The Best Welfare Point: A New Compensation Criterion and Goal for Tort Law

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I. INTRODUCTION

This Article proposes in-depth analysis of alternative tort law criteria for compensating victims of wrongful acts in search for an optimal compensation criterion. I am particularly interested in finding out whether this ideal "best welfare point," if it exists, is the damage awards ("DA") criterion that tort law currently applies. My basic notion is that social welfare would be at its highest welfare distribution and justice, in terms of efficiency, if, in each tortious event, the law obligated the injurer to pay the victim not only her damages, but her damages plus half the added profits derived from the taking. I name this criterion *the Best Welfare Point* ("BP").

I subscribe to the idea of torts as takings. I define "taking" as an event in which an individual unilaterally and forcibly appropriates another individual's entitlement, meaning an interest protected by tort law: her property right, for example, or her right to bodily autonomy. To illustrate this point, I provide some examples of different kinds of tortious events, such as physical injury or property damage, medical malpractice, occupational injury due to hazardous manufacturing operations, and a cellular company mounting a new antenna in a densely populated area. I consider all of these activities to be takings.

In light of my view of torts as takings, I justify BP's existence and potential as a preferable goal for tort law with reference to five major methods or theories. First, using neoclassical economic analysis of law, I consider circumstances in which a potential injurer might

wrongfully take an entitlement in a competitive setting, namely tortious entitlement markets. Markets in which the parties to the forced transfer know the market price—an accident breaking a car window, for example—characterize competitive entitlement settings. In this section, my main argument is that the DA tort-law criterion does not enable liability rules to mimic the operation of free and competitive markets. Instead, it creates markets with a legally enforced perfect price discrimination of sellers, whereby buyer-injurers are taking entitlements at the seller-victims' expense. This in turn leads to entitlement markets' worst-case antitrust scenario, whereby the market supply of tort entitlements widens with more takings—many of them inefficient. This phenomenon reflects total destruction of free and competitive tort entitlements markets, leading to excessive transactions in goods and services markets, in which tort entitlements serve as commodities, and ultimately to inefficient resource allocation. The BP criterion optimally mimics the operation of free and competitive markets by offering to the parties the theoretical values to which they would have been entitled in those markets: normal profits for the buyer-injurer equal to their consumer surplus and normal profits for the seller-victim. This criterion ensures efficient takings in entitlements markets, leading to a reduction in aggregate tortious entitlement takings and to the potential injurers considering the true value of the potential victims' entitlements. In products-and-services markets, in turn, the takers—who now pay the true value of commodities, including tort entitlements—would produce efficiently with the outcome being efficient allocation of resources.

Second, a potential injurer may also take an entitlement in a non-competitive setting that is so unique that the parties to the forced transfer cannot rely on any known market price and must bargain—for example, an accidental event that injures an individual. Using game theory considerations in bilateral-bargaining settings, and given that courts' measurements errors are systematically biased in favor of either potential injurers or victims, DA cannot ex ante ensure that only efficient takings occur. If injurers estimate that a biased error in their favor is probable, they have rational incentives to become involved in too many takings, some of them inefficient. I sample the extensive literature on the reasons for those biases. For example, Bebchuk's models demonstrate that gaps in litigation costs during trial stages and asymmetric information between plaintiffs (victims) and defendants

(injurers) could lead to settlement biases.[1] Notably, biases could also lead to nonoccurrence of efficient taking. The BP criterion best facilitates efficient torts takings, assuming actual DA—including all kinds of errors and negotiation effects—are normally distributed. With sufficiently low variance, only efficient takings occur—and inefficient takings do not—when using the BP criterion to calculate compensation. Even with systematic biases, the BP leads, on average, to zero deviation from equal sharing of benefits from entitlement takings.

