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REASONABLE PRECAUTION FOR THE INDIVIDUAL

DOV WAISMAN[†]

INTRODUCTION

Negligence law rests on the idea that imposing risks of harm on others is an acceptable and unavoidable part of social life. Most of the socially beneficial activities that make modern life possible—from building skyscrapers to manufacturing prescription drugs to operating power plants—impose nontrivial risks of death or serious bodily harm on workers, consumers, or bystanders, but such risks are widely thought to be morally tolerable provided they are moderated by the exercise of reasonable precaution.

There is no consensus, however, about just what it means to exercise reasonable precaution. United States courts typically rely on the notion of a reasonable person, defining reasonable precautions as those a reasonably careful or prudent person would have taken under the circumstances.¹ However, in the

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¹ See RESTATEMENT (THIRD) OF TORTS: LIAB. FOR PHYSICAL AND EMOTIONAL HARM § 3 cmt. d (2010) (“As far as instructing the jury is concerned, pattern jury instructions frequently explain the negligence standard in terms of the reasonably prudent person.”); see also Patrick J. Kelley & Laurel A. Wendt, *What Judges Tell Juries About Negligence: A Review of Pattern Jury Instructions*, 77 CHI.-KENT L. REV. 587, 595 (2002) (“In most pattern jury instructions on negligence, negligence is

almost seventy years since Judge Learned Hand articulated his famous negligence formula in *United States v. Carroll Towing Co.*,² no *substantive* interpretation of reasonable precaution—no interpretation that purports to specify the decision rule that a reasonable person would follow in deciding whether to take a particular precaution—has gained anything close to widespread acceptance.³

One idea that *has* found widespread acceptance is Hand's insight that reasonable precaution has something to do with balancing the burdensomeness of taking a particular safety precaution against the probability and severity of the injuries the precaution protects against.⁴ It is unreasonable not to take a minimally burdensome precaution if it will significantly reduce the likelihood of someone suffering a serious injury.⁵ As the precaution becomes more burdensome, the idea of not taking the precaution becomes less unreasonable.⁶ Yet, beyond this fundamental Handian insight, there is little consensus about exactly where and how to draw the line between reasonable and unreasonable precaution in particular cases.

Perhaps the most influential attempt to do so is based on the notion of aggregate costs. This interpretation of reasonable care rests on the axiom that the goal of risk regulation is, as Guido Calabresi once put it, to “reduce the sum of the costs of accidents

defined by using both the concept of ordinary care and the concept of the conduct of a reasonably careful person or one of her close relatives.”)

² See *United States v. Carroll Towing Co.*, 159 F.2d 169, 173 (2d Cir. 1947) (“[I]f the probability [of injury] be called P; the injury, L; and the burden [of adequate precautions], B; liability depends upon whether B is less than L multiplied by P: i.e., whether B less than PL.”); see also *Moisan v. Loftus*, 178 F.2d 148, 149 (2d Cir. 1949); *Conway v. O'Brien*, 111 F.2d 611, 612 (2d Cir. 1940), *rev'd*, 312 U.S. 492 (1941).

³ See generally Alan D. Miller & Ronen Perry, *The Reasonable Person*, 87 N.Y.U. L. REV. 323, 327, 328–70 (2012) (describing a range of different substantive interpretations of the reasonable person standard based on differing “normative ethical theories” that “may be mutually exclusive or at least inconsistent in fundamental respects”).

⁴ See RESTATEMENT (THIRD) OF TORTS: LIAB. FOR PHYSICAL AND EMOTIONAL HARM § 3 cmt. d (2010) (observing that the risk-benefit balancing approach to negligence has been accepted by a number of leading torts treatises, by many deterrence- and corrective justice-oriented tort scholars, and in judicial opinions “in a large majority of jurisdictions”).

⁵ See *id.* cmt. f.

⁶ *Id.*

and the costs of avoiding accidents.”⁷ If so, then reasonable care should consist of taking all and only those precautions that cost less than the amount they would be expected to save in total accident costs.⁸ Put in marginalist terms, reasonable care means spending on safety precaution up to the point at which the next dollar spent yields less than a dollar’s reduction in expected accident costs.⁹ Call this reasonable care as *efficient care*.¹⁰ This interpretation certainly has its virtues. For one thing, it is almost certainly the most straightforward interpretation of Hand’s insight. Moreover, it nicely vindicates the intuition that the reasonable level of precaution will rarely be so burdensome as to make the risky activity not worth engaging in.

But efficient care is dogged by a persistent problem. By taking a “bottom line” approach that focuses exclusively on aggregate costs and benefits, summed across all affected persons, efficient care remains largely insensitive to how costs and benefits are *distributed* among different individuals, and therefore leads to results some find counterintuitive.¹¹

For example, suppose a major city with a population of five million people is building a half-mile-long suspension bridge across a river. The city is considering whether to invest in

⁷ GUIDO CALABRESI, *THE COSTS OF ACCIDENTS: A LEGAL AND ECONOMIC ANALYSIS* 26 (1970).

⁸ See, e.g., Richard A. Posner, *A Theory of Negligence*, 1 J. LEGAL STUD. 29, 32–33 (1972).

⁹ See, e.g., WILLIAM M. LANDES & RICHARD A. POSNER, *THE ECONOMIC STRUCTURE OF TORT LAW* 87 (1987) (advocating marginalist interpretation of Hand formula); Stephen G. Gilles, *On Determining Negligence: Hand Formula Balancing, the Reasonable Person Standard, and the Jury*, 54 VAND. L. REV. 813, 826 n.39 (2001) (noting that “the issue is the *marginal* costs and benefits of additional precautions”).

¹⁰ The type of efficiency at issue here is Kaldor-Hicks, rather than Pareto. See, e.g., MATTHEW D. ADLER, WELL-BEING AND FAIR DISTRIBUTION 98–99 (2012) (defining Kaldor-Hicks efficiency).

¹¹ So-called “distributively weighted” cost-benefit analysis makes some attempt to account for distributional differences, but is still interpersonally aggregative. See *id.* at 109 (“Distributively weighted CBA takes the form of *summing individual WTP/WTA amounts* multiplied by individual weights.” (emphasis added)). See generally Matthew D. Adler, *Cost-Benefit Analysis and Distributional Weights: An Overview* (Aug. 20, 2013) (unpublished manuscript), available at <http://www.ssrn.com/abstract=2313388>. Even distributively weighted cost-benefit analysis is therefore unlikely to be able to capture moral intuitions founded on interpersonal tradeoffs occurring at the level of the individual.

special safety netting¹² to protect the two thousand construction workers on the bridge project (none of whom live in the city) from fatal falls. Suppose that, although safety netting has been widely used in the construction industry for decades, it has not been universally adopted.¹³ If the city invests in the safety netting, one worker can be expected to die in a fall over the course of the five years it will take to complete the bridge. If the city uses only regular scaffolding without netting, two workers can be expected to fall to their deaths during those five years. Using the safety netting will add \$10 million to the \$1 billion cost of constructing the bridge, which is divided equally among the five million city residents. Assigning a value of \$5 million to a human life,¹⁴ the city calculates that the costs of the safety netting (\$10 million) substantially exceed the expected accident costs associated with not using it (\$5 million).¹⁵ On that account, is it morally permissible for the city to use only regular scaffolding in constructing the bridge?¹⁶

¹² 29 C.F.R. § 1926.502(c) (2014) (designating safety netting as an acceptable fall protection system for employees).

¹³ See, e.g., Press Release, Health and Safety Exec., Contractor in Court for Ignoring Safety Risks (Jan. 27, 2014), <http://press.hse.gov.uk/2014/contractor-in-court-for-ignoring-safety-risks-2/> (noting the contractor “had failed to ensure that protective measures, such as scaffold edge protection and *safety netting*, were in place to prevent or mitigate a fall from height, leaving the three men at risk of serious or fatal injury” (emphasis added)).

¹⁴ Throughout this Article, I use this \$5 million figure to represent the monetary value of a human life. It lies at the lower end of the spectrum of recent attempts by federal agencies to set the value of a statistical life. See, e.g., Eric A. Posner & Cass R. Sunstein, *Dollars and Death*, 72 U. CHI. L. REV. 537, 549–51 (2005) (noting that “most regulatory agencies have now converged on a fairly narrow range for the valuation of life: \$5 million to \$6.5 million”).

¹⁵ Precisely this sort of calculation was at issue in the famous Ford Pinto case. See *Grimshaw v. Ford Motor Co.*, 174 Cal. Rptr. 348 (Ct. App. 1981); see also Gary T. Schwartz, *The Myth of the Ford Pinto Case*, 43 RUTGERS L. REV. 1013, 1020 (1991) (describing a Ford report produced during discovery in *Grimshaw* which concluded the \$11-per-vehicle cost of a safety device designed to prevent fuel tank fires in the Pinto (in 12.5 million vehicles, for a total of \$137 million) exceeded the benefit of avoiding the 180 deaths and 180 serious burn injuries expected to occur were the safety device not included (a total of \$49.5 million, using \$200,000 as the value of a statistical life and \$67,000 as the value of injury avoidance)).

¹⁶ I place assumption of risk considerations to the side here. For purposes of the hypothetical, one can assume that the workers mean to willingly assume only the risk that remains *after all reasonable precautions have been taken*. The workers' assumption of that risk itself plays no role in determining the reasonable level of precaution.

If reasonable care is efficient care, then the city has no moral obligation to invest in the safety netting. This is true despite that the safety netting cuts each worker's risk of death in half (from one in one thousand to one in two thousand),¹⁷ can be expected to save one worker's life, and would impose an additional cost of just \$2 on each city resident.

The intuition that the city ought to invest in the safety netting—notwithstanding that doing so is not marginally cost-justified and reduces the aggregate well-being of city residents and bridge workers on net—is, I submit, one that many people would hold.¹⁸ One possible source of that intuition relates to the manner in which risks and safety costs are distributed: The risks and costs fall on distinct groups of persons, and the risks are concentrated on a group that is a tiny fraction of the size of the vast group of persons among whom the safety costs are spread. As a result, using the netting results in significantly enhanced safety for each worker at a cost that, while significant in the aggregate, imposes a trivial monetary burden on each city resident. Holding that a life-saving precaution like the safety netting need not be taken on account of its aggregate cost leaves efficient care vulnerable to the charge John Rawls famously

¹⁷ Throughout this Article, I employ a frequentist, objectivist conception of risk, rather than a Bayesian, subjectivist conception. See Stephen Perry, *Risk, Harm, Interests, and Rights*, in *RISK: PHILOSOPHICAL PERSPECTIVES* 190, 190–92 (Tim Lewens ed., 2007) (distinguishing between frequentist and Bayesian conceptions of risk and adopting the former). But see Matthew D. Adler, *Against "Individual Risk": A Sympathetic Critique of Risk Assessment*, 153 U. PA. L. REV. 1121, 1131–33 (2005) (arguing that risk regulation should be based on a Bayesian, rather than a frequentist, conception of risk).

¹⁸ See, e.g., Gregory C. Keating, *Pressing Precaution Beyond the Point of Cost-Justification*, 56 VAND. L. REV. 653, 656–57 (2003) [hereinafter Keating, *Pressing Precaution*] (“[O]ur juries are repulsed by the claim that accidental deaths should not be prevented whenever the costs of prevention exceed the value—economically conceived—of the lives at risk.”); Kenneth W. Simons, *Tort Negligence, Cost-Benefit Analysis, and Tradeoffs: A Closer Look at the Controversy*, 41 LOY. L.A. L. REV. 1171, 1180 (2008) (“The lesson that many people take from the Pinto case itself is that the very act of engaging in cost-benefit analysis displays morally reprehensible callousness.”); Cass R. Sunstein, *Moral Heuristics and Risk*, in *RISK: PHILOSOPHICAL PERSPECTIVES*, *supra* note 17, at 162 (citing studies showing that “ordinary people . . . tend to punish companies that base their decisions on cost-benefit analysis, even if a high valuation is placed on human life”); cf. Schwartz, *supra* note 15, at 1035–38 (“What seems obvious enough is that there exists a basic belief held by many (indeed most) of the public that it is wrong for a corporation to make decisions that sacrifice the lives of its customers in order to reduce the corporation’s costs, to increase its profits.”).

leveled against utilitarianism: That by focusing exclusively on aggregate costs and benefits, and ignoring the costs and benefits to individuals, utilitarianism fails to “take seriously the distinction between persons.”¹⁹

But is there an alternative interpretation of reasonable precaution that, unlike efficient care, can accommodate common moral intuitions in cases like the suspension bridge? It is all well and good to insist that morality or fairness requires taking more than the efficient level of precaution in some cases, but that position seems empty (or at least unconvincing) unless one can say with some specificity *when* pressing precaution beyond the point of efficiency is required and *how much* further precaution is required. It takes a theory to beat a theory, in other words.²⁰ So is there a viable alternative to efficient care and other aggregative interpretations of reasonable precaution?

In a series of provocative and important essays, Professor Barbara Fried has recently argued that no such alternative exists or even could exist.²¹ Fried thinks it is impossible to strike an appropriate balance between the competing interests in liberty and security—a balance lying at the heart of the question whether a given risk imposition is morally permissible—without summing up the expected costs and benefits across persons and, in many instances, trading life-and-limb costs to one group of persons against individually trivial monetary benefits to another, much larger group.²² Nonaggregative approaches to risk regulation “*must fail*,” Fried asserts, because “the problem of risk, by its nature, can be managed *only* with the sorts of

¹⁹ See JOHN RAWLS, A THEORY OF JUSTICE 24 (rev. ed. 1999); see also Barbara H. Fried, *The Limits of a Nonconsequentialist Approach to Torts*, 18 LEGAL THEORY 231, 231–32 (2012) [hereinafter Fried, *Limits*] (addressing charge that cost-benefit analysis “fails to respect the separateness of people”).

²⁰ See, e.g., Fried, *Limits*, *supra* note 19, at 259–60 (“I think it is fair to say that you cannot beat a bad candidate with no candidate, and in my view nonconsequentialists do not offer a viable candidate.”).

²¹ See *id.* at 231–61; Barbara H. Fried, *Can Contractualism Save Us from Aggregation?*, 16 J. ETHICS 39, 43–46, 50–58 (2012) [hereinafter Fried, *Contractualism*]; see also Barbara H. Fried, *What Does Matter? The Case for Killing the Trolley Problem (or Letting It Die)*, 62 PHIL Q. 505, 512–13 (2012) [hereinafter Fried, *Trolley*]. Fried is William W. and Gertrude H. Saunders Professor of Law at Stanford Law School.

²² Fried, *Limits*, *supra* note 19, at 250, 260–61.

interpersonal trade-offs”²³ “in which the numbers count, such that a risk of serious harm to one person can be justified by small benefits to the many.”²⁴

In this Article, I argue that Fried is mistaken, and that a viable, nonaggregative alternative to efficient care does indeed exist. If reasonable precaution is keyed to the costs and risks borne by each affected person, rather than to those borne by aggregates of persons, a distinct interpretation of reasonable precaution emerges: the *individualized feasibility principle* (“IFP”). A bipartite standard, the IFP holds that, when engaging in a socially beneficial activity that imposes a risk of serious harm on certain individuals, exercising reasonable care means investing in safety precautions until the *lesser* of the following two points is reached: (1) the point at which further investment in safety would burden the well-being of each cost-bearer more than it would enhance the expected well-being of each risk-bearer; or (2) the point at which further investment in safety would jeopardize the long-term viability of the underlying activity.²⁵ In other words, the IFP requires the risks posed by a socially useful activity to be reduced to the maximum extent possible without jeopardizing the long-term survival of the activity, unless doing so would require each cost-bearer to invest more in safety precaution than a risk-bearer would rationally have been willing to invest to protect herself from the risk at issue.

To illustrate using the bridge hypothetical, the IFP would require that the safety netting be used. The netting imposes a cost of \$2 on each city resident, while reducing each worker’s risk of death from one in one thousand to one in two thousand. Using \$5 million as a (conservative) value of a statistical life, each

²³ Fried, *Contractualism*, *supra* note 21, at 40.

²⁴ *Id.* at 39.

