

# TWO CHEERS FOR FEASIBLE REGULATION: A MODEST RESPONSE TO MASUR AND POSNER

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*This article compares the relative merits of feasibility and cost-benefit based regulation, responding to a recent article by Jonathan Masur and Eric Posner on this topic. Normatively, it shows that the lack of correlation between non-subsistence consumption and welfare supports the argument that regulation should be strict, unless widespread plant shutdowns, which would seriously impact well-being, are involved. It demonstrates that a host of practical defects Masur and Posner find in feasibility analysis would infect cost-benefit analysis as well in light of the importance of cost's distribution, the feasibility principle represents a reasonable effort to politically resolve difficult normative issues.*

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## INTRODUCTION

In *Distributing the Cost of Environmental, Health, and Safety Regulation: The Feasibility Principle, Cost-Benefit Analysis, and Regulatory Reform*,<sup>1</sup> [hereinafter *Feasibility*], I suggested that feasibility analysis reasonably addresses concerns about the distribution of costs and benefits. Jonathan Masur and Eric Posner's article, *Against Feasibility Analysis*<sup>2</sup> responds by claiming that feasibility analysis lacks any normative justification.<sup>3</sup>

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<sup>1</sup> 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).

<sup>2</sup> Jonathan Masur & Eric Posner, *Against Feasibility Analysis*, 77 U. CHI. L. REV. 657 (2010).

<sup>3</sup> *Id.* at 657 (finding that feasibility analysis "leads to both under- and overregulation").

One way of framing the core normative issue underlying feasibility-based regulation is to ask a seemingly simple question: Suppose we could save a single person from a painful death from cancer by demanding that an industry pay \$10 million to reduce exposure to a carcinogen at the workplace. Should we do so?

The answer to this question depends on the distribution of the costs of preventing this cancer death and one's normative commitments. Suppose, for example, that imposing the \$10 million cost of preventing one painful cancer death causes an industry selling 1 million television sets a year to raise prices by 10 dollars per set. One should consider this \$10 million cost insignificant because of its distribution and enact this regulation. This is an example of feasible regulation. Suppose, however, that the \$10 million cost of preventing this cancer death causes much of the industry to shut down, creating unemployment for 10,000 workers. One might respond to this case in one of two ways depending on one's normative commitments. One could assert the primacy of human life and insist that this regulation is appropriate, a philosophy seen, to some extent, in health-based standard setting provisions.<sup>4</sup> Alternatively, one could say that an administrative agency should eschew this regulation as infeasible, since the industry cannot implement technological changes to save our cancer victim.<sup>5</sup> Because the industry could meet a fully health-protective goal by shutting down,<sup>6</sup> the decision to insist on only feasible regulation rests primarily on a normative judgment that an administrative agency ought not routinely impose the drastic consequence of permanent unemployment upon many workers.<sup>7</sup> My rather modest claim is that both responses are rational.

This claim supports the feasibility principle, the idea that administrative agencies should regulate serious health and environmental hazards as stringently as possible without causing widespread plant shutdowns, not as a perfect ideal for regulation, but as a rational norm among several plausible ones.<sup>8</sup> Although one can make the claim against the feasibility principle stronger by altering my television example, I will show that these changes do not make the demand for feasibility irrational. Moreover, even if one rejects the feasibility principle, feasibility analysis will provide useful information, because it identifies regulations distributing costs in atypical ways that produce widespread job losses, a consequence that may be comparable in importance to the serious harms to health that regulation prevents.

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<sup>4</sup> See, e.g., *Whitman v. Am. Trucking Ass'ns*, 531 U.S. 457, 464–471 (2001) (explaining that EPA must set national ambient air quality standards protecting public health regardless of costs).

<sup>5</sup> See generally *Am. Textile Mfrs. Inst., Inc. v. Donovan*, 452 U.S. 490, 508–509 (1981) (defining feasible regulation as that which is “capable of being done”).

<sup>6</sup> See *Union Elec. Co. v. EPA*, 427 U.S. 246, 265 n.14 (1976).

<sup>7</sup> See *Driesen*, *supra* note 1, at 34–39 (explaining why it is reasonable to eschew regulations producing widespread job loss).

<sup>8</sup> See *id.* at 2–3 (defining the feasibility principle as a “preference for avoiding widespread plant shutdowns” while otherwise maximizing emission reductions).

Normatively, Masur and Posner insist that feasibility analysis leads to both under and over-regulation. They supplement this normative argument with two case studies that reveal various practical difficulties in carrying out feasibility analysis.<sup>9</sup> The case studies and normative argument together create the impression that feasibility analysis is normatively bankrupt and leads to arbitrary regulation. By contrast, *Feasibility* not only defended the feasibility principle as a reasonable normative judgment about how to address distributional concerns, but also claimed that feasibility analysis offers significant practical advantages over cost-benefit analysis (“CBA”).

Masur and Posner’s normative argument assumes what they try to prove. They define under-regulation primarily as regulation where benefits exceed costs and over-regulation as regulation where costs exceed benefits,<sup>10</sup> thereby resting their attack on feasibility on assumptions about CBA’s superiority. Of course, if efficient regulation is better than feasible regulation, then it follows that their conclusions about under and over-regulation are correct. But nowhere do they grapple with the question that the television hypothetical highlights: Is the equation of aggregate costs and benefits at the margin the proper ideal for regulation? In spite of Masur and Posner’s promise to “uncover” the normative commitments underlying feasibility analysis,<sup>11</sup> they ultimately fail to confront the key normative arguments about the experience of job loss or about the wide distribution of regulatory costs to consumers that typically render trivial the impacts of even high aggregate costs on each individual. Accordingly, most of this response will focus on clarifying the normative case for feasibility analysis.

Their neglect of key normative arguments stems in part from a preoccupation with flaws in the practice of feasibility analysis.<sup>12</sup> I agree with Masur and Posner’s characterization of that practice as less than wholly satisfactory and suggested as much in *Feasibility*.<sup>13</sup> But their conclusion that the practical flaws justify rejecting feasibility analysis in favor of CBA depends heavily upon comparing flawed real world feasibility analysis to an idealized and utterly unrealistic portrait of CBA. It is easy to show that all of the significant flaws they associate with feasibility analysis exist in CBA and that CBA maximizes decision costs. Although Masur and Posner deserve praise for their effort to delve into the details of some case studies, their analysis assumes too glibly that every anomaly they see arises only under feasibility analysis and has nothing to do with CBA.

The core practical argument offered here — that technical problems Masur and Posner find in feasibility analysis also infect CBA — has not

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<sup>9</sup> See *id.* at 670–87.

<sup>10</sup> Masur & Posner, *supra* note 2, at 697–98 (defining overregulation and underregulation as deviations from economic optimality and criticizing feasibility analysis for promoting such deviations).

<sup>11</sup> *Id.* at 661.

<sup>12</sup> *Id.* at 675–81, 684–87 (discussing various anomalies and incomplete explanations in one OSHA and one EPA rulemaking).

<sup>13</sup> Driesen, *supra* note 1, at 19–22 (referring to the “vagaries of implementation” and suggesting that agencies have not consistently adhered to the feasibility principle).

been explicitly made before. Normatively, this Article includes a new argument showing that the lack of correlation between consumption and happiness supports the feasibility principle.

The analysis offered in this reply has broad implications for the regulatory reform debate: Maximizing the number of variables that an agency considers does not lower decision-making costs or clarify normative commitments. Instead, it increases the complexity of analysis and minimizes clarity. Any attempt to clarify normative commitments and reduce decision costs by limiting the number of variables considered will, by making some normative choice, leave other plausible normative choices out.

Part I of this Article develops a little vocabulary that will help clarify the debate and provides a brief summary of their position exposing some of the vagueness at the heart of their normative argument. Part II shows that significant normative arguments support feasibility analysis' focus on job loss, even if it does not focus on it perfectly. Part III shows that CBA suffers from the same practical defects that Masur and Posner find in feasibility analysis. Finally, Part IV puts this debate in institutional context and defends the feasibility principle as reasonable, in spite of the validity of some of their criticisms.

## I. ANALYSIS, CRITERION, AND NORMS

### A. *Feasibility Analysis and the Feasibility Principle*

Feasibility analysis focuses on the question of whether a regulated industry possesses the capacity to make a significant health or environmental improvement.<sup>14</sup> It evaluates technologies (defined broadly to include a variety of techniques, including pollution prevention) that might make the improvement possible.<sup>15</sup> It also compares the costs of these technologies to the facility owners' financial capabilities or the profits associated with particular facilities to evaluate whether establishing a particular pollution reduction requirement would produce shutdowns of facilities rather than desired technological changes.<sup>16</sup> This analysis would be necessary, however awkward and

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<sup>14</sup> See *Am. Textile Mfrs. Inst. v. Donovan*, 452 U.S. 490, 508–09 (1981) (defining feasibility in terms of what one is capable of doing).

<sup>15</sup> See, e.g., *AFL-CIO v. OSHA*, 965 F.2d 962, 981 (11th Cir. 1992) (evaluating an agency claim that existing engineering controls are available to meet OSHA standards for air contaminants); *FMC Corp. v. Train*, 539 F.2d 973, 982 (4th Cir. 1976) (reviewing an EPA conclusion that technology is available when EPA has test results from only a single plant in each category); *Nat'l Lime Ass'n v. EPA*, 627 F.2d 416, 422 (D.C. Cir. 1980) (providing detailed review of EPA's claim that existing technologies made limits on air pollutants from lime kilns achievable).

<sup>16</sup> See, e.g., *Alaska Dep't of Env'tl. Conservation v. EPA*, 540 U.S. 461, 496–501 (2004); *NRDC v. EPA*, 863 F.2d 1420, 1426 (9th Cir. 1988); *Am. Iron & Steel Inst. v. EPA*, 568 F.2d 284, 302–04 (3rd Cir. 1977) (showing that EPA commissioned a study of industry's capacity to finance required effluent controls, but remanding because its consideration of the study was inadequate).

conceptually difficult, for any regulatory decision that treated plant closings and associated job loss as potentially relevant.

