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# The Value of a Statistical Life: From Skin in the Game to Vision Zero

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# The Value of a Statistical Life: From Skin in the Game to Vision Zero

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## I. Introduction

This essay discusses justice issues surrounding occupational safety. The term "occupational safety" sounds a bit antiseptic, however. The real question is how and whether work can be made less likely to *injure and kill* workers. More narrowly, the essay assesses the ethical legitimacy—the justice—of regulatory cost benefit analysis when the costs in question involve the risks and realization of workplace injury and fatalities. The current "value of a statistical life" for legal-regulatory purposes is 13.1 million dollars.[1] While economists are careful to say that this figure does not "really" represent an attempt to value any particular life, the purpose of even calculating the number is to provide an "aggregated" statistical justification for saying "no" to rules requiring safer work.[2] When the cost of providing safer workplaces under a rule exceeds the total number of lives saved by the rule times 13.1 million dollars, the rule will not be promulgated.[3] This seems acceptable until you, or someone you love, is a person at significant risk of being killed. And the regulatory mathematics appearing to compel such outcomes is obviously critically important.[4] This deeply moral discussion is quite appropriate within this journal issue, which is devoted to *Revisiting Religion In The Struggle For Workplace Justice*.[5]

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[1] This is the "central estimate" utilized by the United States Government in 2024. OFFICE OF SCIENCE AND DATA POLICY, HHS STANDARD VALUES FOR REGULATORY ANALYSIS, 2024 *available at* https://aspe.hhs.gov/sites/default/files/documents/cd2a1348ea0777b1aa918089e4965b8c/standard-ria-values.pdf

[2] *See infra*. at Part II.

[3] *See infra*. at Part II.

[4] *See infra*. at Part II,

[5] SYMPOSIUM--REVISITING RELIGION IN THE STRUGGLE FOR WORKPLACE JUSTICE, Saint Louis University School of Law, March 1, 2024.

These kinds of math calculations have been implicitly carried out by industry and business "math folk" throughout history.[6] One of the earliest moral and religious challenges, central to constructing modern employment law, was how to deal with workplace harm.[7] Scholars have shown that the perceived inability of tort law to remedy workplace injury and fatality[8] led to a veritable remaking of American law—through establishment of workers' compensation—that was, in effect, the prelude to the administrative state, and therefore effectively of all employment law.[9] The moral-ethical dilemma—of work related injury and death—remains a central problem of workplace law. The AFL-CIO[10] estimates that in 2022—the most recent year for which data was available as of the writing of this essay—5,486 employees were killed on the job in the United States; and 120,000 workers died from (often latent) occupational diseases.[11] The U.S. Bureau of Labor Statistics reported that in the same year private industry employers recorded 2.8 million

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[6] The story of the emergence of workers' compensation, for example, is tied to concepts of strict liability in the early development of the Prussian railway system in 1838. Johannes W. Flume, *Strict Liability as a Solution for Risks Associated to Technological Advance*, 12 JOURNAL OF EUROPEAN TORT LAW 208-210 (2021). The Prussian/German workers' compensation structure was the first in the world and was occasioned by societal cost benefit analyses.

[7] P. W. J. BARTRIP AND SANDRA B. BURMAN THE WOUNDED SOLDIERS OF INDUSTRY: INDUSTRIAL COMPENSATION POLICY, 1833-1897 (1984) (discussing the emergence of employment law in the U.K. in response to spikes in workplace death occasioned by industrialism)

[8] By the early nineteenth century the emerging law of negligence formally required employers to provide a reasonably safe workplace to their employees. Terence Ingman, *A History of the Defense of Volenti Non Fit Injuria*, 26 JURID. REV. 1, 8-9 (1981); Terence Ingman, *The Rise and Fall of the Doctrine of Common Employment*, 23 JURID. REV. 106, 108-09 (1978) *cited in* Michael Ashley Stein, *Priestley v. Fowler (1837) and the Emerging Tort of Negligence*, 44 BOSTON COLLEGE L. REV. 689, 690, n.7 (2003) (discussing the emergence of a negligence duty possessed by employers in the context of employment).

[9] JOHN FABIAN WITT, THE ACCIDENTAL REPUBLIC: CRIPPLED WORKINGMEN, DESTITUTE WIDOWS, AND THE REMAKING OF AMERICAN LAW 3-4 (2009); PRICE V. FISHBACK & SHAWN EVERETT KANTOR, A PRELUDE TO THE WELFARE STATE: THE ORIGINS OF WORKERS' COMPENSATION 4 (2000).

[10] The American Federation of Labor and Congress of Industrial Organizations.

[11] DEATH ON THE JOB: THE TOLL OF NEGLECT, 2024, AFL-CIO, April 23, 2024 *available at* https://aflcio.org/reports/dotj-2024. Disease fatalities are (incredibly) not formally tracked.

nonfatal workplace injuries and illnesses.[12] During a time of modern, putatively-safe working conditions,[13] these statistics seem almost incredible.[14]

At first blush, moral policymaking suggests that the societal reaction to death and injury at work should simply be to stop killing workers. But requiring safer workplaces costs "money." And the moral question is: how much as a society are we willing to spend to prevent death in the workplace?[15] Work kills people just as automobiles do,[16] and society must decide in all such instances of regulating risky activity how much it will spend to reduce the risk of death (and death itself).[17] Cessation of work (or driving, for that matter) is not seen as a serious option; but reduction of the risky activity in question, or modification of its performance, might be a different matter.[18] One strategy for dealing with the problem is to embed the cost of remedying injury and death—without consideration of the fault of any actor bringing it about—in the products and services that, in effect, cause death. This, for example, has been a central rationale for the implementation of

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[12] EMPLOYER-REPORTED WORKPLACE INJURIES AND ILLNESSES, 2021-2022, November 8, 2023 *available at* https://www.bls.gov/news.release/osh.nr0.htm

[13] Brian Potter, *How Much Safer has Construction Gotten?* CONSTRUCTION PHYSICS, March 9, 2023 *available at* https://www.construction-physics.com/p/how-much-safer-has-construction-gotten (finding that the answer is "yes" but that the rate differs between industries).

[14] For various reasons there is serious *undercounting* of workplace death and injury. Emily A. Spieler & Gregory R. Wagner, *Counting Matters: Implications of Undercounting in the BLS Survey of Occupational Injuries and Illnesses*, 57 AMERICAN J. OF INDUSTRIAL MEDICINE 1077 (2014). The number of injuries and deaths in the workplace are almost certainly even higher than what is reported. But the most startling fact of all is that latent disease is not nationally tracked. So, as in everything having to do with workplace death, without taking into account occupational disease it is a fool's errand to argue that workplaces are safer. See also Steven Greenhouse, Work Related Injuries Underreported. N. Y. Times, Nov. 16, 2009 *available at* https://www.nytimes.com/2009/11/17/us/17osha.html.

