Notes

Rethinking Regulatory Reform: Toxics, Politics, and Ethics

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When do we kill people for a desired goal? With the value of life rhetorically paramount in American culture, only extreme cases—war and capital punishment, for instance—tend to be regarded (hardly unanimously) as "acceptable" instances of state-sanctioned killing. Yet the state allows lives to be lost all the time. In less obvious instances of state control, such as regulating safety[1] or allocating scarce resources,[2] the state must make difficult, "tragic" choices of how many lives to sacrifice in exchange for benefits that may not be coequal with life itself.[3] In the end, we Americans kill people when we want to do so; the important questions are what values justify our actions and how we weigh competing claims on human life.

Regulation, then, is more than simple control, more than a dry pantomime of acronyms and number crunching; it is a process of harm allocation that reflects the state's ethical values even as it subverts them. In regulating toxics,[4] for example, the Environmental Protection Agency (EPA) and others must set "acceptable" levels of risk posed by toxic substances, i.e., determine how much cancer is worth the benefits of a given toxic substance. Most discussions of toxics regulation, however, focus on the "science" of risk assessment and the politics of risk management, thus missing the heart of EPA's harm allocation effort: the initial decision of how much harm is to be allowed—how many people are to die. Now, as reform of the regulatory process is debated in Washington, it is worth rethinking what regulation is, and how we control and justify the allocation of toxic harms.

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1. *See* GUIDO CALABRESI, THE COSTS OF ACCIDENTS 17–18 (1970).
2. GUIDO CALABRESI & PHILIP BOBBITT, TRAGIC CHOICES 184–89 (1978).
3. *Id.* at 17–18.
4. "Toxics," referring to toxins proper and any other poisonous or carcinogenic substance, seems to have joined the lexicon of grammatically incorrect bureaucratic shorthand in use in the environmental community, and I have reluctantly gone along with the usage in this Note.

Part I of this Note attempts to do so by proposing a new framework for understanding toxic risk allocation with a focus on "risk determination," the process of quantifying "significant" risk. Historically, EPA has usually determined that only de minimis levels of risk (generally defined as one death per million exposed individuals) are acceptable for most toxic substances. This determination, though not one of *zero* risk, still legitimizes the subterfuge of "good science"—the myth that EPA is only measuring safety—and suggests that, when the state controls harm allocation, no nonnegligible amount of death is acceptable. Safety supposedly determines the level of harm allocation.

Reforms of the regulatory process now being debated in Congress would fundamentally alter this ethical and political[5] orientation, as discussed in Part II of the Note. By requiring that regulations "justify their cost,"[6] Congress would shift risk allocation from a process of determining a de minimis risk level and measuring how much of a toxin yields that amount, to one of defining acceptable risk *itself* as the amount that is profitable for industry to produce. Obviously, this shift creates enormous practical problems; most immediately, EPA would have to decide how to quantify the "benefit" of freedom from cancer. Yet with the analytical framework provided by this Note, it is clear that the problems with such reforms are ethical as well. Cost-benefit analysis used in this way affects risk *determination* as well as risk assessment and management, thus redirecting the entire risk allocation process. In effect, cost-benefit risk determination shifts toxic regulation from a proxy liability rule, with the entitlement given to the bearer of the protected body, to a proxy property rule, with the entitlement held by toxics producers.[7] Preferences expressed by toxics producers thus may trump the life interests of individuals; private interests in profit justify the allocation of cancer, death, and other toxic harms. The Note attempts at the end of Part II to provide a more articulate account of these sinister but vague concerns, and concludes by suggesting that, as regulatory reform continues to be debated in Washington, such ethical *agons* may be avoided through less hasty reform of environmental regulation and a clearer understanding of the subtle structural and ethical distinctions within the regulatory process.

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5. Although the distinction between what is "ethical" and what is "political" is hardly a clear one, I will treat the former term as referring to categorical choices regarding the just treatment of persons, the latter as referring to the exercise and legitimation of the state's power to make them. Obviously, the two subjects are intimately linked (and, if "might makes right," they are identical), but it is still useful to distinguish between "ethical" decisions, which express or determine social norms themselves, and "political" ones, which apply, defend, ignore, or undermine those norms in the state's exercise of power.

6. H.R. 9, 104th Cong., 1st Sess. § 7004(c)(11) (1995) [hereinafter H.R. 9.]; *see infra* Part II.

7. *See* Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089 (1972).

I. TOXIC HARM ALLOCATION UNDER THE PRESENT REGIME

From *Silent Spring*[8] to Love Canal[9] to the 104th Congress,[10] the risks and regulation of toxic substances have been the subject of considerable public attention. Toxics present a classic public choice dilemma: the balancing of desired goods against the threat they pose to human life. Though its rules vary with the statutes and substances in question, toxic harm allocation may be understood as a game with three players—industry, producing the harm; EPA, allocating it; and individuals, receiving it—who cooperate or compete to set, measure, and regulate the level of toxics in the environment. EPA ultimately "allocates" the harm, because it has final control (subject to judicial review) over what toxic harms are present, even though other actors produce them, and still others are exposed to them. Most commentary has focused on the measurement (risk assessment) and regulation (risk management) stages of the game,[11] yet has tended to ignore the fundamental step of setting the level of harm to allocate. In contrast, this Note proposes that centralized[12] toxics regulation be understood as a three-step process:

1. Determine what level of risk is tolerable for a given identified substance: whether zero, de minimis, "reasonable,"[13] or some other amount ("risk determination").[14]

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8. Rachel Carson's landmark book, hailed as the beginning of the modern environmental movement, was about the toxic pesticide DDT. *See* RACHEL CARSON, SILENT SPRING (1962).

9. For overviews of the Love Canal crisis, see ADELINE GORDON LEVINE, LOVE CANAL: SCIENCE, POLITICS, AND PEOPLE (1982); Lois R. Ember, *Love Canal: Uncertain Science, Politics, and Law*, *in* RISK IN THE TECHNOLOGICAL SOCIETY 77 (Cristoph Hohenemser & Jeanne X. Kasperson eds., 1982).

10. Overregulation of "pineapple pesticide," dibromochloropropane, was the subject of repeated congressional ridicule in the heady "first 100 days" of the Republican-controlled House of Representatives, until it was discovered that the known carcinogen was used on 40 crops until 1979 and has been found in drinking water in 19 states. John H. Cushman, Jr., *Tales from the 104th Congress: Watch Out, or the Regulators Will Get You!*, N.Y. TIMES, Feb. 28, 1995, at A20.

11. *See, e.g.*, STEPHEN BREYER, BREAKING THE VICIOUS CIRCLE: TOWARD EFFECTIVE RISK REGULATION (1993); KATHRYN HARRISON & GEORGE HOBERG, RISK, SCIENCE AND POLITICS 7 (1994) (attributing distinction between the two to William Lowrance); NATIONAL ACADEMY OF PUB. ADMIN., SETTING PRIORITIES, GETTING RESULTS: A NEW DIRECTION FOR THE ENVIRONMENTAL PROTECTION AGENCY 49–50 (1995) [hereinafter NAPA]; Howard Latin, *Good Science, Bad Regulation, and Toxic Risk Assessment*, 5 YALE J. ON REG. 89, 89 (1988); Milton Russell & Michael Gruber, *Risk Assessment in Environmental Policy-Making*, 236 SCIENCE 286 (1987).

12. For noncentralized approaches to toxics regulation, see David Roe, *An Incentive-Conscious Approach to Toxic Chemical Controls*, ECON. DEV. Q., Aug. 1989, at 179 (discussing market-based toxics regulation in California's Proposition 65); Richard B. Stewart, *Environmental Regulation and International Competitiveness*, 102 YALE L.J. 2039, 2093–97 (1993) (advocating market-based environmental regulation). *But see* William F. Pederson, Jr., *The Limits of Market-Based Approaches to Environmental Protection*, 24 ENVTL. L. REP. 10,173 (1994).

13. The Toxic Substances Control Act (TSCA), for example, requires EPA to determine whether a substance poses an "unreasonable risk of injury to health or the environment." 15 U.S.C. § 2603 (1994). As discussed *infra*, EPA has historically tended to conflate "reasonable" and "de minimis."

14. Such amounts include a risk level randomly selected by the best available control technology. *See infra* Subsection I.A.2.

2. Assess what amount/concentration of the substance yields the tolerable risk by a four-step, quantitative scientific method ("risk assessment").[15]

3. Decide how to regulate the toxic substance in accord with: the conclusions of step (2), substitution risks, economic impact, and whatever other criteria may be appropriate ("risk management").[16]

In discussing each of these steps, the order of which may vary from situation to situation, it should not be surprising that risk assessment and management are often treated as the entirety of the regulatory process. Statutory language on how the level of acceptable risk is to be set is typically vague, and the technical uncertainties of risk assessment frequently dwarf the dimensions of ethical or political decisions. Often, risk determination does not exist as a formal process in toxics regulation at all;[17] in some cases, it is better understood as an *ex post* characterization of risk allocation than as a formal depiction of the process. Yet only by comparing risk assessment results to some determined level of acceptability does the process have any meaning; only by recognizing the ethical decision at the heart of toxics regulation can the entire process be properly understood—and reformed.

A. *Risk Determination*

Risk determination may be viewed as a nonscientific, ostensibly nonpolitical threshold decision about what constitutes "acceptable" risk.[18] The level of risk/harm may be set by statute (though this is not generally the case), by EPA interpretation, or even by "lottery." Barring arbitrarily and capriciously set ("unreasonable") levels, four categories of determinations exist: zero acceptable risk, a near-zero de minimis level, a randomly selected nonzero level, or a level based on a nonzero conception of "reasonable" risk.[19]

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15. The four steps of Quantitative Risk Assessment are hazard assessment, dose-response assessment, exposure assessment, and risk characterization. BREYER, *supra* note 11, at 9; NAPA, *supra* note 11, at 37.

16. TSCA § 2 requires EPA to consider "the environmental, economic, and social impact of any action the Administrator takes or proposes to take under this chapter." 15 U.S.C. § 2601(c) (1994).

17. One of the areas of toxics regulation where explicit levels of acceptable risk are central to the process is that of toxic waste cleanups and similar remediation activities. I have omitted such activities from this discussion because they are special cases, distinguishable from ordinary toxics regulation in at least four ways. First, the rules of the allocation game can and should vary with the site-specific contingencies involved. Second, unlike most toxics regulation, the persons facing remediation costs are often not those who produced the harm. Third, substitution risks in remediation cases are extraordinarily high (for example, complying with an overly strict standard may bankrupt a small business). And finally, remediations address a toxic harm that is already present; they are less about allocating a new harm than about mitigating an existing environmental condition.

18. Compared with risk assessment and management, what I am calling "risk determination" has received only sparse discussion in the literature. For a thorough compilation of risk determinations, see Joseph V. Rodricks et al., *Significant Risk Decisions in Federal Regulatory Agencies*, 7 REG. TOXICOLOGY & PHARMACOLOGY 307 (1987). *See also* Gary E. Marchant & Dawn P. Danzeisen, Note, *"Acceptable" Risk for Hazardous Air Pollutants*, 13 HARV. ENVTL. L. REV. 535 (1989); Alon Rosenthal et al., *Legislating Acceptable Cancer Risk from Exposure to Toxic Chemicals*, 19 ECOLOGY L.Q. 269 (1990).

19. *See* John S. Applegate, *Worst Things First: Risk, Information, and Regulatory Structure in Toxic Substances Control*, 9 YALE J. ON REG. 277, 306–09 (1992). Applegate lists six nonzero risk standards:

A preliminary step, of course, is deciding whether EPA has the authority to allocate the risk at all. Some statutes grant regulatory authority over specific substances,[20] while others leave it to EPA or other agencies to promulgate lists of toxic substances[21] or provide for wide, general coverage with certain specified exceptions.[22] Simply identifying hazards is no small task,[23] and, in fact, the vast majority of risk assessments performed by EPA are "screens" to identify potential hazards.[24] Nor is the identification of toxic substances free from controversy. Some substances are excluded from regulation for purely political reasons; nicotine, only recently deemed a "drug" by the Food and Drug Administration (FDA), is among the most obvious of these.[25] Others are excluded because regulation as required by statute would be too draconian.[26] Even most "identified" hazards are never further investigated.[27] The "preliminary" step of hazard identification is, in the vast majority of cases, the terminal point of EPA involvement.

For those substances that EPA does regulate, though, risk determination is the next step: The agency must decide the level of "acceptable" risk against which scientific measurements will be compared. Setting this standard is a matter not of science or policy, but of literary criticism: EPA must translate relative terms such as "insignificant," "acceptable," and "safe" into numerical targets for regulation.[28] Sometimes, risk determination is the last, not the first,

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de minimis, unreasonable, near-unreasonable, lowest-feasible, cost-effective, and cost-benefit justified. This system seems unnecessarily complex. "Cost effective" means only that cost is taken into account in considering *means* to reach an end; this is a factor in risk management, not risk determination. And the near-unreasonableness standard is a matter of risk assessment, not risk determination; it refers to that level of pollutant at which the determined risk could be expected to appear within the exposed population.

20. *See* 33 U.S.C. § 1317(a)(1) (1994) (Clean Water Act (CWA)); 42 U.S.C. § 7412(b)(1) (1994) (Clean Air Act (CAA)).

21. *See* 29 U.S.C. § 655(a) (1994) (Occupational Safety and Health Act); 42 U.S.C. § 7412(b)(2) (1994) (CAA list revisions); 42 U.S.C. § 11002(a)(2) (1994) (Right-to-Know Act).

22. *See* 7 U.S.C. § 136a(b) (1994) (Federal Insecticide, Fungicide, and Rodenticide Act (FIFRA)); 15 U.S.C. § 2602(2) (1994) (TSCA).

23. *See* NATIONAL RESEARCH COUNCIL, RISK ASSESSMENT IN THE FEDERAL GOVERNMENT: MANAGING THE PROCESS 9–82 (1983) (National Academy of Sciences study listing 25 components in carcinogenic hazard identification).