²⁵ I follow Gregory Keating in holding that the principle of economic feasibility plays an important role in fixing the level of reasonable precaution with respect to risks of serious bodily harm imposed by major, socially productive activities. See generally Gregory C. Keating, *A Social Contract Conception of the Tort Law of Accidents*, in *PHILOSOPHY AND THE LAW OF TORTS* 22, 46–51 (Gerald J. Postema ed., 2001) [hereinafter Keating, *Social Contract*]; Keating, *Pressing Precaution*, *supra* note 18, at 684–748; Gregory C. Keating, *Irreparable Injury and Extraordinary Precaution: The Safety and Feasibility Norms in American Accident Law*, 4 *THEORETICAL INQUIRIES* L. 1, 25–88 (2003) [hereinafter Keating, *Irreparable Injury*]; Gregory C. Keating, *Pricelessness and Life: An Essay for Guido Calabresi*, 64 *MD. L. REV.* 159, 180–219 (2005) [hereinafter Keating, *Pricelessness and Life*].

worker would rationally be willing to pay \$2,500 for this reduction in risk. Since a safety gain worth \$2,500 to each risk-bearer can be achieved at a cost of just \$2 to each cost-bearer, the IFP requires the investment to be made so long as the widespread use of safety netting would not imperil the survival of the bridge construction industry. It would not since, by hypothesis, safety netting has long been widely used in bridge construction. Thus, under the IFP, the safety netting is a reasonable precaution, notwithstanding that its use is inefficient, since it involves spending \$10 million to achieve a \$5 million savings in accident costs.²⁶ The IFP generates this result without summing costs and benefits across persons; instead, under the IFP, the netting's monetary cost to a *single* representative cost-bearer (\$2) is compared with the netting's safety benefit to a *single* representative risk-bearer (a risk reduction worth \$2,500). For this reason, the IFP can claim to respect the separateness of persons in a way that standard cost-benefit analysis ("CBA") does not.

The IFP represents what I believe to be a novel and compelling interpretation of the injunction to exercise reasonable precaution when engaging in a socially beneficial activity that places some persons at risk of serious bodily harm.²⁷ The IFP better accommodates popular moral intuitions in an important class of cases often found in the actual world: cases in which a risk is borne by a relatively small group of persons (typically, workers or bystanders) and safety costs are spread among a distinct and much larger group of persons (typically, consumers

²⁶ An economist might respond that this example shows only that human life has been undervalued, not that aggregative cost-benefit analysis fails to harmonize with moral common sense. However, an analogous hypothetical can be constructed no matter how high the value assigned to a statistical life. For example, suppose life were assigned a value of \$20 million, rather than \$5 million. The same counterintuitive results follow if we stipulate that the cost of the netting is \$40 million and that that cost is to be spread among 20 million city residents. In that case, we get the same result: Cost-benefit analysis forbids the netting, even though it will reduce each worker's risk by fifty percent, will save a life, and will impose a cost of \$2 on each city resident.

²⁷ Though Keating took the first, critical step toward this principle by focusing scholarly attention on the economic feasibility norm and its underlying moral rationale, no commentator has, to my knowledge, articulated the individual risk principle (see *infra* Part II) or proposed conjoining it with the feasibility norm in the manner I do in this Article.

or tax-payers). For this reason, the IFP deserves to be considered alongside aggregative standards in the ongoing quest for a comprehensive theoretical account of reasonable precaution.

Though I do not go so far as to claim that aggregative reasoning has no place in the moral analysis of risk imposition, I do believe that something morally significant will be missed if the problem of risk imposition is viewed *exclusively* through the lens of aggregative CBA. The individualized feasibility principle keys reasonable precaution to the costs and benefits experienced by each affected individual, rather than to costs and benefits considered in the aggregate. Individual costs and benefits carry particular moral force because that is what persons actually experience; no person experiences aggregate costs or benefits. Aggregative approaches to reasonable precaution—while they capture a “God’s eye” perspective that may be important in its own right—also miss something important, which is the perspective of the individual. On this account, aggregative approaches have been accused, rightly in my view, of failing to respect the separateness of persons. So, what would an interpretation of reasonable precaution that *did* take seriously the separateness of persons look like? That is the question I address in this Article, not because I think aggregative reasoning has no place in the moral analysis of risk imposition, but because the perspective of the individual has received comparatively less attention in the relevant literature and, in my view, captures an important aspect of moral judgment.

This Article has four parts. In Part I, I introduce the question to be explored and describe Barbara Fried’s challenge to any attempt to answer that question without summing costs and benefits across persons. Part II responds directly to Fried’s challenge, presenting the individualized feasibility principle as a viable, nonaggregative interpretation of reasonable precaution. In Part III, I explore the theoretical underpinnings of the IFP, drawing on a theory of normative ethics known as *ex ante contractualism*.²⁸ Part IV concludes.

²⁸ Ex ante contractualism is a version of contractualist moral theory, which was introduced by T.M. Scanlon in 1982. See T.M. Scanlon, *Contractualism and Utilitarianism*, in UTILITARIANISM AND BEYOND 103, 103–28 (Amartya Sen & Bernard Williams eds., 1982) [hereinafter Scanlon, *Contractualism*]; T.M. SCANLON, WHAT WE OWE TO EACH OTHER 189–247 (1998) [hereinafter SCANLON, WHAT WE OWE]. In his 1982 article, Scanlon credits Rawls with first suggesting the possibility of a contractualist theory of normative ethics. See Scanlon, *Contractualism, supra*, at

I. THE CHALLENGE FOR NONAGGREGATIVE RISK THEORY: IS SUMMING COSTS AND BENEFITS ACROSS PERSONS THE ONLY (POSSIBLE) GAME IN TOWN?

A. *The Question*

Consider once again the suspension bridge hypothetical discussed *supra* in the Introduction. Five essential features of this example make it representative of a broad class of risk imposition cases: (1) a socially beneficial activity poses a risk of harm; (2) the risk posed is one of accidentally-inflicted injury; (3) the sort of harm at issue is death or serious physical injury; (4) in terms of its probability, the risk is low, but not insignificant; and (5) the costs of reducing the risk come primarily in the form of wealth, income, or inconvenience. Aside from large-scale construction projects like the building of bridges, dams, highways, stadiums, and skyscrapers, some other examples of activities that share these core features include: public utility projects like the generation and widespread delivery of electric power; machine- or chemical-based factory processes used by firms in manufacturing goods; clinical drug trials; and vaccination initiatives.

In cases of this type, what level of precaution is the actor morally required to exercise? That is the question I explore in this Article.²⁹ I should be clear on the particular kind of answer I am seeking. I seek a substantive decision rule that could be used

103–04; see also RAWLS, *supra* note 19, at 15 (“For it is clear that the contractarian idea can be extended to the choice of more or less an entire ethical system, that is, to a system including principles for all the virtues and not only for justice. . . . Obviously if justice as fairness succeeds reasonably well, a next step would be to study the more general view suggested by the name ‘rightness as fairness.’”).

²⁹ In this Article, I do not purport to advance a *general* interpretation of the reasonable care standard. I mean only to address cases in which a repetitive, coordinated, firm-based activity with substantial social benefits imposes a risk of serious bodily harm on certain individuals, such as workers, consumers, or bystanders. I do not, for example, mean to address cases in which the private acts of individuals—for example, riding a bicycle or walking a dog on a public road, making a campfire at a public campsite, mowing a front lawn, and so on—impose nontrivial risks of serious bodily harm on other individuals. See Keating, *Social Contract*, *supra* note 25, at 39–42 (distinguishing for purposes of tort liability between the “world of acts,” a world of “isolated, ungeneralized wrongs,” and the “world of activities,” a world “in which certain risks are the regular and routine ‘incidents of certain well-known businesses’” (quoting Oliver Wendell Holmes, *The Path of the Law*, 10 HARV. L. REV. 457, 467 (1897))).

in specific cases to determine whether the actor was morally obligated to take a particular precaution or to fix the precise amount of money the actor is morally required to invest in safety precautions.³⁰ Here are two examples of insufficiently specific answers that would fail this test: “The actor is morally required to take all precautions that would have been taken by a reasonably careful person under the circumstances,” and “The actor is morally required to take precautions such that the resulting risk imposed is one it is fair to ask others to bear.” These answers link the moral obligation to take precaution to a particular concept, such as reasonableness or fairness, but they fail to specify how, in a particular case, one would determine whether reasonableness or fairness requires taking some particular precaution.

I should offer two caveats before moving on. First, I have relatively little to say here about assumption of risk, an issue that obviously affects the morality of risk impositions in particular cases. It is evident that, in appropriate circumstances, a person’s free and informed consent to bear a particular risk to their own bodily integrity can render permissible an otherwise impermissible risk imposition.³¹ It seems clear, though, that many cases we might be tempted to place under this category fail, upon close analysis, to involve consent made freely or with adequate information. Think, for example, of the unemployed worker who, afraid of being unable to meet her family’s basic needs, accepts a factory job knowing that it carries significant risks of serious injury. Does it make sense to say the worker has *freely* assumed the risk in that case? Perhaps not.³²

³⁰ Fried focuses her inquiry on the same sort of substantive decision rule. See Fried, *Limits*, *supra* note 19, at 232 n.2 (“I set to the side procedural solutions, which do offer a clear alternative to substantive decision rules, consequentialist and nonconsequentialist alike.”).

³¹ See, e.g., Tim Lewens, *Introduction: Risk and Philosophy*, in RISK: PHILOSOPHICAL PERSPECTIVES, *supra* note 17, at 8–9 (“It is plausible, for example, that risks which a person *chooses* to run can legitimately be much higher than risks which are *imposed* by some other agent.”).

³² See Simons, *supra* note 18, at 1181 (setting aside issues of consent and assumption of risk in a discussion of morality of risk imposition because “innumerable risky activities are tolerated in the contemporary world even though it is unrealistic to claim or expect that all those exposed to the risk (including bystanders and even children) subjectively ‘consent’ in any meaningful sense of the term”); see also ROBERT E. KEETON ET. AL., TORT AND ACCIDENT LAW: CASES AND MATERIALS 1256–57 (4th ed. 2004) (“[T]he risks and benefits of a consumer product accrue to the same party, the consumer, who can choose to avoid the risk.

Second, my inquiry here is primarily concerned with cases of advertent negligence—cases in which actors knowingly choose to take (or not to take) a particular precaution or adhere to (or not to adhere to) a particular precautionary standard.³³ The firm-based activities with which I am concerned tend to involve conscious, calculated decisions about whether to impose a particular level of risk or exercise a particular level of precaution. I set aside cases involving inadvertent failures to take particular precautions, as such cases raise difficult questions about moral wrongdoing and culpability that I do not wish to broach here.³⁴

B. *Barbara Fried's Challenge*

Fried throws down the gauntlet to nonconsequentialist³⁵ risk theory in two recent articles that argue for essentially the same

Employees, on the other hand, rarely have such a choice—they must bear the risk of occupational health hazards, while benefits accrue largely to employers and consumers.” (quoting Brief for Federal Respondent at 55, *Am. Textile Mfrs. Inst. v. Donovan*, 452 U.S. 490 (1981) (Nos. 79-1429 and 79-1583)) (internal quotation marks omitted)).

³³ On the distinction between advertent and inadvertent negligence, see RESTATEMENT (THIRD) OF TORTS: LIAB. FOR PHYSICAL AND EMOTIONAL HARM § 3 cmt. k (2010).

³⁴ See, e.g., Larry Alexander, *Negligence, Crime, and Tort: Comments on Hurd and Simons*, 76 B.U. L. REV. 301, 302 (1996) (stating the belief that inadvertent negligence is not morally culpable); cf. Dov Waisman, *Negligence, Responsibility, and the Clumsy Samaritan: Is There a Fairness Rationale for the Good Samaritan Immunity?*, 29 GA. ST. U. L. REV. 609, 644–62 (2013) (arguing inadvertent samarital negligence need not involve moral culpability, but typically gives rise to moral responsibility for any resulting injury). But see Heidi M. Hurd, *The Deontology of Negligence*, 76 B.U. L. REV. 249, 271 (1996) (“If it is wrong to do more harm than good in the arena in which deontological maxims do not apply, then it would appear culpable to do an act under circumstances in which the discounted value of the harm that act will cause exceeds the costs of precautions that it would take to prevent that harm.”).

³⁵ The major divide in normative moral theory is between consequentialism and nonconsequentialism. Consequentialists believe that the moral permissibility of an action depends entirely on the consequences of that action (typically, its consequences for the aggregate well-being of all affected individuals). See, e.g., SHELLY KAGAN, *NORMATIVE ETHICS* 60 (1998). The most prominent consequentialist view is utilitarianism. See *id.* at 61–62. Nonconsequentialists, while not denying the relevance of consequences, believe that the moral permissibility of an action may be a function of factors other than and in addition to its consequences, such as whether it conforms with a specified norm, whether it respects the rights of all involved, and so on. See *id.* at 70–71. The most prominent nonconsequentialist view is deontology. See *id.* at 72–73.

core claim, doing so in slightly different ways.³⁶ The claim is that nonconsequentialists have failed to come up with a coherent answer to the following question: Under what circumstances is it morally permissible to engage in a socially beneficial activity that imposes a nontrivial risk of serious bodily harm on others?³⁷ In Fried's view, nonconsequentialist theorists have either dodged that question entirely, provided unacceptably vague answers (for example, so long as one takes all "reasonable precautions"), provided answers that apply only in very unusual circumstances (for example, cases involving virtually certain consequences to identifiable victims), or provided answers that so closely resemble an interpersonally aggregative approach that they do not warrant the nonconsequentialist label.³⁸

When it comes to the problem of specifying when it is morally permissible to engage in socially beneficial conduct that imposes a significant risk of serious harm, consequentialists tend to clash with nonconsequentialists over the question of *interpersonal aggregation*. Most versions of consequentialism are interpersonally aggregative in the sense that the permissibility of a particular action depends on how it will affect the aggregate well-being of all individuals whose well-being it will affect.³⁹ As Fried puts it, an aggregative theory is one that "rank-order[s] alternative principles for action at least in part based on their aggregate expected benefits (costs), summed across all potentially affected individuals."⁴⁰ This kind of approach tends to commit consequentialists to the position that, as Fried puts it, "a risk of serious harm to one person can be justified by small benefits to the many."⁴¹

³⁶ In *The Limits of a Nonconsequentialist Approach to Torts*, Barbara H. Fried emphasizes the failure of deontologically-oriented *tort theory* (in particular, corrective justice theory) to offer a coherent, nonaggregative alternative to cost-benefit analysis for adjudging the permissibility of risk impositions. See Fried, *Limits*, *supra* note 19, at 256–57. Conversely, in *Can Contractualism Save Us from Aggregation?*, Barbara H. Fried focuses on the failure of contractualist *moral theory* to provide such an alternative. See Fried, *Contractualism*, *supra* note 21, at 64–65.

³⁷ See Fried, *Limits*, *supra* note 19, at 232 ("[H]ave critics of aggregation offered an analytically coherent *substantive* decision rule for regulating risky conduct that does not itself boil down to some form of aggregation? The short answer is: I do not think so." (footnote omitted)).

³⁸ See *id.* at 231, 236, 248.

³⁹ See *id.* at 262.

⁴⁰ Fried, *Contractualism*, *supra* note 21, at 39–40.

⁴¹ *Id.* at 39.

Nonconsequentialists, on the other hand, believe that we cannot necessarily justify imposing a significant risk of serious harm on the few for the sake of providing small benefits to the many, even if the aggregate benefit of imposing the risk exceeds its aggregate expected cost.⁴² For nonconsequentialists, even if imposing a risk delivers a net aggregate benefit to all affected individuals, it might still be wrong to impose it.⁴³

This dispute over interpersonal aggregation lies at the heart of Fried's challenge to nonconsequentialist risk theory. Nonconsequentialists tend to believe that morality sometimes requires taking more than the marginally cost-justified level of precaution. Fried charges that this position is empty (or, at the least, unconvincing) unless nonconsequentialists can say with some specificity when pressing precaution beyond the point of cost-justification is required and how much further precaution is required in such cases.⁴⁴

Fried maintains that nonconsequentialists have yet to offer "viable" answers to these questions. "[F]or these purposes," Fried says:

I mean 'viable' in a very undemanding sense: have nonconsequentialists supplied criteria that, as an operational matter, are capable of differentiating among different forms of risky conduct? I do not reach the further question of whether such criteria, if they exist, dominate [cost-benefit calculus] on normative or practical grounds.⁴⁵

Fried's challenge to nonconsequentialist risk theory goes deeper than this, though. It is no accident, in her view, that there is no extant alternative to interpersonal aggregation when it comes to the difficult case-by-case task of determining whether a particular risk imposition is morally permissible. Fried believes it is *impossible* to accomplish that task without summing costs and benefits across persons: "Moreover, I will suggest, the effort to come up with nonaggregative principles to

⁴² See Fried, *Limits*, *supra* note 19, at 259.

⁴³ This follows directly from the nonconsequentialist tenet that an act's moral permissibility can depend on factors other than its consequences for aggregate well-being. See KAGAN, *supra* note 35, at 70–71.