Third, the criterion of DA constantly teaches us to err rather than take proper measures to avoid accidents. Using behavioral economics findings, I show that cognitive mechanisms used to estimate risks, such as the availability heuristic, over-optimism, and overconfidence, might lead potential injurers to underestimate the risks of different types of accidents. This leads to underinvestment in precautions. With the criterion of DA, those mistakes are not verifiable since, in most cases, awards are small and do not incentivize litigation. This problem becomes critical in modern manufacturing, where firms must frequently update safety technologies and procedures. The DA criterion does not deal with this moral luck problem until it is too late and a fatal accident occurs. The BP criterion, on the other hand, gives victims of small damages (like victims of occupational accidents) an incentive to sue. This pricing of harm discloses the injurers' risk assessment errors in a timely manner and serves as an excellent debiasing mechanism.

A fourth ground for my argument is the normative approach of corrective-justice theories seen by some scholars as inconsistent, and by others as complementary, with the economic analysis of law's emphasis on efficiency and distribution considerations.[2] In this part of

1. For Bebchuk's litigation costs model for reasoning biases in litigation outcomes, see Lucian A. Bebchuk, *A New Theory Concerning the Credibility and Success of Threats to Sue*, 25 J. LEGAL STUD. 1, 10–15 (1996) [hereinafter Bebchuck, *Credibility and Success*]. For Bebchuk's information asymmetry model for reasoning biases in litigation outcomes, see Lucian A. Bebchuk, *Suing Solely to Extract a Settlement Offer*, 17 J. LEGAL STUD. 437, 441–48 (1988) [hereinafter Bebchuk, *Suing Solely*]. For a presentation of the literature explaining biases in litigation outcomes, see *infra* notes 56–67, and accompanying text.

2. For a view that the normative approach of corrective justice is inconsistent with the economic analysis of law, see, for example, Ernest J. Weinrib, *Correlativity, Personality, and the Emerging Consensus on Corrective Justice*, 2 THEORETICAL

the Article, I claim that the BP may serve as the normative legal criterion for appropriate awards that correct the injustice that the injurer caused to the victim. This perception may bring those theories closer. Scholars attribute the origin of the corrective-justice approach to Aristotle. Enlightenment-era natural rights philosophers further developed the approach.[3] Aristotle's notion of corrective justice posits that forcing the injurer to pay the victim's damages eliminates the former's wrongful gains and the latter's corresponding losses.[4] Modern theorists, however, explain that Aristotle's theory evokes a puzzle since the injurer's gains and victim's losses are not necessarily identical.[5] The BP may serve as the appropriate corrective-justice award criterion because the proper redress is to give the victim the value of the entitlement *and* the value of her right to transfer it. If honest bargaining was possible, its outcome would be division of the added value from the wrongful taking. For the victim, this means she would be entitled to receive her DA *plus* her piece of the negotiation pie. The injurer is entitled to his contribution to the added value from the transaction. This solves Aristotle's puzzle by strictly eliminating wrongful gains while preserving the rightful share of the hypothetical negotiation pie that reflects the transaction's added value to society. Relatedly, the BP criterion may also explain biblical and other ancient damages rules captured by the controversial "eye for an eye" mantra.[6]

Fifth, looking at torts as takings makes almost trivial the claim that DA do not meet basic objectives of distributive justice theory in terms of sharing benefits or burdens between members of society. The DA criterion gives the added value from all tortious takings to the takers—for example, manufacturing firms—and imposes the risks on workers and other members of the society, leaving nothing to the

INQUIRIES IN L. 107, 108–09 (2001) [hereinafter Weinrib, *Emerging Consensus*]. For a view that the two methods are complementary, see, for example, IZHAK ENGLARD, THE PHILOSOPHY OF TORT LAW 88 (1993).

3. Weinrib, *Emerging Consensus*, *supra* note 2, at 115.

4. ARISTOTLE, NICOMACHEAN ETHICS 87–88 (Roger Crisp trans. & ed., 2000); *see also* Ernest J. Weinrib, *The Gains and Losses of Corrective Justice*, 44 DUKE L.J. 277, 277 (1994) [hereinafter Weinrib, *Gains and Losses*].