24. In fiscal year 1993, 6166 out of 7595 risk assessments were of this type, NAPA, *supra* note 11, at 37, belying the claim that the full risk assessment process burdens every new chemical.

25. FDA Proposed Rule to Regulate Tobacco Sales to Minors, 60 Fed. Reg. 41,314, 41,316 (1995) (proposed Aug. 9, 1995). Industry reaction was predictable. *See* Glenn Collins, *Teen-agers and Tobacco: The Reaction; Companies Sue to Prevent Control of Cigarette Sales*, N.Y. TIMES, Aug. 11, 1995, at A18. Tobacco is expressly excluded from the "organic or inorganic" substances regulated by TSCA. 15 U.S.C. § 2602(2)(B)(iii) (1994).

26. For its part, EPA has occasionally refused to list hazardous materials rather than be forced to implement strict regulations of them. *See* John P. Dwyer, *The Pathology of Symbolic Legislation*, 17 ECOLOGY L.Q. 233, 258–60 (1990).

27. This is perhaps an understatement. Though hundreds of substances have been "identified" and listed as toxins, only 17 are actually regulated under TSCA. Roe, *supra* note 12, at 181.

28. *Cf.* WILLIAM W. LOWRANCE, OF ACCEPTABLE RISK: SCIENCE AND THE DETERMINATION OF SAFETY 8 (1976) ("A thing is safe if its risks are judged to be acceptable."). Lowrance later describes several guides to acceptability, including reasonableness, custom, and necessity. *Id.* at 79–84. Of course, regulating under statutes that explicitly set levels of acceptable risk does not involve such EPA effort. *See,*

step of the process, driven more by how the numbers happen to come out than by any deliberate allocation program.[29] Yet when EPA does define acceptable risk, it historically has done so in one of three ways:[30] zero risk, a lottery-determined risk, and de minimis/"reasonable" risk.

1. *The Zero Standard*

Zero risk at first appears to be the easiest safety standard to embrace: It should be easy to measure, and it allows society to state categorically that it will not permit deaths from toxic substances. Yet the zero standard has proven all but impossible to institute. Most notorious of zero standards is the "Delaney Clause,"[31] which in theory forbids cancer-causing chemicals as food additives in any amount, but which in practice has led to tremendous formal obstacles and considerable criticism.[32] The main difficulty with a zero standard is that nothing can conform to it. In the Delaney Clause example, pesticides sprayed in only minuscule amounts could render fruits and vegetables legally inedible, and as measurement techniques have improved, previously undetectable trace amounts are now sufficient to trigger the statutory ban. The "zero" standard itself becomes a matter of risk determination: How *closely* one looks decides how close to zero is "acceptably" zero, for nothing is ever 100% pure.

A zero standard without statutory basis was at the center of the Supreme Court's "Benzene" case, *Industrial Union Department v. American Petroleum Institute*.[33] Implementing the Occupational Safety and Health Act of 1970,[34]

> [w]herever the toxic material to be regulated is a carcinogen, the Secretary ha[d] taken the position that no safe exposure level can be determined and that [the Act] requires him to set an exposure limit at the lowest technologically feasible level that will not impair the viability of the industries regulated.[35]

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e.g., 42 U.S.C. § 7412(c)(9)(B)(i) (1994) (1990 CAA Amendments); NAPA, *supra* note 11, at 186 (differentiating between explicit and "narrative" requirements).

29. *See* Applegate, *supra* note 19, at 306 (discussing preliminary risk assessments that "narrow the range" for risk determination).

30. EPA historically has not adopted the fourth risk determination level mentioned above—a nonzero "reasonable" one. But see *infra* Section II.B, discussing proposals to set risk levels based on economic efficiency.

31. 21 U.S.C. § 348(c)(3)(A) (1994) (clause of Food, Drug, and Cosmetic Act).

32. *See, e.g.*, Margaret Gilhooley, *Plain Meaning, Absurd Results and the Legislative Purpose: The Interpretation of the Delaney Clause*, 40 ADMIN. L. REV. 267 (1988); Richard A. Merrill, *FDA's Implementation of the Delaney Clause: Repudiation of Congressional Choice or Reasoned Adaptation to Scientific Progress?*, 5 YALE J. ON REG. 1, 1 (1988). The Delaney Clause has been threatened continually with repeal, most recently by the present Congress. Marian Burros, *Congress Moving to Revamp Rules on Food Safety*, N.Y. TIMES, July 3, 1995, at 1.

33. 448 U.S. 607 (1980) (*Benzene*).

34. 29 U.S.C. § 651 (1994).

35. *Benzene*, 448 U.S. at 613. As discussed *infra*, this approach is less a decided zero standard than an undecided, technologically determined nonzero standard (the "lottery of science"). The Court's subsequent analysis, however, treated it as a zero standard.

Benzene's bitterly divided Court[36] held that the Act was meant only to prevent "significant risk[s] of harm," and that "'safe' is not the equivalent of 'risk-free.'"[37] Invalidating the Occupational Safety and Health Administration's (OSHA) regulations, the plurality observed:

> There are many activities that we engage in every day—such as driving a car or even breathing city air—that entail some risk of accident or material health impairment; nevertheless, few people would consider these activities "unsafe." Similarly, a workplace can hardly be considered "unsafe" unless it threatens the workers with a significant risk of harm.
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> Therefore . . . the Secretary is required to make a threshold finding that . . . significant risks are present and can be eliminated or lessened by a change in practices.[38]

Absent clear statutory language, then, the zero standard is not only practically unworkable, but judicially invalid as well.[39] The maxim that "no risk is acceptable" may initially seem easy to live with and understand, but only banning the toxic substance entirely can attain the zero standard, and, except in extreme cases, bans are neither judicially nor economically viable.[40] There is literally no such thing as a (risk-)free lunch.

2. *The Lottery of Science Standard*

With the bright line of the zero standard thus unavailable, EPA must determine some nonzero amount that is an "acceptable" level of risk. Yet it may still "choose not to choose"[41] this amount and instead allow our "best available technology" (BAT) to set the amount of toxic exposure at whatever

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36. There were five separate opinions: the plurality of four represented by Justice Stevens, concurrences with different rationales by Chief Justice Burger and Justices Rehnquist and Powell, and an angry dissent by Justice Marshall accusing the court of Lochnerizing, *see id.* at 723–24 (Marshall, J., dissenting).

37. *Id.* at 642; *cf.* Hazardous Waste Treatment Council v. EPA, 886 F.2d 355, 361 (D.C. Cir. 1989) (holding that minimizing health risks does not require levels of "no threat to health").

38. *Benzene*, 448 U.S. at 642. Interestingly, the plurality further justified its decision by noting that "the segment of the petroleum refining industry that produces benzene would be required to incur $24 million in capital costs and $600,000 in first-year operating expenses to provide additional protection for 300 workers ($82,000 per employee)," *id.* at 629, suggesting that some price for life may be too high. *But see* BREYER, *supra* note 11, at 15 (listing EPA benzene regulations at cost of $180 million to save single statistical life).

39. The case of Natural Resources Defense Council v. EPA, 824 F.2d 1146 (D.C. Cir. 1987), which similarly rejected the zero standard, is discussed in the next section.

40. Nor are bans themselves free of risk; they may carry high "substitution risks" and are as much a risk tradeoff as any other regulatory option. *See* Daniel C. Esty, *What's the Risk in Risk?*, 13 YALE J. ON REG. (forthcoming Spring 1996) (book review) (arguing that "there is no escaping risk analysis").

41. *See* CALABRESI & BOBBITT, *supra* note 2, at 41 (characterizing random, lottery-style allocations of scarce resources such as kidney machines as "choices not to choose"). Though Calabresi and Bobbitt never discuss environmental regulations as a form of lottery, the typology of the allocation process is remarkably similar to the phenomena they describe.

level these "best efforts" can attain. BAT risk determinations can thus be seen as a lottery of science. EPA does not determine an acceptable level of risk; it merely asks industry to "do the best it can" to lessen exposure to it.[42] However thorough our best technology happens to be determines the level of risk in the given environment.

From a risk determination perspective, then, the *Benzene* Court was clearly mistaken in treating the case as one involving a zero standard. OSHA did not seek to establish a "risk-free"[43] environment; it sought a low-risk environment where the level of risk would be determined by the quality of the best available technology. If OSHA had *really* sought a zero-risk environment, it would not have allowed the use even of the best technology if a nonzero net risk would result. The distinction was better understood in *Natural Resources Defense Council (NRDC) v. EPA*.[44] There, in an opinion by D.C. Circuit Judge Antonin Scalia, the court analyzed and rejected both NRDC's argument for a zero standard for vinyl chloride, citing *Benzene* ("'safe' does not mean 'risk-free'"),[45] and EPA's proposed BAT/Lottery standard. The court held that, when required to enforce safe levels of toxic exposure, EPA must "make an initial determination of what is 'safe,'" and base it upon "an expert judgment with regard to the level of emission that will result in an 'acceptable' risk to health," *without* considering cost or technological feasibility.[46] The lottery of science is thus invalid in such contexts.

Of course, the *Vinyl Chloride* holding allows the use of BAT methods in risk *management*, the regulation and enforcement of the safety standards, and it carefully separates risk management (identified with the statutory language "ample margin of safety") from risk assessment and determination (identified with "acceptable risk").[47] Though risk management may (and should) take feasibility and cost into account, *Vinyl Chloride*—perhaps the most conceptually sound judicial opinion on toxic risk allocation—deemed such considerations inappropriate for risk determination when EPA is statutorily required to regulate for "acceptable" risk.[48]

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42. Obviously, BAT approaches do not apply to toxics such as food additives or pesticides, and are confined to situations where a toxin is in the environment but people may be *protected* from it to one degree or another.

43. 448 U.S. 607, 642 (1980).

44. 824 F.2d 1146 (D.C. Cir. 1987) (*Vinyl Chloride*). The statute under which the case was litigated was the TSCA, discussed *supra* note 13.

45. *Vinyl Chloride*, 824 F.2d at 1153 (quoting *Benzene*, 448 U.S. at 642).

46. *Id.* at 1164–65.

47. *Id.* at 1165; *see* F. William Brownell et al., Vinyl Chloride*: An Opportunity for Rational Decision Making*, NAT. RESOURCES & ENV'T, Spring 1989, at 26, 26. The authors' argument that the *Vinyl Chloride* holding necessarily mandates two different determination levels is unconvincing. Although EPA *may* decide that an "acceptable risk" cannot be reached except within an "ample margin of safety" (e.g., 10^{-6} is unreasonable, but 10^{-5} is close enough), it need not do so, depending on the regulatory tools available and their respective costs.

48. Responding to *Vinyl Chloride*, EPA proposed four possible definitions of "acceptable" risk, which are still being considered. *See* Marchant & Danziesen, *supra* note 18.

3. *The De Minimis Standard*

EPA, then, cannot avoid making a determination of acceptable risk when required by statute to regulate for safety. Historically, EPA has refused to say that a nonnegligible risk is acceptable,[49] and has conflated "acceptable risk" and "de minimis risk," which has usually—though not always—been defined numerically as being one case of cancer per million individuals exposed.[50] Of course, the level of one cancer in a million is arbitrary on its face,[51] and not everyone agrees that a 10^{-6} risk level is desirable,[52] though it does maintain a vernacular equivalency with "negligible" ("one in a million chance").[53] Not that "negligible" is truly accurate: If spread over the American population, a 10^{-6} standard allocates 250 cancers or deaths per risk period.[54] To these people, in particular, 250 is not negligible.

Many have noted the comparative smallness of a 10^{-6} risk[55] and have cogently argued that popular perceptions, rather than "cold science," are behind

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49. *But see infra* Part II (describing proposals to deem any economically efficient risk to be acceptable).

50. *See* 42 U.S.C. § 7412(c)(9)(B)(i) (1994) (1990 CAA Amendments use bright line of 10^{-6} for hazardous air pollutants); Public Citizen v. Young, 831 F.2d 1108, 1112–13 (D.C. Cir. 1987) (de minimis risk, discussed in terms of 10^{-6} or less, rejected in Delaney Clause regulations); 55 Fed. Reg. 17,862, 17,873 (1990) (to be codified at 40 C.F.R. §§ 260–61, 264, 270) (10^{-6} risk for coal and oil fired boilers for some carcinogens, 10^{-5} for others); 53 Fed. Reg. 41,104, 41,112–15 (1988) (pesticide risks are de minimis if 10^{-6} or less); 51 Fed. Reg. 28,331, 28,344–45 (1986) (10^{-6} risk level under Safe Drinking Water Act); 50 Fed. Reg. 51,551, 51,557 (1985) (to be codified at 20 C.F.R. § 700) ("FDA cannot, with assurance, state that the 1 in 100,000 level would pose an insignificant level of risk of cancer to people. FDA can state, and comments agree, that the 1 in 1 million level represents an insignificant level of risk of cancer to people."); 50 Fed. Reg. 45,530, 45,542 (1985) (to be codified at 21 C.F.R. §§ 70, 500, 514, 571) (same). *But see* 54 Fed. Reg. 38,044, 38,045 (1989) (to be codified at 40 C.F.R. § 61) (benzene exposure levels of 10^{-4} risk). For discussions of varying definitions of negligible risk, see NAPA, *supra* note 11, at 186–91 (describing varying methods for determining risk); Daniel Byrd & Lester B. Lave, *Narrowing the Range: A Framework for Risk Regulators*, ISSUES SCI. & TECH., Summer 1987, at 92 (collecting levels of de minimis risk); Marchant & Danzeisen, *supra* note 18 (surveying approaches to "acceptable" risk for benzene); Rodricks et al., *supra* note 18, at 311–12 (comprehensive compilation of risk determinations ranging from 1×10^{-7} to 6.4×10^{-4}); Rosenthal et al., *supra* note 18, at 321 (charting acceptable risk levels and methodologies).