In practice, government agencies often carry out feasibility analysis to inform decisions about what level of protection the best available technology can achieve. I have argued for understanding requirements to base standards on the best available technology (and similar expressions found in various environmental, health, and safety statutes) as a presumptive demand to maximize environmental protection up until the point where “widespread plant shutdowns” occur.<sup>17</sup> I refer to the normative principle that government agencies should maximize protection from serious environmental or health hazards up to the point where widespread plant closings occur as the “feasibility principle.”<sup>18</sup>

### B. *Cost-Benefit Analysis and Cost-Benefit Criteria*

CBA seeks to delineate the costs and benefits of a regulation reducing harms to health and the environment. One can think of costs as simply the dollar amount that industry must pay to implement technological improvements necessary to reduce environmental or occupational harms.<sup>19</sup> Or one can think of them as a very broad assessment of the consequences of imposing those costs.<sup>20</sup> If one means for CBA to include the latter, then it includes feasibility analysis. Let us refer to the first type of CBA as “narrow” CBA and the second as “broad” CBA.

Regulations’ benefits consist largely of diminished harm to health and the environment, such as the life saved from cancer in my example.<sup>21</sup> CBA requires the regulator to estimate the number of lives saved, the number and type of serious illnesses avoided, and the extent of ecological damage ameliorated, among other things, through quantitative risk assessment.<sup>22</sup> Scholars agree that regulators cannot quantify many significant effects, and Masur

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<sup>17</sup> See Driesen, *supra* note 1, at 9.

<sup>18</sup> *Id.* The overwhelming majority of environmental regulations address facilities producing things, so this principle applies directly to most environmental regulation. Moreover, the statutory provisions containing feasibility-based mandates typically address industrial facilities. See, e.g., 42 U.S.C. §§ 7411, 7412(d) (2010). It is possible, however, to apply an analogue to the feasibility principle to regulations addressing other kinds of activities, by asking the question of how strict regulation can become without causing widespread abandonment of the regulated activity. But addressing the potential value of this analogue lies beyond the scope of this Article.

<sup>19</sup> See Frank Ackerman & Lisa Heinzerling, *Pricing the Priceless: Cost-Benefit Analysis of Environmental Protection*, 150 U. PA. L. REV. 1553, 1557 (2002) (describing cost estimation in these terms and characterizing it as “straightforward” in theory).

<sup>20</sup> See, e.g., Robert W. Hahn & Cass R. Sunstein, *A New Executive Order for Improving Federal Regulation? Deeper and Wider Cost-Benefit Analysis*, 150 U. PA. L. REV. 1489, 1498 (2002) (defining CBA as a “full” qualitative and quantitative “accounting of the consequences of an action”).

<sup>21</sup> See Driesen, *supra* note 1, at 51–52.

<sup>22</sup> See *id.*; Thomas O. McGarity, *A Cost-Benefit State*, 50 ADMIN. L. REV. 7, 12 (1998) (describing CBA as beginning with quantitative risk assessment).

and Posner's case studies exemplify that.<sup>23</sup> Furthermore, where quantification proves possible, it requires a set of fairly arbitrary assumptions to extrapolate from limited data.<sup>24</sup> The analyst must then convert the quantified benefits into dollar amounts in order to facilitate comparison of costs and benefits and figure out what to do about the nonquantified benefits.<sup>25</sup>

Monetization, the conversion of risk assessment numbers to dollar values, requires controversial assumptions, as Masur and Posner seem to acknowledge.<sup>26</sup> Regulatory agencies employing CBA would likely find a single death from cancer of less value than a \$10 million compliance expenditure, because they derive the value of life from controversial estimates of "risk premiums" reflecting differentials between the wages workers are willing to accept in high risk occupations and the wages they are willing to accept in certain low risk occupations.<sup>27</sup> Risk premium studies produce a wide range of values, but \$10 million is above the range regulatory agencies typically employ.<sup>28</sup>

The decision about what action to take after completing a CBA depends upon a criterion for regulation.<sup>29</sup> The economically correct criterion is that costs should match benefits at the margin.<sup>30</sup> Call this the "efficiency crite-

<sup>23</sup> See McGarity, *supra* note 22, at 13 (describing the lack of testing vehicles for ecological or health risks); Masur & Posner, *supra* note 2, at 671, 674, 682 (discussing the agencies' inability to quantify non-cancer health risks in the rules they used for their case studies); Ellen K. Silbergeld, *The Risks of Comparing Risks*, 3 N.Y.U. ENVTL. L.J. 405, 413-14 (1995).

<sup>24</sup> See, e.g., Oliver A. Houck, *Of BATs, Birds, and B-A-T: The Convergent Evolution of Environmental Law*, 63 MISS. L.J. 403, 415 (1994) (describing the process of estimating risks to humans based on animal studies as involving "more guesswork than a television game show"); Donald T. Hornstein, *Reclaiming Environmental Law: A Normative Critique of Comparative Risk Analysis*, 92 COLUM. L. REV. 562, 572 (1992) (noting that the National Academy of Sciences has identified fifty "inference options" where a policy decision must be made to create a risk assessment from limited data); Wendy E. Wagner, *The Science Charade in Toxic Risk Regulation*, 95 COLUM. L. REV. 1613, 1625-26 (1995) (discussing the problem of extrapolating estimates of human health effects from high-dose animal experiments).

<sup>25</sup> Eric A. Posner, *Controlling Agencies with Cost-Benefit Analysis*, 68 U. CHI. L. REV. 1137, 1144 (2001) (explaining that CBA reduces the advantages and disadvantages of a decision to a "numerical metric").

<sup>26</sup> Masur & Posner, *supra* note 2, at 701 (noting that CBA's critics find CBA arbitrary and describing the question of how to value avoided deaths as a "vexed question").

<sup>27</sup> See FRANK ACKERMAN & LISA HEINZERLING, PRICELESS: ON KNOWING THE PRICE OF EVERYTHING AND THE VALUE OF NOTHING 75-76, 83 (2004) (describing the risk premium methodology and presenting the values agencies obtain from them).

<sup>28</sup> See *id.* at 80-84 (describing some of the disparate values obtained in studies of risk premiums and suggesting that the numbers chosen appear arbitrary and certainly vary among agencies).

<sup>29</sup> See David M. Driesen, *Is Cost-Benefit Analysis Neutral*, 77 U. COLO. L. REV. 335, 387 (2006) (pointing out that a cost-benefit criterion should influence the stringency of standards in theoretically predictable ways).

<sup>30</sup> See WILLIAM J. BAUMOL & WALLACE E. OATES, THE THEORY OF ENVIRONMENTAL POLICY 22 (2d ed., Cambridge University Press 1998) (describing charging a price equal to the social costs as correcting a misallocation of resources); HANDBOOK OF ENVIRONMENTAL ECONOMICS: ENVIRONMENTAL DEGRADATION AND INSTITUTIONAL RESPONSES 253-54 (Karl-Goran Maler & Jeffrey R. Vincent eds., 2003) (defining a socially optimum regulation or tax as one that equates marginal abatement cost to marginal damage); HORST SIEBERT, ECONOMICS OF THE ENVIRONMENT: THEORY AND POLICY 65 (2d ed. 1987) (defining maximizing net benefits as marginal costs equaling marginal benefits).

tion.” Employing this criterion, the \$10 million expenditure clearly exceeds the benefit of saving one life under standard assumptions. Cass Sunstein, the current head of the Office of Information of Regulatory Affairs in the Office of Management and Budget (OMB), and many others instead favor a more flexible rule that costs should not grossly exceed benefits.<sup>31</sup> Call this the “proportionality criterion.” Under this criterion, a regulator must make an arbitrary decision about whether the \$10 million regulation grossly exceeds the benefit of saving one life or just modestly exceeds that benefit. A third criterion simply requires that benefits must exceed costs.<sup>32</sup> Call this the “no excess cost criterion.”<sup>33</sup> My hypothetical violates the no excess cost criterion, but a large number of laxer regulations may satisfy it.

### C. *Masur and Posner’s Analysis*

In *Feasibility*, I developed a concentration principle: widely distributed costs almost always have minor effects, while concentrated costs (or harms, if you’d prefer) can have devastating impacts.<sup>34</sup> Environmental insults often visit serious harms, such as cancer, neurological disorders, or exacerbated asthma, on some unfortunate individuals while leaving others relatively untouched.<sup>35</sup> By contrast, firms usually disperse a regulation’s cost widely among consumers, thereby producing a *de minimis* effect.<sup>36</sup> In cases where regulations might produce widespread plant closures, however, the costs have importance comparable to serious harms to public health, because plant closures concentrate costs’ effects on a discrete group of workers.<sup>37</sup> I argued that this concentration principle justifies maximizing reductions up to the point where plant closures become widespread.<sup>38</sup>

Masur and Posner, as I indicated, argue that “feasibility analysis” lacks any normative justification. Analysis does not require normative justification, as an analysis is not a decision or principle. This argument should be understood as an attack on the feasibility principle. They argue that the feasibility principle both permits regulation when costs exceed benefits and forbids regulation in cases where benefits exceed costs. Thus, they implicitly argue that some sort of cost-benefit test must govern regulation and that anything else is normatively bankrupt.

Masur and Posner’s defense of this assertion has significant gaps because of their failure to distinguish between analysis and criterion. They also are not clear about the principle they are employing in imagining that an

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<sup>31</sup> See CASS R. SUNSTEIN, *RISK AND REASON: SAFETY, LAW, AND THE ENVIRONMENT* 119–120 (2002).

<sup>32</sup> See Exec. Order No. 12,291, 3 C.F.R. 127, 1288 (1980–1982) (requiring that, to the extent permitted by law, the costs of regulation not exceed its benefits).

<sup>33</sup> See Driesen, *supra* note 29, at 387–90 (discussing this “no excess cost requirement”).

<sup>34</sup> See Driesen, *supra* note 1, at 35.

<sup>35</sup> *Id.* at 38.

<sup>36</sup> See *id.* at 36–38.

<sup>37</sup> See *id.* at 37.

<sup>38</sup> *Id.* at 41.

efficiency criterion must be normatively superior and analytically clearer than the feasibility principle. At the outset, they explicitly embrace the no excess cost criterion.<sup>39</sup> Later, however, they criticize the Occupational Safety and Health Administration (“OSHA”) for not selecting the option that might assure the greatest “net benefits” under one of several possible sets of assumptions.<sup>40</sup> But an option with the greatest net benefits is just one of many options a regulator could choose under a no excess cost criterion. Their endorsement of maximization of net benefits implies a different normative criterion than the one they explicitly endorse, namely the efficiency criterion. In fairness, *Against Feasibility Analysis* relies on a concept of “overall well-being,” which Eric Posner developed in his work with Matthew Adler, as a framework for resolving CBA’s normative difficulties.<sup>41</sup> *Against Feasibility Analysis*, however, does not show how such an abstract moral philosophical concept would resolve the issues posed by a hypothetical \$10 million dollar regulation of a carcinogen from television manufacturing or any other case. The failure to consistently specify a cost-benefit criterion allows them to attack a fairly clear feasibility principle without assuming the difficult burden of defending a reasonably clear alternative criterion, such as the efficiency criterion.