⁴⁴ See Fried, *Limits*, *supra* note 19, at 232 ("[H]ave critics of aggregation offered an analytically coherent *substantive* decision rule for regulating risky conduct that does not itself boil down to some form of aggregation? The short answer is: I do not think so." (footnote omitted)).

⁴⁵ See *id.* at 234, 259–60.

handle the problem of risk *must* fail—that the problem of risk, by its nature, can be managed *only* with the sorts of interpersonal trade-offs that the contractualist enterprise is foundationally committed to rejecting.⁴⁶

Summing costs and benefits across persons is, in Fried's view, the only way to negotiate the inevitable conflict between liberty and security that arises in connection with socially beneficial conduct that imposes a nontrivial risk of harm.⁴⁷ In Fried's view, without interpersonal aggregation, a theory forfeits the capacity to explain why morality allows us to engage in the wide range of significantly risky but socially beneficial activities that characterize life in modern, industrialized societies.⁴⁸

Though Fried does at one point expressly consider the possibility that nonconsequentialist moral theory dictates taking a level of precaution that exceeds the level of precaution dictated by efficient care,⁴⁹ she fails to identify the economic feasibility principle, or anything resembling it, as a possible precautionary alternative. For example, she observes:

What it means to take 'reasonable precautions' is described in many different ways in the nonconsequentialist literature: One should behave in a fashion that is not negligent, that respects the legitimate interests of others to be free from harm, that is not wrongful, unreasonable or unjustifiable, that gives people what they are due; one should adopt safety measures that will substantially lower the risk at a reasonable cost. But it is unclear whether these different verbal formulations imply different standards of conduct, and whether any of them differs significantly from the optimal level of precaution dictated by aggregative techniques.⁵⁰

Here Fried alleges that the nonconsequentialist literature on risk regulation has nothing to offer in the way of an alternative precautionary standard other than vague reformulations of the injunction to exercise reasonable precaution.

⁴⁶ Fried, *Contractualism*, *supra* note 21, at 40; *see also* Fried, *Limits*, *supra* note 19, at 256, 262.

⁴⁷ Fried, *Contractualism*, *supra* note 21, at 64.

⁴⁸ Fried, *Limits*, *supra* note 19, at 259–60.

⁴⁹ *See* Fried, *Contractualism*, *supra* note 21, at 61.

⁵⁰ *See id.* at 62; *see also* Fried, *Trolley*, *supra* note 21.

This allegation is baseless. At least since 2001, when Keating published a paper⁵¹ identifying the economic feasibility principle as the precautionary standard emerging from Kantian social contract theory, the nonconsequentialist literature has indeed featured a determinate precautionary alternative to efficient care.⁵² Fried's failure to even once take note of, much less discuss, the possibility of a precautionary standard that is keyed to the survival of the underlying activity is puzzling, particularly in light of the radical nature of her critique, that is, that there is no viable alternative on the table.⁵³ But is that oversight fatal to her claim that no precautionary standard can yield plausible, determinate results in ordinary types of cases without relying on interpersonal aggregation?

I believe it is. Building on Keating's foundational work,⁵⁴ I describe an alternative precautionary standard—the *individualized feasibility principle*—which avoids reliance on interpersonal aggregation and delivers determinate, morally plausible results in ordinary types of cases, thereby answering Fried's challenge.⁵⁵

⁵¹ See Keating, *Social Contract*, *supra* note 25, at 22–51. In a series of papers that followed, Keating developed his account of the social contract rationale underlying the feasibility and safety norms found in American risk regulation. See Keating, *Pressing Precaution*, *supra* note 18, at 684–748. See generally Keating, *Irreparable Injury*, *supra* note 25; Keating, *Pricelessness and Life*, *supra* note 25.

⁵² Keating, *Social Contract*, *supra* note 25, at 47–48.

⁵³ See Fried, *Limits*, *supra* note 19, at 232–33.

⁵⁴ See *supra* note 51.

⁵⁵ Aaron James has responded to Fried's challenge in a general way, arguing that an appropriately specified *ex ante* version of contractualism need neither forbid interpersonal aggregation altogether nor succumb to a perilous slide into morally implausible forms of such aggregation. See Aaron James, *Contractualism's (Not So) Slippery Slope*, 18 *LEGAL THEORY* 263, 288–90 (2012). I here take up the task that James expressly declines to tackle: “answer[ing] Fried's doubts about whether, in a vast range of ordinary public policy choices, ideas of ‘reasonable cost’ or ‘adequate opportunity to avoid’ can be operationalized other than in aggregative cost-benefit terms.” *Id.* at 289; see also John Oberdiek, *The Morality of Risking: On the Normative Foundations of Risk Regulation* 187 n.36 (2003) (unpublished Ph.D. dissertation, University of Pennsylvania), available at <http://search.proquest.com/docview/305311307> (offering a nonaggregative theory of the morality of risk imposition, but “postpon[ing] for another occasion” the “(less philosophical) project” of “[d]elineating concrete standards of permissible risking” that such a theory would generate).

II. ANSWERING THE CHALLENGE: THE INDIVIDUALIZED FEASIBILITY PRINCIPLE

The individualized feasibility principle represents a synthesis of two precautionary standards: the *economic feasibility principle*, which has long been part of American law, and the *individual risk principle*, a novel risk regulation principle I introduce in this Article. In any given case, each of these principles will dictate a distinct level of investment in safety precaution. In some cases, the feasibility principle will dictate a greater investment in safety than will the individual risk principle. In others, the opposite will be true. In any given case, the IFP directs the actor imposing the risk to comply with whichever of these two principles dictates the *lesser* investment in safety.

A. *The Economic Feasibility Principle*

The economic feasibility principle holds as follows: When engaging in a socially beneficial activity that imposes a significant risk of serious bodily harm on certain individuals, the actor imposing the risk should take all economically feasible precautions.⁵⁶ The term “all economically feasible precautions” refers to the set of safety precautions that, in the case of a particular risk, yields the maximum reduction in accident costs (deaths and serious injuries) consistent with the long-term viability of the risky activity in question.⁵⁷

An economic feasibility standard has been part of American law for decades. Most prominently, certain portions of the Occupational Safety and Health Act of 1970⁵⁸ implement the feasibility principle. The Occupational Health and Safety Administration (“OSHA”) requires employers to reduce workplace risks posed by toxic materials or harmful physical

⁵⁶ See Keating, *Pressing Precaution*, *supra* note 18, at 685.

⁵⁷ See *id.* (explaining that, under the economic feasibility standard, “[c]ost-justified risks are eliminated, so long as their elimination is compatible with the long-term flourishing of the activity at issue, and significant risks remain only if their elimination would threaten the survival of the activity”); see also Keating, *Social Contract*, *supra* note 25, at 46 (“When risks are significant, and when life and limb are pitted against wealth and income, then, we should reduce risks to the point where they are either no longer unreasonable, or where further reduction would jeopardize the continuation of the activity itself.”).

⁵⁸ Occupational Safety and Health Act of 1970, 29 U.S.C. §§ 651–78 (2012).

agents “to the extent feasible,”⁵⁹ meaning to the maximum extent possible without jeopardizing the long-term survival of the industry.⁶⁰ Moreover, a feasibility standard has long been part of American nuisance law.⁶¹

The economic feasibility principle can account for the intuition that, in many cases, risk-creators are morally obligated to press precaution beyond the point of marginal cost-justifiability. Typically, it will dictate a greater level of precaution than aggregative standards like efficient care.⁶² However, the economic feasibility principle stops short of placing implausibly onerous moral constraints on those wishing to engage in socially beneficial but significantly risky activities. The principle avoids what Barbara Fried has called a “moral gridlock”⁶³ because it allows socially useful activities that are sure to result in accidental deprivations of life and limb to go forward, provided significant risks are reduced to the maximum extent possible without undermining the activity at issue.⁶⁴ The economic feasibility standard sets the required level of

⁵⁹ See *id.* § 655(b)(5) (“The Secretary, in promulgating standards dealing with toxic materials or harmful physical agents under this subsection, shall set the standard which most adequately assures, *to the extent feasible*, on the basis of the best available evidence, that no employee will suffer material impairment of health or functional capacity even if such employee has regular exposure to the hazard dealt with by such standard for the period of his working life.” (emphasis added)).

⁶⁰ See *Am. Textile Mfrs. Inst. v. Donovan*, 452 U.S. 490, 530 n.55 (1981) (holding the cotton dust standard economically feasible because “the industry will maintain long-term profitability and competitiveness”); *United Steelworkers of Am. v. Marshall*, 647 F.2d 1189, 1265 (D.C. Cir. 1980) (“A standard is feasible if it does not threaten ‘massive dislocation’ to, or imperil the existence of, the industry.” (citations omitted)).

⁶¹ See RESTATEMENT (SECOND) OF TORTS § 826(b) (1979).

⁶² See, e.g., Keating, *Pressing Precaution*, *supra* note 18, at 684–85 (noting that the feasibility principle generally tolerates less risk than the cost-justification standard); KEETON ET AL., *supra* note 32, at 1237–41 (discussing a continuum of precautionary standards in which the feasibility standard is considered less tolerant of risk than the cost-benefit balancing standard). However, if accident costs are largely externalized, it seems at least theoretically possible for an efficient expenditure on precaution not to be feasible (that is, for the maximum feasible safety expenditure to be sub-efficient). See Jonathan S. Masur & Eric A. Posner, *Against Feasibility Analysis*, 77 U. CHI. L. REV. 657, 697 (2010) (arguing that the economic feasibility principle would result in “underregulation”—meaning sub-efficient regulation—in certain circumstances).

⁶³ See Fried, *Contractualism*, *supra* note 21, at 45; see also John Broome, *Trying To Value a Life*, 9 J. PUB. ECON. 91, 92 (1978) (describing the “paradox” of moral gridlock).

⁶⁴ See Keating, *Pressing Precaution*, *supra* note 18, at 684.

precaution below (but only *just* below) the point at which engaging in a risky activity becomes so costly or burdensome as to dissuade rational actors from engaging in the activity altogether, thus jeopardizing its continuation.⁶⁵

Two components of the feasibility principle warrant further explanation: the notion of a socially beneficial activity and the notion of an activity's long-term viability.

1. Socially Beneficial Activity

What makes a risky activity “socially beneficial”? And why restrict my inquiry here to such activities? As noted above, the type of activities I have in mind are coordinated, repetitive, actuarially large activities typically undertaken and subsidized by firms or government agencies that deliver substantial social benefits.⁶⁶ Examples include large-scale construction projects like the building of bridges, dams, highways, stadiums, and skyscrapers; public utility initiatives like the generation and delivery of electric power, gas, and potable water; machine- or chemical-based factory processes used by firms in manufacturing goods; clinical drug trials; and vaccination initiatives.

A few observations about this class of activities are in order. This category excludes risky social practices comprising the private acts of individuals, such as driving a car on a public road, using a conventional gas stove in a home kitchen, or walking a large dog on a leash on a public sidewalk. The reason for excluding such practices from my inquiry is that their justifications are usually thought to rest on the risk-bearer's reciprocal right to directly engage in the practice at issue, and thereby to impose the same risk on others.⁶⁷ By contrast, the

⁶⁵ *Id.* at 685.

⁶⁶ See Keating, *Social Contract*, *supra* note 25, at 39–41 (contrasting the world of *acts*—in which risk impositions are “*discrete* one-shot events” and the “typical actor is an individual or a small firm”—with the world of *activities*—in which “the typical injury arises not out of the diffuse and disorganized acts of unrelated individuals or small firms, but out of the organized activities of firms that are either large themselves, or small parts of relatively well-organized enterprises” and in which safety costs can typically be spread over many individuals); see also Holmes, *supra* note 29, at 467 (“[T]he torts with which our courts are kept busy to-day are mainly the incidents of certain well known businesses. They are injuries to person or property by railroads, factories, and the like. The liability for them is estimated, and sooner or later goes into the price paid by the public.”).

⁶⁷ See, e.g., Keating, *Pressing Precaution*, *supra* note 18, at 678 (“The right to impose risks *on* others can justify the imposition of equal risks on us *by* others,

activities with which I am concerned here typically impose risks on persons who do not themselves engage in the activity at issue and who cannot, therefore, be said to benefit from a reciprocal right to themselves act in a manner that imposes the associated risks on others. It will not do, for example, for a large company to justify the risks its stadium construction project imposes on passersby by saying, "Well, when a passerby builds her stadium, she has a right to impose the identical risk on us." I limit my inquiry here to such non-reciprocal risks.

The category of socially beneficial activities is also meant to exclude commercially profitable activities that are widely criminalized, such as the manufacture and distribution of illicit drugs.⁶⁸ Further, that even a non-criminal activity can, in a modern, free-market economy, be undertaken profitably over a relatively long period of time does not guarantee that it delivers substantial social benefits. The production and sale of tobacco products, for example, has been commercially profitable for centuries. However, it is questionable whether, given tobacco's harmful health effects, the activity of cigarette production has been a socially beneficial one.

For purposes of this Article, I need not draw a precise line between those activities that count as socially beneficial in the relevant sense and those that do not.⁶⁹ It is sufficient to make clear that, for the most part, I am concerned with non-criminal, commercially profitable activities that produce substantial social benefits. Following Fried, I take activities like those described

because, for example, we may each gain more than we lose from having to bear the risks created by the presence of other cars on the road.").

⁶⁸ I follow Fried in restricting the scope of the inquiry in this way. See Fried, *Limits*, *supra* note 19, at 234–35.

⁶⁹ It seems that, like the notion of reasonable precaution, the notion of a socially beneficial activity could itself be defined either aggregatively (via welfarist consequentialism) or nonaggregatively (via *ex ante* contractualism). An aggregative interpretation would hold roughly that an activity is socially beneficial if and only if there exists some level of safety precaution at which the activity's aggregate benefits exceed its aggregate costs. A nonaggregative, *ex ante* contractualist interpretation would hold roughly that an activity is socially beneficial if and only if there exists some level of safety precaution at which the benefit it stands to provide to the person it most benefits exceeds the *ex ante* burden it places on the person to whom it poses the gravest risk. An interesting question is how to handle the case in which, at a given level of precaution, the activity in question would not be socially beneficial in either an aggregative or a nonaggregative sense. For purposes of this Article, I put this question to the side and assume that the activity in question remains socially beneficial overall, whether the IFP or the efficient care standard is followed.

above, activities as to which there is broad consensus that the activity is worth preserving, to be *prima facie* socially productive.⁷⁰ The question I explore in this Article is: Assuming a risky activity is worth preserving, how safe does morality require that it be made?

2. Long-Term Viability of Risky Activity

The economic feasibility principle says to reduce a given risk to the maximum extent possible without threatening the long-term viability of the activity giving rise to the risk.⁷¹ What exactly does that mean? Exactly how does one determine how much expenditure on safety precaution a given activity can tolerate without being undermined?

The most concrete answers to these questions come from OSHA, its corresponding regulations, and the cases interpreting those regulations. One oft-quoted opinion serves as a useful starting point:

A standard is feasible if it does not threaten ‘massive dislocation’ to, or imperil the existence of, the industry. No matter how initially frightening the projected total or annual costs of compliance appear, a court must examine those costs in relation to the financial health and profitability of the industry and the likely effect of such costs on unit consumer prices. . . . [T]he *practical question is whether the standard threatens the competitive stability of an industry*, or whether any intra-industry or inter-industry discrimination in the standard might wreck such stability or lead to undue concentration.⁷²

⁷⁰ See Fried, *Contractualism*, *supra* note 21, at 41.

⁷¹ Of course, the economically feasible level of precaution must necessarily be technologically feasible, meaning it must be achievable within the limits of available technology. In the context of OSHA health regulations, this means that “the typical firm will be able to develop and install engineering and work practice controls that can meet the PEL [permissible exposure limits] in most of its operations.” *United Steelworkers of Am. v. Marshall*, 647 F.2d 1189, 1272 (D.C. Cir. 1980). Obviously, requiring a degree of safety that is technologically unattainable is inconsistent with the survival of the activity at issue.