51. *See* Rosenthal et al., *supra* note 18, at 361 ("[T]he one-in-a-million risk level . . . is now a habit more than a choice."). Sometimes, the level is not determined at all. In regulating under FIFRA, for example, Office of Pesticide Programs (OPP) officials "do not acknowledge operating under any formal risk range," and just "tend to consider" risk between 10^{-5} and 10^{-6} to be acceptable. *Id.* at 306.

52. *See, e.g.*, NAPA, *supra* note 11, at 55 (recommending a "fuzzy bright line" of risks between 10^{-4} and 10^{-6}); Applegate, *supra* note 19, at 312 (arguing that quantifying "de minimis" is counterproductive); Joseph M. Feller, *Non-Threshold Pollutants and Air Quality Standards*, 24 ENVTL. L. 821, 875 (1994) ("[T]he entire notion of de minimis risk is probably too imprecise to guide the setting of specific air quality standards."); Marchant & Danzieson, *supra* note 18, at 554–56 (arguing that de minimis is inappropriate altogether, and advocating 10^{-4} risk level).

53. *See* BREYER, *supra* note 11, at 6; Chauncey Starr & Chris Whipple, *Risks of Risk Decisions*, *in* RISK IN THE TECHNOLOGICAL SOCIETY, *supra* note 9, at 217, 227–29 (arguing that perception of extremely small probabilities is psychologically equivalent to zero risk).

54. U.S. BUREAU OF THE CENSUS, CURRENT POPULATION REPORTS, at P25-1095 (1992).

55. The risk equals the chances of death, resulting from, for example, eating 40 tablespoons of peanut butter (cancer), living two days in New York (lung cancer from air pollution), drinking half a liter of wine (cirrhosis of the liver), and living 150 years within 20 miles of a nuclear power plant (radiation poisoning). Cristoph Hohenemser & Jeanne X. Kasperson, *Overview: Towards Determining Acceptable Risk*, *in* RISK IN THE TECHNOLOGICAL SOCIETY, *supra* note 9, at 191, 191–92.

the one-in-a-million level.[56] Of course, were risk comparison taken seriously as a means of risk determination, most toxics regulation would vanish[57] because few toxics are more dangerous than riding a motorcycle, or even experiencing global climate change.[58] Yet risk comparison, like cost-benefit analysis and issues of technological feasibility, is part of risk *management*—deciding what tools to use—not risk *determination*, deciding what risk is acceptable.[59] We may prioritize the allocation of scarce resources on the basis of risk comparison, but we do not yet determine that some death is acceptable in principle because its source is less risky than others.

Before concluding the discussion of risk determination, it is worth reemphasizing that it is distinct from risk assessment and management,[60] however intertwined they all may be in the political reality of EPA.[61] Setting levels of acceptable risk—as opposed to learning what chemicals pose what risks in what amounts—is neither a scientific decision[62] nor (so far) an economic one.[63] Measurement, cost, even the statutes involved do not count here. One can decide in a sealed room how much toxic harm is acceptable, without ever identifying the toxins, measuring how much risk they actually pose (risk assessment), or addressing how best to regulate them (risk management). Far from the supposedly scientific nature of the overall process, the heart of the actual harm allocation is a somewhat arbitrary ethical determination. The rest is arithmetic.

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56. *See, e.g.*, Frank B. Cross, *The Public Role in Risk Control*, 24 ENVTL. L. 887 (1994) (examining differences between public perception and scientific calculation of risk); Paul Slovic, *Perception of Risk*, 236 SCIENCE 280, 283 (1987) (correlating risk aversion with "unknowability" and "dread" of risk).

57. Which may, of course, be what many of today's "reformers" truly intend to bring about.

58. ENVIRONMENTAL PROTECTION AGENCY, REDUCING RISK: SETTING PRIORITIES AND STRATEGIES FOR ENVIRONMENTAL PROTECTION 13–14 (1990) [hereinafter EPA]. EPA's high-risk items are (to the environment) habitat destruction, biodiversity loss, ozone depletion, and climate change and (to human health) ambient air pollutants, worker exposure to chemicals, indoor pollution, and drinking water pollution.

59. When used to set the level of risk, risk comparison conflates public and private choice, assuming that a risk personally assented to by one person may necessarily be forced upon another. *See infra* text accompanying notes 147–55.

60. *See* Joel Yellin, *Science, Technology, and Administrative Government: Institutional Designs for Environmental Decisionmaking*, 92 YALE L.J. 1300 (1983) (tracing separation to New Deal scientific "experts" making value-free estimates).

61. *See* Barry Commoner, *The Hazards of Risk Assessment*, 14 COLUM. J. ENVTL. L. 365 (1989) (noting that risk assessments are sometimes tailored to fit risk management choice of technology).

62. The superficial nature of the scientific narrative of risk assessment has recently been observed by Wendy E. Wagner, *The Science Charade in Toxic Risk Regulation*, 95 COLUM. L. REV. 1613 (1995). Wagner paints a convincing portrait of science as a mere game played intentionally or unintentionally by bureaucrats, and alleges several ill effects of this masquerade, from transaction costs to obfuscation and delay. As discussed *infra*, however, the "science charade" plays a significant role in basing risk allocation on defensible social norms.

63. Even when economics has become intertwined with the determination of acceptable risk, it has so far done so only in the abstract. That is, courts have required "some balancing" or "some consideration" of costs, but have, as yet, never required measured benefits to exceed measured costs to industry. *See, e.g.*, Corrosion Proof Fittings v. EPA, 947 F.2d 1201, 1215–19 (5th Cir. 1991) (holding that asbestos regulations under TSCA should "take account" of costs). *But see* Natural Resources Defense Council v. EPA, 824 F.2d 1146, 1164–65 (D.C. Cir. 1987) (*Vinyl Chloride*) (holding that cost should play no role in setting acceptable risk under Clean Air Act).

B. *Risk Assessment*

Calling risk assessment "arithmetic" is a simplification, but no more so than calling it "scientific." The term "risk assessment," first used in this context in 1976,[64] refers to a four-part process: hazard identification, dose-response measurement (what effects a chemical has in what amounts), exposure assessments (how much of a chemical is in the environment), and risk characterization, which combines the previous two steps.[65] Criticisms of the process's uncertainties have been quite strong, and many reforms, including the wholesale elimination of the process, have been proposed.[66]

The uncertainties inherent in risk assessment are indeed pronounced,[67] with complicating factors ranging from the age and sex of the exposed individual to the weather at the time of exposure.[68] Data from animal testing is expensive, ethically questionable, and notoriously difficult to use as a prediction of human responses.[69] Data from human exposures is rare and difficult to interpret.[70] Even the choice of testing methodology is a controversial and sometimes dispositive decision.[71] With traditional toxicological measurement techniques tending to amplify these uncertainties,[72]

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64. Charles H. Ris & Peter W. Preuss, *Risk Assessment and Risk Management: A Process*, *in* RISK ASSESSMENT AND RISK MANAGEMENT OF INDUSTRIAL AND ENVIRONMENTAL CHEMICALS 2 (C. Richard Cothern et al. eds., 1988) [hereinafter RISK ASSESSMENT AND RISK MANAGEMENT]; *see also* Interim Procedures and Guidelines for Health Risk and Economic Impact Assessments of Suspected Carcinogens, 41 Fed. Reg. 21,402 (1976).

65. EPA has tended to label chemicals as "known human carcinogen," "probable carcinogen," "possible carcinogen," "unknown," or "not carcinogenic." EPA Guidelines for Carcinogen Risk Assessment, 51 Fed. Reg. 33,992, 34,003 (1986).

66. Constructive analyses and reforms have included those by BREYER, *supra* note 11; NAPA, *supra* note 11; and Rosenthal et al., *supra* note 18. This Note does not purport to add to the many practical analyses of risk assessment as a scientific form.

67. The range of uncertainty regarding the risk to a population's health posed by trichloroethylene in drinking water, for example, is six orders of magnitude—a factor of one million. C. Richard Cothern, *Uncertainties in Quantitative Risk Assessments—Two Examples: Trichloroethylene and Radon in Drinking Water*, *in* RISK ASSESSMENT AND RISK MANAGEMENT, *supra* note 64, at 159, 159.

68. For a list of 21 uncertainties in risk assessment, see W. Gary Flamm & Ronald J. Lorentzen, *Quantitative Risk Assessment: A Special Problem in the Approval of New Products*, *in* RISK ASSESSMENT AND RISK MANAGEMENT, *supra* note 64, at 91, 99.

69. *See* David W. Gaylor, *Quantitative Risk Estimation*, *in* RISK ASSESSMENT AND RISK MANAGEMENT, *supra* note 64, at 23, 37–38 (surveying studies of reliability of animal carcinogenicity tests across laboratory species); *see also* GREGG EASTERBROOK, A MOMENT ON THE EARTH 240–44 (1995) (criticizing animal tests for carcinogens); Joel Brinkley, *Animal Tests as Risk Clues: The Best Data May Fall Short*, N.Y. TIMES, Mar. 23, 1993, at A1.

70. *See* NAPA, *supra* note 11, at 40; Ronald E. Wyzga, *The Role of Epidemiology in Risk Assessments of Carcinogens*, *in* RISK ASSESSMENT AND RISK MANAGEMENT, *supra* note 64, at 189, 189–208.

71. *See* David D. Doniger, *Federal Regulation of Vinyl Chloride: A Short Course in the Law and Policy of Toxic Substances Control*, 7 ECOLOGY L.Q. 497, 513 (1978) (citing factor of 10^5 difference between mathematical models' estimate of 10^{-6} cancer risk).

72. *See* BREYER, *supra* note 11, at 42–45; EASTERBROOK, *supra* note 69, at 242 (mocking "peanut butter logic" of maximum tolerated dose testing). Not everyone believes that EPA is too conservative in its risk assessment, however. *See* HARRISON & HOBERG, *supra* note 11, at 28–29 (finding EPA less protective than its Canadian counterpart); Adam M. Finkel, *Has Risk Assessment Become too "Conservative"?*, 96 RESOURCES 11 (1989) (answer: no); Sonia L. Nazario, *EPA Under Fire for Pesticide*

the actual science of risk assessment is far messier than the neat myth of authoritative, "expert" scientific data.

If risk assessment is really so difficult and uncertain as to be an irrelevant step in a larger political process, Howard Latin and others have argued,[73] perhaps we should level with ourselves, dispose of the scientific "packaging" altogether, and just make the political decision, leaving EPA to decide between competing scientific claims on pure policy grounds. Reliance on "good science," Latin contends, increases opportunities for obstruction, reduces the political accountability of the allocation decision, and aggravates criticisms of regulating based on uncertainty.[74] Worse, EPA is woefully inefficient at setting numerical limits for toxic substances: In the nearly twenty years of regulation under the Toxic Substances Control Act (TSCA), EPA has set only seventeen exposure levels.[75] And worst of all, until such numerical, scientifically based levels are set, there can be no regulation at all, creating a tremendous incentive for industry to slow down the process by contesting every EPA risk assessment.[76] Surely, Latin and others argue, it is better for the consumer to have a politically based regulation than none at all.

The myth of science has considerable social value, however. To begin with, risk assessment science, though complex, is not sorcery,[77] and may be improved.[78] More importantly, though, the myth of the scientific method, from its Enlightenment origin to New Deal and latter-day policy roles, is a useful one: It pretends objectivity, rationalism, and a "finding" of the truth.[79] Even if we were to say that risk assessment is an unwieldy and unscientific process, a scientific packaging may be what justifies in the public eye what would otherwise be an unjustifiable activity: allocating cancer or death to some people, so that the rest of us may enjoy shiny oranges or clean stovetops. We

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Standards, WALL ST. J., Feb. 17, 1989, at B1 (citing EPA testing model based on consumption of only 7.5 ounces of cantaloupe, mushrooms, and zucchini a year).

73. Howard Latin, *Good Science, Bad Regulation, and Toxic Risk Assessment*, 5 YALE J. ON REG. 89, 91–95 (1988); Wagner, *supra* note 62, at 1673–88 (noting adverse consequences of use of science in toxics regulation).

74. Latin, *supra* note 73, at 126–30; *see also* Wagner, *supra* note 62, at 1674 (arguing that use of science to set standards prevents democratic participation).

75. Roe, *supra* note 12, at 181; Wagner, *supra* note 62, at 1678.

76. *See* Roe, *supra* note 12, at 181 (advocating creation of system of incentives for industry to set "bright line" de minimis levels).

77. Recent defenses of the use of science in EPA risk allocation have been put forward by Applegate, *supra* note 19, at 352–53 (defending use of scientific estimates in setting priorities); Finkel, *supra* note 72, at 12–13 (defending existing risk analysis methods and data); Russell & Gruber, *supra* note 11, at 287 (noting that uncertainty can be incorporated into policy decisions); Esty, *supra* note 40 (arguing that scientific risk analysis brings "analytic rigor to environmental decisionmaking").

78. *See, e.g.*, NATIONAL RESEARCH COUNCIL, SCIENCE AND JUDGMENT IN RISK ASSESSMENT 79–269 (1994) (National Academy of Sciences detailed proposed reforms of EPA's scientific methodology).

79. *See* Yellin, *supra* note 60. The principle of science grounding ethically troubling regulation has found favor in past legislation. *See* K.S. SHRADER-FRECHETTE, RISK ANALYSIS AND SCIENTIFIC METHOD 5 (1985) (discussing Risk Analysis Research and Demonstration Act of 1992).

may well say that none should die. But we still want the oranges.[80] What the scientific subterfuge does, so long as it is measuring "negligible" risk, is allow society to play the harm allocation game and get the prize at the end.[81] Even if we bracket the question of science's role in actually setting policy, its role in the risk allocation game is critical. Scientific risk assessment covers up risk determination so that the allocation process may proceed, just as the de minimis determination allows the "science" to do its measurement. Even if risk assessment is truly a "black box" of guesswork and covert prioritizing, the label on the box must still read "Science," not "Choice," for us to encode our social norms in our regulatory practice (or rhetoric). Otherwise we admit that we are choosing oranges over people.