5. Weinrib, *Gains and Losses*, *supra* note 4, at 277–79. For Weinrib's and other contemporary philosophers' solutions for Aristotle's puzzle, see *infra* Section II.C.4.

6. *See infra* notes 118–126 and accompanying text.

victims, the entitlement owners. John Rawls dedicated much of his work to developing distributive justice theory for a liberal society[7] based on the notion of justice as fairness.[8] Analogically to Rawls's theory, I argue that, in tort law spheres,[9] the BP is a fair, and therefore just, criterion for dividing the gains from one's efforts to enhance society by self-promoting acts associated with imposing tortious risks on others. Moreover, I argue that the BP meets the Rawlsian justice criteria of the hypothetical social contract and veil of ignorance by dividing the gains of the tortious taking between the injurer and the victim.

Following my discussion of these five theoretical grounds, I present major potential implications of the BP criterion. First, I show that it decreases transaction costs. Furthermore, it makes liability rules and property rules similar, as I demonstrate using option theory. I argue that liability rules and property rules should serve as means to achieve the BP as the proper goal of tort law and that courts should apply each to a specific case or category of cases best suitable for that objective. If in a specific case or category of cases the transaction costs of liability rules are relatively high in a way expected to shift the negotiation outcome away from the BP, then a court should use

7. For an introduction to Rawls's theories, see generally Leif Wenar, *John Rawls*, *in* THE STANFORD ENCYCLOPEDIA OF PHILOSOPHY (Edward N. Zalta ed., 2008, rev. 2012), http://plato.stanford.edu/archives/win2013/entries/rawls/. *See also generally* CATHERINE AUDARD, JOHN RAWLS (2007); SAMUEL FREEMAN, JUSTICE AND THE SOCIAL CONTRACT: ESSAYS ON RAWLSIAN POLITICAL PHILOSOPHY (2007); THOMAS POGGE, JOHN RAWLS: HIS LIFE AND THEORY OF JUSTICE (2007).

8. *See generally* JOHN RAWLS, JUSTICE AS FAIRNESS: A RESTATEMENT (Erin Kelly ed., 2001) [hereinafter RAWLS, FAIRNESS]. Rawls first presented the notion of justice as fairness in 1971. JOHN RAWLS, A THEORY OF JUSTICE 93–98 (rev. ed. 1999) [hereinafter RAWLS, THEORY].

9. Keating and Zipursky discussed Rawls's influence on tort law. *See generally* Gregory C. Keating, *Rawlsian Fairness and Regime Choice in the Law of Accidents*, 72 FORDHAM L. REV. 1857 (2004); *see also generally* Benjamin C. Zipursky, *Rawls in Tort Theory: Themes and Counter-Themes*, 72 FORDHAM L. REV. 1923 (2004). Keating argued that, for reasons of distributive justice and fairness, the law should impose strict liability for injuries, even those resulting from "natural misfortune" without fault. Gregory C. Keating, *Distributive and Corrective Justice in the Tort Law of Accidents*, 74 S. CAL. L. REV. 193, 198–201 (2000). He also argued that all members of society have liberty interests in imposing risks on others and in individual bodily security, and that the purpose of tort law, following the principle of justice as fairness, is to reconcile them. *Id.* at 196–98.

property rules, and vice versa. Assume, for example, that in a specific case, the compensation, according to the BP criterion, should be $800 (see Example 1 below) but is unknown to the court. If the transaction costs of liability rules are high, leading to an expected reduction of 20% in compensation, and if the expected outcome of applying property rules is a 10% reduction, then property rules are preferable in this case.