[15] Richard Craswell, *Instrumental Theories of Compensation: A Survey* 40 SAN DIEGO L. REV. 1135, 1138 (2003) (discussing theories of compensation).

[16] These are two of the best examples of dangerous activity that many people find it necessary to perform despite possessing an often surprisingly vague sense of background risk. For an engaging discussion of automobile tort law, for example, *see* Nora Freeman Engstrom, *When Cars Crash: The Automobile's Tort Law Legacy*, 53 WAKE FOREST L. REV. 293 (2018). "Auto accidents constitute the leading cause of death for those from age fifteen to twenty-four and, for all ages, they rank third in terms of years of life lost, behind only heart disease and cancer." *Id*. at 294.

[17] *See generally* GUIDO CALABRESI, THE COST OF ACCIDENTS: A LEGAL AND ECONOMIC ANALYSIS (1970)

[18] *See* Craswell, *Instrumental Theories*, *supra*. n.15 at 1157-58.

workers' compensation systems in the United States.[19] But this is an economist's "sunk cost" solution[20] (one that has been implemented broadly throughout the United States as a matter of state law),[21] for it seems to accept the reality of death and injury as inevitable, and conjures a post hoc scheme of apparently adequate equitable "damages" that are probably not adequate at all (that is to say, workers' compensation).[22] It is a (defensibly) moral solution only if one believes it ultimately reduces work-related death and injury, or has in other ways sufficiently made victims (and their dependents) better off. The United States implemented the workers' compensation system beginning in 1911.[23] Death and injury from work have certainly not ceased. And the "no-fault" underpinnings of the scheme conceptually undermine all notions of "make whole" relief.[24]

Of course, society might take the approach that the risk of injury and illness at work should be dealt with before it can culminate or manifest.[25] That was precisely the conclusion of the United States Congress in 1970, when the Occupational Safety and Health Act ("OSHA") was enacted: Analogizing heavily to casualties sustained in the Vietnam War, Congress deemed it unacceptable that the rate of workplace injury and fatality was so high (at that historical juncture), and mandated

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[19] HERMAN MILES SOMERS & ANNE RAMSAY SOMERS, WORKMEN'S COMPENSATION: PREVENTION, INSURANCE, AND REHABILITATION OF OCCUPATIONAL DISABILITY (1954).

[20] Christoper Y. Olivola, *The Interpersonal Sunk-Cost Effect*, 29 J. OF PSYCHOLOGICAL SCIENCE 1073 (2018) (defining the sunk cost fallacy as "pursuing inferior alternatives merely because we have previously invested significant, but nonrecoverable, resources in them.").

[21] WORKERS' COMPENSATION: BENEFITS, COSTS, AND COVERAGE, NATIONAL ACADEMY OF SOCIAL INSURANCE 5-8 (2024)

[22] Michael C. Duff, *Fifty More Years of Ineffable Quo? Workers' Compensation and the Right to Personal Security*, 111 KENTUCKY L. J. 1 (2023) (discussing inadequacy and theoretical unfairness of workers' compensation). Workers' compensation pays roughly two-thirds of pre injury average wages and reimbursement of medical expense; full compensatory, pain and suffering, and punitive damages are unavailable. *Id*.

[23] *See generally supra*. n.1, Witt, *The Accidental Republic* (describing the original design and early history of workers' compensation).

[24] *See* Erik Encarnacion, *Making Whole, Making Better, and Accommodating Resilience*, 108 MINN. L. REV. 1335 (2024) (arguing that "remedies law [ for wrongful injury] ought to accommodate plaintiff efforts to abide by an ideal of resilience. That is, the law ought to help victims of wrongdoings to 'bounce back better.'.")

[25] This is not a minor point. Nassim Taleb, for example, has argued that post hoc legal damages are superior to ex ante regulation given the problem of capture and limitations on flexibility. NASSIM NICHOLAS TALEB, SKIN IN THE GAME: THE HIDDEN ASYMMETRIES OF EVERYDAY LIFE 31-32 (2018).

it be dealt with at the "front end" of the causal sequence of harm.[26] This approach was soon met in the courts by the problem of the cost expenditure in preventing injury. The Supreme Court held in *Indus. Union Dept. v. Amer. Petroleum Inst.*[27] that in enacting OSHA "Congress was concerned not with absolute safety, but with the elimination of significant harm."[28] One moral question is how to determine the significance of harm; another is to decide who determines the significance of harm.[29]

The important point is that these kinds of "cost-benefit considerations" are *inherently moral*, in the sense that, de facto, and require that moral decisions be made on cost bases.[30] One who—because of racial or class positioning in a society, for example—is not likely to be harmed by an activity, may have a great deal of difficulty accurately assessing the significance of a risk of harm for *others* arising from the activity; or determining whether a certain quantity of risk should be assumed *by workers* in the broader social interest.[31]

The process of cost-benefit analysis is decidedly arcane. The methodology involved in regulatory "weighing" is the province of economists, not that of workers who are actually exposed to workplace risks of harm and death. Those that argue that strong emotional responses to "fearsome risks" are irrational because of the risks putatively low probabilities of leading to harm

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[26] Michael C. Duff, *Fifty Years After "Inadequate and Inequitable": Reflections on the Report of the National Commission on State Workmen's Compensation Laws,* 37 ABA JOURNAL OF LABOR & EMPLOYMENT LAW 2, 216-17 (2023) (discussing the strongly remedial spirit of the "OSHA Congress").
[27] 448 U.S. 607 (1980) (known more generally as the Benzene case).
[28] *Id*. at 646.
[29] In the context of the OSH Act, the answer has typically been OSHA. In light of the overruling of *Chevron*, Loper Bright Enterprises v. Raimondo, 603 U.S. ___ (2024), this question has become more complicated.
[30] "In the normative sense, 'morality' refers to a code of conduct that would be accepted by anyone who meets certain intellectual and volitional conditions, almost always including the condition of being rational." STANFORD ENCYCLOPEDIA OF PHILOSOPHY (2020).
[31] Some argue, "Honor implies that there are some actions you would categorically never do, regardless of the material rewards. She accepts no Faustian bargain, would not see her body for $500; it also means she wouldn't do it for a million, nor a billion, nor a trillion." TALEB, SKIN IN THE GAME, *supra*. n.25 at 33.

are typically—perhaps predictably—not exposed to such risks.[32] It might as easily be said that those who do not perform dangerous work suffer from an "anti-safety bias;" it is often in the financial interest of the social class employing "non-worker" analysts to assure society that an activity is "safe" and therefore not subject to regulation.[33] An honest critique of analytical processes raises deep questions about the nature of regulation. It will always be possible to articulate, in dollar terms, the costs to employers of making workplaces safer, and the benefits to employers of not having to make workplaces safer.[34] Assessment of cost on the worker's side of the ledger is much more difficult to quantify because it involves the quasi-mystical—and not dollar expressible—question of the worth of life.[35] And the ethical and democratic problem additionally posed is whether the persons asking such questions have sufficient "skin in the game" to be asking the questions or evaluating the answers.[36]

When Congress enacted the OSHA in 1970, a good deal of the underlying comparison (during legislative debate) was between occupational death and war fatalities.