C. *Risk Management*

Once the level of risk posed by a given substance is assessed, the "real work" begins: EPA must decide how to regulate the use of it. As former EPA Administrator William Ruckelshaus has said, "Scientists assess a risk to find out what the problems are. The process of deciding what to do about the problems is risk management."[82]

The risk management[83] process requires EPA to prioritize risks and choose among regulatory alternatives, weighing costs and benefits. TSCA, for example, explicitly requires the prioritizing of substances to be regulated,[84] and provides a range of regulatory tools from prohibiting substances outright to requiring warning labels.[85] EPA enjoys fairly broad discretionary power, subject to judicial review,[86] in deciding which regulatory machinery to use, but it must report on the effects of the toxin in question on human health and the environment, the toxin's benefits, and the "reasonably ascertainable economic consequences of the rule."[87]

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80. For an illuminating treatment of America's love affair with new chemicals and its "pesticide subgovernment," see Angus A. MacIntyre, *Why Pesticides Received Extensive Use in America: A Political Economy of Agricultural Pest Management to 1970*, 27 NAT. RESOURCES J. 533 (1987).

81. *See* CALABRESI & BOBBITT, *supra* note 2, at 26 (analyzing how societies dodge value-laden questions).

82. William Ruckelshaus, Speech to the National Academy of Sciences, *quoted in* Ris & Preuss, *supra* note 64, at 2.

83. The term had its genesis in the early 1980s, with its first documented use being in a National Academy of Sciences report entitled "Risk Assessment in the Federal Government: Managing the Process." Ris & Preuss, *supra* note 64, at 2.

84. *See* 15 U.S.C. § 2604(e) (1994).

85. *See id.* § 2605 (a)(1), (3), (4).

86. *See id.* § 2605 (d)(2)(B).

87. *Id.* § 2605 (c)(1)(A)–(D). While some have characterized TSCA as requiring risk-benefit calculation, *see, e.g.*, Rosenthal et al., *supra* note 18, at 306–09, the statute's requirements are quite removed from the strict language of true cost-benefit analysis. Under TSCA, EPA must only "consider and publish a statement with respect to" the economic consequences of the rule, 15 U.S.C. § 2605(c)(1)(D) (1994), not certify that these "costs" are outweighed by the "benefits" of saving a determined number of lives. This seemingly small difference is all the difference in the world; it distinguishes simply taking

Risk management is the closest EPA comes to linking safety with economics. Ironically, the often-criticized unevenness of risk management at EPA makes calculating a single regulatory price for life impossible.[88] Some, including EPA itself, have sought to smooth out this terrain by widening the parameters of EPA's risk management array[89] or calling for a centralized "risk agency."[90] Others have advocated an even larger management array, grouping environmental problems of industrialized countries together with those of the developing world.[91] Of course, under this logic, there is no reason why "environmental" risks should be managed apart from all others; if the risks from which a B-2 bomber protects us are slight, an extended risk management portfolio would suggest that our $1.5 billion would be better spent on more serious risks, environmental or otherwise. Of course, risk management is presently far more constrained than such theories would advocate, and is confined, at least for now, to the statutes under which EPA is required to regulate.

Significantly, the financial burden of the proposed regulation on *industry* is not a criterion in risk management. Rather, the orientation of present risk management options is toward maximizing yield on *regulatory* investment. The contrast between these two concepts is well illustrated by comparing 1993's "Johnston amendment"[92] and President Clinton's Executive Order No. 12,866.[93] The Johnston amendment would have required EPA to certify that the benefits of a proposed regulation "will justify the cost to the Government

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economics into account from a rigorous pricing of lives on the basis of economic facts. Saying that TSCA requires risk-benefit *balancing* is thus somewhat misleading.

88. *See* BREYER, *supra* note 11, at 24–27. Breyer's well-known chart of risk and cost effectiveness of federal regulations yields a range from $200,000 per life saved for EPA's trihalomethane drinking water standards to over $92 billion per life saved for EPA's atrazine/alachlor drinking water standard.

89. *See* EPA, *supra* note 58, at 15, 20 (seeking to attack high-priority problems such as global warming and biodiversity loss rather than relatively low-risk toxic hazards). While this approach has become dominant in policy circles, some have suggested that a rigorous economic prioritizing erodes the position of democratic government in framing questions of public value by supplanting the decisionmaking capacity of democratically elected representative bodies with a preset order of priorities. *See* Donald T. Hornstein, *Reclaiming Environmental Law: A Normative Critique of Comparative Risk Analysis*, 92 COLUM. L. REV. 562, 627 (1992); Joel A. Mintz, *Economic Reform of Environmental Protection: A Brief Comment on a Recent Debate*, 15 HARV. ENVTL. L. REV. 149, 160 (1991). *But see* Esty, *supra* note 40 (arguing that some prioritizing is unavoidable).

90. *See* BREYER, *supra* note 11, at 59–61; NAPA, *supra* note 11, at 137. While these approaches have gained considerable favor in academic circles, it is also true that situational analyses are often critical to effective risk management. We may want some unevenness across categories of regulation, depending on the relative costs, benefits, and externalities involved.

91. *See* EASTERBROOK, *supra* note 69, at 649. Unfortunately, many of the factual premises upon which Easterbrook's tome is based have been shown to be incorrect. Steven Schneider, Remarks at Ecorealism: Towards the Next Generation of Environmental Policy, Yale Law School (Apr. 8, 1995); ENVIRONMENTAL DEFENSE FUND, A MOMENT OF TRUTH: CORRECTING THE SCIENTIFIC ERRORS IN GREGG EASTERBROOK'S *A MOMENT ON THE EARTH*, PART 1 (1995).

92. The Amendment was to S. 171, 103d Cong., 1st Sess. (1993), the bill elevating EPA to cabinet status, and passed the Senate 95–3 on April 29, 1993. The bill ultimately failed in Congress. *See* NAPA, *supra* note 11, at 56–57.

93. Exec. Order No. 12,866, 58 Fed. Reg. 51,735 (1993).

and the public of Implementation of and compliance with the regulation."[94] In contrast, the Clinton order requires that EPA choose *from the set of regulatory alternatives* the one that "maximizes net benefits."[95] By taking into account costs to industry[96] in deciding whether or not to issue a regulation at all, the Johnston amendment thus implicates risk determination, while the Clinton order merely affects risk management.[97] The Clinton version does not affect the level of acceptable harm itself; the Johnston amendment does. This distinction is critical for understanding the role of cost-benefit analysis in risk allocations, because it distinguishes between cost-benefit risk determination (deciding *how much* risk is acceptable based on costs and benefits) and cost-benefit risk management (deciding how toxins are best regulated), a key distinction in current regulatory reform debates.

Thus, the economic considerations of risk management are two degrees removed from actually pricing lives; they are uneven across categories, and they determine only means, not ends. Were risk allocation really driven by cost-benefit analysis, every regulation would have to yield greater benefits (saved lives) than costs; the setting of the initial level of protection would be dependent on its economic efficiency. Presently, though, only the means depend on economics; the ends depend on the scientific measurement of de minimis harm.

D. *The Public Dynamic of Toxic Harm Allocation*

The dynamic of toxic harm allocation is thus driven by two mutually reinforcing engines: the myth of science and the de minimis standard of safety. Risk allocation is tolerable, information costs notwithstanding,[98] because it is

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94. S. 171, 103d Cong., 1st. Sess. (1993) (Johnston amendment) (emphasis added). The language of the Johnston amendment was incorporated wholesale into H.R. 9, *see infra* text accompanying note 135, but notably without the caveat that if EPA cannot make the certification required, it may "report to Congress that such certification cannot be made." *See* NAPA, *supra* note 11, at 56.

95. Exec. Order No. 12,866, 58 Fed. Reg. 51,735 (1993). Both costs and benefits are defined far more broadly, and with no requirement of quantification, in the Clinton executive order than in the Johnston amendment, or H.R. 9, which copies it.

96. Recent regulatory reform initiatives have likewise explicitly included costs borne by "the private sector" in EPA cost-benefit analyses. H.R. 9, *supra* note 6, § 3201(c)(1).

97. The term "merely" should not mislead. Courts have invalidated EPA regulations under TSCA because they were not adequately compared to regulatory alternatives, as required by the statute. *See* TSCA § 6(a), 15 U.S.C. § 2618(c)(1)(B)(i) (1994); Corrosion Proof Fittings v. EPA, 947 F.2d 1201 (5th Cir. 1991) (holding that ignoring cost of regulations and failing to consider alternatives invalidates asbestos ban). Dicta in *Corrosion Proof Fittings* suggests that cost should have figured into EPA's risk determination of "reasonableness" as well, though the court limited itself to requiring EPA to take cost into *some* account, noting that EPA's estimate of $23 million per one-third of a life rendered TSCA's required economic review "meaningless." 947 F.2d at 1223.

98. Of course, the risks associated with some toxics are well publicized. *See* BREYER, *supra* note 11, at 48–49 (discussing media coverage of pesticide EDB); EASTERBROOK, *supra* note 69, at 249 (recalling Alar scare of 1990). Indeed, some have alleged that toxics are *too much* on Americans' minds. *See* MARY DOUGLAS & AARON WILDAVSKY, RISK AND CULTURE 52–57 (1982); EASTERBROOK, *supra* note 69, at 228–31.

said to be a (1) scientific measurement of (2) safety, a first-order allocation of only a "negligible" amount of risk.[99] Risk assessment obscures risk determination, yet at the same time a de minimis determination enables risk assessment to proceed as mere measurement.

It should briefly be noted that the first-order-only nature of the allocation (i.e., only how much harm to allocate, not who gets it)[100] is quite pronounced: The victims of this harm are utterly anonymous, even after their hard-to-trace cancers occur, hidden behind a quasi-Rawlsian "veil of ignorance"[101] wherein the public does not know their names, places in society, or individual marginal risks. *Ex ante*, EPA is only allocating "risk." Each of us shares minutely in the burden, and only some faceless statistics suggest that the harm may be real.

This is not always the case, of course, and when the veil of ignorance is lifted, different dynamics emerge. In toxic waste dump siting, for example, EPA and industry alike must contend with "NIMBYs"[102] who oversee toxics far more strictly than does EPA. Siting issues have also called attention to environmental racism, perhaps the most dramatic example of nonrandom, second-order harm allocation.[103] Society still appears to subscribe to the principle of "corrected egalitarianism"—that permissible discriminations cannot be mixed with impermissible ones.[104]

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99. It may be that we do not mind EPA pricing lives simply because the prices are reasonable: Maybe the baseline principle of pricing lives is not intolerable after all. As pop culture artifacts such as the film INDECENT PROPOSAL (Paramount 1993) suggest, pricelessness is, ironically, a relative term. Yet it still seems fair to say that society continues to scorn bald exchanges of death for a benefit. Only when one gains foundational benefits—"dying for one's country" or even "dying for love"—is the trade generally understood to be acceptable. It thus makes sense to look for those factors that distinguish acceptable tradeoffs or allocations from unacceptable ones.

100. See CALABRESI & BOBBITT, *supra* note 2, at 19, for the original exposition of the first-order/second-order distinction.

101. JOHN RAWLS, A THEORY OF JUSTICE 136–42 (1971).

102. The acronym stands for "Not In My Back Yard" and refers to local citizens' groups organized to fight an existing or proposed threat. *See* William Glaberson, *Coping in the Age of "Nimby"*, N.Y. TIMES, June 19, 1988, at C1; *see also* Town of Warren v. Hazardous Waste Facility Site Safety Council, 466 N.E.2d 102 (Mass. 1984) (holding that state statutes requiring hazardous waste facilities trump town bylaws excluding disposal facility). Statutory burdens placed on industry also tend to be stricter when victims are not anonymous. Title III of SARA, the Emergency Planning and Community Right-to-Know Act, 42 U.S.C. § 11004 (1994), requires industry to report in detail all hazardous pollutants being discharged, at an expected cost of $4 billion per decade. Elizabeth Grillo Olson, *When a Chemical Company is Forced to Tell All*, N.Y. TIMES, July 3, 1988, at C8.

103. *See* Robert W. Collin, *Environmental Equity: A Law and Planning Approach to Environmental Racism*, 11 VA. ENVTL. L.J. 495 (1992). By no means is there consensus on how to interpret environmental racism data. *See, e.g.*, Vicki Been, *What's Fairness Got to Do With It? Environmental Justice and the Siting of Locally Undesirable Land Uses*, 78 CORNELL L. REV. 1001, 1016 (1993) (noting that economic and racial shifts often occur *after* facility siting). Whatever the controversy, environmental justice has become an official priority in environmental decisionmaking. White House Memorandum on Environmental Justice, 30 WEEKLY COMP. PRES. DOC. 279 (Feb. 11, 1994). The accompanying executive order required that all federal agencies include analysis of effects on minority communities as part of the review required by the National Environmental Policy Act (NEPA), 42 U.S.C. § 4321 (1994).

104. CALABRESI & BOBBITT, *supra* note 2, at 25.

Science, though, plays the greatest role in politically legitimizing toxic harm allocation. "Safe" may not be "risk free," yet EPA's job is still commonly thought of as measuring and ensuring, not allocating.[105] If the latter's ethical dimensions remain murky and uncertain, the former has clear, "objective" appeal. The legitimation goes both ways. Just as science legitimizes the regulatory process, de minimis determinations enable and legitimize the scientific project of "measuring" a "safe" amount of a toxin.

Calling allocation "measurement" only makes sense when the scientific method is allowed to work its myth, of course.[106] If we were to change the system and *decide* that some defined number of people can die (based on economic, political, or other considerations), then we really are allocating harms, deciding how many lives are worth exchanging for whatever toxic benefit is in question. This change is now being debated in Congress.