They also suggest that the feasibility principle’s focus on job loss has no normative justification. They point out that job loss from an economist’s perspective is inconsequential, since it does not necessarily impact consumer welfare.<sup>42</sup> They also attack feasibility analysis for neglecting other regulatory costs, thereby leaving out consideration of regulation’s impact on other aspects of welfare, such as entertainment, food consumption, transportation, and the costs of raising children.<sup>43</sup>

In spite of their doubts about the relevance of job loss, Masur and Posner leave open the possibility that CBA might take job loss into account (i.e. that they endorse broad CBA).<sup>44</sup> If it does, and it certainly seems relevant to overall well-being, then it would have to include a feasibility analysis with all of its difficulties.

*Against Feasibility Analysis* contains a vast array of technical objections to feasibility analysis. Masur and Posner point out that government agencies must define the industry regulated for purposes of creating any particular regulation, and that they can manipulate the outcome of a feasibility analysis by manipulating the industry definition.<sup>45</sup> They also criticize feasibility analysis for its focus on available technology, rather than on technol-

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<sup>39</sup> See Masur & Posner, *supra* note 2, at 657 (claiming that “a regulation satisfies CBA if it produces benefits . . . greater than the cost of compliance”).

<sup>40</sup> *Id.* at 679–680.

<sup>41</sup> See MATTHEW D. ADLER & ERIC A. POSNER, *NEW FOUNDATIONS OF COST-BENEFIT ANALYSIS* 39, 52–56 (2006).

<sup>42</sup> Masur & Posner, *supra* note 2, at 704–05.

<sup>43</sup> *Id.* at 704.

<sup>44</sup> *Id.* at 705 (arguing that “if it is appropriate to take into account the hardship costs to workers who lose their jobs. . .then CBA can easily accommodate these costs”).

<sup>45</sup> *Id.* at 688–91.



ogy forcing.<sup>46</sup> This focus, they say, leaves regulators with a choice between banning pollutants and using “available” technologies, which may have significant limitations.<sup>47</sup> Finally, they articulate a number of concerns about how to determine whether regulations are economically feasible. The most fundamental objection to the feasibility principle made in this context involves a claim that plant shutdowns may not signify job loss, as workers might be transferred.<sup>48</sup> This argument is conceptually important, because it attempts to sever the link between the feasibility principle’s focus on plant shutdowns and its normative justification rooted in concern about job loss. They also point out that job losses can occur outside the plant shutdown context.<sup>49</sup> They therefore urge that agencies, if job loss is a concern, should measure job losses “directly” rather than through an analysis of likely plant closures.<sup>50</sup> They also argue that problems of “path dependence” and “time inconsistency” arise under the feasibility principle, since the economic feasibility of a proposed regulatory requirement can depend on how much regulatory cost regulated firms already bear under prior regulation.<sup>51</sup>

Masur and Posner infer from their technical analysis that CBA provides clearer guidance than the feasibility principle.<sup>52</sup> They also suggest that CBA generates lower decision costs than feasibility analysis by asserting that “CBA minimizes decision costs through the magic of quantification.”<sup>53</sup> Thus, their argument recognizes that finding technical flaws in feasibility analysis does not suffice. Rather, they must show that these flaws create more significant problems than those arising under available analytical alternatives.

## II. A NORMATIVE CASE FOR THE FEASIBILITY PRINCIPLE

Although Masur and Posner identify me as the “leading defender of feasibility analysis,”<sup>54</sup> they oddly overlook many of the arguments I made for such analysis in a review of Eric Posner’s recent book with Matthew Adler, *New Foundations of Cost-Benefit Analysis*.<sup>55</sup> Loss of work constitutes a crisis for many people for reasons well recognized by moral philosophers, economists, and psychologists. Martha Nussbaum and many others have ar-

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<sup>46</sup> *Id.* at 691–93.

<sup>47</sup> *Id.* at 692 (claiming that agencies employing a feasibility principle “must choose between mandating safety precautions that already exist and banning the substance altogether”).

<sup>48</sup> *Id.* at 695 (stating that plant closures “could have no effect on job losses if firms just reassign workers” to open plants).

<sup>49</sup> *Id.* (pointing out that regulations could “cause firms to fire workers while keeping plants open”).

<sup>50</sup> *Id.* at 696.

<sup>51</sup> *Id.* at 696–97.

<sup>52</sup> *Id.* at 705–707 (arguing that CBA’s “ambiguities can be resolved” by keeping its proper purpose in mind, but that feasibility is “indefinite” and “arbitrary”).

<sup>53</sup> *Id.* at 700.

<sup>54</sup> *Id.*

<sup>55</sup> ADLER & POSNER, *supra* note 41. See Amy Sinden et. al., *Cost-Benefit Analysis: New Foundations on Shifting Sand*, 3 REG. & GOVERNANCE 48 (2009).

gued, with strong empirical support, that affiliation with others, avoidance of emotional loss, and a feeling of control over one's environment constitute critical aspects of well-being.<sup>56</sup> Job loss, as I have explained, implicates all of these dimensions.<sup>57</sup> Most people develop a set of stable relationships with their colleagues and derive some of their sense of identity from their place of employment. If they are fired, they suddenly lose a set of vital affiliations. They experience a profound emotional loss. Losing a job involuntarily is a shock.<sup>58</sup> Moreover, in a reasonably stable work situation people feel that they have some control over their environment. Most employees believe that working hard can allow them to hold onto their jobs, and many may believe that their efforts make advancement likely. As one worker fired during the recent financial crisis put it: "We grow up with the impression there's a correlation between effort and the fruits of your labor. To be honest with you, I have very little confidence I'm going to be able to turn this around. It just feels completely out of my control."<sup>59</sup> Although workers do not have complete control over their employment, they often feel that they have some influence over the environment that surrounds them for forty hours or more a week. Being fired destroys the feeling that one has some control over one's environment and makes workers feel that they are at the mercy of larger forces that they are powerless to affect. Thus, job loss involves an injury that dollar estimates of costs do not measure.

Ironically, CBA proponents have made even more of the job loss's importance. They link job loss to suicide, and therefore argue that costs have health impacts comparable in importance to the benefits counted in CBA.<sup>60</sup> Although CBA cannot predict the suicide rate among those losing jobs or measure the intensity of other emotional or health losses, feasibility analysis implicitly gives weight to these consequences.

Masur and Posner rather breezily suggest that job loss is only important if it proves permanent.<sup>61</sup> But all of these consequences can occur whether the job loss is permanent or not. Indeed, studies show that job loss produces a decrease in the terminated's feeling of well-being even after employment resumes.<sup>62</sup> Moreover, a temporary loss of employment for a year or two can

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<sup>56</sup> See ADLER & POSNER, *supra* note 41, at 74–75.

<sup>57</sup> See Sinden et. al., *supra* note 55, at 65.

<sup>58</sup> Michael Luo & Megan Thee-Brenan, *Poll Reveals Depth and Trauma of Joblessness in U.S.*, N.Y. TIMES, Dec. 15, 2009, at A1 (describing job loss as causing "financial and emotional havoc").

<sup>59</sup> Michael Luo, *For Many, Uncertainty, Fear and Shame Often Follow Pink Slips*, N.Y. TIMES, Dec. 14, 2009, at A29.

<sup>60</sup> Scott A. Moss & Peter H. Huang, *How the New Economics Can Improve Employment Discrimination Law, and How Economics Can Survive the Demise of the "Rational Actor"*, 51 WM. & MARY L. REV. 183, 215 & n.125 (2009) (summarizing results of studies of unemployment's effect on mental and physical health).

<sup>61</sup> See Masur & Posner, *supra* note 2, at 704 (stating the cost of job loss to workers "if there is one, is transitional only").

<sup>62</sup> Moss & Huang, *supra* note 60, at 214–16 (discussing findings that unemployment causes permanent emotional "scarring", creating insecurity that "decreases happiness").

deliver quite a blow to a family trying to build savings to pay for college and support children. Displaced workers experience this as a financial loss, not merely as a lack of opportunity to purchase more things.<sup>63</sup> The economics literature recognizes that people experience losses of what they already have more keenly than the disappearance of an opportunity for gain.<sup>64</sup>

Of course, blue collar industries have shed many permanent jobs in recent years.<sup>65</sup> Happily, environmental regulation on the whole has modestly increased employment, perhaps because of the feasibility principle's influence.<sup>66</sup> But if government regulators start producing a lot of infeasible regulation, we may expect more job loss.

Because job loss constitutes such a heavy blow, it may make sense to allow relatively lax regulation of an industry contributing to serious damage to the environment or public health to avoid widespread plant closings from strict regulation. While this outcome appears troubling, so does the alternative of widespread plant shutdowns. Many health and environmental problems that regulation addresses are cumulative, the result of lots of industries' activities. In these cases, when regulation of one contributing industry becomes lax because of strict regulation's infeasibility, regulators can often make up for it with strict regulation of industries that can afford the cost.

By contrast, it makes no sense to give even large costs any weight if regulated parties will disperse those costs widely so as not to seriously harm any individual (as in the television price increase example). Proposed environmental regulations not producing widespread plant closures generally lead to agency predictions of modest price increases. Prices go up and down all of the time in our economy and for the most part people adjust, often without noticing the impact. Costs having no discernable impact on individuals would not significantly affect "overall well-being," the moral philosophical underpinning of Masur and Posner's critique. Moreover, predicted price rises often fail to materialize, because producers innovate in ways that bring down the prices that might otherwise have risen because of regulation.<sup>67</sup> Many opportunities for avoiding price increases through innovation can arise, because not only innovation in environmental technology, but also

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<sup>63</sup> *Id.* at 205 (explaining that because of the endowment effect, a terminated employee "suffers a greater loss than somebody . . . not hired") (emphasis omitted).

<sup>64</sup> *See id.* at 206–14 (reviewing evidence of the endowment effect).

<sup>65</sup> ACKERMAN & HEINZERLING, *supra* note 27, at 85 (stating that overall industrial employment has fallen since the 1970s).