> [D]uring the hearings on this bill, 14,500 persons are killed annually as a result of industrial accidents; accordingly, during the past four years more Americans have been killed where they work than in the Vietnam War. By the lowest count, 2.2

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[32] Cass R. Sunstein & Richard Zeckhauser, *Overreaction to Fearsome Risks*, 48 ENVIRON RESOURCE ECON. 435 (2011) *available at* https://scholar.harvard.edu/files/rzeckhauser/files/overreaction_to_fearsome_risks.pdf.
[33] Some argue that there is a cost-benefit fallacy "where individuals behave as if cost-benefit estimates are largely accurate and unbiased, when in fact they are highly inaccurate and biased." Bent Flyvbjerg & Dirk W. Bester, *The Cost-Benefit Fallacy: Why Cost-Benefit Analysis Is Broken and How to Fix It*, 12 J. BENEFIT COST ANAL. 395 (2021) *available at* https://www.cambridge.org/core/journals/journal-of-benefit-cost-analysis/article/abs/costbenefit-fallacy-why-costbenefit-analysis-is-broken-and-how-to-fix-it/608C8A0D37D38653846B9CF9DBC1DB49
[34] W. Kip Viscusi, *Risk Equity*, 29 J. LEGAL STUDIES 843, 845-46 (2000) (expressing a seminal dollar-based cost benefit analysis).
[35] John Broome, *Trying to Value a Life*, 9 J. PUB. ECON. 91 (1978).
[36] TALEB, SKIN IN THE GAME, *supra*. n.25 at 137 (Observing that "[t]he intelligentsia . . . feels entitled to deal with the poor as a construct; one they created. Thus they become convinced that they know what is best for them.")

> million persons are disabled on the job each year, resulting in the loss of 250 million man days of work-many times more than are lost through strikes.[37]

Thus, from the beginnings of OSHA, a normative calculus was an important impetus behind the legislation; and economic considerations functioned in response to the normative notion that it was immoral to lose as many persons through death to employment as to war.[38] In war, of course, there has always been moral anxiety when questions of life and death are not honestly presented for consideration and deliberation to the persons who will be sustaining the losses before death commences.[39] Workers may rationally believe that regulators, like other "people, feel more generally for those of their class."[40] Perhaps workers may be talked out of this concern. But a good place to start talking them out of it is not to argue that they have implicitly agreed to be subject to risks of death they know little about.

With these preliminaries out of the way, this essay proceeds to discuss first the perversely bureaucratic topic of calculation of the value of a workers' statistical life, in Part II. Then, in Part III, the essay considers the "Vision Zero" goal of killing *no one* in the workplace. It is one thing to say that it is presently impossible to avoid killing workers in the workplace. It is another thing altogether to insist that killing no workers at work *should be the national goal*. Arguing for the

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[37] *See* Duff, *supra*. n.26, *Fifty Years After "Inadequate and Inequitable"* at 216-17.

[38] *Id*. For what it is worth, the dissent's opinion in the Benzene case was wildly out of step with Congressional intent:

> The plurality's construction has no support in the statute's language, structure, or legislative history. The threshold finding that the plurality requires is the plurality's own invention. It bears no relationship to the acts or intentions of Congress, and it can be understood only as reflecting the personal views of the plurality as to the proper allocation of resources for safety in the American workplace. *See supra*. n.27 (Benzene case) at 713.

[39] NED DOBOS, ETHICS, SECURITY, AND THE WAR MACHINE (2020).

[40] TALEB, *supra*. at 1.

second proposition, the essay concludes by observing that employers are in fact capable of being much safer than they are.[41]

## II. Calculating Workers' Value?

Lay investigators of questions of risk and workers' safety are often swiftly shut down by regulators' language of mathematics and economics. As the science fiction writer Frank Herbert warned in the work *Dune*, "Fear is the mind killer."[42] Thus, math can paradoxically fend off close scrutiny of worker risk by those with deeply moral or spiritual interest in the subject.[43] Accordingly, before considering the substance of any math, one might be curious about its utilization by economists in this context. I will discuss just a few math details in a moment, but first we might consider what the involved math purports to show. One math objective is to demonstrate that workers have already agreed to assume risk of injury and death. Another is to demonstrate that workplace regulation is (or may be) too costly to attempt.

### A. Freedom of Contract

I generally reject the argument that workers meaningful bargain for risk, for many of the reasons discussed by Peter Dormen and Les Boden.[44] I subscribe to what I see as Dormen and Boden's central freedom of contract objection: "The 'freedom of contract' view of occupational safety and health fails both theoretically and econometrically. It is based on an inherently implausible view of labor markets and the employment relationship, and it is not supported by the

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[41] *See infra*. Part III.
[42] *See* Dune Wiki at https://dune.fandom.com/wiki/Litany_Against_Fear#Origin.
[43] TALEB, SKIN IN THE GAME, *supra*. n.25 at 137-38 (expressing distrust of excessive use of "numbers and graphs" when "a single data point" may be adequate to make a point).
[44] Peter Dorman an Les Boden, *Risk without reward: The myth of wage compensation for hazardous work*, ECONOMIC POLICY INSTITUTE, (April 19, 2021) *available at* https://www.epi.org/unequalpower/publications/risk-without-reward-the-myth-of-wage-compensation-for-hazardous-work/

empirical evidence."[45] There is scant evidence that workers are sufficiently aware of risk to contractually bargain for safety, and certainly not intelligently;[46] as a non-union worker in my earlier blue collar work career, I never participated in, or was aware of, such bargaining.[47] It is very difficult to accept that "everyday employees" have a sophisticated understanding of workplace risks.[48] This is certainly true at the hiring stage. New employees are injured at higher rates than experienced employees.[49] The likely explanation of this finding is that new employees do not fully recognize workplace risks.[50] But even experienced employees may not be sufficiently aware of job risks and hazards to be in a position to contract over them.[51] And even if they are, in the absence of a union, it is unclear what vehicle would compel negotiation of job-specific risk adjustments.[52] The OSHA Hazard Communication standard has recognized this simple observation in connection with exposure to hazardous chemicals since 1983.[53] But it is far from clear that employees more broadly recognize, or could negotiate over, more obvious workplace hazards.

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[45] *Id*. at 5.

[46] As Mark Geistfeld has argued, what he terms the "safety principle"—the notion that safety matters more than money—applies with particular force when victims are nonconsensual. Mark Geistfeld, *Reconciling Cost-Benefit Analysis With The Principle That Safety Matters More Than Money*, 76 N. Y. U. L. REV. 114, 133 (2001).

