threshold point.

There is nothing at all arbitrary about proceeding in this way. But was the agency legally obliged to justify itself through this relatively elaborate route? Would it have been arbitrary, within the meaning of the APA, if the agency had referred more broadly to considerations of equity and dignity, and argued that a shortfall of several hundred million dollars should not be seen as prohibitive? Almost certainly not. Breakeven analysis is helpful, but the APA's ban on arbitrariness does not require agencies to engage in it.

Here as well, the analysis is generalizable. Where the monetized costs and benefits are not wildly out of line, invocation of fairness and dignity can tip the balance, even if the agency's analysis is not at all quantitative. If the agency wants to

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[129] "We estimate that people with the relevant disabilities will use a newly accessible single-user toilet room with an out-swinging door approximately 677 million times per year. Dividing the $32.6 million annual cost by the 677 million annual uses, we conclude that for the costs and benefits to break even in this context, people with the relevant disabilities will have to value safety, independence, and the avoidance of stigma and humiliation at just under 5 cents per use." Dep't of Justice: Disability Rights Section of the Civil Rights Division, Final Regulatory Impact Analysis of the Final Revised Regulations Implementing Titles II and III of the ADA, Including Revised ADA Standards For Accessible Design 143 (2010), available at http://www.ada.gov/regs2010/RIA_2010regs/DOJ%20ADA%CC20Final%20RIA.pdf.

[130] "We estimate that people with the relevant disabilities will use a newly accessible single-user toilet room with an in-swinging door approximately 8.7 million times per year. Dividing the $19.14 million annual cost by the 8.7 million annual uses, we conclude that for the costs and benefits to break even in this context, people with the relevant disabilities will have to value safety, independence, and the avoidance of stigma and humiliation at approximately $2.20 per use." Id.

[131] "Under this methodology, for three of these four requirements, persons with disabilities need place a value of less than 1 cent on the benefits of avoided humiliation and/or improved safety (or any other non- monetized benefits) on each visit to facilities with elements affected by these requirements in order to make each requirements' respective NPVs equal zero. " Id. at 146.

[132] "The second threshold estimate, by contrast, calculates the average monetary value each American (on a per capita basis) would need to place annually (over a fifteen year period) on the "existence" of improved accessibility for persons with disabilities (or the "insurance" of improved accessibility for their own potential use in the future) in order for the NPVs for each respective requirement to equal zero. Under this methodology, if Americans on average placed an "existence" value and/or "insurance" value of between 2 cents on the low end to 7 cents on the high end per requirement, then the NPVs for each of these requirements would be zero. Note that this later calculation assumes no added value of avoided humiliation, of increase safety and increased independence." Id.

be maximally secure, it would engage in some form of breakeven analysis, but that should not be required.

The idea of equity overlaps with that of fair distribution, and we could easily imagine a regulatory decision that brings distributional justice to the foreground. Suppose that an OSHA regulation imposes a total cost of $200 million and that it prevents 15 premature deaths. (For simplification, assume that the regulation has no benefits other than prevention of premature mortalities.) If a life is valued at $9 million, the regulation has net costs of $65 million. The agency might argue that the benefit is enjoyed by workers, who are relatively disadvantaged, and that the cost will be born by consumers, who are relatively well off. The agency might add that protection of worker safety is the primary purpose of the Occupational Safety and Health Act, and at least so long as the net costs stay within reasonable bounds, it will act in a way that fits with that primary purpose. An argument of this kind would be controversial. But it is hardly arbitrary.

Here yet again, the argument is easily generalized. If an agency is conferring benefits on one group and imposing costs on another, it might well be acting lawfully, even if the monetized costs exceed the monetized benefits. To be sure, it might be arbitrary for the agency to say *nothing* about the magnitude of the benefits and the costs. But under statutes that are designed to help specified groups – say, victims of discrimination or rape, or people who have long lacked health insurance – it is hardly arbitrary for agencies to emphasize the importance of distributional considerations.

VI. Feasibility Analysis

A. The Problem

An agency might say that it is not basing its decision on cost-benefit analysis at all. It might say that it is rooting its approach in "feasibility analysis," which, it will be recalled, means that it will regulate any significant risk to the point that is consistent with technological or economic feasibility.[133] Is that approach arbitrary? We are stipulating that (1) Congress has not forbidden the agency from choosing feasibility analysis and (2) Congress has not required the agency to make that choice.