II. "REFORMED" TOXICS REGULATION

Newt Gingrich promised upon his installation as Speaker of the House of Representatives to bring about a "revolution" in American government.[107] While this claim may have been overstated, recent regulatory reform proposals—most notoriously the *Contract with America*'s obfuscatingly named Job Creation and Wage Enhancement Act of 1995[108]—would fundamentally alter the ethical basis of environmental and health regulation, moving it from one without tolerance for nonnegligible, scientifically measured risks to one that tolerates any risk whose prevention costs industry too much.

Particularly in this election year, it has been suggested that "reform" is but a code word for less regulation, that the real purpose of these onerous new requirements is simply to drown the administrative state in red tape.[109] Yet

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105. *See* Russell & Gruber, *supra* note 11, at 287. For a thorough ethical critique of the present, science-based risk allocation process, see SHRADER-FRECHETTE, *supra* note 79.

106. Indeed, it does not matter even if science really is a "charade" or health a "canard," as Wagner and Melnick argue, respectively. R. Shep Melnick, *The Politics of Benefit-Cost Analysis, in* VALUING HEALTH RISKS, COSTS, AND BENEFITS FOR ENVIRONMENTAL DECISION MAKING: REPORT OF A CONFERENCE 23, 35 (P. Brett Hammond & Rob Coppock eds., 1990); Wagner, *supra* note 62. Charades may be dramatic rather than descriptive acts, but they nonetheless may convey important information, as dramas have done from Sophocles to O.J. Simpson.

107. *See* NEWT GINGRICH, TO RENEW AMERICA 115, 139 (1995).

108. The bill was Item #8 of the Republican *Contract with America*, *see* CONTRACT WITH AMERICA 11 (Ed Gillespie & Bob Schellhas eds., 1994), and passed the House on February 28, 1994 as H.R. 9, *supra* note 6, before becoming bogged down in the Senate. There is insufficient space here to discuss all of H.R. 9's proposed reforms, ranging from 23-step "Regulatory Impact Analyses," H.R. 9, *supra* note 6, § 7004(B)(1), to the amusing "Citizens' Regulatory Bill of Rights." *Id.* § 8101(A) (requiring federal investigators to advise alleged violators of their right "to have an attorney or an accountant present"). Particularly as regulatory reform proposals are bandied back and forth again in Congress, the practical consequences of such provisions await detailed treatment.

109. For a graphic representation of the dizzying new bureaucracy H.R. 9 would have established, see Gregory S. Wetstone, *And Now, Regulatory Reform*, N.Y. TIMES, Feb. 23, 1995, at A23. For a cogent description of industry-driven antienvironmental legislation, see MacIntyre, *supra* note 80, at 566–74. Some editorialists have suggested that simple obstructionism might be a good idea. *See, e.g.*, *Real Risk Reform*,

it is worth taking H.R. 9 and its ilk at their word, primarily because "regulatory reform," a veritable shibboleth of the early 104th Congress, has recently become an open question once again. H.R. 9's Senate counterpart,[110] once seen as a *fait accompli*, has been shelved, and new, more "moderate" bills have recently been introduced[111] as G.O.P. leaders fret over their party's election-year image as an antienvironmental pawn of big business.[112] Even cost-benefit analysis's corporate backers are pondering a "tactical retreat."[113] Still, nearly everyone agrees that some reform of the regulatory process is needed.[114] Now, as competing means to do so are debated afresh in Congress, their varying consequences for the practice, politics, and ethics of risk allocation have created a pressing and politically volatile debate.

Cost-benefit analysis has been, and will continue to be, an integral part of regulatory reform initiatives. Indeed, the concept has been something of an obsession in G.O.P. legislation and rhetoric.[115] Yet this form of analysis is not a neutral tool of reform, as this Note hopes to show. When it is used to decide the ends of environmental regulation (how much harm to have) as opposed to the means (how to attain the desired harm level),[116] it is an ethical reorientation as well as a practical one, changing toxics regulation from a proxy liability rule where persons own the entitlement to their bodies to a proxy property rule where toxics producers own the entitlement to destroy it. Cost-benefit as used in H.R. 9 does not merely reform the regulatory state; it shifts its very foundation onto the dubious ground of economic efficiency.

A. *Varieties of Regulatory Reform: Title III of H.R. 9*

The provisions of Title III of H.R. 9 exemplify the sorts of subtle distinctions between competing regulatory reform initiatives. All of Title III's requirements are burdensome, but, remembering the proposed framework for understanding risk allocation from Part I, only those reforms that target risk

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WALL ST. J., April 18, 1995, at A20 ("Ensnaring bureaucrats in red tape isn't a bad idea . . . ."). Bluster such as this highlights the differences between those who truly seek to reform the regulatory process and those who seek only to obstruct or destroy it.

110. S. 343, 104th Cong., 1st Sess. (1995) (proposed by Sen. Robert Dole).

111. *See* John H. Cushman, Jr., *G.O.P. Is Reviving Plans To Reduce Regulations*, N.Y. TIMES, Mar. 2, 1996, at A10 [hereinafter *G.O.P. Reviving Plans*].

112. *See* John H. Cushman, Jr., *G.O.P. Backing off from Tough Stand over Environment*, N.Y. TIMES, Jan. 26, 1996, at A1 [hereinafter *G.O.P. Backing Off*].

113. John H. Cushman, Jr., *Businesses Scaling Back Plans to Defang Federal Regulations*, N.Y. TIMES, February 3, 1996, at A1 [hereinafter *Businesses Scaling Back*].

114. Indeed, the "tactical retreat" described above would in fact be a congressional version of President Clinton's Executive Order No. 12,866, 58 Fed. Reg. 51,735 (1993), discussed *supra* text accompanying notes 92–97, which requires some "taking account of" costs in evaluating regulatory alternatives. *Businesses Scaling Back*, *supra* note 113, at A1. Nor are Republicans alone in proposing regulatory reform bills. *See* John H. Cushman, Jr., *Opponents Nervous as a Democrat Tries Regulatory Overhaul*, N.Y. TIMES, Mar. 12, 1996, at A13.

115. *See infra* text accompanying notes 137–40.

116. That is, risk determination as opposed to risk assessment and management.

determination affect the ethics of regulation; those that remain confined to risk assessment and management affect only its application. Because these distinctions within the regulatory process are distinctions in ethics as well, not all reforms are created equal.

Subtitle A of Title III,[117] for example, proposes a new and detailed method for risk assessments by "any federal agency[118] in connection with federal regulatory programs designed to protect human health, safety, or the environment."[119] EPA would have to (1) justify its risk assessment methodology both in principle and in practice, (2) explain any conflicting information between its risk assessment and others', (3) describe what it considers to be the "reasonable range of scientific uncertainties" in the risk assessment, (4) discuss its exposure scenarios and the likelihood of their coming to pass, (5) compare the risk being regulated to other risks "familiar to and routinely encountered by the general public," (6) estimate the substitution risks to human health of not having the toxin, and (7) formally respond to any alternative risk assessments proposed by interested parties.[120]

Obviously, these requirements greatly increase EPA's workload. Moreover, their terms are ambiguous, and, with "alternative" risk assessments involved, the prospects for obstruction are bountiful. Yet upon close inspection, these many formal restrictions all pertain to risk assessment, none to risk determination. Consequently, they represent relatively little change in regulation's *ethical* basis, which remains ostensibly one of scientifically measured safety. Though EPA's role as scientific arbiter is effectively handed over to the courts, who are to arbitrate between EPA's risk assessments and

117. H.R. 9, *supra* note 6, § 3101 et seq. Remaking EPA's risk assessment apparatus has remained a focal point, together with cost-benefit analysis, of subsequent regulatory reform proposals. *See G.O.P. Reviving Plans*, *supra* note 111.

118. The term "federal agency" is defined in H.R. 9, *supra* note 6, § 3107(5), as including all executive departments, military departments, and administrative agencies. If eventually written into law, this clause should provide interesting test cases for enterprising liberals. As the subtitle is presently constructed, military departments would be required by law to engage in the lengthy risk assessment and communication procedures described below for any risk assessment in connection with "federal regulatory programs designed to protect human . . . safety." *Id.* § 3103(B)(1). While not every military expenditure is connected to a *regulatory* program, those that are (including, perhaps, those pursuant to the nuclear nonproliferation treaty?) should be covered by H.R. 9's regulatory provisions.

119. *Id.* § 3103(B)(1). Although § 3103(B)(2)(a)(ii) excludes from the new risk assessment process "screening analys[es] for the purpose of product regulation," presumably to exclude routine FDA approvals of new substances and the like, subparagraph B of the same section specifically exempts from this exclusion any analysis that serves "as the basis for imposing restrictions on substances or activities," such as those undertaken as part of TSCA. *Id.* § 3103(B)(2)(b)(i). Given that all regulation may impose some restrictions, one wonders what product regulations *would* fall under this exemption.

120. *Id.* §§ 3104(b)–3106(e). In light of Subtitle A's new requirements, it is interesting to note that in a comparative study, EPA was found already to justify its scientific methodology to a far greater extent than that of its Canadian counterpart. HARRISON & HOBERG, *supra* note 11, at 171–73.

the "others" to which H.R. 9 refers,[121] science remains the deciding criterion, and "safety" still determines the level of toxic harm that EPA allocates.

Similarly, Subtitle C of Title III proposes "a systematic program for peer review of risk assessments and economic assessments used by federal agencies,"[122] another reform provision that remains an item of continued debate in Washington. Aside from further slowing down the regulatory process,[123] the institution of such panels for all "major rules"[124] makes "interested parties" a formal part of the regulatory apparatus, and it is significant that parties may not be excluded from peer review panels "merely because they represent entities that may have a potential interest in the outcome, provided that interest is fully disclosed to the agency."[125] One does not have to be cynical to predict that those most interested and most capable of sitting on peer-review panels are those with financial interests in the regulations at issue,[126] and it is unclear why taxpayers should pay for the lobbying services, currently provided to Congress at industries' expense, especially since peer reviews are already conducted on a regular but informal basis at EPA.[127] Yet vetoless peer review panels only ensure that policymakers answer to those individuals who prefer not to have their toxics regulated.[128] EPA remains the final allocator of harms. Politics is certainly affected—ethics, narrowly defined, less so.

Subtitle B of Title III and its progeny, in contrast, promise a wholesale shift in the ethical orientation of centralized harm allocation by requiring that regulations be cost-benefit justified, i.e., that the level of acceptable risk be

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121. *But cf.* CALABRESI & BOBBITT, *supra* note 2, at 69 (discussing merits of "priesthood" making allocation decisions); NAPA, *supra* note 11, at 49 (recommending that judicial review of risk assessments be "constrained"). Of course, having courts serve as arbiters is particularly questionable if science remains the standard of decision.

122. H.R. 9, *supra* note 6, § 3301(a).

123. Agencies must "provide a written response to all significant peer review comments," which may include dissenting opinions, evaluations of data and methodology, etc. *Id.* § 3301(d). No time limit for the peer review process is specified in the bill.

124. "Major rule" is defined in H.R. 9 as any regulation

> likely to result in one or more of the following: (a) an annual effect on the economy of $100,000,000 [sometimes $20,000,000, depending on the provision] or more, (b) a major increase in costs or prices for consumers, individual industries, federal, state, or local government agencies, or geographic regions, (c) significant adverse effects on competition, employment, investment, productivity, innovation, or on the ability of United States-based enterprises to compete with foreign-based enterprises in domestic or export markets.

Id. §§ 3301(h), 3201(c)(2). Since both direct and indirect economic effects are taken into account, anyone with creative legal representation can characterize virtually any rule as "major" under this definition.

125. *Id.* § 3301(a)(3).

126. *But see* DOUGLAS & WILDAVSKY, *supra* note 98, at 168–72 (characterizing environmental groups as elitist, "sectarian" enterprises seeking to strengthen government control over masses by inducing panic over inconsequential harms).

127. NAPA, *supra* note 11, at 40.

128. In fact, Subtitle C confusingly establishes two different sets of peer-review panels. The first is regulation-specific; each major rule requires a peer-review panel to evaluate it. The second are described in § 3301(g) as "national peer review panels," designed "to annually review the risk assessment and cost assessment practices of each federal agency for programs designed to protect human health, safety, or the environment." H.R. 9, *supra* note 6, § 3301(g).

determined by economic efficiency. There is a maze of cost-benefit requirements for every "major rule"[129] in H.R. 9. EPA (and every other "executive branch agency"[130]) must twice assess "incremental costs and incremental risk reduction or other benefits" of both the proposed rule and "each significant regulatory alternative."[131] It must compare the "risks addressed by the regulatory alternatives to other risks chosen by the head of the agency, including at least three other risks regulated by the agency and to at least three other risks with which the public is familiar"[132] and (re)state the substitution and any other risks brought about by implementing the regulation.[133]

So far, Subtitle B looks much like a simple (and common) risk comparison proposal. But the subtitle also requires EPA to certify both "that the rule will produce benefits to human health or the environment that will justify the costs,"[134] and "that there is no regulatory alternative . . . that would achieve an equivalent reduction in risk in a more cost-effective manner, along with a brief explanation of why other regulatory alternatives that were considered . . . were found to be less cost-effective."[135]

These last certifications represent the familiar dichotomy between cost-benefit risk determination, embodied in the Johnston amendment, and cost-benefit risk management, embodied in the Clinton order, as discussed above.[136] The latter affects only the choices of regulatory tools; the former the ethical underpinnings of the entire allocation process. The change itself is this: Presently, only "insignificant" risk is deemed acceptable. Under this clause, "efficient" risk must be deemed acceptable. This proposition will be dealt with below.

B. *Cost-Benefit Analysis in Risk Allocation*

As mentioned earlier, cost-benefit analysis is no stranger to the regulatory process. Nor are Republican efforts to increase its role new.[137] President Reagan had sought to do so by executive order,[138] but his action was struck

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129. *See supra* note 124.