<sup>66</sup> Richard D. Morgenstern et al., *Jobs Versus the Environment: An Industry-Level Perspective*, 43 J. ENVTL. ECON. MGMT. 412 (2002). *But see* Masur & Posner, *supra* note 2, at 704 (claiming, incorrectly, that economists "traditionally ignored the effect of regulation on employment").

<sup>67</sup> *See* Nicholas A. Ashford, *Compliance Costs: The Neglected Issue*, MAGAZINE OF THE EUROPEAN AGENCY FOR SAFETY AND HEALTH AT WORK, Dec. 1999, at 30–33 (arguing that innovation in response to stringent OSHA regulation led to reduced costs); David M. Driesen, *Does Emissions Trading Encourage Innovation?*, 33 *Envtl. L. Rep. (Envtl. Law Inst.)* 10,094, 10,103–04 (Jan. 2003) (providing detailed examples of innovative responses to stringent regulation).

innovations in process, materials use or extraction, or labor organization that reduces cost can make up for a price increase stemming from regulation. Even if some consequences exist, when costs are widely distributed, they simply deserve no weight compared to the concentrated harms that individual victims of pollution experience, such as hospitalization for asthma or death from cancer.

I pointed out in *Feasibility* that most regulations distribute costs quite widely.<sup>68</sup> There is a big difference between a regulation raising television prices by 10 dollars per set and a regulation of equivalent total costs that shuts down facilities employing thousands of people. Treating the two the same, as CBA usually does, is arbitrary.

I do not deny Masur and Posner's suggestion that entertainment, food consumption, transportation, or the costs of raising children matter.<sup>69</sup> My argument is that the likelihood of any particular regulation having a significant impact on these things is low because firms distribute costs so widely, often compete with less regulated firms, and employ cost-saving innovation from time to time. Thus, agencies can safely choose to ignore them when the alternative involves the extraordinarily burdensome and controversial procedure of quantifying costs and benefits.<sup>70</sup> Masur and Posner duck, rather than address, my argument that widely-distributed costs have de minimis impacts on consumers when they criticize feasibility analysis's neglect of consumer welfare. Retrospective analysis of entire regulatory programs (not individual regulations) to evaluate actual (rather than predicted) cumulative costs, however, may usefully inform major legislative decisions.

Furthermore, I am not aware of a single CBA that takes any of the impacts of rules on any of these welfare effects into account. Instead, a CBA typically focuses on the dollar costs of implementing technological changes and does not distinguish between regulation influencing food prices and regulation raising the cost of an entertainment option. Feasibility analysis offers the advantage of reflecting elected representatives' qualitative judgment about what is important.

The television example highlights another problem with Masur and Posner's assumption that CBA advances overall well-being. People spend money according to their preferences, but, as Posner and Matthew Adler have pointed out repeatedly, their preferences can be either welfare decreasing or welfare enhancing.<sup>71</sup> Loss of an opportunity to buy a television provides an example of a debatable case. Perhaps losing television provides a

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<sup>68</sup> Driesen, *supra* note 1, at 36 (explaining why costs tend to be distributed widely and citing examples).

<sup>69</sup> Masur & Posner, *supra* note 2, at 704 (criticizing the feasibility test for ignoring these sorts of things).

<sup>70</sup> Driesen, *supra* note 1, at 36 (discussing cost spreading and avoidance and citing illustrative examples, which are typical of many cases studied in preparing *Feasibility*).

<sup>71</sup> See ADLER & POSNER, *supra* note 41, at 33–34 (describing the problem of “nonideal” preferences).

benefit, freeing people addicted to television for pursuits creating more long-term satisfaction. Perhaps not. But money saved from reducing regulatory costs might be spent on something as important as life-saving surgery or as detrimental as addictive recreational drugs. Hence, there are still more grounds for being dubious about CBA's connection to overall well-being. By contrast, we know that health impairment and job loss usually constitute serious setbacks for people, substantially impairing welfare.

A broader point about value may further account for some of the differences between my normative perspective and that of Masur and Posner. Masur and Posner have, perhaps reflexively, adopted the economist's habit of focusing exclusively on consumer welfare.<sup>72</sup> This focus on consumer welfare proves extremely useful for economic modeling employed to describe a well functioning market. But if one is interested, as Masur and Posner are, in overall well-being, a focus on consumption proves odd. We have little evidence that increased consumption leads to happiness. Therefore, people's preferences in the purchase of consumer goods (as opposed to vital things like employment and health) may weakly correlate with their well-being.<sup>73</sup> Economics literature has advanced this critique at least since John Kenneth Galbraith's work in the 1950s.<sup>74</sup> The psychological literature shows that well-being depends upon one's health and affiliations with family, friends, and colleagues at work, but it tends to refute the idea that more consumption, beyond a certain minimum, generally increases welfare.<sup>75</sup> In other words, people derive their most important satisfactions (and dissatisfactions) not from their consumption, but from their work and families.

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<sup>72</sup> See Masur & Posner, *supra* note 2, at 704–05 (sympathetically explaining that economists “traditionally ignored the effect of regulation on employment,” because it is transitory and considered “small relative to the regulatory benefits and costs to consumers”).

<sup>73</sup> See John Bronsteen et. al., *Welfare as Happiness*, 98 GEO. L.J. 1538, 1587 (2010) (characterizing “making people wealthier” or satisfying their preferences as “weak proxies for their experienced well-being”); MARK SAGOFF, PRICE, PRINCIPLE, AND THE ENVIRONMENT 102 (2004) (pointing out that “virtually all . . . empirical evidence” shows “no correlation” between preference satisfaction and well-being “after basic needs are met”).

<sup>74</sup> See, e.g., Ed Diener & Robert Biswas-Diener, *Will Money Increase Subjective Well-Being?: A Literature Review and Guide to Needed Research*, 57 SOC. INDICATORS RES. 119 (2002); Richard A. Easterlin, *Will Raising the Incomes of All Increase the Happiness of All*, 27 J. ECON. BEHAV. ORG. 35 (1995); ROBERT H. FRANK, LUXURY FEVER: WHY MONEY FAILS TO SATISFY IN AN ERA OF SUCCESS 6 (1999) (arguing that after a certain threshold has been reached increases in material wealth do not correlate with increases in subjective well-being); JOHN KENNETH GALBRAITH, *THE AFFLUENT SOCIETY* 131, 145 (4th ed., 1984) (questioning the link between increased production and consumption and increased welfare).

<sup>75</sup> See, e.g., Stephanie M. Stern, *Residential Protectionism and the Legal Mythology of Home*, 107 MICH. L. REV. 1093, 1119–21 (2009) (finding that physical health and social relationships are much stronger predictors of “life satisfaction” than home ownership); Ethan J. Leib, *Friendship and the Law*, 54 UCLA L. REV. 631, 655 (2007) (explaining that friendship generates self-esteem, which is critical to happiness and avoidance of depression); Norval D. Glenn & Charles N. Weaver, *The Contribution of Marital Happiness to Global Happiness*, 43 J. MARRIAGE & FAM. 161, 163–64 (1981); Leif van Boven & Thomas Gilovich, *To Do or to Have? That is the Question*, 85 J. PERSONALITY & SOC. PSYCHOL. 1193 (2003) (finding that experiences rather than possessions bring happiness).

That said, the emphasis on plant shutdowns takes consumer welfare seriously where it most likely merits attention. Although regulation almost always produces (or is modeled to produce) minor price rises having little effect even on preference satisfaction, plant shutdowns may signal a more serious disruption of markets. If regulation bankrupts an entire industry, then a good may disappear altogether. And if regulation bankrupts a significant segment of an industry, it may lessen competition and therefore stimulate price increases greater and longer-lasting than those typically associated with regulation, even though economists probably cannot reliably predict the extent of a changed market structure's effect on prices.<sup>76</sup>

In a pure free market, treating price increases, even small ones, as a minor matter would occasionally prove erroneous.<sup>77</sup> Suppose, for example, that a small price increase of a life-saving medicine made it impossible for a poor person to pay for it. If we had a complete laissez-faire market, this kind of occurrence could kill somebody. Fortunately, however, for essential goods we have safety nets: food stamps, health insurance, and state programs to help the poor with heating bills. If safety nets become full of holes, we should mend them. Indeed, all kinds of things have the capacity to make essential goods or services become too expensive: taxes, patents and other forms of monopoly power, raw material shortages, unanticipated demand, and runaway executive compensation, etc.<sup>78</sup> Many of these factors dwarf regulation in their significance. Once one concedes, as the information at hand should lead one to do, that the typical impact of regulation is minor price increases, the dramatic example of a marginal case for an essential good probably should not drive policy at all, and certainly not for most cases.

The problem with Masur and Posner's argument is that they simply take no position on whether the distribution of cost, and job losses in particular, should matter, at least not in this piece. Saying distribution does not matter is arbitrary given that distribution can concentrate costs' effects to deprive people of something as central to well-being as gainful employment.

So much for the argument that feasibility analysis lacks some normative support.

Amazingly, *Against Feasibility Analysis* tries to disassociate plant closure from job loss. Masur and Posner point out that plant closure may not track job loss, because an employer might transfer workers when a plant shuts down. They argue that rather than tracking shutdowns, agencies

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<sup>76</sup> See Martin K. Perry & Robert H. Porter, *Oligopoly and the Incentive for Horizontal Merger*, 75 AM. ECON. REV. 219, 219 (1985) (explaining that models such as the symmetric Cournot Model predict higher prices as the number of firms in the industry is reduced).

<sup>77</sup> See Matthew Adler & Eric A. Posner, *Happiness Research and Cost-Benefit Analysis*, 37 J. LEGAL STUD. 253, 271–72 (2008) (pointing out that money can, in principle, be spent on things that have objective value).

<sup>78</sup> Cf. McGarity, *supra* note 22, at 49 (pointing out that taking the “richer is safer” idea seriously “would give new meaning to the complaint: ‘These taxes are killing me’”).

should count job loss “directly.” Their transfer argument applies to any job loss, not just to those associated with plant closure; a firm can transfer a fired worker at a plant that is still running. And it is a very weak argument. Plant closures do cause job losses, accounting for nearly half of all displaced long-term employees in recent years.<sup>79</sup> Masur and Posner do not show that job transfers occur often; transfers cannot help workers who cannot or will not move, and they would prove exceedingly difficult to predict. Any consequence of regulation might not occur because of some *deus ex machina*, but if we are to engage in any analysis of welfare effects at all we must distinguish from likely and unlikely palliatives. The argument for measuring jobs directly proves extremely misleading. Any agency measuring job loss “directly” would include an analysis of whether the costs imposed would lead to plant closures, as feasibility analysis demands. Agencies do this all of the time with bankruptcy models and other tools, as Masur and Posner acknowledge.<sup>80</sup> Messy as it may be, this approach provides the most direct way of analyzing the question of whether plant closures leading to unemployment might occur.