[47] Susana Ferreira, Sara Martínez-de-Morentin, and Amaya Erro-Garcés, *Measuring Job Risks When Hedonic Wage Models Do Not Do the Job*, INSTITUTE OF LABOR ECONOMICS 3 (2024) *available at* https://docs.iza.org/dp16716.pdf. ("T]here are questions of whether workers are sufficiently informed about all the job characteristics and their outside options, and whether their decisions are fully rational. When people take jobs, it is not easy for them to isolate the component that is attributable to mortality risks from other job characteristics."). I was a manual worker throughout my twenties in metropolitan Philadelphia.

[48] *Id.*

[49] F. Curtis Breslin & Peter Smith, *Trial by fire: a multivariate examination of the relation between job tenure and work injuries*, 63 OCCUP. ENVIRON. MED. 27 (2006).

[50] Sara Morassaei, F. Curtis Breslin, Min Shen, Peter M, Smith, *Examining job tenure and lost-time claim rates in Ontario, Canada, over a 10-year period, 1999-2008*, 70 OCCUPATIONAL AND ENVIRONMENTAL MEDICINE 171 (2013) *available at* https://pubmed.ncbi.nlm.nih.gov/23123355/.

[51] Even in pre-OSHA times employees were often unaware of hazards like lead poisoning, pottery glazing, ore smelting, and illnesses resulting from contact with anthrax, and exposure to cyanide. Sydny Shepard, *The Right to Know: How Hazard Communication Became a Standard*, OCCUPATIONAL HEALTH & SAFETY (2022) *available at* https://ohsonline.com/Articles/2022/04/01/The-Right-to-Know.aspx.

[52] *See generally* Jenn Hagedorn, Claudia Alexandra Paras, Howard Greenwich, and Amy Hagopian, *The Role of Labor Unions in Creating Working Conditions That Promote Public Health*, 106 AM. J. PUBLIC HEALTH 989 (2016) ("Low union density has left workers vulnerable to reduced health and safety standards . . .") *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC4880255/pdf/AJPH.2016.303138.pdf

[53] *See supra*. n.51

Even if a job were risky, would there be an ensuing "negotiation" for more money?[54] Almost certainly not, the worker would move on to the next job, and the employer would likely not know or care why the job was not accepted.[55]

Dorman and Boden also describe and reject a normative justification for letting economic losses and physical harm fall where they do as a matter of contract:

> Under this view, parties are assumed to act in their best interest in the marketplace or, if they don't, they must be made to suffer the consequences so they will learn to do so in the future. Thus, neither party is to be regarded as having obligations toward the other except insofar as they have agreed to them, and both sides to a contract are free to agree to any terms they choose. The only role of the state is to enforce the terms of such contracts on parties that resist carrying them out. Applied to matters of health and safety at work, this view entailed rejection of the paternalistic view that masters (employers) had inherent obligations to protect servants (workers), relying instead on the judgment both should exercise in

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[54] *See e.g.* Carsten Sauer, Peter Valet, Safi Shams, and Donald Tomaskovic-Devey, *Categorical Distinctions and Claims-Making: Opportunity, Agency, and Returns from Wage Negotiations*, 86 AMERICAN SOCIOLOGICAL REV. 934 (2021) (concluding in a German-focused study that that all low-status actors are more likely to be in jobs where wage negotiation is not possible) *available at* https://journals.sagepub.com/doi/pdf/10.1177/00031224211038507?casa_token=9BVfU5R42JQAAAAA:L4EBLC4-p0wwPKba7EGCBlz5Zz-4226iWkkL1W1pcddR7b6As07cktTFuM0L5OHaI-v1JmKihdw.

[55] Principles of "loss aversion" generally cause workers to "dislike losses more than they like gains of equal magnitude." ROBERT T. REVILLE, LESLIE I. BODEN, SETH A. SEABURY, AND HILARY J. RHODES, HOW CAN BEHAVIORAL ECONOMICS INFORM RESEARCH ON WORKPLACE INJURIES? W.E. UPJOHN INSTITUTE FOR EMPLOYMENT RESEARCH 232. My intuition and personal experience suggest that workers quickly flee dangers of which they are actually aware.

pursuing their separate interests. Thus was born the notion of occupational risk as the outcome of a mutual, and presumably optimal employment agreement.[56]

In this normative account workers and employers do and should negotiate over dangerous working conditions as a matter of contract. Of course, there is little evidence that workers actually engage in such explicit negotiations.[57] The very creation of the mandatory workers' compensation system in the late 19th century supports that view,[58] and the later enactment of the OSH Act in 1970 showed that workers' compensation was, to put it mildly, an imperfect remedial vehicle.[59]

Still, perhaps evidence can establish implicit agreement over dangerous working conditions. Perhaps employees in fact are compensated for dangerous working conditions whether or not they explicitly realize they are being compensated, at least in part, for working in dangerous workplaces.[60] By entering into such contracts (assuming they exist) perhaps employees have "waived" claims of employer liability—or even moral blameworthiness—for injury or death suffered at work. There is of course a longstanding "paternalistic" thread in American law[61] frowning upon preinjury waivers of liability arising from wrongful conduct resulting from work

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[56] Peter Dorman an Les Boden, *Risk without reward: The myth of wage compensation for hazardous work*, ECONOMIC POLICY INSTITUTE at 6-7.
[57] As a 15-year blue collar worker I do not believe I ever saw it.
[58] Michael C. Duff, *A Hundred Years of Excellence: But is the Past Prologue? Reflections on the Pennsylvania Workers' Compensation Act*, PENNSYLVANIA BAR ASSOCIATION QUARTERLY 26-30 (2016) (discussing as one example Pennsylvania's ongoing late 19th century struggle to devise legal mechanisms to "remedy" the problem of workplace injury). There is evidence that railroads sometimes "reimbursed workers and their families for the economic costs of in-juries sustained on the job, paying medical and burial expenses and making donations to needy family survivors even though rules of law, such as the fellow servant doctrine, assumption of the risk, and contributory negligence, precluded legal liability." Robert J. Kaczorowski, *From Petitions for Gratuities to Claims for Damages: Personal Injuries and Railroads During the Industrialization of the United States*, 57 AMERICAN J. OF LEGAL HISTORY 261, 265 (2017). If that practice had continued, and expanded, I might have thought the present paper unwarranted.
[59] *See generally* Duff, *Fifty Years After*, *supra*. n.26 (discussing legislative creation of a National Commission on "Workmen's" Compensation because of percolating dissatisfaction over the system organically expressed and discussed during OSH Act-related hearings.)
[60] *See supra*. n.66 and accompanying text.
[61] Edward K. Cheng, Ehud Guttel & Yuval Procaccia, *Unenforceable Waivers*, 76 VAND. L. REV. 571 (2023).

injury or death.[62] The moral proposition of allowing employers and employees to enter into preinjury wage agreements for work-related injury and death appear dubious for the same reasons surrounding all instances of negotiation of unconscionable contracts:

> The key concept behind the unconscionability principle has not significantly changed in many years; it remains "the plaintiff must prove that the party with superior bargaining power used it to take unfair advantage of its weaker counterpart." What has changed is the courts' willingness to at times construe "tak[ing] unfair advantage" in a broader and more flexible way that considers conduct not previously perceived as unconscionable.[63]

On the other hand, until the early 19th century Anglo-American law had arguably recognized "an ironclad rule of breathtaking simplicity: no employee could ever recover from any employer for any workplace accident—period."[64] If an employer had no duty to compensate an injured worker or the family of a deceased worker in the first instance, an agreement to provide any compensation is hard to view as "unconscionable"—for it would provide more than the law required. Still, the jettisoning of a general "no duty" rule was well underway by the time of the emergence of workers' compensation in the early twentieth century; one of the reasons employers agreed to the arrangement was to insulate themselves from the tort law that was increasingly encroaching upon them.[65] Once employer liability exists—under either tort or workers'

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[62] *See* Johnson v. Philadelphia & Reading R. R., 163 Pa. 127 (Pa. 1894) (finding no preinjury waiver in the case at bar but acknowledging already established rule that preinjury waivers were unenforceable).
[63] Geoffrey A. Mort, *The Courts and Contracts: Losing Patience With Unconscionable Agreements*, NEW YORK STATE BAR ASSOCIATION (May 19, 2022) *available at* https://nysba.org/the-courts-and-contracts-losing-patience-with-unconscionable-agreements/.
[64] *See* Richard A. Epstein, *The Historical Origins and Economic Structure of Workers' Compensation Law*, 16 GA. L. REV. 775, 777 (1982).
[65] *Id*. at 787 (discussing the rise of employers' liability statutes, which essentially created an enhanced tort regime).

compensation forms—it is possible to intelligently evaluate employer-employee agreements for unconscionability. The entire employment law regime now stands in opposition to the notion of resolving something as complicated as workplace safety through express contract given the potential for unconscionable agreements.

B. Implied Contract and Cost Benefit Analysis

Leaving the realm of express contract, the next question of *implied* contracts for safety *does* require some math. The previous section disputed whether employees in fact negotiate over risk of injury or death in employment and argued that they do not. Yet, *if* workers *are* paid additional amounts of wages for increased risks, and if employees are aware of the fact, then one might be able to speak of hedonic wage studies under an implied contract theory. A hedonic wage study purports to track the relationship between wages and the attributes or liabilities of employment:

> Economists label the equilibrium relationship between wages and job attributes an hedonic equilibrium wage function. The logic behind the label is that wages reflect not only the overall conditions in the labor market but also the relative attractiveness (pleasure) of one job versus another. The underlying force generating the hedonic wage function is the sorting of workers and firms among the various levels of the job characteristic.[66]

[66] Thomas J. Kniesner & John D. Leeth, *Hedonic Wage Equilibrium: Theory, Evidence and Policy*, INSTITUTE FOR THE STUDY OF LABOR 3 (2010).

Although there is a theoretical variability in terms of worker negotiation for safe working conditions, one can assume that most workers would avoid risk of death unless it is presented to them in extremely small increments. "Obviously, it cannot be inferred that an average worker would forfeit their life in exchange for a monetary payment of any amount of money . . ."[67] Taken to its logical conclusion, under this view there is no need for workplace regulation because workers and employers implicitly bargain contracts for the "optimal" amount of safety. But just as is the case with express contract this is a strange way of thinking about "bargaining."

Whether or not society accepts at face value the supposed free market agreements for safety that would absolve employers of liability—frankly, it has decided *not* to do so, whether for reasons of paternalism, or because it has an intuitive notion that harms are too often produced by legal wrongs, or because it recognizes that workers tend to underinsure for injury—data from the agreements can be used in another way. If employees bargain over risky work (when the risks of death are extremely small), one might be able to aggregate the very small increments to arrive at a collective transaction for a full life. In the words of law professor and former regulator Cass Sunstein, the calculation of the value of a statistical life "involves real-world markets, producing evidence of compensation levels for actual risks."[68] The key hedge in the preceding sentence is that compensation levels are merely "evidence" of compensation of risks. But given the broad use of this assumption by the Government,[69] it is reasonable to join the parade. To use an example

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[67] Dov Waisman, *Moral Context and Risks of Death*, 71 ARK. L. REV. 215, 226 (2018). A math equation seems unnecessary to establish this proposition, but justice would seem to insist such an attempt not be made.
[68] CASS. R. SUNSTEIN, LAWS OF FEAR: BEYOND THE PRECAUTIONARY PRINCIPLE 132 (2005).
[69] Since President Reagan's 1981 Executive Order directing federal regulatory agencies to engage in cost-benefit analysis of all major regulations. E.O. 12291, 46 FR 13193 (Feb. 17, 1981). The question is how to conduct such an analysis when costs and benefits are expressed in starkly dissimilar terms.

provided by W. Kip Viscusi, the academic credited with inventing the concept of "value of a statistical life":

> Suppose that there is a risk of one chance in 10,000 to 10,000 people so that this group will experience one expected death. If each person would be willing to pay $800 to eliminate the risk, the VSL in this instance would be $8 million, or 10,000 people x $800 per person. This is the amount that could be raised to prevent one expected death.[70]

Put differently, if each of 10,000 workers were willing to accept $800 to assume a one chance in 10,000 risk of death, then the aggregated "VSL" is $8 million. And any safety and health rule or regulation that cost more than $8 million, for each life expected to be saved by the safety rule, would *not* be cost justified, and therefore would *not* be implemented. The problem is that most workers would have no idea what a one chance in 10,000 risk of death means. I ask myself, for example, whether I would have accepted such a sum as a worker and conclude that whether I accepted or not would have been arbitrary: on some days I might have accepted, on others I might not have accepted—all depending on my intuition on a given day. Obviously, as the risk of death seemed to be increasing, I might demand more (in the context of hypothetical negotiations that rarely if ever in fact occur). Certainly, at a certain point the risk of death would be sufficiently high that no amount of money would be acceptable in compensation.[71]

There is a certain feeling one gets when engaging in this kind of reasoning. It is like the feeling confronted in a first year law school torts class upon realizing that the safest conceivable

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[70] W. Kip Viscusi, *Policy Challenges of the Heterogeneity of the Value of Statistical Life*, 6 FOUND. & TRENDS IN MICROECONOMICS 99, 104 (2010).
[71] *See* n.67 and accompanying text.

car will not be built because it would be too expensive. The economists expect everyone to remain calm when this "new" idea is propounded. But the idea that an activity is undertaken with the knowledge that it will kill someone (even if it is not known exactly who will die) seems repugnant. And although it is easy to say that not surviving a work-related accident is simply bad luck, one can easily criticize the entire concept of an accident, or the notion that expensive harm (in the aggregate) should not be prevented.[72]