130. *Id.* § 3201(a). It is unclear why § 3201 does not use the same "federal agency" designation as § 3107; perhaps the provision was more limited in light of the increased burden of cost-benefit analyses.

131. *Id.* § 3201(a)(1), 3201(a)(4). EPA must certify that this assessment is based on "an objective and unbiased scientific and economic evaluation of all significant and relevant information provided to the agency by interested parties." *Id.* § 3201(a)(1). For the futility of this task, *see infra* Section II.B.

132. *Id.* § 3201(a)(2); *see infra* text accompanying note 186.

133. *Id.* § 3201(a)(3).

134. *Id.* § 3201(a)(5)(C). Importantly, these costs explicitly include those borne by the private sector. *Id.* § 3201(c)(1).

135. *Id.* § 3201(a)(5)(D).

136. *See supra* text accompanying notes 92–97.

137. In fact, many of H.R. 9's provisions are copied verbatim from the 1993 Johnston amendment to S. 171. *See supra* text accompanying note 93.

138. Exec. Order No. 12,291, 46 Fed. Reg. 13,193 (Feb. 19, 1981).

down on separation of powers grounds in *Environmental Defense Fund v. Thomas*.[139] President Bush sought to vest cost-benefit veto powers in his Council on Competitiveness.[140] Now, as Reagan himself might have said, "Here they go again."

Calculating the costs of a regulation may be difficult in practice,[141] but it is not hard in principle. H.R. 9 defines costs as "the direct and indirect costs to the United States government, costs to state and local governments, *and costs to the private sector*, of implementing and complying with a regulatory action."[142] Even though this is a radical departure from the present policy of considering administrative costs exclusively, and that only in the context of risk management, the calculations have already been attempted.[143] Calculating the "benefits" of being free from cancer, though, begs the question of "how can we set a dollar value for life" in two ways. First, practically: In what way can we most accurately set a price for life? Second, ethically: How can we price lives at all? Each question will be dealt with in turn.[144]

1. *The Practical Calculus of Risk*

Regulatory reform provisions, including H.R. 9, have so far remained silent as to how EPA is to measure or quantify the "benefits" of not giving someone cancer, or even of not despoiling a pristine ecosystem.[145] Roughly,

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139. 627 F. Supp. 566 (D.D.C. 1986).

140. *See* EASTERBROOK, *supra* note 69, at 457–59.

141. *See* Doniger, *supra* note 71, at 514–15 ("The costs of controlling exposure to a toxic substance are shrouded in as much uncertainty as the risks of the exposure."); Hohenemser & Kasperson, *supra* note 55, at 196 ("Risk/benefit analysis breaks down altogether when risks or benefits cannot be reliably quantified, as in the case of toxic chemicals."). Substitution cost—the value of the toxin to society expressed as the cost of replacing it—is itself difficult to estimate, with toxins being used in everything from essential biomedical materials to bright red maraschino cherries. One should not, incidentally, presume that cost-benefit analysis is a mere proxy for less regulation; the reverse result has sometimes been true. *See* Feller, *supra* note 52, at 882 (discussing sulfur dioxide standards tightened after cost-benefit analysis).

142. H.R. 9, *supra* note 6, § 3201(c)(1) (emphasis added).

143. *See* Robert Hahn & John Hird, *The Costs and Benefits of Regulation: Review and Synthesis*, 8 YALE J. ON REG. 233 (1991). While Hahn and Hird's measurements of regulatory costs are quite comprehensive, it is curious, given the title of the article, that regulation's benefits are never discussed.

144. For discussions of cost-benefit analysis generally, see W. KIP VISCUSI, RISK BY CHOICE: REGULATING HEALTH SAFETY IN THE WORKPLACE 15–52 (1983); Melnick, *supra* note 106. *See also* DOUGLAS & WILDAVSKY, *supra* note 98, at 69–71 (warmly endorsing "rationalism" in risk allocation).

145. Though this Note focuses on human "benefits," quantifying environmental benefits is not at all an easy question. Presumably some sort of "productive value" calculation would be used for utilitarian environmental harms. For unique or endangered environmental treasures, however, some have used public surveys to measure the surrender value of natural objects. *See, e.g.*, Peter Passell, *Disputed New Role for Polls: Putting a Price Tag on Nature*, N.Y. TIMES, Sept. 6, 1993, at A1 (discussing State of Alaska poll of Americans' willingness to pay to prevent another Exxon-Valdez spill; $30 average answer yielded $2.8 billion total for U.S. population). Of course, such surveys are open to the charges that people's "willingness to pay" tends to be inflated when payment is not actually expected, and that such logic is a slippery slope (should one *always* measure liability damages by asking for "replacement value"?). For more nuanced treatments of the environmental valuation problem, see ALDO LEOPOLD, *The Land Ethic*, *in* A SAND COUNTY ALMANAC 237, 262 (1949) ("A thing is right when it tends to preserve the integrity, stability, and beauty of the biotic community."); PAUL W. TAYLOR, RESPECT FOR NATURE: A THEORY OF ENVIRONMENTAL ETHICS (1986) (presenting Kantian environmental ethic based on qualities of intrinsic

EPA may do the job in three ways: by avoiding pricing lives, by pricing lives directly, or by setting an arbitrary cost-benefit level. No method of cost-benefit analysis can wholly avoid its inherent practical difficulties—that it overvalues short-term gratification of apparent preferences over long-term maximization of goods,[146] that it allocates harm in a distributionally unjust manner (children, the disabled, and the elderly bearing a disproportionate share of the risk), and so on—yet each of the three approaches to cost-benefit analysis carries its own set of peculiar practical dilemmas.

a. *Nonpricing Methods of Valuing Human Life*

Some methods of cost-benefit analysis that may avoid the unpleasant task of setting a price for human life have cropped up from time to time in the academic literature. These methods include (1) comparing risks to others popularly accepted, (2) regulating up to a point of diminishing returns, or (3) balancing lives saved against lives lost in regulation. All of these approaches seek to perform "no mess" cost-benefit analysis—maximizing efficiency without saying that a human being has a monetary worth.

Risk comparison is no-mess cost-benefit analysis at its finest, and has found some tacit endorsement in both judicial opinions[147] and legislative proposals.[148] Its theory is that there is no need to price lives because the public has already done so by expressing its preferences for certain risky activities. If this principle were taken seriously, however, most toxics regulation would vanish because "ordinary" risks are often very risky indeed: Few toxics pose a greater threat than smoking or riding a bicycle. Assuming we do not wish to compel all individuals to breath toxic fumes or eat pesticide-laden foods, risk comparison can be modified to resemble a willingness-to-pay calculation,[149] in which ordinary risk-benefit situations are used to extract a conventional "safety price." If an average airline passenger gets $200 of pleasure (i.e., the price of the ticket) for a flight, at a 10^{-6} risk of death, then

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value, inherent value, and merit); Laurence H. Tribe, *Ways Not to Think About Plastic Trees: New Foundations for Environmental Law*, 83 YALE L.J. 1315 (1974).

146. *See* Donald VanDeVeer & Christine Pierce, *Cost Benefit Analysis: Are We Bewitched by Numbers?*, *in* PEOPLE, PENGUINS, AND PLASTIC TREES: BASIC ISSUES IN ENVIRONMENTAL ETHICS 238, 239 (Donald VanDeVeer & Christine Pierce eds., 1986).

147. *See supra* text accompanying note 38 (quoting Industrial Union Department v. American Petroleum Institute, 448 U.S. 607, 642 (1980) (*Benzene*)). Similarly, the Fifth Circuit, striking down an EPA ban on asbestos pipe, noted that "over the next 13 years, we can expect more than a dozen deaths from ingested *toothpicks*—a death toll more than twice what the EPA predicts will flow from the quarter-billion-dollar bans of asbestos pipe, shingles, and roof coatings." Corrosion Proof Fittings v. EPA, 947 F.2d 1201, 1223 n.23 (5th Cir. 1991); *see supra* note 63. The court did not endorse any explicit risk comparison algorithm, however.

148. *See* H.R. 9, *supra* note 6, § 3105(3).

149. For a classic willingness-to-pay approach to safety regulation, see Gary Fromm, *Civil Aviation Expenditures*, *in* MEASURING BENEFITS OF GOVERNMENT INVESTMENT 172, 193–96 (Robert Dorfman ed., 1965).

the risk is worth, at most, $200. So too, we may say—with no messy calculations—that the one-in-a-million risk of death (or cancer) from dioxin, for example, can be worth no more than $200 per person.

No mess, but little accuracy either.[150] First, it does not seem intuitively apparent that most people would sign off on such risks, for psychological and political-philosophical reasons.[151] Second, not everyone faces the same amount of risk from a given chemical, as may be the case with "ordinary risks." Every airplane passenger may face equal odds of survival, but a two-year-old asthmatic child is at much greater risk of death from an airborne pollutant than a twenty-year-old triathlete. The risk comparison method of pricing lives makes those at greater risk (the very old, the very young, etc.) pay quite a price for being at the wrong end of the bell curve.[152] Third, people value their lives differently, for personal and distributional reasons, with no obvious common calculus between the millionaire and the pauper. Fourth, and most importantly, risk comparison conflates public and private choice; the state forcing an individual to accept a risk is not ethically equivalent to that individual taking it on voluntarily.[153] There is a difference between a person choosing to smoke and the state blowing carcinogenic smoke in her face.[154] Risk comparison, for all its rhetorical, bogus utilitarian appeal, seems a poor practical approach to pricing lives.[155]

A second attempt to avoid pricing lives directly is to use the "heel of the graph" of costs and benefits to determine a point of diminishing marginal returns on industry's investment. If it costs $10,000 to save the first ten lives in a toxics factory, and $1,000,000 to save the next ten, the *shape* of the cost-benefit curve will indicate the efficient safety level, without depending at all on the actual numbers: The rule would simply be to stop regulating when the cost-benefit curve becomes too steep. Of course, the main problem with this

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150. *See generally* Hornstein, *supra* note 89, at 592–616 (noting distributional inequities and "cognitive errors").

151. *See* W. KIP VISCUSI, FATAL TRADEOFFS: PUBLIC AND PRIVATE RESPONSIBILITIES FOR RISK 263–65 (1992) (noting disparities in life valuation across regulatory contexts); Slovic, *supra* note 56, at 281–83 (correlating desire to regulate a substance with "dread" and "unknowability" and comparing risk priorities across demographic groups); *see also* Mark Sagoff, *At the Shrine of Our Lady of Fatima, or Why Political Questions Are Not All Economic*, 23 ARIZ. L. REV. 1283, 1283 (1981) (recounting popular rejection of risk comparison analysis).

152. *See* John D. Graham & Jonathan Baert Wiener, *Confronting Risk Tradeoffs*, *in* RISK VS. RISK: TRADEOFFS IN PROTECTING HEALTH AND THE ENVIRONMENT 1, 34–35 (John D. Graham & Jonathan Baert Wiener eds., 1995) [hereinafter RISK VS. RISK] (noting distributional inequities in exchanging risks).

153. *See infra* text accompanying note 183.

154. Risk comparison may also cut the wrong way for regulatory "reformers." In the example above, $200 is the price *per person* of a 10^{-6} risk. With 250 million potentially exposed individuals, this yields a regulatory cost ceiling of a whopping $50 billion.

155. *See* Graham & Wiener, *supra* note 152, at 26–28 (risk tradeoff calculations). Graham and Wiener's work, if nothing else, serves to emphasize that risk comparison is by no means a simple, binary task. As another article in the same volume suggests, risk comparison is indeed quite useful in risk management situations where a "lesser of two evils" must be chosen and to avoid "tunnel vision." George M. Gray & John D. Graham, *Regulating Pesticides*, *in* RISK VS. RISK, *supra* note 152, at 173, 191, but risk comparison as a form of risk *determination* is rife with complexity and error.

method is that not every graph has a heel. Sometimes, protection is all-or-nothing; sometimes, the costs of protection rise steadily with the benefits. Worse, in terms of the pesky externalities of allocating cancer, some "heels" may come too early, others too late. While it may be efficient to save only the first ten lives out of a given population, hundreds more may also be at high risk and may not accept their marginal costs so readily. While a useful weapon in some risk management artilleries, measuring the diminishing returns of toxic death is sometimes as unappealing as it sounds.

One last way for EPA to dodge the bullet of actually setting a price for life would be to argue that the regulation costs lives even as it saves them. The trickle-down theory of "cost-cost" analysis holds that, because regulation costs money, it can be expected to lower incomes over the aggregate, thus worsening health conditions to some point at which mortality can be expected.[156] The amount of money at which mortality can be expected is the "value" of a life, because there is no reason to save one life at the expense of another. While some arguments in this vein seem like tortured attempts to spread the cost of obeying the law,[157] the general theory has been endorsed by at least one judicial authority[158] and has begun to receive some media attention.[159] The theory is appealing: Like risk comparison, it has no messy valuations of human life, and it makes sense not to kill one person to save another. The problem, of course, is measurement. While epidemiological data connecting health to income is sound,[160] there is no more evidence linking the expenditures of a chemical company to the well-being of citizens living on the margin of poverty than there is of any of supply-siders' "voodoo economics."[161] Moreover, the investments in safety made by chemical manufacturers do not disappear; in many cases, they support entire industries.[162] And while the possible health effects of massive, concentrated layoffs (rarely the case in toxics regulation)

156. Ralph L. Keeney, *Mortality Risks Induced by Economic Expenditures*, 10 RISK ANALYSIS 147 (1990). Keeney estimates this nexus cost to be about $7.25 million (in 1980 dollars). *Id.* at 154.

157. *See, e.g.*, Aaron Wildavsky, *Richer is Safer*, 60 PUB. INTEREST 23 (1980); Aaron Wildavsky, *Wealthier is Healthier*, REGULATION, Jan./Feb. 1980, at 10. In the trickle-down spirit of the times in which these cleverly named articles were written, Wildavsky argues that regulation can lead to unemployment, which can lead to suicides and despair, giving the phrase "don't worry, be happy" a new economic spin.