Masur and Posner stand on more solid ground when they point out that some job loss can occur outside the context of plant closures.<sup>81</sup> Agencies’ tools for predicting these job losses, however, are no more direct and more error prone than their tools for predicting plant closures. These tools involve figuring out whether cost increases would lead to consumers simply paying higher prices or whether price rises would instead reduce consumption. If raising prices would reduce consumption, models sometimes predict that regulated firms would fire workers, but they might instead reduce wages, reduce profits, lower benefits, or lower dividends to shareholders. Predicting job loss through plant closures is not completely reliable, either, but it is a much safer bet that if costs bankrupt an owner or make facilities unprofitable, plants will close.

A combination of practical and theoretical considerations can justify a focus on shutdowns. First, it might make sense to focus on the most predictable job losses, those likely to occur when plants shut down. Second, plant shutdowns are much more likely to cause widespread job losses than measures that do not shutdown plants. Third, widespread plant shutdowns are much more likely to produce permanent unemployment in a significant num-

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<sup>79</sup> Press Release, Bureau of Labor Statistics, U.S. Dep’t of Labor, Worker Displacement 2005–2007 (Aug. 20, 2008), *available at* [http://www.bls.gov/news.release/archives/disp\\_08202008.pdf](http://www.bls.gov/news.release/archives/disp_08202008.pdf) (showing that plant closure produced 45.3% of all job loss); Press Release, Bureau of Labor Statistics, U.S. Dep’t of Labor, Worker Displacement 2003–2005 (Aug. 17, 2006), *available at* [http://www.bls.gov/news.release/archives/disp\\_08172006.pdf](http://www.bls.gov/news.release/archives/disp_08172006.pdf) (showing that plant closure produced forty-nine percent of all job loss); Press Release, Bureau of Labor Statistics, U.S. Dep’t of Labor, Worker Displacement 2001–2003 (July 30, 2004), *available at* [http://www.bls.gov/news.release/archives/disp\\_07302004.pdf](http://www.bls.gov/news.release/archives/disp_07302004.pdf) (showing that plant closure produced 43.1% of all job loss).

<sup>80</sup> Masur & Posner, *supra* note 2, at 685 (describing agency use of a bankruptcy model).

<sup>81</sup> *Id.* at 703 (noting that job losses can occur without plant closings).

ber of cases, since subsequently increasing production at an open facility that has terminated some employees is much easier than starting a new plant once one has shut down the old one. Fourth, industry predicts job losses all the time, yet they rarely materialize.<sup>82</sup> Their lobbying on this politically sensitive point produces great potential for agency error, especially as the industry controls much of the relevant information about cost, market structure, substitute products, and so on. Confining agencies to feasibility analysis, at least for regulations governed by the feasibility principle, may reduce error costs.

In any event, Masur and Posner's observation that feasibility analysis is underinclusive with respect to job loss does not justify rejecting feasibility analysis; it only justifies supplementing it with efforts to predict job losses outside the shutdown context. In practice, agencies usually estimate both types of job loss and take them into account in promulgating technology-based regulations.

Nor can the underinclusiveness argument help justify their preferred alternative, CBA.<sup>83</sup> CBA is likewise underinclusive, and in a more significant way. It has no way of counting job loss' impact on welfare, because factors such as affiliation and a feeling of control over one's environment defy quantification. Also, on the benefits side, CBA tends to overlook the many significant health and environmental benefits that scientists cannot quantify. In short, the underinclusion argument does not provide an argument for choosing CBA over feasibility analysis, but an argument, and not an airtight one, for a modification of the feasibility principle to make it conform better to agency practice.

I hope this argument has already suggested a broader point about regulatory reform: no magic numbers can offer an escape from difficult normative judgments.<sup>84</sup>

### III. TECHNICAL AND PRACTICAL COMPARISON

This section will look at some of the technical and practical flaws Masur and Posner see in feasibility analysis. It will show that CBA suffers from the same problems. Hence, the differences in our normative judgments appear more closely related to how seriously we take distributional concerns than to technique.

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<sup>82</sup> Morgenstern et al., *supra* note 66, at 412 (describing industry claims of regulations reducing employment as a "mantra" and arguing that the data generally do not support these claims).

<sup>83</sup> Throughout their article, they compare feasibility to CBA and find feasibility wanting. At one point, they disclaim a goal of defending CBA, only to go on in same paragraph to defend CBA as consistent with "a range of reasonable conceptions of well-being." Masur & Posner, *supra* note 2, at 709.

<sup>84</sup> See generally DOUGLAS KYSAR, REGULATING FROM NOWHERE: ENVIRONMENTAL LAW AND THE SEARCH FOR OBJECTIVITY (2010) (faulting CBA for pushing normative engagement to the side).



### A. Clarity of Guidance

Masur and Posner, to their credit, recognize that CBA suffers from some vagueness and ambiguity.<sup>85</sup> But they assume that feasibility analysis provides “no theoretical way” to determine the correct balance among normative considerations, and that CBA does.<sup>86</sup> No form of analysis provides a “theoretical way” to determine balances. Normative criteria sometimes associated with various forms of analysis, however, may do that. The proper target of their argument, therefore, is not feasibility analysis, but the feasibility principle. Their implicit claim that the feasibility principle provides less guidance than CBA appears baffling given the vagueness of their normative commitments.

The feasibility principle demands maximization of environmental and health benefits up to the point where plant closings begin to occur. Masur and Posner may not like this criterion, but it is quite clear in principle about the level of stringency required in the many cases where contemplated technologies do not lead to any shut downs of facilities at all.<sup>87</sup> They make this clarity appear to vanish by selecting for study cases where agencies predict some plant closures.<sup>88</sup> This selection works well as a method for highlighting the feasibility principle’s weaknesses in hard cases, thereby facilitating a normative debate, but it slights the principle’s capacity to resolve many cases with relative ease.

I admitted in *Feasibility* that the admonishment to avoid “widespread” plant shutdowns required some interpretation when agencies predict some plant closures.<sup>89</sup> But they acknowledge that all verbal formulas are a little vague, which would include those associated with CBA.<sup>90</sup>

To make the strongest possible case for CBA’s relative clarity, assume that Masur and Posner adopt the efficiency criterion, that costs should equal benefits at the margin. This criterion, although not clear in practice (as we shall see), is very clear in theory. It achieves this clarity by leaving out all consideration of distributional equity — in other words, through very significant neglect of important aspects of overall well-being, Masur and Posner’s normative touchstone. To achieve a comparable degree of precision, one would have to translate the “widespread” plant shutdowns into a similar mathematical expression, for example, permitting no more than ten percent of plants to close. Although Masur and Posner condemn this rule as arbitrary, it does not seem any more arbitrary than decisions establishing a speed

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<sup>85</sup> Masur & Posner, *supra* note 2, at 705 (describing CBA as using “vague terms” and requiring “relatively arbitrary” choices).

<sup>86</sup> *Id.* at 705–06.

<sup>87</sup> See Driesen, *supra* note 1, at 43 (pointing out that often agencies predict no plant closures).

<sup>88</sup> See Masur & Posner, *supra* note 2, at 670–87 (providing case studies of OSHA’s regulation of hexavalent chromium and EPA’s regulation of pollution from pulp and paper plants).

<sup>89</sup> See Driesen, *supra* note 1, at 42.

<sup>90</sup> See Masur & Posner, *supra* note 2 at 705.

limit at fifty-five miles per hour instead of sixty-five miles per hour. To establish clear rules through legislative decision-making probably requires some fairly arbitrary judgments. This relates to a larger point suggested at the outset, that any clear rule will fit some cases poorly. This problem is illustrated by the poor fit between the rule that costs should not exceed benefits, on the one hand, and my first television example, on the other. But if clear guidance is a paramount consideration, one can obtain it by refining, rather than abandoning, the feasibility principle.

Masur and Posner criticize the feasibility principle for failing to tell agencies how far to go in regulating. But their own examples demonstrate that CBA provides even less guidance on this question, even if one employs an "efficiency criterion." For example, an exposure limit of one  $\mu\text{g}/\text{m}^3$  for hexavalent chromium produces total costs of \$552–570 million and a benefits range between \$53 million and \$1.382 billion.<sup>91</sup> It is impossible to determine whether this regulation equalizes costs and benefits. Nor for that matter, can one tell whether costs exceed benefits or not. The same is true for five of the six regulatory options OSHA considered, because all five produced costs within the plausible range of benefits numbers:

OSHA HEXAVALENT CHROMIUM CBA IN MILLIONS OF DOLLARS<sup>92</sup>

Exposure Limit	0.25 $\mu\text{g}/\text{m}^3$	0.5 $\mu\text{g}/\text{m}^3$	1 $\mu\text{g}/\text{m}^3$	5 $\mu\text{g}/\text{m}^3$	10 $\mu\text{g}/\text{m}^3$	20 $\mu\text{g}/\text{m}^3$
Monetized Benefits	\$60–1,587	\$57–1,496	\$53–1,382	\$36–896	\$25–584	\$13–288
Costs	\$1,762–1,815	\$996–1,033	\$552–570	\$273–282	\$165–170	\$109–112

No normative criterion associated with CBA tells the regulatory agency whether to choose 0.5  $\mu\text{g}/\text{m}^3$ , one  $\mu\text{g}/\text{m}^3$  (a limit two times as high), five  $\mu\text{g}/\text{m}^3$  (a limit ten times higher than 0.5), ten  $\mu\text{g}/\text{m}^3$  (twenty times higher than 0.5), or twenty  $\mu\text{g}/\text{m}^3$  (forty times 0.5).<sup>93</sup>

OSHA tried to circumvent this difficulty by providing median net benefit numbers.<sup>94</sup> But in three of the five remaining cases those medians provide a range of net benefits between positive and negative, thus leaving a hapless OSHA, if its statute permitted it to follow the efficiency criterion, with a choice between a standard of one  $\mu\text{g}/\text{m}^3$  and limits ten or twenty

<sup>91</sup> *Id.* at 673.