The question is far from hypothetical. The Occupational Safety and Health Administration is generally authorized to issue regulations that are "reasonably necessary or appropriate" to provide safe and healthful places of employment.[134] According to the leading court of appeals decision,[135] this language authorizes the agency to choose between (1) regulating significant risks to the point of economic

[133] See Masur and Posner, Against Feasibility Analysis, supra note 23.
[134] 29 USC § 652(8).
[135] Int'l Union v. OSHA, 37 F.3d 665 (D.C. Cir. 1994).

and technological feasibility and (2) using cost-benefit analysis. Decades ago, the agency chose (1), and a lower court upheld that choice.[136] The agency has continued to rely on (1) ins both Republican and Democratic administrations. And under a key provision of the Clean Water Act,[137] the Supreme Court has said that the EPA has the option, under the governing statute, of using (1) feasibility approach or (2) requiring some kind of balancing between costs and benefits.[138]

In principle, there is a strong argument that agencies can reasonably choose a feasibility approach. In fact the argument might well seem decisive. We have seen that in some statutes, Congress has itself embraced exactly that very approach.[139] No one contends that it lacks the constitutional authority to make that choice. It might appear odd, even a form of hubris, for a federal court to declare that an approach embraced by the national legislature is unlawfully arbitrary under the APA if selected by an agency. Moreover, some distinguished commentators have argued vigorously on behalf of feasibility analysis, contending that it is superior to cost-benefit analysis.[140] Would it make sense for a court to rule that such commentators are not merely wrong but irrational?

The initial response is that Congress' occasional embrace of feasibility analysis is not, by itself, a sufficient justification for that form of analysis. Congress has also called for cost-blindness and as we have seen, it is nonetheless arbitrary for agencies to ignore costs.[141] As we have also seen, the Court's decision to this effect imposes a kind of clear statement principle: If the federal government is to act in a cost-blind way, it must be because the national legislature has made an explicit and focused decision to that effect. It is easy to imagine a similar principle that would condemn agency selection of feasibility analysis*: If the federal government is going to undertake that kind of approach, it must be because Congress has said that it should, not because of a judgment by a mere agency*.

A judgment of that kind would have to depend on that conclusion that while feasibility analysis is not so unreasonable as to fail constitutional review for irrationality, it nonetheless fails APA standards for arbitrariness. As we have seen, that is a perfectly imaginable judgment; it parallels existing law with respect to cost-blindness. But is the imaginable judgment also correct?

B. Feasibility: For and Against

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[136] Am. Textile Mfrs. Inst., Inc. v. Donovan, 452 U.S. 490, 507 (1981) ("[C]ost-benefit analysis by OSHA is not required by the statute because feasibility analysis is.").
[137] 33 U.S.C. §1326(b).
[138] Entergy v. Riverkeeper, 556 U.S. 208 (2009).
[139] See supra note 64.
[140] See David Driesen, Distributing the Cost of Environmental, Health, and Safety Regulation: The Feasibility Principle, Cost-Benefit Analysis, and Reform, 32 B.C. Envtl. Aff. L. Rev. 1 (2005); David M. Driesen, Two Cheers for Feasible Regulation: A Modest Response to Masur and Posner, 35 Harv. Envtl. L. Rev. 313 (2011).
[141] Michigan v. EPA, 135 S. Ct. 2699 (2015).

The best argument for that principle, and hence for invalidation, would be that feasibility analysis is exceptionally difficult to defend, at least in ordinary circumstances.[142] Return to the case of rear visibility and suppose that the cost of cameras would be $1 billion. Suppose that the result of cameras would be to prevent 10 deaths per year. Would it be even minimally rational to spend more than $100 million to save a single life? In *Corrosion Proof Fittings*, the court invalidated the EPA's asbestos ban in part on the ground that in certain sectors, the cost per life saved was implausibly high.[143] To be sure, that decision involved a statute that (on the court's view) specifically called for cost-benefit analysis. But is there anything rational that an agency could say in response to an objection that as applied, feasibility analysis requires arbitrarily high costs for modest gains?

At the very least, the agency would have to explain its choice, even under the most minimalist approach. It would not be sufficient for it to announce its conclusion that feasibility is better. It would have to offer some account of *why* an agency should impose a regulatory requirement even when the monetized benefits fall so short of the monetized costs.

We have already seen several possible accounts. An agency might point to unquantifiable factors; it might emphasize the importance of equity, dignity, and fair distribution. The problem is that these points *do not justify feasibility analysis*. They might well show that it is not arbitrary to proceed even though the monetized benefits are lower that the monetized costs. What they fail to show that it is not arbitrary to abandon any form of weighing in favor of an inquiry into feasibility.

The best explanation on behalf of that inquiry might take the following form.[144] A $1 billion expenditure might mean significant welfare losses – as, for example, where it requires businesses to close or scale back their operations. But notwithstanding its sheer magnitude, that loss might also mean far less, in welfare terms, than one might initially think. Suppose, for example, that a $1 billion expenditure means that every new car will sell for (say) about $50 more. Are car purchasers significantly harmed if they have to pay, on average, $22,250 rather than $22,200 per car? A widely diffused cost of that kind might have relatively modest welfare effects. An agency might say: Our master concept is human welfare, not net benefits. Even though the monetized costs of our action exceed the monetized benefits, we believe that it would produce a net welfare gain.[145] And for its domain (the agency might conclude), feasibility analysis works as a reasonable proxy for welfare analysis – in some contexts, as a sensible alternative to cost-benefit analysis itself. Whenever the costs of regulation are widely diffused, a high aggregate

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[142] See Masur and Posner, Against Feasibility Analysis, supra note 23.
[143] 947 F.2d 1201 (5th Cir. 1991).
[144] See Driesen, Two Cheers for Feasible Regulation, supra note 125.
[145] See John Bronsteen et al., Happiness and the Law (2014); Driesen, Two Cheers for Feasible Regulation, supra note 125.

number will greatly overstate the adverse welfare effects of regulation.[146] If a regulation is feasible, and if it addresses a serious problem, it will be justified on welfare grounds.