Another implication is the possibility of using the BP criterion as a debiasing mechanism by encouraging reports on minor accidents, claims, and class actions. Notably, in highly competitive entitlement markets, the influence of forced takings may be small, and market price can serve as a proper criterion for determining the BP. In other cases, I suggest that the court should allow the victim to prove the injurer's additional profits from the taking. If there are no added profits from the taking, however, the injurer should pay the victim only her damages. Furthermore, if determining profits is difficult in a specific case or category of cases, the court may estimate profits by adding the injurer firm's net profit margin (net profits divided by net sales) to the victim's damages.

Several brief and interrelated examples can demonstrate the implications of the BP criterion. Example 1 refers to the regular tort case. Assume that a potential injurer can increase his manufacturing with an added profit of $1,000. Then he fails to install safety equipment that costs $500. This imposes risks on his worker, who subsequently suffers damages of $600. Under the current law,[10] the damage award is $600. Under the BP criterion, however, the injurer pays the victim $800 (*600+0.5(1000–600)*).

Example 2 refers to cases in which courts consider imposing punitive damages in addition to general liability as a way of dealing with the under-deterrence in cases where there is a positive probability that injurers escape liability.[11] In addition to facts in Example 1,

10. *See* DAN B. DOBBS, 2 THE LAW OF TORTS 1047–53 (2000) (explaining traditional bases for compensatory damages in tort); *see also* DAN B. DOBBS, LAW OF REMEDIES: DAMAGES-EQUITY-RESTITUTION 3–5 (2d ed., 1993) (explaining the basic forms and functions of damage awards in tort).

11. For a discussion of juries' and courts' imposition of punitive damages in which there is a positive probability that injurers escape liability, or in cases of death and serious bodily injury, see *infra* Section III.D. In the latter category of cases, assume now that juries and courts are systematically able to compensate the victim's

assume now that the probability that the injurer will be found liable is 0.75. In such cases, courts may impose punitive damages including compensation multipliers to restore deterrence. Under the current law, the amount of compensation could be $800 (*(1/0.75)600*). Under the BP criterion, however, the injurer pays the victim $1,066.67 {*(1/0.75)(600+0.5*(*1000-600*))}.

In Part II, I explain the basic function of DA in economic analysis of tort law and the concept of torts as takings, justifying BP's existence and benefits as an awards criterion and goal using five methods or theories. In Part III, I present major implications of the BP criterion and propose amendments to current tort law. In Part IV, I discuss the methods to determine awards based on the BP criterion. Part V reviews the literature on harm-based versus gain-based damages. I further discuss possible advantages and disadvantages of the new BP criterion in addressing both the victim's damages and injurer's gains. Finally, in Part VI, I present my conclusions.

II. THE BEST WELFARE POINT

A. Current Tort Law Objectives

I accept the economic-analysis-of-law's notion that the law should increase social welfare, and I consider "efficiency" to entail the size of the welfare pie, welfare distribution, and distributive justice.[12]

heirs at an amount equal to 0.75 of her damages. Also in this category, courts may include compensation multipliers to restore deterrence; thus, the estimated award is $600 (*(1/0.75)450*). Under the BP criterion, however, the injurer pays the victim $800 (*(1/0.75)450+0.5(1000–(1/0.75)450)*).

12. For an economic definition and explanation of the terms "welfare," "efficiency," and "welfare distribution," see, for example, ROBERT S. PINDYCK & DANIEL L. RUBINFELD, MICROECONOMICS 601–627 (8th ed. 2013). *See also* HAL R. VARIAN, INTERMEDIATE MICROECONOMICS: A MODERN APPROACH 631–43 (8th ed. 2010) (discussing equitable welfare distribution). For a legal and economic definition of "efficiency," and a presentation of the distinction between efficiency, welfare distribution, and distributive justice, see, for example, RICHARD A. POSNER, ECONOMIC ANALYSIS OF LAW 13–17, 635–60 (9th ed. 2014); *accord* MICHAEL ALLINGHAM, DISTRIBUTIVE JUSTICE (2014). *See also generally* JOHN ARTHUR & WILLIAM H. SHAW, JUSTICE AND ECONOMIC DISTRIBUTION (2d ed. 1991) (discussing different approaches to distributive justice); JOHN E. ROEMER, THEORIES OF DISTRIBUTIVE JUSTICE (1996) (reviewing various economic and philosophical