Ultimately, critique of VSL involves recognition of privilege undertaking cost benefit analysis. Bent Flyvbjerg and Dirk Bester argued in a recent paper on cost benefit analyses, in connection with public infrastructure projects, that "the vast majority of cost-benefit forecasts are systematically biased, with underestimation for cost and overestimation for benefits. Our data go back 86 years and for this period the bias in cost-benefit forecasts has been constant. Cost-benefit forecasters are 'predictably irrational' as regards bias."[73] There are well recognized biases embedded in cost-benefit projections:

> The problem with cost-benefit forecasts is not error but bias, and as long as we try to understand and solve the problem as something it is not (error), we will not solve it. Forecasts, policies, and decisions need to be de-biased, which is fundamentally different from eliminating error . . . The main problem is also not cost overrun, even

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[72] Certain ultrahazardous industries such as nuclear power and aviation apply High Reliability Organization (HRO) principles "to achieve minimal errors, despite highly hazardous and unpredictable conditions." Veazie S, Peterson K, Bourne D. Evidence Brief: Implementation of High Reliability Organization Principles. Washington (DC): Department of Veterans Affairs (US); 2019 May. *Available from*: https://www.ncbi.nlm.nih.gov/books/NBK542883/. In other words, HRO principles suggest "accidents" very often can be prevented, which in turn suggests that many accidents are not unanticipated, thereby bringing them within the foreseeability principle of both negligence law and moral duty. The article will take this up again in Part III in the course of discussing Vision Zero. *See also* Ronen Avraham & Issa Kohler-Hausmann, *Accident Law for Egalitarians*, 12 LEGAL THEORY 181, 186 (2006) ("The practical upshot of our theoretical argument is that any scheme of accident law must entail some liability for risk creation [though not necessarily on par with liability for harm caused] and assure equal terms of compensation for victims who suffer comparable losses to bodily integrity, regardless of the source of that loss.")

[73] Flybjerg & Bester, *supra*. n.33 at 404.

if overrun is what hurts and is visible and therefore gets the attention. The main problem is cost underestimation.[74]

The present discussion focuses on the public benefit of economic production versus the public cost of worker death. Just as is the case with public infrastructure, as discussed by Flyvbjerg and Bester, the central problem with occupational injury and disease leading to death is cost underestimation.[75] Whether the issue is one of occupational disease (worker exposure to toxic substances) or occupational injury (worker exposure to risk of traumatic or cumulative physical injury), the costs of diminishing the risk can always be articulated in terms of employer expenditure of dollars.[76] The cost of reduction of risk of injury or disease (or benefit from the perspective of the worker), on the other hand, is impossible to express in "dollars" without an economic sleight of hand.[77] If it were true that workers voluntarily negotiate job danger, and have demonstrated what "price" they will accept for working dangerous jobs, then there could be a bona fide dollar benefit figure to compare to the costs of government implementation of worker safety regulations. But these types of formulae seem always to lead to the conclusion (under a dark vision) that regulation may be avoided altogether, and that killing workers may be economically rational.

## III. The Goal is Vision Zero: Killing No One in the Workplace

### A. Beyond Feasibility

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[74] *Id.* at 405.
[75] Or the comparison is a form of philosophical category mistake.
[76] *See supra*. n.34 and accompanying text.
[77] *See supra*. n.70 and accompanying text.

To this point the discussion of the essay has been focused on moral criticism of a hyper-technocratic vision of worker death and injury. The thinking in the United States seems to be either that the American system should attempt to prevent workplace injury and fatality only if rules, regulations, or laws survive cost benefit analysis; or, perhaps, that the workplace safety system should make such attempts if they are "feasible."[78] The critique of economic analysis expressed so far clusters around two important claims. Occupational safety (death prevention) is not democratically inspired because (1) ordinary people do not have the slightest idea what regulatory decisions are being made or how those decisions are being reached;[79] and (2) the regulation devised depends heavily on who is promulgating it—technocrats simply do not have enough "skin in the game" to be making (de facto) life and death determinations on worker risk.[80]

It is worth dwelling on the idea of "feasibility" because it at least points towards coherent policymaking.[81] Feasibility, in essence,[82] holds "that administrative agencies should regulate serious health and environmental hazards as stringently as possible without causing widespread plant shutdowns, not as a perfect ideal for regulation, but as a rational norm among several plausible ones."[83] It is a word, an idea, of limitation; and, for example, "was added to the original text of the bill that would become the OSH Act after Senator Peter Dominick expressed fear that

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[78] "The Secretary of Labor is required to ensure '*to the extent feasible*, on the basis of the best available evidence, that *no employee* will suffer material impairment of health" from occupational exposure to toxic materials.'" Note, *OSHA's Feasibility Policy: The Implications of the "Infeasibility" of Respirators,* 129 HARV. L. REV. 2235 (2016) (assessing technological feasibility determinations).
[79] *See supra*. Part II.B.
[80] *See supra*. Part II.A. and B.
[81] Dov Waisman, *Equity and Feasibility Regulation*, 50 U. RICH. L. REV. 1263, 1265-66 (2016) ("The norm underlying feasibility regulation is equity. Closely related to the notion of fairness, equity is specifically concerned with equalizing the burdens borne and benefits enjoyed by differently situated individuals as the result of some collectively beneficial activity or policy. It is precisely this concern that underlies feasibility regulation.")
[82] There is a distinction in the law between the ideas of "technological" and "economic" feasibility, but that is beyond the scope of my present discussion.
[83] David M. Driesen, *Two Cheers for Feasible Regulation: A Modest Response to Masur and Posner*, 35 HARV. ENVTL. L. REV. 313 (2011).

the initial language of section 6(b)(5)16 could permit a mandate that would 'close every business in [the] nation.'"[84] But as Jonathan Masur and Eric Posner have argued, "Underregulation occurs because feasibility analysis tolerates dangerous industrial practices if regulation would shut down plants."[85] In a country like the United States, where over 100,000 workers die each year from poorly-tracked occupational disease, it does not seem hyperbolic to speak in terms of underregulation.[86]

It also seems likely that operating from a heuristic of *presumptive infeasibility* drives the myth that workers in the main have voluntarily contracted for their work risk.[87] On reflection, such notions of voluntarism are a barely warmed over version of the 19th century idea that workers have "assumed the risk" of injury and death through freedom of contract, and fail to adequately and personally manage workplace risk at their peril.[88] It is probably more palatable, morally, to accept that workers are routinely exposed to risk of death if it can be safely assumed they have understood and contracted for the risk (or should have done so). Furthermore, where Congress attempted to be more aggressive about requiring safety, the Court has written cost-benefit into the statute, and Congress has not undone the undemocratic revision. At the end of the day, the attitude embraced (by non-workers) is expressed by the leading cost-benefit academic economist, W. Kip Viscusi,

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[84] Note *OSHA Feasibility Policy*, *supra*. n.78 at 2237 (*quoting* 116 Cong. Rec. 36,530 (1970) (statement of Sen. Dominick).
[85] Jonathan S. Masur & Eric A. Posner, *Against Feasibility Analysis*, 77 U. CHI. L. REV. 657, 704 (2010)
[86] DANA HOWSE JOAN EAKIN, RON HOUSE, AND LINN HOLNESS, WHY IS OCCUPATIONAL DISEASE UNDER REPORTED? CENTRE FOR RESEARCH IN OCCUPATIONAL DISEASE 16-20 (discussing problems of broad employee non-recognition of work relatedness or claim coverage) *available at* https://creod.on.ca/wp-content/uploads/2022/09/occupational-disease-under-reported.pdf.
[87] *See supra*. Part II.A.
[88] *See supra*. n.64 and accompanying text.