158. International Union, UAW v. OSHA, 938 F.2d 1310, 1326–27 (D.C. Cir. 1991) (Williams, J., concurring). OSHA has also decided to study the issue "and will consider whether weighing the risks to workers from exposures to toxic substances with the risks associated with lowering those same workers' incomes is appropriate and relevant." OSHA Proposed Rule on Air Contaminants, 57 Fed. Reg. 26,002, 26,006 (June 12, 1992).

159. *See* Bob Davis, *What Price Safety? Risk Analysis Measures Need for Regulation, But It's No Science*, WALL ST. J., Aug. 6, 1992, at A1 (discussing embrace of Wildavsky's cost-cost theories by White House Council on Competitiveness); Bronwen Maddox, *The Cost of Fear*, FIN. TIMES, Oct. 7, 1992, at 15 (Report of English Health and Safety Executive calculations).

160. *See* BREYER, *supra* note 11, at 23 (citing E.M. KITIGAWA & P.M. HAUSER, DIFFERENTIAL MORTALITY IN THE UNITED STATES OF AMERICA: A STUDY IN SOCIOECONOMIC EPIDEMIOLOGY (1973)).

161. Even some supply-siders concede that "[i]t's a difficult case to make empirically." Robert Hahn, economist at American Enterprise Institute, *quoted in* Davis, *supra* note 159, at A4.

162. *See* Michael E. Porter, *America's Green Strategy*, SCI. AM., Apr. 1991, at 168.

should of course be taken into account in the regulatory process, it does not seem at all clear why the most efficient response would be less regulation, as opposed to retraining, economic investment, and the like. And of course, pretending that safety expenditures translate frictionlessly into economically induced health risks and suicides seems, at best, a facetious stretch of economic imagination.[163]

Thus, while cost-cost calculations of human life are appealing in theory, they are effectively useless in practice. Of course, as a subterfuge, it may be possible to play the supply-side game to mask what is in reality a pricing of life, but one wonders why this exercise is more desirable than the subterfuge of science already in place.

b. *Pricing Human Life*

It may be that the only way to perform a cost-benefit analysis of toxic risk allocation is actually to set a monetary value for a human life. To do so is not the innovation of the 104th Congress, and several methods for doing so have been proposed in the American experience. Most successful of these, of course, has been slavery.[164] Assuming this efficient, market-based method is not the one the *Contract with America* wishes to espouse, however, other methods of calculating the monetary worth of a human life have been modestly proposed.[165] These have been described as "invested value," "productive value," and "surrender value."[166]

"Invested value" refers to the dollar value of the total amount of material and social resources needed to sustain and nurture a life.[167] The total amount "put in" to a human life is what that life is worth, much as the amount invested in an asset is what that asset is worth before gains or losses are realized. Taken as an average across a population, this economic value is, of course, less than the amount actually invested in resource-intensive cases such

163. Even in easy, localized cases, the link is unclear: One would have to measure how much of the regulatory burden was absorbed by the company in question, how much passed on to consumers as higher prices, and how much cost actually trickled down as reduced incomes for affected parties.

164. *See* LOUIS I. DUBLIN & ALFRED J. LOTKA, THE MONEY VALUE OF A MAN 7 (1930).

165. I include the adjective "modestly" in tribute to the still unsurpassed cost-benefit valuation of human life, JONATHAN SWIFT, A MODEST PROPOSAL (Dublin, Harding 1729). Based on the cost of production and optimal selling price, Swift calculated the "'net profit on a plump yearling child'" to be 40p, in 1729 prices. *See* J.G.U. Adams, . . . *and How Much for Your Grandmother?*, *in* VALUING LIFE: PUBLIC POLICY DILEMMAS 135, 135 (Steven E. Rhoads ed., 1980) [hereinafter PUBLIC POLICY DILEMMAS].

166. JOHN KLEINIG, VALUING LIFE 154–59 (1991). "Surrender value" has already been discussed *supra* text accompanying notes 147–55, in the context of modified risk comparison. Effectively, risk comparison is a type of surrender value because it purports to measure how much people routinely pay to avoid a given level of harm. In fact, surrender value taken seriously may actually allow no risks at all, if people value their lives infinitely. *See* E.J. Mishan, *Evaluation of Life and Limb: a Theoretical Approach*, 79 J. POL. ECON. 687, 693–701 (1971) (arguing that surrender value is incoherent in context of constant daily risks). For discussions of willingness-to-pay valuations in public policy, see Vincent Taylor, *How Much Is Good Health Worth?*, *in* PUBLIC POLICY DILEMMAS, *supra* note 165, at 49.

167. *See* KLEINIG, *supra* note 166, at 155.

as the disabled, and, perhaps ironically, the rich. Nor does invested value represent the psychologically based "value" of a life, though perhaps that too may be monetized, like pain and suffering costs, and allowed to appreciate over time. Obviously, these last amounts become impossible to measure,[168] yet without them the "invested value" figure surely is not what we mean when we say what a life is *worth*.[169] In any case, the exercise quickly breaks down: Either invested value is too particular, in which case it is unfair (protecting those who invest the most in themselves or even those who are loved more), or it is too general, in which case it is little better than an arbitrarily chosen figure.

"Productive value" calculations such as discounted future earnings (DFE) have a better pedigree, and have long been used by actuaries in designing insurance policies to assess a person's "worth." This procedure estimates the future income of an individual had she lived a full average lifespan, adjusted for inflation and, perhaps, "intangibles" such as the person's value to others.[170] Of course, while this approach is useful for compensating victims, it is severely flawed as an objective measure of the value of human life for (presumably equal) protection. Homemakers, for example, are "worth" less than lawyers. The old are "worth" less than the young. And, of course, the poor are "worth" less than the rich.[171] Like invested value, DFE faces a Scylla and Charybdis: If it is particularized, it is unfair, because certain groups receive more toxic risk than others.[172] But if DFE is averaged across all groups, it is so inaccurate as to be, like invested value, arbitrary.

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168. *See* Adams, *supra* note 165, at 136–40.

169. As an aside, it is particularly repulsive in the face of the greatness of human potential on the one hand, and the tragedy of lives cut short on the other, that one would even facetiously suggest that pricing methods capture what it truly is to be "human, all too human." Though the societal costs of using such placebos for human interaction are not discussed at length in this Note, it certainly behooves us would-be Ivan Ilyches to recall that there are meanings beyond those we can barter with one another.

170. The standard DFE calculation formula has the value L_1, where:

$$L_1 = \sum_{t=\tau} Y_t P_\tau^t (1+r)^{-(t-\tau)}$$

Y_t refers to the expected gross earnings of the deceased during his tth year; P_τ^t represents the probability in the current, τth year of the person being alive during year t; and r is the social rate of discount expected during the tth year. Mishan, *supra* note 166, at 688. The classic DFE methodology was first developed by DUBLIN & LOTKA, *supra* note 164. *See also* Steven E. Rhoads, *How much should we spend to save a life?*, *in* PUBLIC POLICY DILEMMAS, *supra* note 165, at 285, 288–91 (discussing DFE methodology in public policy); Dorothy P. Rice & Barbara S. Cooper, *The Economic Value of Human Life*, *in* PUBLIC POLICY DILEMMAS, *supra note* 165, at 19 (providing detailed analysis of DFE calculations).

171. *See* Robert M. Veatch, *Justice and Valuing Lives*, *in* PUBLIC POLICY DILEMMAS, *supra* note 165, at 147, 150.

172. From an environmental justice perspective, valuing wealthy neighborhoods over poorer (predominantly minority) neighborhoods is a familiar practice. *See supra* text accompanying note 103. A DFE cost-benefit analysis for all "major rules" would simply make it an omnipresent one.

c. *Arbitrary Valuations*

Last of the practical methodologies to be examined here is the simplest, most honest, and most frequently employed: arbitrariness. If it is impossible to compute a value for life,[173] it may be better just to set one. Juries awarding pain and suffering damages have effectively been doing so for many years, and it may be more akin to what regulatory reformers had in mind: Just eliminate burdensome regulations, and be "reasonable." Just as we compare rough estimates of cost against rough ideas of expected return in everyday life, perhaps we can just be vague about it here.

Yet this ethical postponement is ultimately illusory. At the end of the abstract risk allocation process, some decision must be made: A toxin must be regulated, or not, allowed for certain uses, or not. Even if the costs are identified clearly, and even if the benefits of freedom from cancer are quantified using an arbitrary calculus, all but the easiest cases will remain, at least, "risk vs. risk" conundrums.[174] Why is the spotless orange worth ten deaths per million instead of five, or one, or twenty?

If cost-benefit analysis is sincerely meant to remove "inefficient" regulations, i.e., those that generate benefits lower in value than their costs, then arbitrary cost-benefit analysis is not cost-benefit analysis. It is allocating cancer by fiat, which is probably even worse than doing so by profitability. Risk allocation driven by arbitrarily chosen monetizations of human worth leaves in place the ethical problems to which we now turn: Under any cost-benefit methodology, lives are still being matched up against profits, with toxics producers receiving the default entitlement to pollute. But the political legitimation questions raised at the end of Part I loom larger still: How would arbitrary cancer play on "60 Minutes"? How would we want it to do so?

2. *The Ethical Calculus of Risk*[175]

a. *Critiquing Cost-Benefit Analysis*

Though "pricing lives" may sound quite sinister,[176] pinpointing the ethical tensions inherent in preferring economic interests over human life is a somewhat complex task. To say bluntly that pricing lives is "wrong" is

173. *See* KLEINIG, *supra* note 166, at 160–61 (arguing that single value of life is chimerical).

174. *See* Graham & Wiener, *supra* note 152; Esty, *supra* note 40.

175. The ethical problems discussed in this section are distinct from the political allocation problems discussed at the end of Part I, *supra*. The latter are complexities of government *legitimations* for the exercise of power over lives; the former pertain to the exercises themselves. *See* discussion *supra* note 5.

176. *See* KLEINIG, *supra* note 166, at 147 (quoting 1976 U.S. House of Representatives Subcommittee Report: "The value of a human life cannot be measured in terms of dollars and cents").

insufficient; pricing lives is something we do all the time. The question must be what legitimations and values drive the risk allocation mechanism.

It is clear that cost-benefit analysis reorders risk allocation. Remembering that environmental regulation evolved as a solution when tort remedies were unavailable,[177] cost-benefit analysis acts to shift regulation from a proxy liability rule in which persons receive the entitlement to their body to a proxy property rule in which toxics producers receive the entitlement to produce a profitable amount of poison.[178] When health drives risk determination, regulation is triggered whenever a body is injured to a nonnegligible extent. When cost-benefit analysis drives risk determination, regulation is triggered not at the level of injury, but instead at the level of profitability, which may be higher or lower than that of injury, depending on the circumstances. Thus cost-benefit risk determination gives toxics producers the right to kill until the entitlement price (that point at which it "pays" not to kill) is paid by the number of injured people. Cost-benefit risk determination, consequently, shifts toxics regulation from a proxy liability rule to a proxy property rule, and moves the entitlement from the owners of bodies to the producers of toxins. It is this shift in entitlements—apparent in point-specific environmental contexts such as most air and water cases but more obscure in diffuse contexts such as toxics—that brings about the ethical questions we ask here.

Such questions are often directed at the idea of fungibility itself, at the "commodification" of human beings. Whatever the entitlement price is, runs the argument, it is improper to count human lives in its calculation. Yet it should also be possible to offer a specific critique of cost-benefit's shifting to a property regime for human life within the dominant paradigms of American ethics and jurisprudence, which seem to suggest that the life-right may be privileged, or even inalienable.

The latter approach will be our focus here. To be sure, the value-based argument—put crudely (i.e., economically), that the "cost of costing" human life is unacceptable[179]—is a potent one. The "commodification" of humanity,[180] from its Marxist roots to the present, brings about both a consummately postmodern crisis of what it is to possess meaningful value and a less-recent problem of what it is that living is for. Is making money from clean oranges *ever* the same as saving a human life? Can *any* utilitarian

177. Diffuse toxic harms, whose effects may not be known for years and that may be impossible to trace to a single actor, are a classic example of this situation.

178. Calabresi & Melamed, *supra* note 7, at 1089–92.

179. *See* CALABRESI & BOBBITT, *supra* note 2, at 32. Presumably, classical economics would simply take such "transaction costs" into account and allocate less death until we feel good enough about ourselves. Of course, viewing moral turpitude as just another transaction cost is itself quite "costly." Perhaps that too should be factored into the calculations.

180. *See* Margaret J. Radin, *Market-Inalienability*, 100 HARV. L. REV. 1849 (1987).

"pleasure" justify killing?[181] Such lofty questions, however, are difficult to incorporate into extant modes of discourse in American law. That consumerist capitalism devalues human life to a commodity exchangeable with cash and pork futures is indeed a serious crisis, yet to object to this is to object to the foundational value-project of America itself.[182] The rebuke of cost-benefit analysis should not have to be a counter-Gingrichian "revolution." Dehumanization, like the litanies of ecological degradation, Weberian disenchantment, and oppressive objectification of difference, may be endemic to the American system, but the remainder of this Note seeks to find within that system grounds for rejecting the allocation of the life-entitlement to any private actor other than the bearer of the life.

Not surprisingly, the argument centers around the privileging of the life interest as a fundamental, inalienable one, around the principle that it is not within the legitimate power of the democratic state to compel some individuals to take risks for no purpose other than the financial gain of others. That the risks in question may be smaller than those voluntarily undertaken by some is irrelevant; the pivot is that the risks are *compelled*, and not justified by a public purpose.[183] Toxics regulation is not, as some would argue, a case of government restricting its constituents; it is a case of government protection of some citizens from others. Tort and criminal remedies unavailable, the duty to rescue becomes the duty to prevent: The state cannot deal away the right to life to those who might make a profit by invading it.

b. *Public Risk, Private Risk, "Oppression," and Liberty*

A common misperception about risk regulation is that the state acts as every American's parentalistic nursemaid. People, clearly, engage in far riskier activities than breathing toxic fumes or ingesting pesticide residue;[184] why is the state being so overcautious? The answer, simply, is that riding a bicycle is not like breathing the air; the former is voluntary, the latter involuntary.[185]

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181. *See* SHRADER-FRECHETTE, *supra* note 79, at 213 (noting different answers when same data are applied to Rawlsian and Benthamite/utilitarian criteria).