In accordance with the method of economic analysis of tort law, I focus on its main objectives: efficient deterrence by directing the potential injurer and victim's behavior on one hand, and just compensation and risk distribution on the other.[13]

The economic analysis of tort law owes much to the progress made by Coase, Calabresi, and Posner.[14] Coase showed that, given well-defined property rights and zero transaction costs, affected parties would bargain and reach the same efficient outcome, regardless of the underlying rule of law.[15] Calabresi developed the method of minimizing the social costs of accidents, focusing on simultaneously

approaches to distributive justice); AMARTYA K. SEN, THE IDEA OF JUSTICE (2009) (arguing for a theory of justice that goes beyond social contract theory).

13. *See, e.g.*, Jennifer Arlen, *Tort Damages*, *in* 2 ENCYCLOPEDIA OF LAW AND ECONOMICS 682–686, 702–10 (Boudewijn Bouckaert & Gerrit De Geest eds., 2000) [hereinafter Arlen, *Tort Damages*]; *see also* Hans-Bernd Schäfer, *Tort Law: General*, *in* 2 ENCYCLOPEDIA OF LAW AND ECONOMICS 569 (Boudewijn Bouckaert & Gerrit De Geest eds., 2000) ("Tort law rules aim at drawing a just and fair line between those noxious events that should lead to damage compensation and others for which the damage should lie where it falls."); Omri Ben-Shahar & Ariel Porat, *Personalizing Negligence Law*, 91 N.Y.U. L. REV. 627, 632 (2016) (defining the "goals of negligence law" as "efficient deterrence and just compensation"). Later, I review and discuss the literature on damage awards, see *infra* note 53, and accompanying text; the goals and use of punitive damages in tort cases, see *infra* Section III.D; the complexity and difficulty of calculating economic (pecuniary) and noneconomic damages, see *infra* Part V; the connection between damage awards and the moral luck problem, see *infra* Section II.C.3; debiasing cognitive effects by changing the rule of damage awards and creating proper incentives for potential victims, see *infra* Section III.C; the damage award criterion vis-à-vis normative theories, see *infra* Section II.C.4–5; and harm- versus gains-based compensation, see *infra* Part V.

14. *See* Schäfer, *supra* note 13, at 569–71 (describing works by Calabresi, Coase, and Posner as "pathbreaking" and briefly summarizing each).

15. *See generally* Ronald H. Coase, *The Problem of Social Cost*, 3 J.L. & ECON. 1 (1960) (propounding what economists call "the Coase Theorem"). For a discussion of the Coase Theorem's definitions, versions, validity, and implications, see generally Steven G. Medema & Richard O. Zerbe, Jr., *The Coase Theorem*, *in* 1 ENCYCLOPEDIA OF LAW AND ECONOMICS 836 (Boudewijn Bouckaert & Gerrit De Geest eds., 2000). For a discussion of transaction costs and their relationship to the Coase Theorem, see also generally Douglas W. Allen, *Transaction Costs*, *in* 1 ENCYCLOPEDIA OF LAW AND ECONOMICS 893 (Boudewijn Bouckaert & Gerrit De Geest eds., 2000).

minimizing the costs of harm and of avoiding accidents.[16] Calabresi and his followers developed the latter notion by comparing the tort law's arrangements that may lead to this optimal welfare point, specifically general negligence and strict liability regimes.[17] This literature mainly analyzed the influence of different arrangements on the activity and precaution level of injurers and victims.[18]