<sup>92</sup> I derived this Table from Table 1 in Masur and Posner's article. *See id.* The ranges of values given include the difference between assuming a 3% and 7% discount rate.

<sup>93</sup> Indeed, the one option that CBA appears to eliminate, 0.25  $\mu\text{g}/\text{m}^3$ , may remain on the table if one either uses the proportionality criterion or gives unquantified benefits substantial weight, because on "a plausible set of assumptions" costs exceed monetized benefits by just \$175 million. *See id.* (showing that at a 3% discount rate costs are \$1,762 million and monetized benefit as high as \$1,587 million).

<sup>94</sup> *See id.*

times as lax.<sup>95</sup> Even Masur and Posner concede that CBA only narrows the range to a choice between levels of one  $\mu\text{g}/\text{m}^3$  and permitting ten times that amount of exposure.<sup>96</sup>

Although Masur and Posner bury this fact, OSHA's completed feasibility analysis gave OSHA clear guidance about which level to choose under the feasibility principle. OSHA concluded that at levels more stringent than five  $\mu\text{g}/\text{m}^3$  its regulation would destroy at least one industry, but at five  $\mu\text{g}/\text{m}^3$  few if any plant closures would occur.<sup>97</sup> Therefore, the feasibility principle pointed rather clearly to regulation at five  $\mu\text{g}/\text{m}^3$ .

Similarly, the combined costs of the Clean Air and Water Act Rule fell within the range of plausible benefits for all three options.<sup>98</sup> No criterion associated with CBA could tell the regulator which option to choose without making a choice among plausible benefits estimates or accepting some kind of dubious averaging procedure and then ignoring the non-quantified benefits.

This case, however, illustrates something that we all agree on, that the concept of widespread plant closure has some ambiguity that will often matter in the minority of cases where some plant closure is predicted. In this case, the Environmental Protection Agency ("EPA") chose an option with two closures (out of 158 mills regulated) over options generating four closures, or nine closures.<sup>99</sup> Masur and Posner are right to say that this choice required some judgment, and that the fact that the job loss numbers increased exponentially if EPA chose the stricter options might have influenced its decision. One might charitably interpret this as keeping norms underlying the feasibility principle in mind as the agency resolves its ambiguities, but Masur and Posner reserve that sort of charity for CBA alone. Of course, if one specified a percentage of plant closures in advance, then one would have clear guidance available given these facts.

Although Masur and Posner are right that the feasibility principle provides only ambiguous guidance in some cases, they fail to recognize that even in their chosen examples, narrow CBA provides even less guidance. The amount of guidance given would further diminish if we employed broad CBA and/or more flexible criteria, such as the no excess cost criterion Masur and Posner explicitly endorse.

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<sup>95</sup> Moreover, this use of statistics to eliminate some choices is highly suspect. There is no reason to think the median numbers are correct, and in this context medians represent scientific gibberish, because often some of the numbers within the range usually have a basis in plausible scientific assumptions, which the median does not. This amounts to an arbitrary preference for the middle.

<sup>96</sup> See Masur & Posner, *supra* notes 2, at 674 (claiming that the "socially optimal exposure limit . . . likely lies somewhere within the range of 1  $\mu\text{g}/\text{m}^3$  to 10  $\mu\text{g}/\text{m}^3$ "). Furthermore, Masur and Posner concede that a 0.5  $\mu\text{g}/\text{m}^3$  limit would be "cost-benefit justified" under "optimistic assumptions." *Id.*

<sup>97</sup> See *id.* at 679–80 (indicating that OSHA abandoned the one  $\mu\text{g}/\text{m}^3$  limit because "feasibility analysis indicated" that this level threatened the survival of "at least one industry").

<sup>98</sup> See *id.* at 684.

<sup>99</sup> See *id.* at 686. These figures are for rules like the one ultimately promulgated, which regulated both air and water pollution.

Masur and Posner miss CBA's lack of ability to provide magic solutions, because they delve into the unattractive details of how agencies estimate the numbers for plant closures, while applying no scrutiny at all to how they arrive at their estimates of costs and benefits, making the numbers in CBA appear magically from nowhere. They acknowledge CBA's "ambiguities" in the abstract, but blithely assume that agencies, keeping the overall goal of promotion of public well-being in mind, can somehow resolve these.<sup>100</sup> First of all, overall well-being does nothing to resolve the problem of risk assessments generating potentially huge variability in benefits estimates. And Masur and Posner have no plausible explanation as to how this goal can guide agencies with respect to the many choices that remain for agency resolution, even assuming that all the numbers are reasonably accurate (a very heroic assumption). One would think that people with varying normative commitments might have different views of overall well-being, even if they all accept Posner and Adler's description of it.

*B. Generating Numbers for Feasibility Analysis:  
A Comparative Approach*

Any case of legislative rulemaking will demand tough judgment calls and therefore produce less than completely satisfactory reasoning, regardless of the type of analysis employed. The pragmatic question, though, is not whether feasibility analysis is perfect, it is whether it presents more or less difficulty than an available alternative, like CBA.

It should be obvious that broad CBA is more complicated and difficult than feasibility analysis. Broad CBA includes a feasibility analysis, analysis of other costs, and quantification of benefits. Feasibility analysis simply requires analysis of costs, the number of plant closures, and the number of plants regulated.

To make their case for CBA's superiority to feasibility analysis in reducing the need for arbitrary technical judgments even colorable, one must assume that they mean to focus only on narrow CBA, quantifying the costs and benefits without analyzing job loss. But, alas, even this effort to help their case proves unavailing, for CBA still replicates, rather than circumvents, the key difficulties they see in feasibility analysis.

1. *Industry Definition*

Masur and Posner point out that agencies must define the industry in order to carry out a feasibility analysis.<sup>101</sup> And an analyst can subdivide any industry into subcategories.<sup>102</sup> The definition of the industry can influence conclusions about whether an industry faces widespread plant shutdowns,

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<sup>100</sup> *Id.* at 705.

<sup>101</sup> *See id.* at 688.

<sup>102</sup> *See id.* at 689 (noting that an "industry can be subdivided indefinitely").

because the finding of widespread plant closures depends on a comparison of the number of plant shutdowns to the number of plants in an industry. Therefore, Masur and Posner claim that agencies “tinker[ ] with industry classifications on an ad hoc basis.”<sup>103</sup> The court reviewing the hexavalent chromium rule they use to illustrate this problem held that OSHA’s industry classification was not arbitrary, partly because of a consistent practice of setting a uniform permitted exposure level for the entire regulated universe as a whole, rather than subdividing industry.<sup>104</sup> Still, Masur and Posner are correct that the agency has discretion in defining an industry, so that ad hoc industry definition in theory can occur.<sup>105</sup>

But the problem of industry classification influencing results and therefore inducing tinkering exists with CBA as well. A good example of this problem comes from the 5th Circuit’s decision overturning EPA’s phase-out of asbestos in *Corrosion Proof Fittings v. EPA*.<sup>106</sup> In its introduction to the case, the court explains that the rule will save either 148 or 202 lives at \$450 million to \$800 million, about \$2 to \$4 million per life, putting it within the range most CBA proponents find acceptable.<sup>107</sup> Yet, in explaining why the rule is “arbitrary and capricious,” the court accuses EPA of spending \$43–76 million per life saved.<sup>108</sup> What happened? The introduction refers to the entire industry making asbestos products,<sup>109</sup> while the passage claiming excessive costs focuses on a subcategory of that industry, the manufacturers of asbestos pipe.<sup>110</sup> In other words, the results of CBA hinge upon the definition of the industry under analysis. Although *Corrosion Proof Fittings* involves judicial ad hoc tinkering, agencies can do the same under CBA.

## 2. Existing Versus Future Technology

Similarly, the problem of having to decide whether to base a rule on existing technology or on technology not yet fully developed arises for any analysis of cost, not just for feasibility analysis. The cost of meeting any level of environmental protection equals the cost of making the technologi-

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<sup>103</sup> *Id.* at 691.

<sup>104</sup> See *Pub. Citizen Health Research v. U.S. Dep’t of Labor*, 557 F.3d 165, 182–84 (3d Cir. 2009) (rejecting environmentalist plea to subdivide industry in part because of consistent use of uniform standards). Cf. Masur & Posner, *supra* note 2, at 691 n.175 (citing OSHA’s use of groups using control technologies for the hexavalent chromium rule as an example of “ad hoc” industry definition).

<sup>105</sup> See *Public Citizen*, 557 F.3d at 183 (declaring OSHA’s decision to use a uniform standard rather than tailoring it to particular industries or sub-industries is a “legislative policy decision” that the court will uphold if it is “reasonably drawn from the record”).

<sup>106</sup> 947 F.2d 1201 (5th Cir. 1991).

<sup>107</sup> See *id.* at 1208.

<sup>108</sup> See *id.* at 1219 (noting parenthetically that \$128–227 million of contemplated compliance expenditures to save three lives implies \$43–76 million per life saved).

<sup>109</sup> See *id.* at 1207–08 (associating the \$2–4 million per life saved figure with EPA’s “rule” phasing out “most asbestos-containing products”).

<sup>110</sup> *Id.* at 1219 (associating the \$43–76 million per life saved figure with EPA’s “ban of asbestos pipe”).

cal changes (broadly defined) needed to meet that level.<sup>111</sup> A good example of the problem of CBA varying depending upon whether one embraces technology forcing or not comes from the CBA of climate disruption. Different analysts come up with widely varying conclusions about the costs of abating greenhouse gas emissions.<sup>112</sup> One of the most significant causes of these disparities in CBA's results arises from choices about how to treat the possibility of technological advancement.<sup>113</sup> Some analysts base their cost estimates on existing technologies or past experience, whilst others come to very different conclusions because they assume that abatement policies will produce technological advances lowering costs.<sup>114</sup>

Masur and Posner point out that courts have placed a heavy burden on agencies trying to justify technology forcing regulation, thereby making it difficult to use feasibility analysis to advance technology.<sup>115</sup> There is no reason to expect CBA to lead to abatement of this problem. Indeed, by emphasizing the notion that all regulation must be cost justified CBA, if subject to judicial review, will likely exacerbate judicial tendencies to expect a better justification than agencies can produce for reliance on future technologies. It will no longer be enough to show that reasons exist to expect the technology to be technically feasible and not so expensive as to bankrupt anybody. Instead, the agency would have to show that it has a reasonable basis for estimating the precise cost, a difficult task with a technology not yet developed.