> Ideally, it would be desirable if we could all adopt a high-minded commitment to a risk-free existence. Unfortunately, such an objective is beyond our reach—politicians who advocate higher taxes rarely get elected and economists who indicate that our resources are limited are often portrayed as purveyors of pessimism.[89]

Of course, no one is arguing for a risk free existence ex ante, it is the reaction to discovered risk that is at issue; and the passage appears (perhaps unintentionally) to convey the broad idea that, because a thing has not previously been done, it should not be pursued. In the 19th century, workers were subjected to terrible working conditions and the response to many proposed correctives was that they could not be done. The late 19th century Encyclical issued by Pope Leo XIII in 1891—at the height of the most serious risk of death for workers in unregulated industrialism; which led to, among other things, worker' compensation reforms in Germany and England—spoke to the then-new problem in religious and moral terms:

> Let the working man and the employer make free agreements, and in particular let them agree freely as to the wages; nevertheless, there underlies a dictate of natural justice more imperious and ancient than any bargain between man and man, namely, that wages ought not to be insufficient to support a frugal and well-behaved wage-earner. If through necessity or fear of a worse evil the workman accept harder conditions because an employer or contractor will afford him no better, he is made the victim of force and injustice.[90]

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[89] W. KIP VISCUSI, FATAL TRADEOFFS: PUBLIC AND PRIVATE RESPONSIBILITIES FOR RISK (1992).
[90] IN RERUM NOVARUM ¶ 45 (1891).

The same method of moral thought can be applied to contemporary problems of workplace injury and death. Whatever a worker's "contract" seems to be, "there underlies a dictate of natural justice more imperious and ancient than any bargain between man and man."[91] If a worker is accepting harder conditions because an employer "will afford him no better, he is made the victim of force and injustice." Thus, even if politicians must advocate higher taxes and thereby risk the chances of election; and even if economists risk being "portrayed as purveyors of pessimism" by communicating accurate worker risk of death information, things should be done when they can be done. The problem is that we may not know what can be done because there will always be well-financed viewpoints arguing that workplace safety is impossible or flatly inordinately expensive.

B. What is Vision Zero and Why does it Matter?

This leads naturally to a discussion of the "Vision Zero" heuristic. Rather than treating workplace death as inevitable, the focus of Vision Zero is on emphasizing that the goal of any workplace injury and illness program is "zero" deaths. This orientation has been adopted and featured by the European Union in its strategic framework on health and safety at work 2021-2027.[92] "Vision Zero-themed approaches are from a family of similarly named strategies that have existed since the 1960s and include Zero Defects, Zero Waste, and Zero Harm."[93] The Vision Zero emphasis originated in Sweden in the late 1990s and was initially aimed at road traffic fatalities.[94] The strategy "[s]ince . . . saw a circa 50% fall in road traffic fatalities as well as a reduction to very

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[91] *Id*.
[92] THE ROLE OF VISION ZERO AND RELATED OCCUPATIONAL SAFETY & HEALTH STRATEGIES, INTERVENTIONS, AND TOOLS IN REDUCING EU WORK RELATED FATALITIES, ACCIDENTS AND ILL HEALTH, EUROPEAN AGENCY FOR SAFETY AND HEALTH AT WORK *available at* https://oshwiki.osha.europa.eu/en/themes/role-vision-zero-and-related-occupational-safety-health-strategies-interventions-and-tools#_ednref5
[93] *Id*.
[94] *Id*.

low levels of fatalities in the commercial transport sector."[95] The concept has spread to a Zero Accident Vision for prevention of workplace injuries.[96] Moreover,

> Various studies have reported the beneficial effects of this particular Vision Zero strategy. This includes an aluminum smelting enterprise that adopted this strategy being named as the world's safest smelter. A further study of 27 European companies that adopted Zero Accident Vision found that they all had high levels of safety communication, safety culture and learning as well as a well-developed organisational and individual commitment to the strategy.[97]

In short, the emphasis on Vision Zero embraces a *moral aspirational vision* of occupational fatality prevention. Although specific impacts of Vision Zero in workplace accidents is relatively new, there have been enough successes to warrant pursuit of what is, in effect, a transformation from presumptive infeasibility to a moral refusal to acquiesce to the inevitability of injurious accidents at work:

> Vision Zero is a transformational approach to prevention that integrates the three dimensions of safety, health and well-being at all levels of work. It is based on the assumption that all accidents, harm and work-related ill-health are preventable. The Vision Zero concept is flexible and can be adjusted to specific needs and priorities in any given context.[98]

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[95] *Id*.
[96] *Id.*
[97] *Id*.
[98] VISION ZERO GLOBAL, WHY VISION ZERO? *available at* https://visionzero.global/why-vision-zero.

Unsurprisingly, Vision Zero framing is becoming powerful in emerging global south industrial thinking.[99] The International Labour Organization is targeting workplace safety within the economic reality of global supply chains: "Our goal is a world with zero workplace deaths, accidents and diseases. We look beyond conventional approaches to find new solutions to the challenge of worker safety and health in global supply chains."[100]

While there have been mixed results in United States municipalities implementing Vision Zero in connection with traffic accidents,[101] a dramatic success was recently reported in connection with New York City, which implemented a series of Vision Zero policies in 2014.[102] By implementing a series of accident mitigation strategies, the city achieved positive outcomes from 2014 to the pandemic:

> Injuries are an important driver of socioeconomic and racial disparities. We found evidence that in the first 6 years of NYC's citywide traffic safety policy, Vision Zero, the rate of traffic-related injuries among low-income New Yorkers, and low-income Black New Yorkers in particular, fell relative to trends in surrounding counties. Given that low-income and Black Americans are more likely to live and work in places with unsafe roadways and face injuries, these findings suggest that Vision Zero–style reforms are promising for reducing disparities. One concern with traffic policies is that they affect only the low-hanging fruit (e.g., fender-benders)

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[99] Kassu Jilcha, Vision Zero for industrial workplace safety innovative model development for metal manufacturing industry *available at* https://doi.org/10.1016/j.heliyon.2023.e21504.
[100] INTERNATIONAL LABOUR ORGANIZATION, VISON ZERO FUND *available at* https://vzf.ilo.org/.
[101] US cities want to totally end traffic deaths—but there have been a few speed bumps. *Fast Company*. August 2017. *available at* https://www.fastcompany.com/3062492/us-cities-want-to-totally-end-traffic-deaths-but-there-have-been-a-few-speed-bumps.
[102] KACIE L. DRAGAN AND SHERRY A. GLIED, MAJOR TRAFFIC SAFETY REFORM AND ROAD TRAFFIC INJURIES AMONG LOW-INCOME NEW YORK RESIDENTS, 2009–2021, AMERICAN JOURNAL OF PUBLIC HEALTH (June 2024) *available at* https://ajph.aphapublications.org/doi/10.2105/AJPH.2024.307617.