Within the extensive literature on the economic analysis of tort law, DA issues have an important share.[19] Damages are essential for the enforcement of tort law.[20] Posner presented Judge Learned Hand's formula from *United States v. Carroll Towing Co.*[21] ("the Hand Formula") to solve the problem of determining the most efficient level of precaution in negligence cases.[22] Under this formula, the optimal level of precaution is the point where the marginal social costs of preventing the accident equal the marginal benefit from preventing the harm, (B'(c) = -P'(c)D), and the injurer would be held liable for negligence if he has failed to invest at least this optimal level of precaution.[23] This formula leads to the conclusion that, under the

16. GUIDO CALABRESI, THE COSTS OF ACCIDENTS 26–31 (1970). For a presentation of Calabresi's method of minimizing the social costs of accidents, see ROBERT COOTER & THOMAS ULEN, LAW AND ECONOMICS 199–201 (6th ed. 2012).

17. *See generally* POSNER, *supra* note 12, at 191–251; *see also generally* Jennifer Arlen, *Economics of Tort Law*, *in* 2 OXFORD HANDBOOK OF LAW AND ECONOMICS 41–87 (Francesco Parisi ed., 2017) [hereinafter Arlen, *Economics of Tort Law*], http://its.law.nyu.edu/faculty/profiles/representiveFiles/Oxford.Torts.Final.Chapter_40FD1B10-EC55-E016-86BC726B7139C113.pdf; COOTER & ULEN, *supra* note 16, at 187–274

18. Arlen, *Economics of Tort Law*, *supra* note 17, at 41; COOTER & ULEN, *supra* note 16, at 187–274; POSNER, *supra* note 12, at 191–251.

19. *See generally, e.g.*, Arlen, *Tort Damages*, *supra* note 13. *See also generally* Arlen, *Economics of Tort Law*, *supra* note 17.

20. *See* Arlen, *Tort Damages*, *supra* note 13, at 682 ("Efficient damages awards are critical to the optimal functioning of the tort system."); *see also* Arlen, *Economics of Tort Law*, *supra* note 17, 47–55 (analyzing methods of calculating damages awards); COOTER & ULEN, *supra* note 16, at 217–20 (discussing difficulties with calculating efficient damages awards).

21. 159 F.2d 169 (2d Cir. 1947).

22. Richard A. Posner, *A Theory of Negligence*, 1 J. LEGAL STUD. 29, 32 (1972). For a discussion of the Hand Formula, see POSNER, *supra* note 12, at 191–96. *See also* COOTER & ULEN, *supra* note 16, at 213–17.

23. *See Carroll Towing*, 159 F.2d at 173 (propounding the Hand Formula).

negligence rule, the injurer found liable should pay full damages to the victim.[24] With full DA and no other biases, such as asymmetric information, leading a high rate of victims to not file suit, injurers would have a strong incentive to take due care. Under the strict liability rule, whereby the injurers pay the damage in each accident, the same result applies. With full DA, the injurers take all relevant social costs into account, internalize the risk for damage, and operate at a socially optimal level of care.[25]

The literature analyzes the influences of several DA issues on the tort system's efficiency. Inter alia, efficiency depends on courts' ability to accurately determine DA and negligence care. Some have argued, for example, that courts' errors in determining negligence could lead to a higher-than-optimal investment in precaution; this could possibly lead to an argument in favor of regulations that decrease DA.[26] In cases of death and serious bodily injury, the criterion for determining damages is theoretically vague,[27] leading regulators to cap pain and suffering rewards.[28] Juries and courts may consider punitive damages in yet other cases where there is a positive probability that injurers escape liability, in addition to cases of death and serious bodily injury.[29] Finally, the phenomenon of victims' tendency not to sue was empirically found in different categories of tort cases, leading to a possible argument in favor of increasing DA.[30] Next, I present my view of torts as takings and its implications for optimal compensation criteria.

24. *See generally, e.g.*, STEVEN SHAVELL, ECONOMIC ANALYSIS OF ACCIDENT LAW 5–46 (1987); *see also* Arlen, *Tort Damages*, *supra* note 13, at 685–86; POSNER, *supra* note 12, at 223 ("Maintaining the credibility of the tort system requires that a defendant who is found liable must pay damages at least as great as *L* in the Hand Formula.").