⁷² *Id.* at 1265 (emphasis added) (footnote omitted) (citations omitted) (quoting *Indus. Union Dep’t v. Hodgson*, 499 F.2d 467, 478, 481 (D.C. Cir. 1974)); see also *Am. Textile Mfrs. Inst. v. Donovan*, 452 U.S. 490, 531 (1981) (describing OSHA’s determination that the proposed standard for workplace cotton dust exposure was economically feasible because “although some marginal employers may shut down rather than comply, the industry as a whole will not be threatened by the capital requirements of the regulation” (internal quotation marks omitted)); Occupational

In a given case, how do OSHA regulators determine whether the imposition of a particular standard threatens the competitive stability of an industry?⁷³ OSHA approaches this question in the first instance by conducting an industry-by-industry analysis. For each industry, OSHA determines the percentage of the industry's revenues and profits that the costs of complying with the standard represent.⁷⁴ On this point, one OSHA report offers the following guidance:

[W]hile there is no hard and fast rule, in the absence of evidence to the contrary OSHA generally considers a standard economically feasible when the costs of compliance are *less than one percent of revenues*. Common-sense considerations indicate that potential impacts of such a small magnitude are unlikely to eliminate an industry or significantly alter its competitive structure particularly since most industries have at least some ability to raise prices to reflect increased costs. . . . There is an enormous variety of year-to-year events that could cause a one percent increase in a business's costs, e.g., increasing fuel costs, an unusual one-time expense, changes in costs of materials, increased rents, increased taxes, etc.⁷⁵

Exposure to Hexavalent Chromium, 71 Fed. Reg. 10,100, 10,281 (Feb. 28, 2006) ("OSHA's obligation is not to determine whether any plants will close, or whether some marginal plants may close earlier than they otherwise might have, but whether the regulation will eliminate or alter the competitive structure of an industry.").

⁷³ It is crucial to note that the economic feasibility principle is committed to preserving an activity or industry *as a whole*, not to keeping each and every firm in a given industry from going bankrupt. Under OSHA's economic feasibility principle, every firm in a given industry is required to meet the specified risk reduction target, the one that has been calculated to achieve the maximum reduction in employee risk consistent with the survival of the industry as a whole. As the authorities cited in the preceding note make clear, even if meeting that target would drive some particular firm out of business, the economic feasibility principle tolerates that result so long as most firms in the industry will be able to meet the target without going bankrupt.

⁷⁴ See, e.g., Occupational Exposure to Hexavalent Chromium, 71 Fed. Reg. at 10,271–300 (describing results of industry-by-industry analysis of the economic impact of the proposed permissible exposure limit for hexavalent chromium). For a critique of the profit-and-revenue method of determining whether a standard threatens the competitive stability of an industry, see Masur & Posner, *supra* note 62, at 693–95.

⁷⁵ Occupational Exposure to Hexavalent Chromium, 71 Fed. Reg. at 10,299 (emphasis added). The sort of "standard" at issue in OSHA health regulations is one that identifies a permissible exposure limit ("PEL") for a particular toxic substance.

In at least one instance, OSHA concluded that where the costs of complying with a particular standard come to less than *both* one percent of an industry's revenues *and* ten percent of its profits, implementation of the standard would not threaten the competitive stability of the industry.⁷⁶ The reasoning here seems to be that if an industry is routinely able to absorb revenue and profit fluctuations within certain limits without seeing its competitive stability undermined, then a regulatory standard whose implementation would cause a revenue or profit fluctuation within those same limits would not threaten the industry's competitive stability.⁷⁷

Where a particular industry's compliance costs significantly exceed the threshold levels designated by OSHA (which are typically stated as a percentage of the industry's revenues and profits), OSHA determines on an industry-by-industry basis whether complying with a particular standard will threaten an industry's competitive stability. For example, in analyzing the economic feasibility of proposed permissible exposure limits ("PELs") for hexavalent chromium, OSHA expressed concern about how a PEL of 1 one [μ] g/m³ would affect the electroplating industry:

OSHA is concerned about the economic feasibility of the standard for electroplating at a PEL of 1. At this lower PEL, costs of the standard represent 2.7 percent of revenues and 65 percent of profits. . . . It seems unlikely that a price increase of 2.7 percent . . . would eliminate the industry entirely. OSHA has concluded, however, that the costs associated with such a PEL could alter the competitive structure of the industry. OSHA has concluded this because these costs substantially exceed the average nominal price increases in the industry, and the reasons for these nominal price increases—increases in the cost of labor and energy, for example—will continue. Thus a price increase that would assure continued profitability for the entire industry would require almost tripling the annual nominal price increase. . . . That would represent a significant

⁷⁶ See *id.* at 10,300 ("The record does not contain evidence that any of the affected industries for which OSHA found that the costs of complying with the standard will be less than both one percent of prior revenue and ten percent of prior profits will in fact be threatened by the standard. . . . [C]ost changes of less than one percent are routinely passed on and impacts that are less than 10 percent of profits have not been shown to be likely to affect the viability or competitive structure of any of the industries affected by this standard.").

⁷⁷ See *id.*

real price increase that might not be passed forward, particularly by older and less profitable segments of the industry.⁷⁸

The touchstone of OSHA's analysis here seems to be ensuring continued profitability,⁷⁹ which leads naturally to a focus on demand elasticity: the extent to which demand for the industry's product or service will be affected by fluctuations in price. The less elastic the demand, the more an industry can pass on compliance costs to consumers without suffering a reduction in demand and a consequent reduction in profitability.⁸⁰ Though, in the above case, OSHA concluded that "demand for electroplating services is relatively inelastic," making possible some degree of cost pass-through, it also concluded that the costs of compliance with the proposed standard (2.7% of revenues) were too large to be entirely passed on to consumers in the form of real price increases.⁸¹ The implication seems to be that compliance with the proposed standard would mean diminishing electroplating firms' profits so much as to effectively make electroplating *an unprofitable enterprise*. That, OSHA implies, is what is meant by threatening the "competitive stability" or altering the competitive structure of an industry.⁸²

B. *The Individual Risk Principle*

The individual risk principle represents an individualized, nonaggregative version of the efficient care principle; it is efficient care writ *small*. While efficient care says to minimize the sum of aggregate accident costs and aggregate accident prevention costs, the individual risk principle says to minimize the sum of each individual risk-bearer's expected accident costs and each individual precaution cost-bearer's accident prevention costs. Both principles are marginalist in nature. While efficient care says to invest in safety until the point at which further

⁷⁸ See *id.* at 10,301-02.

⁷⁹ See *Am. Textile Mfrs. Inst. v. Donovan*, 452 U.S. 490, 530 n.55 (1981) (holding cotton dust standard economically feasible because "the industry will maintain long-term profitability and competitiveness").

⁸⁰ Occupational Exposure to Hexavalent Chromium, 71 Fed. Reg. at 10,301.

⁸¹ *Id.*

⁸² *Am. Textile Mfrs. Inst.*, 452 U.S. at 530 n.55 (quoting *United Steelworkers of Am. v. Marshall*, 647 F.2d 1189, 1265 (D.C. Cir. 1980)) (internal quotation marks omitted); see *supra* note 75.

expenditure would reduce aggregate expected well-being on net, the individual risk principle says to invest in safety precaution until the point at which further expenditure would decrease each cost-bearer's well-being by more than it would increase each risk-bearer's expected well-being.⁸³ The individual risk principle therefore contemplates an individualized "single-owner"⁸⁴ approach to risk regulation, as it asks how much a person who "owned" both a pro rata share of safety costs and a pro rata share of expected accident costs would rationally be willing to invest in safety precaution.

The individual risk principle sets a moral ceiling beyond which it is arguably unreasonable to require investment in safety precaution. The basic idea is this: At least where A and B both benefit directly and significantly from the risky activity at issue, one cannot reasonably expect A to accept a setback to her well-being (in the form of an increase in the monetary safety costs she must bear) so that B can avoid a *smaller* setback to his expected well-being (in the form of an incremental increase in the risk of death or serious bodily harm he must bear). To do so would be to ask A to spend more on safety precautions than B himself would rationally be willing to spend to protect himself from the risk at issue (were he in A's economic situation).⁸⁵

The individual risk principle is, as its name suggests, keyed to *individual risk*, the risk borne by each individual risk-bearer.⁸⁶ Individual risk is ordinarily expressed as the probability (that is, a 1 in x chance) that an individual will, over the course of a

⁸³ These two principles will dictate the identical level of precaution only where risk-bearers and cost-bearers are perfectly coextensive and homogeneous in all relevant respects. See *infra* note 145.

⁸⁴ See, e.g., Kenneth W. Simons, *Deontology, Negligence, Tort, and Crime*, 76 B.U. L. REV. 273, 282 (1996) (internal quotation marks omitted) (describing a "single-owner" conception" of cost-benefit analysis "which asks what the actor . . . would do if he owned all the resources in question and would therefore internalize all the costs and benefits of the decision").

⁸⁵ As discussed in greater detail, see *infra* Part III.F, the individual risk principle cap on safety investment is most plausible from a moral point of view in cases in which the risk-bearers directly and significantly benefit from the risky activity, for example, as employees or consumers. In cases where those exposed to the risk at issue do not directly benefit from the risk-imposing activity, it is somewhat more questionable whether the individual risk principle should set a moral ceiling on safety investment.

⁸⁶ On the distinction between individual risk and population risk, see, for example, Adler, *supra* note 17, at 1126 and see also Simons, *supra* note 18, at 1219–20.

particular time period (a year, an average lifetime, and so on), suffer a particular harm (death, serious injury, and so on). For example, in the bridge construction hypothetical discussed *supra* in the Introduction, each of the two thousand bridge workers is exposed to a one in two thousand individual risk of a fatal fall over the course of the five-year project if the safety scaffolding is used, and a one in one thousand risk if it is not. Notice that individual risk need not (and typically does not) vary with the numbers of persons exposed to the risk. If the city suddenly decided it wanted to double the number of bridge workers, each of the four thousand workers would still plausibly face a one in two thousand risk of a fatal fall over the life of the project (though the risk might be reduced if the increased number of workers resulted in the bridge being completed in a shorter period of time).

Individual risk is to be contrasted with *population risk*, which represents the number of individuals expected to suffer a particular harm (death, serious injury, and so on) in a specified time period. Thus, in the bridge hypothetical, using the safety netting makes the population risk fall from two expected deaths to one. Population risk typically *does* vary with the number of persons exposed to the risk.⁸⁷ If the number of workers on the bridge doubles and the individual risk to each worker remains the same, the number of expected deaths will double as well.

As discussed in more detail below, because the individual risk principle is keyed to individual risk rather than population risk, the level of precaution it requires in a given case is not *directly* dependent on the number of persons who bear the risk at issue or on the number of persons bearing the cost of reducing the risk. Indeed, the individual risk principle entirely rejects interpersonal aggregation and avoids summing costs and benefits across persons altogether. It does, of course, contemplate a bilateral interpersonal *comparison*: For a given expenditure on safety, the individual risk principle compares the monetary cost of the precaution to each individual cost-bearer against the resulting increase in safety experienced by each individual risk-

⁸⁷ It is possible to conceive of situations in which this is not the case, however. See Sophia Reibetanz, *Contractualism and Aggregation*, 108 ETHICS 296, 302–03 (1998) (discussing the “Unexploded Mine” hypothetical in which, as the number of persons exposed to the risk grows, the population risk remains the same (a one hundred percent chance of one death) and the individual risk falls).

bearer. But the individual risk principle does not sum precaution costs (or savings) across all affected cost-bearers, nor does it sum accident costs (or savings) across all affected risk-bearers.

Another thing to notice about the individual risk principle is that, unlike the feasibility principle, its application requires determining the number of distinct individuals who shoulder the costs of mitigating a particular risk. Without doing so, it would be impossible to determine the monetary burden borne by each bearer of precaution costs. Admittedly, in some circumstances, this may be rather difficult to do. For example, a company engaged in a risky activity may distribute its safety precaution costs among a vast group of consumers, shareholders, or some combination of the two. Determining the exact share of precaution costs each individual shareholder or consumer ends up bearing may be somewhat burdensome. A further complication is that, on account of the diminishing marginal utility of money, the degree to which a specified monetary loss reduces the well-being of a particular individual will plausibly depend on the individual's existing wealth, which will vary significantly from person to person.⁸⁸

C. *The Individualized Feasibility Principle*

When the economic feasibility principle is conjoined with the individual risk principle, a bipartite standard emerges: the individualized feasibility principle. As noted above, the IFP directs a risk-creating actor to stop investing in safety precaution only when one of the following two points has been reached: (1) the point at which further expenditure on safety would threaten the long-term survival of the activity (economic feasibility); or (2) the point at which further expenditure would

⁸⁸ In this Article, I largely ignore this complication, but hope to address it in future work. For my purposes here, I assume that all individuals potentially affected by a particular risk imposition have identical levels of wealth and thus experience the identical loss (or gain) in well-being as the result of a given monetary loss (or gain). Of course, aggregative welfarist theories must confront the same difficulty, as the aggregate reduction to well-being associated with a particular monetary cost will, due to the diminishing marginal utility of money, obviously depend on the existing wealth of each individual responsible for bearing the cost. See Adler, *supra* note 11, at 10–15 (explaining how distributionally weighted cost-benefit analysis can take account of varying levels of individual wealth and the diminishing marginal utility of money).

reduce the well-being of each bearer of precaution costs by more than it would increase the expected well-being of each risk-bearer (individual risk).

According to the IFP, the risks posed by a socially beneficial activity should be reduced to the maximum extent consistent with the activity's long-term survival, unless doing so would require each cost-bearer to invest more in safety precaution than a risk-bearer would rationally have been willing to invest in her own safety, were she in the economic situation of a cost-bearer. Equivalently, the IFP requires each cost-bearer to make any investment in risk-reduction that she would rationally have been willing to make were it her own bodily integrity at risk, up to the point at which further investment would place the long-term survival of the activity in jeopardy.

Thus, the IFP implicitly rejects the notion that the only good comparable in value to the reduction of significant risks of bodily harm is the preservation of the major, productive activities that define modern life.⁸⁹ By capping precaution at the point dictated by the individual risk principle, the IFP implies that incremental changes in the monetary costs borne by each individual who subsidizes safety precaution *can* meaningfully be traded against incremental changes in the risks of serious bodily harm borne by each individual risk-bearer. If a given reduction in risk is sufficiently costly for each cost-bearer and sufficiently small for each risk-bearer, the IFP holds it morally indefensible to require the reduction, even if doing so would not threaten the survival of the underlying activity. However, by simultaneously capping precaution at the economic feasibility point, the IFP accommodates the intuition that, in the context of socially beneficial activity, the reasonable level of precaution can never be one which is so stringent as to make the activity unviable.

⁸⁹ Keating sometimes suggests that one individual's certain monetary loss (or gain) is fundamentally incomparable to—and cannot fairly be traded against—an increase (or reduction) in the low but significant risk of death or serious bodily harm borne by another individual. *See, e.g., Keating, Pressing Precaution, supra* note 18, at 664–74 (discussing the comparability of trivial monetary losses and gains with devastating bodily injuries). As noted in the main text, I disagree with this view. One can coherently subscribe to the comparability of monetary losses (or gains) and changes in one's risk of serious bodily harm without also subscribing to the view that a trivial monetary gain, summed across a vast number of individuals, can justify the imposition of a greater risk of death on a distinct and much smaller group of individuals. Keating sometimes seems to me to conflate comparability and aggregability in this way.

The IFP caps investment in safety short of the level required by the individual risk principle if this is necessary to preserve the underlying socially beneficial activity.

1. Does the IFP Lead to Morally Implausible Results?

One implication of the IFP is that the level of precaution morally required with respect to a particular risk is not directly dependent on the number of persons exposed to that risk. Unlike the efficient care principle, neither the economic feasibility principle nor the individual risk principle is directly sensitive to the size of the population exposed to the risk.⁹⁰ The underlying thought is that the degree of protection to which each risk-bearer is morally entitled should not directly depend on how many other persons also happen to be exposed to the risk.⁹¹ Is this defensible? Should reasonable precaution be keyed to both the individual risk borne by each risk-bearer *and* the number of risk-bearers?⁹²

In many cases, it seems somewhat implausible that the necessary level of precaution should be a direct function of the number of persons exposed to the risk. Should a bus driver use greater care when the bus is full of passengers than when it is empty save for one or two?⁹³ Should a high-rise apartment building be constructed to keep its occupants safer than occupants of a single-family dwelling, simply because more people are at risk in the high-rise?⁹⁴ A number of commentators have answered questions like these in the negative.⁹⁵

⁹⁰ See Adler, *supra* note 17, at 1240–41 (noting that many regulatory standards in the United States are insensitive to population size and keyed to individual risk only).

⁹¹ See Oberdiek, *supra* note 55, at 144 (“[N]o difference can be justified in the relative care taken in constructing buildings that serve differing numbers of people. Since each person stands the same probability of suffering a like harm—since each person in either kind of structure runs the same risk—each person is entitled . . . to the same level of precaution or the same standard of care.”).

⁹² See *id.* (“[U]nder the Hand test, greater care must be taken in the construction of apartment high-rises than single-family homes since so many more could suffer significant harm if, say, the apartment building’s foundation faltered.”).