As a matter of policy, it is not at all clear that this argument is convincing. For each individual vehicle purchaser, a loss of $50 might not mean a great deal, but for tens of thousands of people, the loss would be significant. (Would a $50 tax, imposed on every American, produce very modest welfare losses?) And where there is a disjunction between what emerges from cost-benefit analysis and likely welfare effects, the most natural response is not to jump directly to feasibility analysis. It is instead to ask whether there is a justification (on welfare grounds) for proceeding even though the benefits are lower than the costs.

But simply as a matter of administrative law, the argument on behalf of feasibility analysis is hard to deem arbitrary. It is plausible that a widely diffused cost, even if it is very high, will impose relatively modest welfare losses. A $5 cost, imposed on 300 million people, would produce an unusually large monetary amount ($1.5 billion!) – but the resulting figure could greatly overstate the welfare effects.[147] At the very least, the agency could make a legally sufficient argument to this effect.

Alternatively, the agency might link its use of feasibility analysis with a distributional argument. It might urge that under its regulation, certain groups (say, workers who face serious health or safety risks) are its principal concern, and that it is willing to impose "feasible" regulation on others in order to address that concern. On certain assumptions about the incidence of regulatory consequences, an argument of this kind would not be arbitrary (whether or not it would be convincing).

The agency's best explanation of a feasibility approach would speak in these terms. In some cases, of course, that explanation would not be sufficient to satisfy the requirements of reasonableness. In the context of water pollution, for example, a cost of $600 billion, alongside benefits of $45 million, would be hard to justify on grounds of welfare or fair distribution, at least if the $45 million involve largely ecological benefits (and not human health), and if unquantifiable benefits cannot be brought to bear.[148] Whether it is non-arbitrary to adopt feasibility analysis very much depends on whether the context is one for which considerations of welfare or fair distribution can be made plausible.

Conclusion

[146] See John Bronsteen et al., Well-Being Analysis vs. Cost-Benefit Analysis, 62 Duke L.J. 1603 (2013), for an argument to this effect.
[147] See id.
[148] See Entergy v. Riverkeeper, 556 U.S. 208 (2009).

Under the APA, agencies must avoid arbitrariness, and a regulation that imposes costs without conferring benefits is arbitrary. The same is true of a regulation that increases risks on net, or that imposes very high costs for trivial gains. Importantly, the prohibition on arbitrariness is not naturally taken as a requirement of a particular rule of decision, where Congress has failed to mandate any such rule in an organic statute. Cost-benefit analysis is hardly an uncontested decision rule, and it might seem arrogant, or worse, for courts to require agencies to follow it. It would indeed be implausible to insist that the APA enacts OMB Circular A-4.

Nonetheless, some statutes require or permit an agency to quantify costs and benefit and to weigh them against each other. There is a strong argument that some form of quantified cost-benefit analysis, showing that benefits justify the costs, is the best way to demonstrate that a regulation would promote social welfare. Unless a statute says otherwise, a failure to offer such a demonstration requires some kind of explanation.

I have explored several possible explanations here. In some cases, it might not be feasible to quantify costs and benefits; limits in existing evidence might make any such effort an exercise in speculation. Where quantification is not possible, it is not arbitrary to refuse to quantify. In such cases, the only issue is whether it is arbitrary for an agency to proceed. That issue raises a different issue, which is how agency can justify action if the quantifiable costs exceed the quantifiable benefits.

One form of justification could consist of standard breakeven analysis, which will often suffice to combat the charge of arbitrariness. Values such as equity and fairness might be relevant, and they might be difficult or impossible to quantify. An agency might be attempting to promote distributive goals; consider statutes forbidding discrimination on the basis of race, sex, or disability. A regulation might produce welfare effects that are not adequately captured by monetized or monetizable costs and benefits. In a wide range of cases, justifications of this kind should protect agencies against an objection from arbitrariness. At the same time, justifications must be offered, and in some cases, they will not be available.

The largest conclusions are straightforward. A central goal of administrative agencies is to promote social welfare, suitably defined.[149] It should be unnecessary to underline the importance of that goal. Of course the judicial role is far from primary. Within the bounds of law, the principal line of defense against regulation that reduces social welfare consists of processes within the executive branch, which are specifically designed to promote analytical discipline in the interest of promoting social welfare.[150] But those processes are not always sufficient.[151] When

[149] On some of the complexities here, see Adler, supra note 36.
[150] See Sunstein, The Most Knowledgeable Branch, supra note 95.
[151] Recall that the independent agencies are not subject to the standard processes. For a powerful critique and call for reform, see Richard Revesz, Cost-Benefit Analysis and the Structure of the

they fail, courts legitimately require agencies to justify their choices. In some cases, a non-arbitrary justification requires numbers.

Administrative State: The Case of Financial Services Regulation (2016), available at http://papers.ssrn.com/sol3/papers.cfm?abstract_id=2733713.