> while having little influence on severe crashes. Our data suggest that this was not the case; residents saw reductions in severe injuries, including TBI or hospitalization. These reductions may have contributed to decreases in Medicaid expenditures. We estimate that Vision Zero saved Medicaid a total of roughly $90.8 million over the first 5 years . . . Our most striking finding is that the trend in NYC stayed persistently lower than the trend in nearby counties until the onset of the pandemic, despite growth in crash incidence in non-NYC areas. This finding persists even in the boroughs of NYC that are most like the suburbs, making Vision Zero the most plausible explanation.[103]

More importantly, in the case of workplace accident, injury, or death, Vision Zero reframes the goal of workplace safety. The goal is not to reach the "optimal" level of workplace death, it is to *eliminate* workplace death.

C. Technological Feasibility Revisited

But can workplace death ever be eliminated? Morally, we must try. Throughout history organized economic activity has caused death. Workers suffered and died when building the pyramids,[104] the Hoover Dam,[105] and during other work endeavors far too numerous to recount. Yet, private industry is also capable of intensifying workplace *safety* initiatives. The health care

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[103] *Id*. (Discussion section).
[104] *See* Rob Edwards, *Pyramids broke the backs of workers*, NEW SCIENTIST, *available at* https://www.newscientist.com/article/mg14920131-100-pyramids-broke-the-backs-of-workers/#:~:text=Six%20skeletons%20have%20severed%20limbs,to%20death%2C%E2%80%9D%20says%20Hawass.
[105] Ninety-six workers were killed during construction of the Hoover Dam between 1931 and 1935. BUREAU OF RECLAMATION, HOOVER DAM *available at* https://www.usbr.gov/lc/hooverdam/history/essays/fatal.html.

industry, for example, driven in part by the Institute of Medicine report *To Err is Human*,[106] introduced the idea of developing hospitals into high-reliability organizations (HROs). The HRO approach has made its way into certain ultrahazardous industries, such as nuclear power and aviation, "to achieve minimal errors, despite highly hazardous and unpredictable conditions."[107] The only real question is the extent to which the legal system will insist upon heightened safety through enhanced safety enforcement. While one hopes that moral sentiment will always form the cornerstone for policy pursuit of human safety, it is worth observing that hospitals are subject to *patient* tort suits and substantial legal liability. As mentioned previously, workers' compensation substantially cuts employer liability to *workers,* which may create perverse incentives for companies to be unsafe. But even within the rubric of workers' compensation, it is becoming clear that,

> Many leading organizations have also embraced the concept of a high-reliability safety culture, which has been defined as "professional leadership attitudes in a High Reliability Organization that manage potentially hazardous activities to maintain risk to people and the environment as low as reasonably achievable, thereby assuring stakeholder trust." These institutions are trying to move from addressing each individual adverse event and type of adverse event to addressing safety systematically within an integrated management system for safety.[108]

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[106] David W. Bates and Hardeep Singh, *Two Decades Since To Err Is Human: An Assessment Of Progress And Emerging Priorities In Patient Safety*, 37 HEALTH AFFAIRS 1736 (2018) *available at* https://www.healthaffairs.org/doi/epdf/10.1377/hlthaff.2018.0738.
[107] *See* Veazie et al., *Implementation of High Reliability Organization Principles*, *supra*. n.72.
[108] *Id*.

Outcomes society used to be comfortable terming isolated "accidents" are becoming harder to automatically classify as such.[109] If workplace death is a matter of "system," not the product of "accident," it is harder to justify a workplace injury remedial structure that, by design, is not meant to fully compensate workers for the measurable cost of workplace death.[110] But a clear enough moral imperative—and Vision—for eliminating worker injury and death may provide other weighty and creative economic incentives for safe workplaces.[111]

## IV. Conclusion

Those without skin in the game may be satisfied with using complex cost-benefit analyses and feasibility studies to function as devices by which American society decides whether to make workplaces safer. But it is hard to believe that workers would agree with, for example, the many decisions of OSHA *not* to regulate—based in large part on analyses and studies of this type, even if they understood the underlying math often being used against them. And, substantively, it is very difficult to believe that current cost-benefit studies are anywhere close to being accurate when the estimates of workers being killed by occupational diseases is wildly understated or completely unknown.[112] In sum, it is difficult to view decisions not to regulate more aggressively for safety as either moral or the democratic creation of those with skin in the game. Fortunately, there is a vision

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[109] For a national example of such a change in consciousness in the United States *see* INSTITUTE FOR HEALTHCARE IMPROVEMENT, DECLARATION TO ADVANCE PATIENT SAFETY, NATIONAL COMMITTEE FOR PATIENT SAFETY (2022) *available at* https://241684.fs1.hubspotusercontent-na1.net/hubfs/241684/National%20Action%20Plan%20(NAP)/IHI-NSC_Declaration-to-Advance-Patient-Safety.pdf?__hstc=31808225.28f3905e2ef151ff0109eb7a87f1160a.1722115758351.1722115758351.1722115758351.1&__hssc=31808225.1.1722115758351&__hsfp=2853451999&hsCtaTracking=27fe8c3d-390f-470d-8cc5-1414883d46ff%7C93211def-a21b-4d96-a150-4f7c8bce967f

[110] Duff, *Ineffable Quo supra*. n.22.

[111] "In 2008 [the Centers for Medicare and Medicaid Services] stopped reimbursing hospitals under Medicare for certain hospital-acquired conditions, including pressure ulcers, in-hospital falls, and infections." This is an example of an economic sanction for failure to maintain a safety culture that does not directly implicate tort/general injury law. Bates and Singh, *Two Decades Since To Err Is Human*, *supra*. n.106, at note 32 and accompanying text.

[112] R. Herbert and P. J. Landrigan, *Work-related death: a continuing epidemic,* 90 AM. J. PUBLIC HEALTH 541 (2000) *available at* https://www.ncbi.nlm.nih.gov/pmc/articles/PMC1446189/.

afoot in the regulatory world—Vision Zero—that puts at the forefront the goal of not being "satisfied" with the reality of a single injury or death occurring in the workplace.