⁹³ See Simons, *supra* note 18, at 1174.

⁹⁴ See John Oberdiek, *The Ethics in Risk Regulation: Towards a Contractualist Re-Oriented*, 36 RUTGERS L.J. 199, 203–04 (2004).

⁹⁵ See *id.*; Simons, *supra* note 18, at 1174–75; cf. SCANLON, WHAT WE OWE, *supra* note 28, at 236.

On the other hand, a standard's lack of direct sensitivity to population size might imply that whether ten workers or ten thousand workers are exposed to a particular workplace risk, each worker's risk must be reduced by the identical amount.⁹⁶ If a one in one thousand risk of death falls on each individual worker, the risk can be expected to result in ten deaths in the latter case, but only a one percent chance of a single death in the former. To some commentators, it has seemed implausible to require no greater reduction of each worker's risk in the ten thousand-worker case than in the ten-worker case.⁹⁷

Notice, however, that under the IFP, the requisite level of precaution may *indirectly* depend on the size of the population exposed to the risk. For example, as practiced by OSHA, the economic feasibility principle specifies a particular PEL for each worker that must be satisfied by all firms within a particular industry.⁹⁸ It seems likely that the more at-risk employees a firm has, the more it will need to invest to satisfy this uniform standard. For example, the total safety investment necessary to reduce each worker's individual risk of death from one in one thousand to one in seven hundred and fifty would likely be significantly greater in the case of a ten thousand-worker factory than in the case of a ten-worker factory.⁹⁹ Thus, under the

⁹⁶ For example, in setting permissible exposure limits for hazardous substances under the economic feasibility standard, OSHA designates a PEL that applies regardless of the number of workers at risk in a given firm, industry, or group of industries. *See, e.g.*, *Am. Textile Mfrs. Inst. v. Donovan*, 452 U.S. 490, 501-04 (1981) (describing OSHA's setting a PEL for cotton dust exposure without regard for population size). Of course, achieving the identical reduction in each worker's individual risk may well require a different per-worker safety expenditure depending on the number of workers exposed to the risk.

⁹⁷ *See, e.g.*, Adler, *supra* note 17, at 1241 (calling it "morally arbitrary" to require identical reduction in individual risk without regard to the number of risk-bearers).

⁹⁸ *See supra* note 96.

⁹⁹ In correspondence concerning this Article, I interpreted Barbara Fried to express skepticism about the truth of this proposition in light of one-time set-up costs and economies of scale. I continue to believe the proposition is generally correct, however. An analogy to building safety may be helpful to explain why. It is obvious that the total investment required to guarantee the structural integrity of a 20-floor, 200-unit apartment building is much greater than that necessary to guarantee the structural integrity of a single-family home. The reason for this is that the apartment building is designed to house *many more people* than the single family home, so must of necessity be much larger and taller than the home. This illustrates how the *total* safety investment required to provide an identical level of safety to each risk-bearer will often vary directly with the number of risk-bearers. Of

economic feasibility principle, the greater the number of persons at risk, the more each cost-bearer will likely be required to invest in safety precautions. It seems to me that the intuition driving Adler and other commentators critical of precautionary standards keyed to individual risk is that, when a risk imposition can be expected to cause ten deaths, morality compels us to *do more* than when a risk imposition merely creates a one percent chance of a single death, even if both risk impositions are identical with respect to the individual risk borne by each risk-bearer. Insofar as it tends to require a greater total safety expenditure when more people are at risk, the economic feasibility principle accommodates this intuition.

Under the individual risk principle, the relationship between the requisite level of precaution and the number of persons at risk is more complicated. Whereas the economic feasibility principle requires the identical reduction in individual risk without regard to the number of risk-bearers, under the individual risk principle, the requisite reduction in individual risk may itself be affected by an increase in either the number of cost-bearers, since this will necessarily reduce each cost-bearer's share of precaution costs, or the number of risk-bearers, since this will likely raise the cost of reducing each risk-bearer's individual risk of harm. The individual risk principle is keyed to the marginal tradeoff between each cost-bearer's share of safety precaution costs and each risk-bearer's individual risk. As the number of persons exposed to the risk grows, the marginal risk-reducing efficacy of each dollar spent on safety precaution will plausibly change. For example, the first \$100,000 spent on safety precautions at a ten-worker factory would almost certainly reduce each worker's individual risk by more than the first \$100,000 spent on safety precautions at a ten thousand-worker factory. Further, the point at which further expenditure on safety precaution would produce no appreciable reduction in each worker's risk would likely be reached sooner in the case of a ten-worker factor than in that of a ten thousand-worker factory. For these reasons, and holding the number of cost-bearers constant,

course, Fried could be correct that, in view of one-time set-up costs and economies of scale, the *per-risk-bearer* safety investment may stay the same or even decrease as the number of risk-bearers increases. But my point in the main text relates to the total, rather than per-risk-bearer, investment in safety precautions.

an increase in the number of risk-bearers may dictate a greater, smaller, or equal pro rata investment in safety precautions, depending on the circumstances.

To the extent the IFP's lack of *direct* sensitivity to the size of the risk-bearing population seems morally implausible, it is critical to bear in mind that aggregative interpretations of reasonable precaution are not without their own counterintuitive implications. As the suspension bridge hypothetical discussed *supra* in the Introduction makes clear, summing costs and benefits across persons can lead to results that conflict dramatically with widely-held moral convictions. Indeed, no extant theory of reasonable precaution that I am aware of has the virtue of delivering results that accord perfectly with moral intuitions in all situations. If it is implausible to regard the imposition of a one in one thousand risk of death on ten people as requiring the same regulatory response as the imposition of the same risk on ten thousand people, it seems no less implausible to regard the imposition of a fifty percent risk of death on two people and the imposition of a one in one million risk of death on one million people as morally indistinguishable on the grounds that both can be expected to result in the death of a single person. Even granting that the IFP may generate implausible results in certain situations, these results seem no *more* implausible to me than those associated with aggregative precautionary standards like efficient care.

III. A CONTRACTUALIST JUSTIFICATION FOR THE IFP

I have so far argued that the individualized feasibility principle represents a viable alternative to efficient care. Like efficient care, it is a substantive interpretation of reasonable precaution that is capable of delivering precise guidance concerning the requisite level of precaution in specific cases. Unlike efficient care, the IFP is capable of accommodating the intuition that, where risks are concentrated on a group of persons that is a small fraction of the size of the group among whom precaution costs are spread, acting reasonably may require investing more in safety precaution than is marginally cost-justified.

In this Part, I explore the theoretical underpinnings of the IFP. If the efficient care standard is straightforwardly grounded in utilitarianism's directive to maximize aggregate well-being,¹⁰⁰ what is the theoretical justification for the IFP? Given that the IFP typically dictates a level of precaution that does *not* optimize aggregate well-being, its theoretical grounding is not surprisingly found generally in nonconsequentialism, and specifically in a relatively new nonconsequentialist theory of normative ethics known as *ex ante contractualism*. In this Part, I argue that if the morality of risk imposition is determined from the standpoint of *ex ante* contractualism, the risks posed by socially beneficial activity should be mitigated to the extent required by the individualized feasibility principle.

A. *Contractualism's Core Ideas*

Contractualism is a theory of normative ethics introduced by the philosopher T.M. Scanlon in 1982.¹⁰¹ It is not a general theory of morality, but rather a theory of *interpersonal* morality or, to use Scanlon's famous phrase, of "what we owe to each other."¹⁰² From its inception, contractualism has purported to represent an alternative to utilitarianism and, in particular, to embody an argument against the core utilitarian tenet that all moral questions reduce to questions about the consequences of acts (or rules) for the aggregate well-being of all affected individuals.¹⁰³

Contractualism offers the following formula for determining the rightness or wrongness of a particular act: "[A]n act is wrong if its performance under the circumstances would be disallowed by any set of principles for the general regulation of behavior that no one could reasonably reject as a basis for informed,

¹⁰⁰ See Oberdiek, *supra* note 55, at 143 ("The Hand test is essentially a consequentialist handmaiden, based on justification to the world at large and envisaging interpersonal aggregation of burdens and benefits.").

¹⁰¹ See Scanlon, *Contractualism*, *supra* note 28, at 103. See generally SCANLON, *WHAT WE OWE*, *supra* note 28.

¹⁰² Thus, contractualism does not directly address questions of political morality, that is, the moral strictures applicable to the actions and policies of coercive institutions, nor does it address our moral obligations to animals or future persons. Cf. ARTHUR RIPSTEIN, *EQUALITY, RESPONSIBILITY, AND THE LAW* 5 (1999) (noting that political morality, "the morality governing the exercise of force, has its own standards of responsibility that may well be out of place in other moral contexts").

¹⁰³ Scanlon, *Contractualism*, *supra* note 28, at 103.

unforced general agreement."¹⁰⁴ What exactly does that mean? And in what sense is this formula supposed to represent an alternative to utilitarianism?

The contractualist formula involves three component claims. The first claim is that interpersonal morality presupposes the requirement of justifiability to *each* affected person considered as an individual, rather than the requirement of justifiability to *all* affected persons considered in the aggregate.¹⁰⁵ The second claim is that the moral status of a particular act (its rightness or wrongness) is a function of the moral validity of the *general principle* licensing the act.¹⁰⁶ Tying together the first two claims, the third claim is that a principle is justifiable to each person if and only if it would command the free assent of all persons, that is, if and only if no person could *reasonably reject* it as a principle for the general regulation of behavior.¹⁰⁷ Thus, under contractualism, an act is morally permissible if and only if no one could reasonably reject the general principle permitting the act.

When, according to contractualism, can a principle be reasonably rejected? The concept underlying the notion of reasonable rejectability is the *minimax criterion*.¹⁰⁸ Among a set of candidate principles, the nonrejectable principle P is the one of which the following is true: The strongest complaint any person could make against P, were P generally accepted, is weaker than the strongest complaint that could be made against every other alternative principle.¹⁰⁹ As Scanlon puts it, "[S]omeone can reasonably reject a principle if there is some alternative to which no other person has a complaint that is as strong."¹¹⁰ The principle no one could reasonably reject is the principle that,

¹⁰⁴ SCANLON, WHAT WE OWE, *supra* note 28, at 153.

¹⁰⁵ *Id.* at 153 n.8 ("What is basic to contractualism as I understand it is the idea of justifiability to each person (on grounds that he or she could not reasonably reject).").

¹⁰⁶ Scanlon writes:

To justify an action to others is to offer reasons supporting it and to claim that they are sufficient to defeat any objections that others may have. To do this, however, is also to defend a principle, namely one claiming that such reasons are sufficient grounds for so acting under the prevailing conditions.

Id. at 197.

¹⁰⁷ *Id.* at 189.

¹⁰⁸ I follow Sophia Reibetanz in using the minimax criterion to explain the notion of reasonable rejectability. See Reibetanz, *supra* note 87, at 300 (describing the "Minimax Complaint Model" of reasonable rejectability).

¹⁰⁹ *Id.*

¹¹⁰ SCANLON, WHAT WE OWE, *supra* note 28, at 229.

among a set of candidate principles, *minimizes* the strength of the complaint that could be lodged by the *maximally* burdened person.¹¹¹ Supposing I am the person that would be most burdened by general acceptance of a particular principle, I still cannot *reasonably* reject that principle if every alternative principle would, if generally accepted, impose a greater burden on someone else.

Contractualism thus contemplates a *rejectability inquiry*, the goal of which is to identify the principle satisfying the minimax criterion. This is a fundamentally comparative inquiry that takes into account not only the extent to which general acceptance of each candidate principle burdens each affected person in an absolute sense, but also the differential each person experiences in the burdens they would bear under the respective principles.¹¹² That is, supposing A is the most burdened party under Principle P-1 and B the most burdened party under Principle P-2, we ask not only if A's burden under Principle P-1 is weightier than B's burden under Principle P-2, but also if A's gain in moving from P-1 to P-2 is more significant than B's gain in moving from P-2 to P-1. The question to be asked, in other words, is whether it would be unreasonable for A to refuse to accept the burden she must bear under P-1 in order that B can enjoy the benefit she must relinquish under P-2.¹¹³

¹¹¹ Applying the minimax rule to complaints is equivalent to applying the more familiar "maximin" rule to outcomes for individual well-being. Cf. RAWLS, *supra* note 19, at 133 ("The maximin rule tells us to rank alternatives by their worst possible outcomes: we are to adopt the alternative the worst outcome of which is superior to the worst outcomes of the others.").

¹¹² See Reibetanz, *supra* note 87, at 299 (stating that in the rejectability inquiry, "we take a person's *complaint* about a principle to be a function both of her absolute level of well-being under acceptance of that principle and of the burden which acceptance of that principle imposes upon her (that is, the amount by which she would be worse off under acceptance of that principle than under acceptance of some alternative)"); Scanlon, *Contractualism*, *supra* note 28, at 113 ("Whether it would be unreasonable for me to reject a certain principle, given the aim of finding principles which no one with this aim could reasonably reject, depends not only on how much actions allowed by that principle might hurt me in absolute terms but also on how that potential loss compares with other potential losses to others under this principle and alternatives to it.").

¹¹³ See Scanlon, *Contractualism*, *supra* note 28, at 123. For example, suppose that under P-1, A's well-being is 150 and B's 101, and that under P-2, A's well-being is 102 and B's 103. The mere fact that the loser under P-2 (A) is slightly better off than the loser under P-1 (B) does not necessarily mean that P-2 is the nonrejectable principle satisfying the minimax criterion. This is because A might plausibly be taken to have a stronger complaint with P-2 being chosen over P-1 than B would

To make this all a bit more concrete, consider how contractualism would determine whether it is morally permissible to lie to someone threatening to wrongfully harm another person. To work with a specific example, suppose that, while he is robbing me at gunpoint late one night, the robber demands to know where I live. In response, I tell him that I do not live in the immediate area, when in fact I live a few houses away. I do so because I wish to protect my sleeping family from danger and my household possessions from theft. Is my lie morally permissible?

Per contractualism, my act of lying under these circumstances is morally permissible only if it would be allowed by a general behavioral principle that no one could reasonably reject. Rejecting as implausible a principle granting categorical permission to lie to others, consider two alternative principles: (1) *Qualified Permission To Lie*: It is permissible to lie to another person when the person is threatening to wrongfully harm someone and when lying reduces the likelihood that the person will succeed in wrongfully harming them; (2) *Categorical Prohibition on Lying*: It is never permissible to lie to another person. The question is: Which of these principles satisfies the minimax criterion? Which principle imposes a lighter burden on the person it burdens most heavily?

The persons most burdened by general acceptance of the *Qualified Permission* principle would, it seems, be those on the receiving end of the sanctioned lies. Those threatening to wrongfully harm others might complain that, notwithstanding their own wrongful conduct, being lied to shows them disrespect or diminishes their well-being in some respect. On the other hand, the persons most burdened by general acceptance of the *Categorical Prohibition* principle would, it seems, be persons forced to divulge truthful information to those bent on using such information to wrongfully perpetrate serious harm, as well as persons placed at increased risk of being wrongfully harmed as the result of such compelled disclosures.

have with P-1 being chosen over P-2. Why? Because it would arguably be unreasonable for B to refuse to accept a two-unit (roughly two percent) reduction in well-being in order that A can enjoy a 49-unit (roughly fifty percent) increase in well-being.

The question then becomes: Who bears the greater burden? Those would-be wrongful actors on the receiving end of the lies permitted by the Qualified Permission, or those placed at increased risk of suffering wrongful harm as a result of the truthful disclosures compelled by the Categorical Prohibition? It seems obvious that the latter group bears the far greater burden. The German citizen forced to truthfully disclose to a group of Nazi officers that she is hiding a Jewish family in her cellar, and the Jewish family likely to be wrongfully harmed as a result of the disclosure, no doubt have a stronger complaint with the Categorical Prohibition than the robber in the above example has with the Qualified Permission. In other words, it seems clear that persons like the German citizen or the Jewish family could reasonably refuse to accept the burden they must bear under the Categorical Prohibition so that persons like the robber or the Nazi officers can enjoy the benefits they would have to give up under the Qualified Permission. Thus, the Qualified Permission To Lie is not reasonably rejectable. Because that principle licenses my lying to the robber under the circumstances, that act is morally permissible.