### 3. *Path Dependence and Time Inconsistency*

Masur and Posner show that "path dependence" and "time inconsistency" cause feasibility analysis's results to depend on agencies' prior regulatory actions with respect to the regulated industry.<sup>116</sup> This means that a regulation's viability might depend on when the agency chooses to promulgate it. In CBA, this path dependence problem is usually broader, because the acceptability of regulations depends not just on the timing of regulation for a particular industry, but also on all regulation influencing the environ-

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<sup>111</sup> See, e.g., Driesen, *supra* note 1, at 11; Posner, *supra* note 25, at 1145 (noting that market data on the cost of scrubbers would be used to estimate the costs of regulations dependent on scrubber technology).

<sup>112</sup> See Terry Barker et al., *Avoiding Dangerous Climate Change by Inducing Technological Progress: Scenarios Using a Large-Scale Econometric Model*, in *AVOIDING DANGEROUS CLIMATE CHANGE* 362–64 (Hans Joachim Schellnhuber et al. eds., 2006) (discussing the wide divergence in abatement cost estimates in economic models of climate change).

<sup>113</sup> See NICHOLAS STERN, *THE ECONOMICS OF CLIMATE CHANGE: THE STERN REVIEW* 262 (2007) (pointing out that innovation rates "make a large difference" in cost estimation).

<sup>114</sup> See, e.g., Patrick Matschoos & Heinz Welsch, *International Emissions Trading and Induced Carbon-Saving Technological Change: Effects of Restricting the Trade in Carbon Rights*, 33 *ENVTL. & RESOURCE ECON.* 169 (2006).

<sup>115</sup> See Masur & Posner, *supra* note 2, at 691–92 (noting that although "some commentators believe that agencies may issue 'technology-forcing' regulations," agencies rarely issue them because of burdens imposed by the courts).

<sup>116</sup> See *id.* at 696–97.

mental conditions that the regulation under analysis addresses. A good example of regulatory outcomes under CBA depending on multiple regulation comes from the Clean Water Act, which aims to restore heavily damaged ecosystems through a program of regulating water intake from large industrial facilities and effluent. The water intake kills billions fish and other aquatic organisms, thereby harming ecosystems.<sup>117</sup> Suppose that EPA regulates water intake early in the Clean Water Act's life, when aquatic ecosystems are seriously degraded. The proposed regulation costs \$100 million and, because a degraded ecosystem currently supports little aquatic life, saves only five million fish, each fish worth \$10. This \$50 million dollar benefit cannot justify the \$100 million cost. So, CBA (or more precisely, the "no excess cost" criterion) would prohibit regulation, precisely because no effluent regulations have been put in place to promote ecological recovery from ecosystem degradation. Suppose now that EPA proposes the same \$100 million regulation after (rather than before) twenty years of successful regulation of effluent. Now thriving aquatic ecosystems make regulation less important. But the thriving ecosystem has boosted the commercial fish population so that water intake now kills 20 million fish, worth \$200 million.<sup>118</sup> Because the agency promulgates this regulation after other regulations, its benefits justify the cost. CBA proves even more path dependent and time inconsistent than feasibility analysis (not to mention utterly perverse from the standpoint of key environmental values).<sup>119</sup>

Moreover, this sort of path dependence invites ad hoc tinkering in the analysis itself. A good example comes from EPA's recent regulation of mercury emissions from power plants. Because the technologies used to reduce mercury from power plants also reduce particulate, which is associated with tens of thousands of annual deaths, a promptly implemented mercury rule evaluated on its own would likely produce enormous benefit predictions.<sup>120</sup> Because the Bush Administration EPA chose to implement a rule aimed at particulate and other criteria pollutants before the mercury rule,<sup>121</sup> its assessment of the mercury rule's benefits counted only the incremental mercury benefits realized after the criteria pollutant rule was implemented.<sup>122</sup> Hence, the agency, by manipulating the timing of the regulation, could manipulate the outcome of the CBA. The CBA of the mercury rule exhibits temporal

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<sup>117</sup> See 69 Fed. Reg. 41,575, 41,586 (July 9, 2004) (estimating water intakes kill at least 3.4 billion fish and shellfish per year).

<sup>118</sup> This analysis assumes that the value of a fish and the cost of control have not varied over time. They might indeed vary. But this variance does not disprove the point that the costs and benefits will vary depending upon time and, indeed, depending upon the sequence of regulations.

<sup>119</sup> See Douglas A. Kysar, *Fish Tales*, in REFORMING REGULATORY IMPACT ANALYSIS 190, 209 (Winston Harrington et al., eds., 2009) [hereinafter RIA].

<sup>120</sup> See Catherine A. O'Neill, *The Mathematics of Mercury*, in RIA, *supra* note 119, at 108, 115 (describing a promptly implemented mercury rule as generating particulate "co-benefits").

<sup>121</sup> See *id.* at 111–12 (describing the timing of the mercury rule).

<sup>122</sup> *Id.* at 113 (stating that this approach allowed EPA to avoid attributing "a sizeable category of benefits" to the mercury rule).

inconsistency and path dependence,<sup>123</sup> illustrating that yet another problem Masur and Posner imagine arising under feasibility has arisen under CBA.

Masur and Posner complain that agencies use feasibility analysis in an ad hoc manner.<sup>124</sup> They admit that agency uses of CBA are “not perfect, either. . .”<sup>125</sup> The literature they cite to justify this modest concession includes the mercury and water intake examples above and shows that agencies use CBA in an ad hoc manner as well.<sup>126</sup> And the unavoidable problems they find in feasibility analysis generally exist even for narrow CBA. CBA multiplies the number of variables contained in the analysis, which multiplies opportunities for ad hoc judgment. All analysis offers opportunities for ad hoc judgment, but feasibility analysis lessens the number of opportunities provided.

### C. Decision-Making Costs: CBA and Feasibility Compared

Masur and Posner blithely assure us that CBA minimizes “decision-making costs through the magic of quantification,” thereby suggesting that it has lower costs than feasibility analysis.<sup>127</sup> But CBA requires analysis of technology and its costs, just as feasibility analysis does. And CBA requires very difficult quantification of environmental harms, something that feasibility analysis does not require. Because the outcome of CBA depends on the choice of which benefits to quantify and what values to attach to them, these variables regularly become matters of dispute between the Office of Management and Budget and EPA, often leading to costly interagency debates and delays. If the cost of conducting and debating analysis is part of decision-making (and it’s hard to see how it could not be), then CBA maximizes decision costs.

Perhaps Masur and Posner have in mind the costs of making decisions after the government has completed and agreed upon an analysis under the efficiency criterion, which after all, takes the form of a mathematical equation. Even then, however, it remains hard to see how CBA “minimizes” decision costs. As Masur and Posner’s case studies illustrate, the agency must always decide upon the weight to be given non-quantifiable environmental benefits, since some significant benefits always defy quantifica-

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<sup>123</sup> See Alan J. Krupnick, *The CAMR: An Economist’s Perspective*, in RIA, *supra* note 119 at 142, 144–45 (agreeing that the choice of timing influenced the baseline and therefore the estimates of costs and benefits).

<sup>124</sup> See Masur & Posner, *supra* note 2, at 706.

<sup>125</sup> *Id.* (footnote omitted).

<sup>126</sup> See, e.g., Robert W. Hahn, et al., *Assessing Regulatory Impact Analyses: The Failure of Agencies to Comply with Executive Order 12,866*, 23 HARV. J. L. & PUB. POL’Y 859, 877 (2000).

<sup>127</sup> Compare Masur & Posner, *supra* note 2, at 700 with Masur & Posner, *supra* note 2, at 701 (recognizing that feasibility analysis has the advantage of not requiring quantification of benefits).



tion.<sup>128</sup> If the CBA is scientifically honest, then agencies must also debate which points in the various overlapping quantified benefit ranges to choose, as previously shown.<sup>129</sup>

By contrast, the feasibility principle makes many decisions easy once the analysis is complete, because many regulations produce no plant closures. Under those circumstances agencies just choose the most stringent technological option. Of course, things get dicier, as Masur and Posner point out, when agencies predict some plant closures. But they do not support the notion that choosing a point at which plant closures are widespread is more difficult than choosing which regulation maximizes net benefits when the wide range of benefits estimates and the nonquantifiables are considered.

Masur and Posner concede that it might make sense to eschew CBA if it exacerbates any agency tendencies to under-regulate, but suggest that we need a great deal of “empirical work” to overcome “one’s natural skepticism” about the idea that CBA constitutes a drag on regulation.<sup>130</sup> In saying this, they fail to engage an enormous scholarly literature, including some by CBA proponents, showing that OMB has used CBA to slow and throttle rules in every administration and that the processes involved have killed off at least one entire regulatory program and slowed others down tremendously.<sup>131</sup> Do they have some empirical evidence to refute scholars’ assertions that EPA gave up any substantial use of section 6, the principle regulatory authority EPA has for limiting the use of toxic substances, in the wake of a judicial decision demanding CBA of every option in a section 6 rulemaking under the Toxics Substances Control Act?<sup>132</sup> Do they seriously doubt the assertion that quantitative risk assessment, a procedure at the heart of CBA, doomed EPA’s pesticide program to a state of perpetual slow mo-

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<sup>128</sup> Cf. Jody Freeman & Andrew Guzman, *Climate Change and U.S. Interests*, 109 COLUM. L. REV. 1531, 1556–60 (2009) (showing that valuation of biodiversity losses from climate change have been left out of most economic models and are deeply problematic in the models that attempt it).

<sup>129</sup> See, e.g., *id.* at 1548 (pointing out that estimates of GDP losses range from 0–3% of GDP when global temperatures rise between 2–3°C, but that the losses rise to 5–10% of GDP if temperatures are assumed to increase by 5–6° C).

<sup>130</sup> See Masur & Posner, *supra* note 2, at 711.

<sup>131</sup> See, e.g., RICHARD L. REVESZ & MICHAEL A. LIVERMORE, *RETAKING RATIONALITY: HOW COST-BENEFIT ANALYSIS CAN BETTER PROTECT THE ENVIRONMENT AND OUR HEALTH*, 151–61 (2008) (reviewing CBA’s role in slowing, defeating, and weakening rules and concluding that it “generally serves an antiregulatory purpose,” but supporting it with reforms designed to overcome this problem).