182. That capitalism contains a theory of ultimate value should not surprise anyone; every value system that is as dominant in its adherents' lives as is American capitalism must posit a conception of ultimacy to be coherent. Of course, the value theories of American consumerism are somewhat beyond the reach of this Note. *See* CHARLES A. REICH, OPPOSING THE SYSTEM 76 (1995) (characterizing capitalist economics as religious faith).

183. *See infra* note 187. Obviously, one of the central pillars of post-Keynesian neoclassical economics is that private interests are public as well, that it is in all of our best interests to keep businesses in business. If the Invisible Hand is so rigorously understood, though, it becomes difficult to see what *isn't* a public interest, and why some private interests are more public than others.

184. *See* Hohenemser & Kasperson, *supra* note 55, at 191–92 (comparing 10^{-6} risks to everyday activities).

185. By focusing on environmental toxics regulation, I seek to avoid regulations such as those governing an individual's chosen activities, from the use of hazardous drugs to informed exposure to carcinogens. While such activities may produce externalities borne by others (tobacco smoking being the classic example), antiparentalist arguments may still be cogently made against regulating them. *See, e.g.*,

Any explicit or implicit "risk comparison" between such activities misses this distinction and assumes that what is chosen by some may be forced on all.[186] At present, with the state "scientifically" measuring risk and ensuring that it does not exceed "safe" levels (whatever that may mean), no individual is compelled to accept nonnegligible risks because of another's activity. But if the state determines acceptability on the basis of a private actor's profit, individuals are compelled to accept nonnegligible risks because another actor bears the entitlement to produce harms.

This shift in entitlement is not justified by any communitarian concern.[187] It is a simple private preference, in this case, an interest in profit.[188] And, to keep clear the power relations of coercing cancer, it is worth noting that the preference is not typically one of private persons but of corporate entities, which in terms of power, rights, and responsibilities have been said to have more in common with the state than with individuals.[189] While hardly revelatory, this reality check is worth juxtaposing with contemporary polemic; a *Wall Street Journal* editorial, for example, recently moaned that "runaway regulations remain as oppressive as ever."[190] Government regulation is said to be burdensome and intrusive.[191] Yet in toxics and in many other areas of life, the corporate sector is far more "intrusive" than the government.

This is so, once again, because of the dynamic of choice. No one compels a chemical manufacturer to make chemicals; the corporation does so because it seeks to make a profit. But we are all compelled to breathe, to walk on

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Gerald Dworkin, *Paternalism*, *in* PUBLIC POLICY DILEMMAS, *supra* note 165, at 181. In the category of exposures we cannot control—breathing the air, for example—the charge of parentalism does not apply.

186. *See, e.g.*, VISCUSI, *supra* note 144, at 156–71 (suggesting that we provide workers with choice to accept occupational risks for compensation). Curiously, discussions of choice in toxic exposure frequently take the position that, because we cannot select all our risks, higher levels of coercion are acceptable. *See* Feller, *supra* note 52, at 882 ("It is simply not possible to preserve individual freedom of choice where a collective good such as air quality is involved."). Douglas and Wildavsky suggest that discontent at this loss of autonomy is unjustified, "control" being a mere chimera of psychology. DOUGLAS & WILDAVSKY, *supra* note 98, at 16–20 ("Voluntary/involuntary is a movable boundary, capable of turning every constraint on choice into injustice."). One wonders whether, if Douglas and Wildavsky were involuntarily forced to recant, the distinction would still seem so insubstantial.

187. Claims that regulation hurts "international competitiveness" or otherwise harms the economy seek to cast the debate as one of national good (being competitive) versus safety. *See, e.g.*, Stewart, *supra* note 12, at 2050 (advocating reduction of "excessive costs and burdens imposed by [the] exceptionally rigid, legalistic system of environmental law and administration"). *But see* Porter, *supra* note 162, at 168 (arguing that regulation spurs productive investment in environmental technologies, thus fostering competitiveness); *Study Says Environment Laws Aren't a Big Cause of Job Loss*, N.Y. TIMES, Mar. 18, 1996, at A10 (citing California State Senate report). In any case, taking seriously the principle of sacrificing lives for the common good of competitiveness seems Darwinian at best.

188. The response that we all benefit from having certain toxins may be true in some cases, but by requiring the consideration of *all* costs to the public—including those borne by toxics producers—H.R. 9 still begs the private preference question. *See supra* note 134.

189. *See* Charles A. Reich, *The Individual Sector*, 100 YALE L.J. 1409 (1991).

190. *Real Risk Reform*, *supra* note 109, at A20.

191. For a useful analysis of regulation's perception in the business and media communities, see Melnick, *supra* note 106, at 28–30. *But see G.O.P. Backing Off*, *supra* note 112 (noting increased "moderation" in election-year rhetoric among skittish Republican members of Congress).

pesticide-laden lawns, and, to some extent, to use chemical-laden products. Thus, while the government restricts the preferences of the private sector, it does so to protect individuals from intrusions on their liberty.[192] Not to do so would be, again, to compel individuals to suffer harms because of other actors' preferences.[193] The libertarian position, then, ought to be the reverse of what it has historically been. Prohibiting nonnegligible risks protects individuals' entitlements to be free of bodily invasion by a proxy liability rule. Regulating toxics does not trample on liberty; regulation increases it.

To be sure, not every entity restricted by toxics regulations is a multinational corporation; some are individual farmers, small manufacturing interests, and the like. And individuals do ultimately shoulder some of the costs of regulation in the form of higher prices for goods and services. Yet this does not alter the fundamental interests protected by scientifically driven risk allocation: life and liberty. The only oppression toxics producers suffer is having the government restrict their ability to poison individuals.

In a purely utilitarian world, reversing the entitlement to bodily integrity may be justified if the costs of liberty are greater than its benefits. Yet in theory, our system believes that human beings are endowed with certain inalienable rights, and among these are life, liberty, and the pursuit of happiness, to borrow a phrase.[194] All preferences are *not* created equal.[195] Shifting the entitlement, coercing individuals to give up their right to live because another private actor wishes to make a profit, is not (yet) an ideologically[196] available option. On this subject, a noted ex-lawyer once said, "[L]iberty is not safe if the people tolerate the growth of private power to the point where it becomes stronger than that of their democratic state itself. That, in its essence, is Fascism."[197]

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192. *See* REICH, *supra* note 182, at 41 (arguing that "big government" is justified to offset impingements on individuals' freedom by powerful corporate and other entities).

193. Even if we assume that these preferences are only to make money and toxic harms are merely "accidental" by-products of that enterprise—disregarding the foreseeability of cases of cancer arising from carcinogens—toxics producers at least remain the "cheapest cost avoiders" of cancerous harms. *See* CALABRESI, *supra* note 1, at 138–40.

194. THE DECLARATION OF INDEPENDENCE para. 2 (U.S. 1776).

195. Calabresi proposes that "other justice concerns" be used as veto points in cases where "inefficient" decisions must be made because of an ethically prior commitment. CALABRESI, *supra* note 1, at 304; *cf.* Steven Kelman, *Cost-Benefit Analysis: An Ethical Critique*, REGULATION, Jan./Feb. 1981, at 74, 76 ("We do not do cost-benefit analyses of freedom of speech or trial by jury."). Though such concerns may be more expansive and flexible than the quasi-constitutional values employed in this Note, they also lack the political groundedness that core American values possess.

196. Or perhaps even constitutionally; though it seems a stretch to suggest that shifting the entitlement to bodily integrity to producers of toxic harm violates the Due Process Clause, one may at least invoke the Constitution as caution against such a reallocation.

197. Franklin Delano Roosevelt, *quoted in* KENNETH S. DAVIS, FDR: INTO THE STORM, 1937–1940, at 230 (1993).

III. CONCLUSIONS AND RECOMMENDATIONS

Reforming the risk allocation process raises three sets of issues for the administrative state: practical, political, and ethical. The practical dilemmas brought on by cost-benefit risk determination are themselves ponderous; it is in no way clear how the calculus is to be carried out or how budget-crunched agencies are to negotiate the mountains of new red tape created by "reforms" presently being debated. At some point, though they have not been the focus of this Note, such practical considerations themselves become of central ethical concern; having an entitlement is useless if it cannot be protected.

Politically, cost-benefit risk determination removes the subterfuge of science from the risk allocation process and problematizes the role of the administrative state both as regulator of industry and as protector of individual rights. With the subterfuge of "good science" exchanged for a deliberate determination of acceptable risk based on economic efficiency, EPA's role as godlike risk allocator becomes both more obvious and more dubious, as discussed at the end of Part I. Even the idea of public law, with its value-bearing function, is called into question.[198]

Ethically, determining acceptable levels of cancer and death on the basis of economic efficiency is, as discussed in Section II.B, a questionable undertaking at best. The allocation of harm on the basis of profit destroys environmental laws' function as proxy liability rules for diffuse harms, replacing the liability regime with a property regime in which toxics producers own the entitlement to produce. Doing so compels some people to die for some corporations' profits, representing both a general challenge to norms of human value and a particular violation of fundamental American rights to life and liberty. Reforming science would not have this effect; removing science and the idea of safety does.

Thus, as regulatory reform is reopened as a matter of debate in Congress, the distinctions within the regulatory process—among ethical risk determination, scientific risk assessment, and political risk management—must be better understood. When proposing the use of cost-benefit methodology, one must take care to *reform what one sets out to reform.* If eliminating regulations unjustified by public safety concerns is the goal, then fixing and expediting the process of risk assessment should be the means.[199] If the goal is to govern more efficiently without the myopia of statute-driven regulation, then Congress would do well to endorse careful reforms such as Justice Breyer's proposed

198. Sagoff, *supra* note 151, at 1298 ("We cannot replace with economic analysis the moral function of public law. The antinomianism of cost-benefit analysis is not enough.").

199. *See, e.g.*, NAPA, *supra* note 11, at 158–62; NATIONAL RESEARCH COUNCIL, *supra* note 78.

"central risk commission"[200] or more cautious restructuring of EPA itself.[201] Procedural reform is possible without ethical reorientation.

If changing substance rather than procedure is the goal of regulatory reform, Congress may still avoid the ethical miasma of cost-benefit risk determination. If the goal is to make toxics regulation less time consuming and counterproductive, for example, appropriate means might include following California in placing an incentive on industry to put standards in place.[202] Market mechanisms such as California's consumer information requirements,[203] though not a panacea, may work in the toxics context to lessen the costs borne by consumers who seek to avoid harmful products[204] in those cases where choice is possible.[205] Finally, if changing environmental statutes is the true goal, then changing environmental statutes should be the means. But a real idea of safety and the entitlement to one's own bodily integrity would be left intact by any prudent reform process.

Such care has not marked the 104th Congress's first attempt at regulatory reform. Without regard for the formal distinctions within the regulatory process, and the choices those distinctions represent, H.R. 9 alters not just the limbs, but the very heart of protective environmental regulation. Of course, this heart may not now be pure—allocating harm with a subterfuge is still allocating harm, and some chemicals may not be worth any cost to the public sector, no matter how "negligible." Yet the purpose of the rule of safety is not only politics; however remote, it is ethics as well. The way in which we allocate harms is the way in which we put our ethical norms into action, and is thus the test of whether we care about those norms at all.

The terms of the legitimation debate matter. And in a democratic society, they ought not be the deceptive equivocations of economic data, but rather the complex and difficult claims best given voice by Dr. Martin Luther King, Jr.,

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200. BREYER, *supra* note 11, at 59–61.

201. *See* NAPA, *supra* note 11, at 127–31 (proposing both structural and procedural reforms).

202. California presumes and labels suspect chemicals to be *unsafe* until tested and proved otherwise, creating an incentive for industry to assist and speed the risk assessment measurement process. *See* Roe, *supra* note 12, at 180.

203. *Id.* at 179–80.

204. In some ways, market-driven toxics regulation tries to address a form of the collective action problem in which consumers who seek to avoid toxin-laced substances incur high costs to exercise their preference for alternatives ("organic" produce and nontoxic cleansers, for example, remain difficult to find and are more expensive than mainstream products) and gain only marginal benefits, whereas toxics producers have a concentrated stake in maintaining the status quo. Economic remedies would have to lessen these consumer-borne costs, perhaps by providing tax incentives for nontoxic products to lower their market price. If industry seeks to avoid responsibility for limiting toxic outputs, consumers must be made the "cheapest cost avoiders" of toxic risks by lowering the costs they bear to avoid them. *See supra* note 193.

205. Such cases would likely exclude situations in which some toxic substance is actually necessary, such as in medical or industrial contexts, and a choice must be made between alternatives on the basis of a given criterion (safety, or profit, for example). In these coerced-use situations, centralized regulation remains both the necessary prevention of a classic race to the bottom, in which the cheapest but possibly least-safe alternative is chosen by the unrestricted market, and the only way to protect a maximal amount of individual autonomy, as discussed *supra* note 186 and accompanying text.

who, while certainly not speaking of toxics regulation or cost-benefit analysis, may nonetheless have the final word. "Any law that uplifts human personality is just," Dr. King said. "Any law that degrades human personality is unjust."[206]

206. MARTIN LUTHER KING, JR., *Letter from Birmingham Jail*, *in* A TESTAMENT OF HOPE: THE ESSENTIAL WRITINGS OF MARTIN LUTHER KING, JR., 289, 293 (James Melvin Washington ed., 1986).