One of the most distinctive features of contractualism is its pluralism concerning the types of reasons that carry weight in moral reasoning. In Scanlon's view, a person can reasonably reject a candidate principle not only in virtue of its consequences for the person's well-being, but also in virtue of its consistency (or lack thereof) with the person's rights, entitlements, or, as the self-defense example illustrates, fairness interests.¹¹⁴ Thus, contractualism is properly considered a nonconsequentialist moral theory, since it holds that the moral permissibility of an act may properly depend on factors other than the consequences of the act (or its licensing principle) for individuals' well-being.¹¹⁵

Another critically important feature of contractualism is what has been termed its *individualist restriction*, "its insistence that the justifiability of a moral principle depends only on various *individuals'* reasons for objecting to that principle and alternatives to it."¹¹⁶ In other words, according to the

¹¹⁴ See SCANLON, WHAT WE OWE, *supra* note 28, at 229 (discussing the ways in which his version of contractualism eschews the welfarism of the so-called Complaint Model).

¹¹⁵ *Id.* at 203.

¹¹⁶ See *id.* at 229.

individualist restriction, the strength of a complaint lodged against a particular principle can never be a function of the *sum* of different individuals' gain (or loss) in well-being under that principle as compared with some alternative principle. Contractualism instead contemplates a series of "pairwise comparisons"¹¹⁷ in which *one* representative individual's burden under a particular principle is compared to *one other* representative individual's burden under an alternative principle.¹¹⁸ I adhere to the individualist restriction here because doing so ensures that the precautionary decision rule that emerges from my contractualist analysis will be genuinely nonaggregative, thereby respecting the separateness of persons in a way interpersonally aggregative standards do not.

B. *A Dilemma for Contractualism?*

With the basics of contractualism in place, we can now move to Fried's critique of a contractualist approach to risk regulation. In her view, contractualism necessarily fails to generate a viable interpretation of reasonable precaution that differs meaningfully from efficient care or other interpretations founded on interpersonal aggregation.¹¹⁹

Her reasoning for this conclusion takes the form of a dilemma. The dilemma emerges from consideration of the two alternative epistemic points of view—the *ex ante* and the *ex post*—from which candidate principles could be evaluated in contractualism's rejectability inquiry. These two points of view represent alternative assumptions about the type and extent of information available concerning how each affected individual fares under the candidate principles.

Under *ex ante* contractualism, candidate principles are evaluated based on their *expected* outcomes for each affected individual's well-being.¹²⁰ This would mean that the rejectability

¹¹⁷ See Reibetanz, *supra* note 87, at 300 (explaining that under contractualism, "we determine whether an individual could reasonably reject some principle by making a series of pairwise comparisons: each person's complaint about that principle is compared separately with the complaint of every other person").

¹¹⁸ *Id.*

¹¹⁹ Fried, *Contractualism*, *supra* note 21, at 61.

¹²⁰ See James, *supra* note 55, at 266 ("Let us call *ex ante contractualism* the . . . view that only *expected* outcomes count as grounds for complaint or objection (including expected outcomes of a principle's general adoption) mounted on behalf of each potentially affected party from some specified epistemic position.").

inquiry would be based on probabilistic data about each individual's expected fate under each precautionary principle, that is, her likelihood of suffering death or serious injury from the risks the principle tolerates, the size of her expected benefit from the risky activities the principle sanctions (or prohibits), the amount of the monetary costs she would be expected to bear under the principle, and so on.¹²¹

Under *ex post* contractualism, on the other hand, candidate principles are evaluated based on their *actual* outcomes for each individual's well-being.¹²² In this case, the rejectability inquiry would be based on data about each individual's actual fate under each precautionary principle, including, most saliently, whether she ends up being killed, seriously injured, or left unharmed by the risks the principle tolerates.

With the *ex ante/ex post* distinction in mind, Fried's dilemma can be stated as follows: If possible precautionary standards are evaluated from an *ex post* point of view, contractualism will implausibly deem impermissible most forms of socially beneficial, though significantly risky, conduct.¹²³ If a precautionary standard tolerates a risk that results in the death of even a single person, that standard could, it seems, be reasonably rejected, since no person will have a stronger complaint than one based on the loss of life.¹²⁴ As James puts it, "Complaints of death will always carry the day."¹²⁵ Thus, if the *ex post* point of view governs, any risky activity that has any probability of resulting in the death of at least one person will be impermissible according to contractualism, since there will be at least one person who could reasonably reject the principle that allows the activity to go forward. But this would bar all sorts of risky activities—large-scale construction projects, and so on—which,

¹²¹ *Id.* at 284.

¹²² *See id.* at 266 ("Let us call *ex post contractualism* the view that we should evaluate what decision is reasonably acceptable only in light of its *actual outcomes* as they actually unfold over time.").

¹²³ *Id.* at 265.

¹²⁴ *See* Fried, *Contractualism*, *supra* note 21, at 44 (noting that, under *ex post* contractualism, "any principle that authorizes actions that risk gravely harming at least one person will be rejected by the hypothetical representative person who, by happenstance or by being permitted to peek ahead, learns she will be the unlucky one").

¹²⁵ James, *supra* note 55, at 272.

assuming reasonable precautions are taken, seem intuitively acceptable, notwithstanding that they are certain to result in the accidental loss of life and limb.¹²⁶

If, on the other hand, the contractualist inquiry assesses precautionary standards from an ex ante point of view, it will, in Fried's view, end up settling on a standard that is indistinguishable from the sort of interpersonally aggregative decision rule preferred by consequentialists:

If representative persons are imagined to choose general principles from an ex ante POV, each will prefer the principles that optimize her expected subjective value, given her ex ante preferences, circumstances, etc. Assuming a plausible range of risk aversion and altruism, a normal distribution of preferences about outcomes *and evenly distributed upside and downside risks*, the principles that optimize a given individual's expected position will be roughly equivalent to the principles that optimize aggregate well-being. (To put it another way, under conditions of uncertainty, optimal individual choice tends to converge with optimal social choice.) Thus, we end up with an aggregative solution by a different route.¹²⁷

According to Fried, if contractualism evaluates precautionary principles from the ex ante standpoint, it will settle on roughly the same decision rule as that favored by aggregative welfarists: Take all and only those precautions that are marginally cost-justified, summing costs and benefits across persons.¹²⁸ This implies that, if contractualists adopt the ex ante

¹²⁶ See *id.* at 268–72 (arguing that ex post contractualism results in “moral gridlock,” that is, a ban on virtually all socially beneficial but risky activities (internal quotation marks omitted)).

¹²⁷ Fried, *Contractualism*, *supra* note 21, at 43–44 (emphasis added). Fried's analysis here is importantly limited by the assumption described in the language I have italicized. If “upside and downside risks” are truly evenly distributed, then Fried is correct that a representative individual could reasonably reject any precautionary standard that failed to optimize aggregate well-being. The problem is that the risks posed by a socially beneficial activity rarely fall evenly on the individuals they fall on and, even more critically, there is often incomplete overlap between the set of individuals who bear the “downside” risks of the activity, the set of individuals who stand to benefit from the activity—those who bear the activity's “upside” risks—and the set of individuals who bear the costs of reducing the downside risks. For example, in the safety netting case discussed *supra* in the Introduction, the workers who bear the risks of the bridge construction project will neither benefit from the project nor bear a share of its safety precaution costs. Thus, in such a case, risk and benefits are not evenly distributed.

¹²⁸ *Id.* at 39–41 & n.3.

point of view, they forfeit the capacity to explain why pressing precaution beyond the point of cost-justification can be morally obligatory.

Thus, Fried thinks that contractualism either yields the same decision rule favored by aggregative welfarists or imposes an implausible ban on most risky, socially beneficial activity. “The basic problem facing contractualists,” she opines, “is that adopting an *ex ante* POV proves too little and adopting an *ex post* POV proves too much.”¹²⁹

C. *Ex Ante Contractualism and Generic Reasons*

Fried can generate an ostensible dilemma only by relying on an inadequately nuanced description of the epistemic position from which complaints would be lodged under *ex ante* contractualism. When *ex ante* contractualism is made sensitive to asymmetries in the distribution of risks, costs, and benefits among different individuals, *ex ante* contractualism can indeed yield a substantive decision rule for safety precaution that diverges from efficient care and other aggregative standards.¹³⁰

In her description of *ex ante* contractualism, Fried builds in assumptions that effectively efface the real-world distributional differences of which contractualism is designed to take account. Although she seems to recognize that the subjective preferences and circumstances of the complainants in the rejectability inquiry will vary, by stipulating an “even[] distribut[ion] [of] upside and downside risks,”¹³¹ she assumes away the single most important manner in which circumstances *will* and *do* in fact vary in the context of risk regulation. In the real world, particular risks posed by particular activities often fall unevenly on the people on whom they fall.¹³² Even more critically, some

¹²⁹ *Id.* at 43; see James, *supra* note 55, at 265 (“[I]f contractualism allows *ex post* objections by considering actual outcomes, it becomes difficult to justify the risks created by most public policy, leaving contractualism at odds with moral commonsense in much the way utilitarianism is. But if contractualism instead takes a fully *ex ante* form by considering only *expected* outcomes, it becomes unclear how it is supposed to recommend something other than aggregative cost-benefit decision-making.”).

¹³⁰ See James, *supra* note 55, at 266 (“[Fried’s] dilemma nevertheless fails on its second horn: suitably elaborated, an ‘*ex ante* contractualism’ meaningfully constrains aggregative cost-benefit decision-making.”).

¹³¹ Fried, *Contractualism*, *supra* note 21, at 43–44.

¹³² See James, *supra* note 55, at 278, 283.

risks are borne by beneficiaries of the activity at issue (such as workers or consumers), whereas other risks are borne chiefly by non-beneficiaries (such as bystanders).¹³³ Some risks are borne primarily by persons who also bear a portion of the costs of reducing those same risks (many consumption risks), whereas, as the suspension bridge hypothetical illustrates, other risks are borne chiefly by persons who do not bear any appreciable share of those costs (most workplace risks).¹³⁴ Such morally relevant asymmetries in the way risks and benefits can be distributed among different groups of people are negated in Fried's treatment of ex ante contractualism.

Fried does briefly discuss a case in which an activity's risks and benefits are distributed unevenly among the affected individuals.¹³⁵ She considers a case in which the efficient course of action would be to site a toxic waste dump in an area where land values are lowest, Poorville.¹³⁶ Because of their proximity to the dump, Poorville residents bear a disproportionately high health risk.¹³⁷ Is this decision morally defensible? Fried considers three ways in which it might be made so: (1) provide cash compensation to Poorville residents; (2) give risk-bearers a veto over whether the risky activity should proceed at all; or (3) justify the efficient course of action to Poorville residents by "bundling" risks together, such that the risks posed by the dump are offset by the benefit provided by other, similar risks.¹³⁸ Notably absent from Fried's consideration is the possibility of siting the dump in the location where it poses the lowest risk to human health. Assuming all possible dump locations pose the identical risk to human health (which seems rather unlikely as a practical matter), is it morally defensible to site the dump in Poorville on account of its having the smallest possible effect on property values? From a contractualist perspective, it seems not. It seems the only fair principle to follow in such circumstances would be to choose the site randomly and to compensate the residents living close to the site in an amount sufficient to allow each of them to relocate, if they wish. This may lead to an

¹³³ See *id.* at 285.

¹³⁴ See *id.*

¹³⁵ See Fried, *Contractualism*, *supra* note 21, at 56–58.

¹³⁶ See *id.* at 56–57.

¹³⁷ See *id.*

¹³⁸ See *id.* at 57–58.

inefficient result (for example, if a site in a rich neighborhood is the one randomly selected for the dump), but it seems to me to be the only course of action that no one could reasonably reject. A principle allowing siting decisions to be made on the basis of property values, if generally accepted and applied repeatedly over time, would likely result in a disproportionate share of toxic dumps and other hazardous operations being sited in poor neighborhoods, placing a resident of such a neighborhood at a disproportionately high risk of harm. This, it seems to me, would give someone who lives in a poor neighborhood a basis for reasonably rejecting such a principle in favor of a principle dictating a random or proportionate siting policy.

Let us return to the question of how one might use *ex ante* contractualism to generate a distinct interpretation of reasonable precaution. The question that must be confronted is how to use *ex ante* contractualism in a way that takes account of the morally relevant differences in how costs, risks, and benefits can be distributed among distinct groups of persons.

I believe the beginning of an answer lies in Scanlon's notion of *generic reasons*. According to Scanlon, contractualism's rejectability inquiry is to be conducted neither from the perspective of a hypothetical "average" person nor from the perspective of specific individuals.¹³⁹ Scanlon instead contemplates an intermediate perspective, in which complaints are based on "reasons that we can see that people have in virtue of their situation, characterized in general terms, and such things as their aims and capabilities and the conditions in which they are placed."¹⁴⁰ Scanlon terms these "[g]eneric reasons."¹⁴¹

Generic reasons include reasons based on desires or goals that could plausibly be attributed to *all* persons. "We commonly take it," Scanlon observes, "that people have strong reasons to want to avoid bodily injury, to be able to rely on assurances they are given, and to have control over what happens to their own bodies."¹⁴² However, as the definition quoted in the previous paragraph suggests, a rejectability inquiry based on generic reasons is also meant to take account of *differences* in people's situations and of the way these differences would presumably

¹³⁹ SCANLON, WHAT WE OWE, *supra* note 28, at 202–04.

¹⁴⁰ *Id.* at 204.

¹⁴¹ *Id.*

¹⁴² *Id.*

affect their willingness to endorse candidate principles. Scanlon explicitly acknowledges this: "Not everyone is affected by a given principle in the same way, and generic reasons are not limited to reasons that the majority of people have."¹⁴³

This suggests that, in evaluating principles governing the level of precaution to be exercised when engaging in a socially beneficial activity that poses a significant risk of serious harm, we need to consider the most salient respects in which people can be differently situated with respect to a particular risk posed by a particular activity. There are three key respects in which people can be so differently situated: (1) the extent to which they benefit from the activity; (2) the extent to which they bear the risk at issue; and (3) the extent to which they bear the cost of safety precautions that reduce that risk.¹⁴⁴ This implies that we need to evaluate risks from at least three different perspectives: the perspective of those who benefit from the activity at issue, the perspective of those who bear the activity's risks, and the perspective of those who bear the costs of safety precautions that reduce those risks.

Only in rare circumstances will these three groups overlap perfectly.¹⁴⁵ For example, as the suspension bridge hypothetical illustrates, most workplace risks are borne by persons (workers) who do not bear the costs of reducing those risks through safety precautions. Workers generally do not enjoy the cost savings that result from leaving certain workplace safety precautions

¹⁴³ *Id.* at 204–05. Scanlon goes on to observe, "If even a small number of people would be adversely affected by a general permission for agents to act a certain way, then this gives rise to a potential reason for rejecting that principle." *Id.* at 205.

¹⁴⁴ See James, *supra* note 55, at 275.

¹⁴⁵ When they do—that is, when the identical group of persons realizes the benefits of a risky activity, bears the activity's risks, and bears the costs of mitigating those risks, and when benefits, risks, and costs are evenly distributed throughout that group—then Fried is correct that *ex ante* contractualism would dictate taking the same level of precaution as that dictated by the efficient care principle. If all participants in the rejectability inquiry are, by hypothesis, identically situated with respect to the risk at issue and if all relevant risks, benefits, and costs are evenly distributed, then the only principle that is justifiable to *each* participant is the principle that maximizes the average well-being of *all* participants. Every other principle is rejectable because, compared with the efficient care principle, they leave each affected person worse off. James appears to be in agreement on this point. See *id.* at 278 (acknowledging that an "aggregative 'rule' of social choice" would be "justified" under *ex ante* contractualism in cases where "everyone potentially affected has roughly the same *ex ante* prospects of benefit" and "no one can otherwise mount a reasonable personal objection").

untaken. Those savings tend to accrue to consumers or shareholders or some combination of the two.¹⁴⁶ The same could be said of socially productive activities that pose environmental risks to bystanders. The person exposed to a heightened cancer risk as a result of living next to a cement factory that emits toxic fumes into the air bears that risk without also bearing the costs of safety precautions that reduce it (or realizing the savings associated with leaving such precautions left untaken). Thus, in many cases, there will be little overlap between those exposed to the risk at issue and those who bear the costs of reducing the risk through the exercise of safety precautions. It seems that, contrary to Fried's claim, upside and downside risks are quite often *not* evenly distributed.

Thus, following James and Keating,¹⁴⁷ I here deploy an *ex ante* contractualism that evaluates candidate principles based on the generic reasons that risk-bearers, cost-bearers, and beneficiaries would have to object to those principles in light of their expected outcomes.

D. *Well-Being, Willingness-To-Accept, and Willingness-To-Pay*

Under *ex ante* contractualism, candidate principles are evaluated based on their expected outcomes for individuals' well-being. I need to say something about the particular conception of well-being that I rely on in evaluating candidate precautionary standards.