<sup>132</sup> See Driesen, *supra* note 29, at 347 (pointing out that EPA has not banned a single chemical since the Fifth Circuit subjected such actions to a cost-benefit test); Thomas O. McGarity, *Professor Sunstein’s Fuzzy Math*, 90 GEO. L.J. 2341, 2342 (2002) (describing CBA as rendering ineffective regulation under TSCA & FIFRA). See also, *ECONOMIC ANALYSES AT EPA: ASSESSING REGULATORY IMPACT 199* (Richard D. Morgenstern ed., 1997) (describing the regulation of PCBs as the only action EPA ever took under TSCA § 6 in the wake of the *Corrosion Proof Fittings* decision). But PCBs were banned long before then. *Cent. and S.W. Servs., Inc. v. EPA*, 220 F.3d 683, 686 (5th Cir. 2000) (discussing the statutory phaseout of PCB production enacted in 1976).

tion?<sup>133</sup> Do they doubt leading scholars' assertions that linking specific reductions of pollutants to specific results in the receiving medium, which CBA requires, has never worked well in any medium, land, air, and water?<sup>134</sup> We do not know, because Masur and Posner have substituted their "natural skepticism" of the idea that a comprehensive quantitative analysis of all regulatory consequences might create serious burdens on regulatory programs for serious engagement with a consensus view of most of the countries' leading environmental law scholars. Although my work has distinctively emphasized a normative justification for the feasibility principle, a large literature mostly preceding my work has supported feasibility analysis as necessary to avoid the well-known decision-making costs that CBA and quantitative risk assessment create.<sup>135</sup>

#### IV. FEASIBILITY'S TECHNICAL LIMITS AND INSTITUTIONAL STRENGTHS

The foregoing establishes the following points:

- 1) Important normative values support feasibility analysis's focus on plant closures;
- 2) Broad CBA requires, rather than avoids, feasibility analysis;
- 3) Narrow CBA arbitrarily ignores very important distributional consequences;
- 4) CBA generates much greater decision costs and more opportunities for ad hoc judgment than feasibility analysis;
- 5) The feasibility principle is extremely likely to generate the proper result in the many cases where no technological option leads to plant closures, because those cases generally distribute costs so widely among consumers that they have no significant impact on well-being.

Yet, a decision about whether to allow a large number of plant closures for the sake of preventing a cancer death (or similarly serious consequences) remains difficult in the few cases where the agency predicts some plant clo-

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<sup>133</sup> See Donald T. Hornstein, *Lessons from Federal Pesticide Regulation on the Paradigms and Politics of Environmental Law Reform*, 10 YALE J. ON REG. 369, 437 (1993).

<sup>134</sup> See OLIVER A. HOUCK, *THE CLEAN WATER ACT TMDL PROGRAM: LAW, POLICY, AND IMPLEMENTATION* 136, 165, 194-97 (2nd ed., 2002) (making this assertion and providing examples); Adam Babich, *Too Much Science in Environmental Law*, 28 COLUM. J. ENVTL. L. 119, 133-35 (2003) (finding that "[t]he most common criticism of risk-based standards is that they do not work," and providing examples of where they failed); see also *Weyerhaeuser Co. v. Costle*, 590 F.2d 1011, 1042-43 (D.C. Cir. 1978) (recognizing that Congress adopted a technology-based approach in 1972 in reaction to the failed effort to "use receiving water quality as a basis for setting effluent pollution standards"); cf. Amy Sinden, *In Defense of Absolutes: Combating the Politics of Power in Environmental Law*, 90 IOWA L. REV. 1405, 1487-88 (2005) (arguing that the strict effects-based approach in the Endangered Species Act produces results "closer to where we want to be" than a balancing approach would).

<sup>135</sup> See, e.g., HOUCK, *supra* note 134; Babich, *supra* note 134; Wendy Wagner, *The Triumph of Technology-Based Standards*, 2000 U. ILL. L. REV. 83; Sidney A. Shapiro & Thomas O. McGarity, *Not So Paradoxical: The Rationale for Technology-Based Regulation*, 1991 DUKE L.J. 729; Christopher H. Schroeder, *In the Regulation of Manmade Carcinogens, If Feasibility Analysis is the Answer, What Is the Question?*, 88 MICH. L. REV. 1483 (1990).

tures. Masur and Posner correctly suggest that the concentration principle I developed in *Feasibility* (opposing foregoing widely disbursed costs to address concentrated harms devastating individuals) does not justify a choice between avoiding widespread plant closures and fully protecting life or health.<sup>136</sup> That decision remains difficult.

For that reason, I specifically avoided making the claim that the “feasibility principle offers a perfect ideal for regulation.”<sup>137</sup> Instead, I argued that the principle represents a “reasonable congressional judgment about how agencies should address the cost of environmental regulation.”<sup>138</sup> I shared Masur and Posner’s concern that under this principle agencies might sometimes allow extremely harmful substances to go under-regulated, but pointed out that “Congress . . . may choose more demanding requirements for particular substances than the feasibility principle might induce.”<sup>139</sup>

That is a major reason why I only muster “two cheers” for the feasibility principle, not three. Yet, the alternative they offer, CBA, does not merit even two cheers.

Narrow CBA fails to give any weight to the concentrated harms plant closures produce. For that reason, it is normatively unacceptable and lacks a strong connection to overall well-being.

If Masur and Posner would like to argue for broad CBA then they would have to abandon their opposition to feasibility analysis and admit that they endorse it with all of its technical difficulties. “Against Feasibility Analysis” would become “Three Cheers for Feasibility Analysis/Against the Feasibility Principle.”

But calling for increasing the scope of analysis does not resolve the normative conundrum about what to do about a situation presenting a trade-off between life and health on the one hand and the large numbers of job losses associated with widespread plant closures on the other. Take my opening hypothetical: one painful cancer death versus 10,000 permanent job losses. Masur and Posner have not shown what resolution the concept of overall well-being points to in this case. That concept represents a very carefully thought out abstract philosophical position, but I do not see how it is capable of providing an uncontroversial answer to such a question.

An analyst employing CBA would choose a dollar value for the death and the lost wages involved in the job losses, thereby ignoring the pain involved in the cancer death and the emotional damages inflicted through the job loss. But putting dollar values upon consequences disguises, rather than avoids, normative judgments. Standard economic methods ask what a worker would be willing to pay to avoid a risk of death, generating a wide range of values.<sup>140</sup> Still, the numbers government agencies use often re-

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<sup>136</sup> See Masur & Posner, *supra* note 2, at 703.

<sup>137</sup> Driesen, *supra* note 1, at 47.

<sup>138</sup> *Id.* (emphasis added).

<sup>139</sup> *Id.* at 47.

<sup>140</sup> See ACKERMAN & HEINZERLING, *supra* note 27, at 79.

present averages using disparate studies of different populations, most of them outdated.<sup>141</sup> If they used wage premium studies of non-unionized workers, they could justify dropping this number to \$2.6 million, and if they relied upon studies of unionized female workers they could justify raising the value to \$42.3 million.<sup>142</sup> The choice about what dollar value to assign to a human life depends upon a value judgment, even if one takes standard economic methodologies as a given.

But if one employed a different premise in the valuation, say by assuming that the person about to die of cancer from an unregulated hazard knows who she is and would be asked how much money she is willing to accept in order to consent to her own painful death, the answer may be she is not willing to die for any price. This case would justify a conclusion that life has infinite value. In other words, a different, albeit unconventional, methodological choice in CBA could justify a wholly health protective outcome, although another choice might reject a regulation saving the person. So, putting a dollar value on each consequence takes normative choices away from democratic processes and gives them to economists pretending not to make such choices while devaluing everything defying quantification. Dollar values paper over, rather than resolve, normative dilemmas.

This raises the possibility that maybe even the feasibility principle, with all of its imperfections, deserves our qualified approval. It is reasonable to say that generally we value protecting people's lives, their health, and their environment over minor and often temporary price changes, but when health and environmental protection causes many more people to risk financial and emotional devastation through job loss, we hesitate. We recognize that the tradeoffs in that case are difficult enough that we may not be comfortable delegating them to agencies without some default, bearing in mind that Congress might have to make a contrary choice directly. Thus, we direct agencies to presume that widespread plant shutdowns are not acceptable.

The feasibility principle at least provides evidence of sensible normative engagement with the relevant questions and a democratic legislative decision about how to presumptively resolve them. Congress decided to allow some plant closures to occur as part of the price we must pay to deal with serious environmental problems, but it has often created a presumption against widespread plant closures.<sup>143</sup> Civic debate should help formulate and articulate public values and decisions about how and whether to balance

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<sup>141</sup> *Id.* at 81–83.

<sup>142</sup> *See id.* at 79.

<sup>143</sup> *See e.g.*, *Ass'n of Pac. Fisheries v. EPA*, 615 F.2d 794, 818 (9th Cir. 1980) (contemplating the closure of some marginal plants under BAT standards); *E.I. du Pont de Nemours & Co. v. Train*, 430 U.S. 112, 127 n.17 (1977) (limiting effluents under section 301(b) of the Clean Water Act may go beyond limits within an individual owners' economic capability); *Indus. Union Dep't, AFL-CIO v. Hodgson*, 499 F.2d 467, 478 (D.C. Cir. 1974) (stating that the Occupational Safety and Health Act does not guarantee the existence of individual employers); *United Steelworkers of Am. v. Marshall*, 647 F.2d 1189, 1272 (D.C. Cir. 1980) (stating that technological infeasibility for a few operators will not invalidate a standard).

them.<sup>144</sup> One can see the feasibility principle in numerous statutes as an articulation of public values favoring public health and environmental protection, but expressing concern about job loss. It may be better for a democracy to develop and embody public values in law, rather than to pretend that the “magic of quantification” obviates the need for value choices.

#### CONCLUSION

*Against Feasibility Analysis* assumes what it sets out to prove when it sets up the efficiency criterion as the implicit baseline for measuring under- and over-regulation. The feasibility principle has a good, albeit imperfect, normative justification and a very good institutional justification. Masur and Posner show that feasibility analysis raises some difficult practical issues, but fail to acknowledge that CBA experiences the same difficulties, in addition to the more familiar problem of benefits that defy reasonably reliable quantification. Although one might wish for a clearer normative position from them, especially respecting cost-benefit criteria and the importance of distributional consequences, they deserve credit for diving into the details of some real regulations and deepening a continuing dialogue about the relative merits of both competing normative values and forms of analysis.

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<sup>144</sup> My thanks to Douglas Kysar for suggesting some emphasis on the role of articulating public values.