The *ex ante* contractualism I deploy here presupposes the coherence of interpersonal comparisons of levels of well-being and further undertakes to quantify gains and losses to individuals' respective levels of well-being in terms of willingness-to-accept ("WTA") and willingness-to-pay ("WTP").¹⁴⁸

¹⁴⁶ See KEETON ET AL., *supra* note 32 ("[T]he risks and benefits of a consumer product accrue to the same party, the consumer, who can choose to avoid the risk. Employees, on the other hand, rarely have such a choice—they must bear the risk of occupational health hazards, while benefits accrue largely to employers and consumers." (quoting Brief for Federal Respondent at 55, *Am. Textile Mfrs. Inst. v. Donovan*, 452 U.S. 490 (1981) (Nos. 79-1429 and 79-1583)) (internal quotation marks omitted)).

¹⁴⁷ See James, *supra* note 55, at 274 (endorsing *ex ante* contractualism over *ex post* contractualism or a hybrid *ex ante-ex post* contractualism); Keating, *Pressing Precaution*, *supra* note 18, at 674–84 (implicitly relying on an *ex ante* version of social contract theory).

¹⁴⁸ Most social welfare theorists take the coherence of interpersonal comparisons of levels of well-being for granted. See, e.g., ADLER, *supra* note 10, at xv–xvi, 185–

WTA and WTP together embody a preference-based, monetary conception of well-being, one that is typically used in CBA.¹⁴⁹ WTA refers to the minimum amount of money a person would be willing to accept to put up with something undesirable, such as a specified increase in their risk of death or serious bodily injury. WTP refers to the maximum amount of money a person would be willing to pay for something desirable, such as a specified reduction in their risk of death or serious bodily injury.¹⁵⁰

Three types of changes in individuals' well-being are of particular concern to me in this Article. First, as is generally accepted, a person who bears a risk of death or serious bodily injury suffers a setback to a well-being-related interest,¹⁵¹ even if the risk never materializes. Typically, this sort of setback is quantified in terms of a WTA in the amount of $1/r \times V$, where $1/r$ represents the probability of the risk materializing in injury to that person and V represents the WTA associated with sustaining the injury itself. Thus, if life is valued at \$5 million, the WTA associated with, for example, bearing a one in one thousand risk of death is \$5,000 and the WTA associated with bearing a one in ten thousand risk of death is \$500.¹⁵² The

201 (offering and defending an account of well-being that allows for interpersonal comparability).

¹⁴⁹ See, e.g., *id.* at 89.

¹⁵⁰ Suppose X is better off under outcome O than under outcome O'. A preference-based account of well-being maintains that this just means that X *prefers* O to O'. We might then ask *how much* better off X is under O than under O', that is, how *strongly* X prefers O to O'. One way to answer this question would be to specify the *minimum amount of money X would be willing to accept* for a move from O to O'—this is X's WTA. Another way to answer the question would be to specify the *maximum amount of money X would be willing to pay* for a move from O' to O—this is X's WTP. This is precisely how CBA quantifies changes in individuals' well-being. See, e.g., *id.* at 6.

¹⁵¹ I thank Johann Frick for this phrasing.

¹⁵² See, e.g., Posner & Sunstein, *supra* note 14, at 560; W. Kip Viscusi, *The Value of Life: Estimates with Risks by Occupation and Industry*, 42 J. ECON. INQUIRY 29, 29 (2004); Thomas J. Kniesner et al., *Willingness To Accept Equals Willingness To Pay for Labor Market Estimates of the Value of Statistical Life* 1–3 (Vanderbilt Univ. Law School Law & Econ. Working Paper No. 13-06, 2013); W. Kip Viscusi, *Estimating the Value of a Statistical Life Using Census of Fatal Occupational Injuries (CFOI) Data 1* (Vanderbilt Univ. Law School Law & Econ. Working Paper No. 13-17, 2013). Therefore, a reduction in a person's risk of death from 1 in 1,000 to 1 in 10,000 would be "worth" \$4,500 to her in the following sense: The amount of money she would be willing to *accept* to bear a 1 in 10,000 risk of death is \$4,500 less than the amount she would be willing to accept to bear a 1 in 1,000 risk of death. Alternatively, she would be willing to *pay* \$4,500 for the reduction. See Kniesner et al., *supra*, at 1 (arguing "that there is no... significant divergence between

underlying idea is that a rational person would be willing to accept a sufficiently large amount of money to be exposed to an additional risk of death that, while not insignificant, is still quite low. Second, a person who bears a monetary cost (for example, the cost of safety precautions) experiences a reduction in well-being. Here, quantifying the reduction in well-being in terms of WTA is straightforward: The WTA associated with bearing a monetary cost is simply the amount of the cost itself. Finally, a person who derives a benefit from a particular industrial activity—or from a coordinated system of such activities—experiences a gain in well-being that can be quantified in terms of WTP. By the same token, when a particular socially beneficial activity is discontinued, the reduction in well-being each beneficiary consequently experiences can be quantified in terms of WTA.¹⁵³

E. Justifying the Economic Feasibility Cap on Precaution

Under the IFP, investment in safety precaution is capped at the economic feasibility point, that is, the point at which further reduction of the risk would threaten to undermine the survival of the socially beneficial activity giving rise to the risk. What is the *ex ante* contractualist rationale for capping safety expenditures at this point? In contractualist terms: Why is it that no one could reasonably reject a precautionary standard that caps safety expenditures at the economic feasibility point?¹⁵⁴

willingness to accept and willingness to pay in the important case of the decisions workers make concerning exposure to fatal injury risk”).

¹⁵³ As noted above, in calculating WTA and WTP in this Article, I assume for sake of simplicity that all affected individuals have identical levels of existing wealth, and so assume away the complications that arise due to the diminishing marginal utility of money. Thus, all affected individuals are assumed to experience the identical reduction in well-being as the result of bearing a specified monetary cost. Further, all individuals are assumed to have the identical WTA for a specified increase in their risk of death and the identical WTP for a specified reduction in that risk. See *supra* note 88. In future work, I hope to address this issue in greater detail.

¹⁵⁴ In their critique of feasibility analysis, Masur and Posner fail to consider the possibility that contractualism, or social contract theory more broadly, provides a normative justification for the economic feasibility principle. See Masur & Posner, *supra* note 62, at 707 (making no mention of contractualism or social contract theory in discussing whether feasibility analysis has an “alternative normative basis” aside from welfarism and opining that feasibility analysis “clearly does not reflect deontological thinking”).

Contractualism's emphasis on considering the consequences of a precautionary standard's *general* acceptance, as well as its acceptance in the case of a particular risk or activity, is key here.¹⁵⁵ It means that, in the rejectability inquiry, each affected individual can lodge complaints based not only on how acceptance of a given precautionary standard would affect her in the case of a particular risk posed by a particular activity, but also on how she would be affected, over the course of her lifetime, by the standard's application to *all* risks to which it applies and to *all* activities that pose such risks.¹⁵⁶

General acceptance of a precautionary standard lacking a cap at the point of maximal economic feasibility¹⁵⁷ would plausibly result in the discontinuation of many, if not most, of the life-improving, liberty-enhancing activities that define modern life.¹⁵⁸ Many, if not most, of the socially beneficial activities undertaken in modern, industrialized societies pose risks that either cannot, given present technology, be eliminated or would be so costly to eliminate that the underlying activity would no longer be worth engaging in.¹⁵⁹

¹⁵⁵ See SCANLON, WHAT WE OWE, *supra* note 28, at 202–03 (“[W]hen we are considering the acceptability or rejectability of a principle, we must take into account not only the consequences of particular actions, but also the consequences of general performance or nonperformance of such actions and of the other implications (for both agents and others) of having agents be licensed and directed to think in the way that that principle requires.”).

¹⁵⁶ Scanlon calls this feature of contractualism “intrapersonal aggregation,” that is, “aggregation *within* each person’s life, summing up all the ways in which a principle demanding a certain level of care would constrain that life, rather than aggregation *across* lives, adding up the costs or benefits to different individuals.” *Id.* at 237; see also Oberdiek, *supra* note 55, at 146–51 (discussing the notion of intrapersonal aggregation).

¹⁵⁷ Examples of precautionary standards that would often dictate a greater-than-feasible expenditure on precaution include a “safety” standard, which directs risks to be reduced to the point at which they are no longer significant regardless of cost or impact on the industry, and a technological feasibility standard, which directs risks to be reduced as much as possible given available technology, regardless of cost or the impact on the industry. See KEETON ET AL., *supra* note 32, at 1237–39, 1252–53.

¹⁵⁸ See, e.g., Fried, *Limits*, *supra* note 19, at 260.

¹⁵⁹ *Id.* (“Because virtually everything we do (or, acting as the state, permit others to do) carries some irreducible risk of serious harm to others, virtually everything we do (or permit others to do) entails interpersonal trade-offs.”); Fried, *Contractualism*, *supra* note 21, at 61 (“But in most arenas of life, . . . the point at which further investments in safety will cease to produce any positive return in safety is far beyond the projected benefits of the project. The result of interpreting ‘reasonable’ in this fashion will thus be moral gridlock by a different route. No

Were the majority, or even a significant proportion, of risky, socially beneficial activities discontinued, we would live in a very different world, one resembling the pre-industrial, more-or-less agrarian society prevalent in the Western world prior to the Industrial Revolution. Major industrial activities such as large scale construction projects, the production of gasoline and natural gas, the manufacture of automobiles and other gas- or electric-powered road vehicles, and the manufacture of prescription drugs would cease to exist, as they pose risks that cannot feasibly be eliminated or reduced to a level that is no longer significant.

Such a state of affairs would give rise to a profound complaint from a person who enjoys the manifold benefits that flow from the complex of socially beneficial, but risky, activities that make possible modern life. General acceptance of a pure safety standard, a technological feasibility standard, or any other precautionary principle that routinely dictated a higher level of precaution than was economically feasible would deprive each beneficiary of the plausibly enormous benefit realized from the wide class of activities whose risks cannot feasibly be eliminated or reduced to the point of insignificance.

The key question from a contractualist perspective is whether this complaint is stronger than a risk-bearer's *ex ante* complaint with a principle that caps precaution at the point of economic feasibility. Who, in other words, bears the heavier burden: the person deprived of the benefits of the (plausibly large) class of socially beneficial activities whose risks cannot feasibly be eliminated or reduced to the point at which they are no longer significant, or the person exposed to a significant risk of death or serious injury from one or more activities of this kind?

While it seems clear that each of us would rather be deprived of the manifold benefits of industrialized society than suffer death or serious bodily harm,¹⁶⁰ the question becomes a much

building project will show a net expected benefit, given the enormous amount one would be required to spend on safety precautions, and hence no building project will go forward.”)

¹⁶⁰ If the choice is between living healthily and able-bodied in an agrarian, pre-industrial society and living as a quadriplegic in modern, industrialized society, most of us would, I imagine, choose the former. Of course, even pre-industrial society was not without socially beneficial activities that generated significant risks of harm (for example, large-scale construction, ship-building, and so on). One thing that seems to define modern, industrial society is that the risks posed by such activities

closer one when the certain deprivation of the manifold benefits of modern industrialized society is the price to be paid for avoiding a mere *risk* to one's physical integrity. As Keating points out, preserving the life-improving, liberty-enhancing benefits to be derived from the many activities in modern, industrialized societies posing significant risks of serious bodily harm seems at least *comparable* in value to protecting one's bodily integrity from significant risk.¹⁶¹ Where the risk of death or serious injury is low, but still nontrivial (say, somewhere between one in one thousand and one in fifty thousand), the overwhelming odds are, supposing that I am exposed to such a risk, that my physical integrity will remain intact. In light of that probability, and given the profound benefits to be realized from the many activities whose risks cannot feasibly be eliminated, it seems likely that even someone who faces a significant risk of death from a particular socially beneficial activity would prefer the feasibility principle, which tolerates that risk but preserves all socially beneficial activities posing similar risks, to a principle which eliminates the risk at the price of shutting down the vast majority of such activities.

Moreover, among the benefits provided by the productive activities that pose significant risks is a dramatic reduction in the risks to bodily integrity posed by non-anthropogenic causes like disease, natural disasters, and climatic variations. This means that the discontinuation of the majority of such activities could plausibly be supposed to result in a *profound* increase in the risks to bodily integrity faced by the beneficiaries of such activities.¹⁶² If the price for continuing such activities were the creation of *huge* risks to bodily integrity—something on the order of a one in ten risk of death—then the risk-bearer's complaint might well carry the day. But the risks of death or serious injury

became comparable in magnitude to the risks posed by the composite of natural causes (like disease and natural disasters) and anthropogenic activities that are not clearly socially beneficial (for example, war, slavery, and so on).

¹⁶¹ See Keating, *Pressing Precaution*, *supra* note 18, at 727 ("Shutting down most of the major productive activities in our economy *would* be a harm comparable to bearing a significant risk of devastating injury.").

¹⁶² Just as one illustration, the world average life expectancy at birth in 1900 was 31 years, and under 50 years in even the richest countries. By the mid-twentieth century, the average rose to 48 years. By 2005, this figure had risen to 65.6 years, and over 80 years in some countries. See World Health Org., *Health, History and Hard Choices: Funding Dilemmas in a Fast-Changing World* (Aug. 2006), http://www.who.int/global_health_histories/seminars/presentation07.pdf.

posed by most socially beneficial activities can feasibly be reduced to a level that, while not insignificant, is still quite low (less than one in one hundred).¹⁶³ If a significant but low risk of serious bodily harm to A can be eliminated only at the price of dramatically increasing the risk of serious bodily harm to B, then it would seem that B has a stronger complaint with a principle that eliminates the risk to A than A has with a principle that tolerates that risk, but reduces it to the maximum extent feasible. That is, it seems unreasonable to ask beneficiaries of activities posing significant risks to accept an increase in their risk of death and serious injury to levels that are perilously high in absolute terms in order that bearers of such risks can enjoy a reduction in their risk of death and serious injury from a level that is significant, but still low in absolute terms, to a level that is insignificant. On this basis, it seems any beneficiary of the wide class of socially beneficial activities posing ineliminable risks of serious harm would have a stronger complaint with a precautionary principle lacking a cap at the economic feasibility point than a risk-bearer would have with a precautionary principle that incorporated such a cap.

In the case of workplace or consumption risks, this conclusion seems to follow with particular force because the risk-bearing worker or consumer benefits—often in a profound way—*from the very activity that places her at risk*. For example, the oil refinery worker who bears a significant risk of death from exposure to benzene, a toxic chemical used in the refining process, would be greatly disadvantaged by a cessation of oil refining activity, since that activity provides her with gainful employment.¹⁶⁴ A safety standard would bring oil refining to a halt unless the risks it poses to workers could be reduced to an insignificant level.¹⁶⁵ Under the feasibility principle, on the other

¹⁶³ See, e.g., KEETON ET AL., *supra* note 32, at 1234–35 (“Typical occupational risk of death in occupations of average risk are 2.7 per 1,000 for all manufacturing and 1.62 per 1,000 for all service employment. Typical lifetime occupational risks of death in occupations of relatively low risk are 0.48 per 1,000 in electric equipment and 0.07 per 1,000 in retail clothing.” (quoting 52 Fed. Reg. 34460, 34507 (Sept. 11, 1987))).

¹⁶⁴ See *generally* Indus. Union Dep’t v. Am. Petroleum Inst., 448 U.S. 607, 642 (1980) (discussing OSHA standards for permissible workplace exposure to benzene).

¹⁶⁵ See *id.* at 641 (“[W]e think it is clear that the statute was not designed to require employers to provide absolutely risk-free workplaces whenever it is technologically feasible to do so, so long as the cost is not great enough to destroy an entire industry. Rather, both the language and structure of the Act, as well as its

hand, the worker is guaranteed a continued livelihood from oil refining; her benzene risk is reduced to the maximum extent possible without violating that guarantee.¹⁶⁶

In light of the above considerations, it seems that any beneficiary of the class of socially beneficial activities that pose significant risks of death or serious injury—even a beneficiary who herself is exposed to one or more such risks—would have a stronger objection to any principle that lacked a cap at the point of economic feasibility (and routinely dictated greater-than-feasible expenditures on safety) than the bearer of a significant risk would have to a principle incorporating such a cap. In other words, it would be unreasonable to ask someone to forego the manifold liberty-enhancing, life-improving, life-extending benefits of socially productive activities that pose significant risks in order that someone else should be able avoid bearing a significant, but still low, risk of death or serious injury. Thus, I conclude that, per ex ante contractualism, no one could reasonably reject a precautionary standard incorporating a cap at the point of economic feasibility.

F. Justifying the Individual Risk Principle Cap on Precaution

What is the ex ante contractualist justification for capping safety precaution at the point dictated by the individual risk principle, that is, the point at which further investment in safety would reduce the well-being of each cost-bearer more than it would increase the expected well-being of each risk-bearer?

As discussed in Part II, the basic intuition behind capping precaution at this point is that not to do so would mean requiring each cost-bearer to invest in safety precaution past the point at which a risk-bearer would rationally cease investing in her own safety, were she asked to shoulder a single cost-bearer's share of precaution costs. Under ex ante contractualism, could a cost-bearer reasonably reject a principle sanctioning such a tradeoff?

legislative history, indicate that it was intended to require the elimination, as far as feasible, of significant risks of harm.”).

¹⁶⁶ See Keating, *Pressing Precaution*, *supra* note 18, at 727 (“The argument against shutting down most of society’s major productive activities is an argument of fairness—the workers employed by those activities would be harmed in the long run by the elimination of these activities, even though these activities exact a significant toll on the lives and health of those very workers.”).

To make this more concrete, consider a variation of the suspension bridge hypothetical discussed *supra* in the Introduction. As above, assume the safety netting is an economically feasible safety precaution, that is, that its use throughout the bridge construction industry would not threaten the industry's long-term viability. However, suppose it is not a city of five million that is building the bridge, but rather a town of twenty-five thousand. Suppose further that the netting will reduce each of the two thousand workers' risk of dying in a fall by just five percent (rather than by fifty percent, as in the original hypothetical). At \$10 million, the netting imposes a cost of \$400 on each town resident, while lowering each worker's risk of a fatal fall from one in one thousand to (roughly) one in one thousand and fifty-three.¹⁶⁷ Assigning life a value of \$5 million, each worker would rationally be willing to pay no more than \$250 for such a reduction in her own risk of death.

The individual risk principle would prohibit investment in the safety netting under these circumstances, since the netting would impose a monetary cost of \$400 on each cost-bearer for the sake of providing each risk-bearer with a reduction in risk worth only \$250.¹⁶⁸ In other words, the individual risk principle forbids

¹⁶⁷ To be precise, if the netting is used, each worker's risk of death falls from 20 in 20,000 to 19 in 20,000.

¹⁶⁸ It is worth noting that efficient care would also reject the investment in the netting under these circumstances, but for very different reasons. With its focus on aggregate costs, efficient care rejects the netting in this scenario because its total cost exceeds the resulting savings in expected accident costs, that is, installing the netting involves investing \$10 million in order to reduce expected accident costs by \$500,000. By contrast, under the IFP, the netting is rejected because the burden its use imposes on each individual cost-bearer (a monetary cost of \$400) exceeds the burden its nonuse imposes on each individual risk-bearer (a slightly increased risk of death, one which each worker would rationally be willing to accept for \$250). In a case like this, where both the IFP and the efficient care standard dictate the identical result (here, not to take a particular precaution), it is worth asking which standard provides the more morally compelling justification. One provocative way to pose this question is to imagine how the city would justify its decision not to invest in the safety netting to the family of an unlucky worker whose fatal fall (assume it could be shown) would have been prevented by the netting. The efficient care standard is founded on a welfarist justification that would go roughly as follows:

Obviously, we had no way of knowing that this terrible accident was going to happen. We had to make a decision based on probabilities. We looked at the total cost of the netting, and compared that to the probability that the netting would save a life. We concluded that the total cost of the netting far exceeded the expected savings in total accident costs the netting would have delivered. Can you blame us for not making a safety investment that,

investment in the safety netting because it would set back each city resident's well-being (through a monetary cost) more than it would increase each bridge worker's expected well-being (through increased safety). If no rational worker would be willing to spend \$400 to achieve a five percent reduction in her own risk of death, it would arguably be unreasonable to expect a city resident to make that safety investment.

Could a principle that disallowed safety expenditures of this kind—that is, a precautionary standard that capped safety precaution at the point dictated by the individual risk principle—be reasonably rejected under *ex ante* contractualism? The person most burdened by general acceptance of such a cap would be the *risk-bearer* exposed to higher risks of death or serious bodily harm than she would be exposed to under an alternative principle that did not cap safety investment at this point (for example, a pure economic feasibility principle). On the other hand, the person most burdened by general acceptance of a precautionary standard that did *not* cap precaution at this point would be the *cost-bearer* forced to shoulder greater safety costs than she would have to shoulder were precaution costs capped at the point dictated by the individual risk principle.

Who has the stronger complaint? It seems evident that the cost-bearer does. A representative risk-bearer's complaint with the individual risk cap would have to be based on her exposure to the sort of risk the cap tolerates, that is, a risk that sets back her expected well-being by less than it would set back each cost-bearer's well-being to eliminate. By contrast, a representative

given the information available at the time the decision had to be made, was expected to have made everyone worse off?

The IFP, on the other hand, is founded on a contractualist justification of a very different sort:

Obviously, we had no way of knowing that this terrible accident was going to happen. We had to make a decision based on probabilities. We looked at the netting's cost to each city resident, and asked whether a worker would rationally have been willing to make that investment for the resulting reduction in her own risk. We determined that no worker, given the information available at the time the decision had to be made, would rationally have been willing to make that safety investment on her own behalf. For that reason, we concluded that we could not reasonably ask each city resident to make the investment on the workers' behalf. Can you blame us for not asking each city resident to make an investment in your loved one's safety that your *loved one herself* would not rationally have been willing to make in her *own* safety?

To my ears, the contractualist justification carries greater moral force.

cost-bearer's complaint with a precautionary standard lacking the individual risk cap would be based on her having to shoulder the sort of monetary cost the cap precludes, that is, a cost that sets back her well-being by more than the risk it eliminates would have set back each risk-bearer's expected well-being. The risk-bearer is complaining about a burden whose elimination would impose a greater burden on the cost-bearer; the cost-bearer, on the other hand, is complaining about a burden whose elimination would impose a lesser burden on the risk-bearer. The risk-bearer cannot *reasonably* refuse to bear that burden. It would be unreasonable for a risk-bearer to refuse to accept the setback to her expected well-being (that is, the greater risk) associated with capping precaution at the point dictated by the individual risk principle in order that each cost-bearer can avoid the necessarily *greater* setback to well-being (that is, the increased monetary cost) associated with pressing precaution beyond that point. It follows that no one could reasonably reject a precautionary standard that capped safety expenditures at the point dictated by the individual risk principle.

The foregoing analysis is premised on the idea that, in determining the reasonable level of precaution, it is appropriate to make straightforward interpersonal tradeoffs in well-being between a person exposed to a risk of serious harm and a person who bears a share of the costs of reducing that risk through safety precautions. Specifically, the cap on safety expenditures imposed by the individual risk principle prohibits taking a specified safety precaution if its monetary cost to each cost-bearer exceeds the amount of money that each risk-bearer would rationally be willing to pay for the resulting reduction in risk.

This sort of tradeoff between one person's monetary burden and another person's risk of serious bodily harm seems clearly appropriate when the risk at issue is imposed as a necessary incident of an activity that provides *both* persons—cost-bearer and risk-bearer—with a direct and significant benefit, as is generally true in the case of workplace risks and consumption risks. For example, in the case of a workplace risk posed by a firm's socially beneficial activity, the worker exposed to the risk and the firm shareholder who bears a share of the costs of reducing that risk are cooperatively engaged in an enterprise that stands to benefit them both, as it provides the worker with a livelihood and the shareholder with a share of profits. The

worker's contribution is, among other things, to tolerate the activity's ineliminable risks; the shareholder's contribution is, among other things, to shoulder the costs of safety precautions that reduce those risks. Both contributions are necessary for the activity to move forward, and both involve a reduction in well-being. In light of these facts, and given that both worker and shareholder stand to benefit directly and significantly from the risky activity, fairness arguably requires that their contributions to the activity (that is, the setback to well-being each must tolerate in order for the activity to move forward) be marginally equalized in the manner required by the individual risk principle. True, there is a sense in which the shareholder, as an owner of the firm that engages in the risky activity, is imposing the risk on the worker for the worker's own benefit, but the risk imposition redounds to the worker's benefit as well, as it is the price of the activity's existence, and the activity benefits the worker significantly on net.

What, though, about a case in which the person exposed to the risk does *not* directly benefit from the risky activity?¹⁶⁹ Can the cap on safety precaution imposed by the individual risk principle defensibly be applied in such a case?¹⁷⁰ In other words, can the same sort of straightforward interpersonal tradeoff be made between one person's monetary burden and another's risk of serious bodily harm when the risk-bearer is a bystander who derives no direct benefit from the activity, for example, someone who happens to live next to a cement factory that emits carcinogenic fumes into the air, but who neither works at the factory nor consumes its products?¹⁷¹

This is a difficult normative question that requires a lengthier treatment than I can provide here. It may be that, when it comes to risks imposed on persons who derive no direct

¹⁶⁹ See, e.g., Sven Ove Hansson, *Risk and Ethics: Three Approaches*, in RISK: PHILOSOPHICAL PERSPECTIVES, *supra* note 17, at 26 (explaining that a key question in the analysis of the ethics of risk is to what extent the risk exposed benefit from the risk exposure).

¹⁷⁰ I thank Aaron James for impressing upon me the importance of addressing this question, which I plan to explore in greater detail in future work.

¹⁷¹ See, e.g., Richard W. Wright, *The Standards of Care in Negligence Law*, in PHILOSOPHICAL FOUNDATIONS OF TORT LAW 249, 260–68 (David G. Owen ed., 1995) (advocating a more stringent standard of care for situations in which the defendant put the plaintiff at risk to benefit the defendant or some third party than for situations in which the defendant put the plaintiff at risk at least partially to benefit the plaintiff).

benefit from the risk-creating activity, capping safety expenditures at the point dictated by the individual risk principle is not, in fact, defensible from a contractualist point of view.¹⁷² Even if that were true, though, it would not follow that imposing such risks is indefensible altogether under *ex ante* contractualism. A principle that categorically forbade the imposition of risks on non-beneficiaries would be reasonably rejectable under *ex ante* contractualism, since such a principle would foreclose any socially beneficial activity that posed ineliminable risks of harm to persons who derive no direct benefit from that activity. And this would plausibly have a stultifying effect on socially beneficial activity generally, since few socially beneficial activities, it seems, could claim to impose ineliminable risks of serious harm *exclusively* on persons who directly benefit from the activity. If that is true, then such a principle could be reasonably rejected for much the same reasons as a precautionary standard that failed to cap safety expenditures at the point of economic feasibility, that is, its general acceptance would force most, if not all, socially productive activity to grind to a halt.¹⁷³ At the most, then, *ex ante* contractualism would require that the risks a socially beneficial activity imposes on non-beneficiaries, like the cement factory neighbor, be reduced to the extent economically feasible.

G. *Justifying the IFP as a Floor for Safety Precaution*

In the previous two Sections, I argue that *ex ante* contractualism sets the IFP as a moral ceiling on investment in safety precautions that mitigate the risks of serious harm posed by socially beneficial activities. What I have not yet done is explain why *ex ante* contractualism sets the IFP as a moral *floor* for safety investment in such cases. Why, from a contractualist point of view, must precaution be pressed all the way to the point dictated by the IFP, particularly if, as will often be the case, it will be inefficient to do so?

¹⁷² See, e.g., Simons, *supra* note 18, at 1212 & n.96 (“[W]here the potential victims do not benefit from the risky activity, many nonconsequentialists would object that a simple benefit/risk or cost/benefit analysis is inadequate to justify the risk, insofar as one party benefits at the other party’s expense.” “The important point is that, everything else being equal, nonbeneficiaries of the activity are entitled to greater protection from risks of harm than are beneficiaries.”).

¹⁷³ See *supra* Part III.E.

The reason for this is straightforward. Until the level of safety precaution dictated by the IFP is reached, further investment in safety would enhance each risk-bearer's expected well-being through increased safety by more than it would set back each cost-bearer's well-being through a monetary cost, and would *not* pose a threat to the long-term viability of the activity that gives rise to the risk. It would be unreasonable for a cost-bearer to refuse to make such an investment, which would necessarily burden him or her by less than *not* making the investment would burden each risk-bearer. It would be unreasonable, in other words, for a cost-bearer to refuse to accept the setback to the cost-bearer's expected well-being (that is, the greater monetary cost) associated with pressing precaution to the point dictated by the IFP in order that each risk-bearer can avoid the necessarily *greater* setback to well-being (that is, the greater risk) associated with capping precaution below that point. The basic idea is this: When I benefit directly from an activity that poses a risk of death or serious injury to you, it is unreasonable for me to invest any less in safety precautions than I would rationally have been willing to invest were it my *own* bodily integrity that was at stake, up to the point at which further investment would jeopardize the activity's existence.

For example, returning to the original suspension bridge hypothetical described *supra* in the Introduction, it would be unreasonable for a city resident to refuse to pay \$2 so that each bridge worker can enjoy a risk reduction worth \$2,500 (recall that if the safety netting is used, each worker's risk of death falls from one in one thousand to one in two thousand). After all, were her own bodily integrity at issue, a rational city resident would gladly pay \$2 for such a reduction in the risk of death she faces. It would be unreasonable for a city resident to refuse to make this safety investment simply because it is someone else's bodily integrity at stake rather than her own. It follows that, according to *ex ante* contractualism, no one could reasonably reject a precautionary standard that required investing in safety precaution up to the point dictated by the IFP.

CONCLUSION

In this Article, I introduce and defend an alternative interpretation of reasonable precaution, one that, in my view, deserves to be considered alongside efficient care and other aggregative standards. I hope to have shown that the individualized feasibility principle is capable of serving as a viable substantive decision rule for regulating risky activities, one that can reliably guide decisions about safety investment in specific cases. That is, I hope, at a minimum, to have shown that the IFP is viable in the “very undemanding sense” Fried has in mind, that is, that it is a decision rule “capable of differentiating among different forms of risky conduct.”¹⁷⁴ As the safety netting example should make clear, the IFP yields a determinate answer to the question whether, in a given instance, a particular safety precaution should be taken. Whatever else one might think about the IFP, it clearly seems capable of offering determinate guidance as to the level of safety investment required in particular cases.

I hope further to have shown both that the deliverances of the IFP will typically differ, often significantly, from those of the efficient care standard and that the IFP will often yield results that are intuitively more plausible.¹⁷⁵ In particular, in the common situation in which an activity’s risks are concentrated on a group of persons that is a small fraction of the size of the group among whom safety precaution costs are spread, the IFP can accommodate the intuition that acting reasonably may require pressing precaution beyond the point at which aggregate well-being would be maximized.

If I have succeeded in meeting these goals, this Article can be seen as making the case for a sort of pluralism in the normative analysis of risk imposition.¹⁷⁶ On the one hand,

¹⁷⁴ See Fried, *Limits*, *supra* note 19, at 233–34.

¹⁷⁵ Further, I hope to have at least suggested why, in cases where the IFP and the efficient care standard agree as to whether a particular precaution should be taken, the *ex ante* contractualism underlying the IFP provides a more compelling normative justification for that result than does the welfarism underlying the efficient care standard. See *supra* note 168.

¹⁷⁶ I thank Johann Frick for suggesting to me the possibility of conceptualizing the matter in this way. See Johann Frick, *Contractualism and Social Risk – How To*

evaluating the morality of risk imposition exclusively from the perspective of aggregative CBA will lead to implausible results in important types of cases. As the safety netting example illustrates, a nonaggregative standard keyed to the benefits and burdens experienced by each differently-situated individual is needed to take proper account of morally relevant differences in how the same aggregate cost (or benefit) can be distributed among distinct persons. On the other hand, as noted *supra* in the Introduction, I think it would be a mistake to reject aggregative reasoning altogether when it comes to the morality of risk imposition. Just as there are cases in which the IFP better accords with common moral intuitions than the efficient care standard does, there may well be cases in which the efficient care standard delivers results that seem intuitively more correct than those the IFP delivers.

This suggests that any instance of risk imposition ought to be examined through two different and complementary lenses: the lens of *ex ante* contractualist analysis, exemplified by the IFP, and the lens of aggregative CBA, exemplified by the efficient care standard. In many cases, these analyses will point in the same direction; both will require taking a particular safety precaution or leaving a particular precaution untaken. When the analyses point in different directions (as in the safety netting example discussed *supra* in the Introduction), judgment will need to be exercised to decide which lens seems to provide the more morally defensible result. Perhaps there is a theory—as yet undiscovered—which can provide the intuitively correct result in all cases. Until such a theory is brought forward, however, the only reasonable approach seems to be to look at every instance of risk imposition through both an aggregative lens and a contractualist lens, and make a considered judgment based on what appears.