25. Arlen, *Tort Damages*, *supra* note 13, at 684–85; POSNER, *supra* note 12, at 205–10; SHAVELL, *supra* note 24.

26. See *infra* notes 53–55, and accompanying text.

27. See *infra* note 183, and accompanying text.

28. For literature discussing the advantages and disadvantages of capping pain and suffering awards, see *infra* note 59.

29. *See infra* Section III.D.

30. See *infra* notes 64–67, and accompanying text.

B. My View: Torts as Takings

In my view, torts are takings. Law and economics consider a potential injurer to be a decision-maker that must decide, under a specific tort regime, the precautions and activity levels that maximize his profits or well-being. A taking is an event in which an individual forcibly appropriates another individual's entitlement—the interest of the other individual that tort law protects. Notably, any taking can be either accidental or intentional; tort law protects the victim from the injurer wrongfully taking her entitlement in either context. In all takings, potential injurers impose risks of harms to potential victims.[31] In *Donoghue v. Stevenson*,[32] for example, the House of Lords held that a ginger beer manufacturer owed a duty of care to ensure a beer free of

31. For a different approach to torts in which not all tort cases are takings, see generally Oren Bar-Gill & Ariel Porat, *Harm-Benefit Interactions*, 16 AM. L. & ECON. REV. 86 (2014). In their research, Bar-Gill and Porat considered the general tort case as one in which the injurer suffers harm and then defined a category of cases—harm-benefit cases—where the interaction between the injurer and victim harms the latter and benefits the former. *Id.* at 86–88. They then defined takings as a specific category of harm-benefit cases. *Id.* at 91. According to my definition, *all* of those harm-benefit cases are takings. Moreover, normative theoreticians challenge the approaches of perceiving tort cases as takings and using the liability rule to incentivize efficient taking. Coleman and Kraus, for example, argue that

> [u]ltimately what sets apart the classical liberal and economic conceptions of rights and liability rules is the case in which liability rules are thought sufficient to justify a transfer, not the case in which liability is imposed because the injurer failed to respect a victim's rights. For it can never be any part of the classical liberal account that by compensating someone for taking what is his without his consent, an injurer respects the victim's rights; whereas the core of economic analysis is the possibility that by compensating a victim, an injurer (at least sometimes) gives his victim all that he is entitled to, thereby legitimating the taking. And it is precisely this sort of role for liability rules that emerges within the economic account in which liability rules are introduced because transaction costs preclude voluntary movement of resources to higher-valued uses.

Jules L. Coleman & Jody Kraus, *Rethinking the Theory of Legal Rights*, 95 YALE L.J. 1335, 1370–71 (1986). For normative concepts of compensation and my attempt to bridge it to law-and-economics concepts of compensation, see *infra* Section II.C.4–5.

32. Donoghue v. Stevenson [1932] AC 562 (HL) 564 (appeal taken from Scot.).

harmful materials, albeit that the House of Lords allowed the taking of the victim's right to damages. In this sense, firm managements' production and precaution decisions may involve taking potential injured parties' rights. The firms maximize profits as shareholders and the law require.[33] Firms consider the applicable tort law and responsibly determine an appropriate compensation reserve in their financial statements.

In their pioneering article *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, Calabresi and Melamed described the distinction between protecting entitlements by either liability rules or property rules.[34] Calabresi and Melamed's observations perfectly dovetail with this Article's view of the world as one of takings: liability rules allow the injurer to take "the initial entitlement if he is willing to pay an objectively determined value for it,"[35] namely DA. Property rules allow the taking only after bargaining and agreeing over the entitlement value.[36]

33. *Cf.* Revlon, Inc. v. Macandrews & Forbes Holdings, Inc., 506 A.2d 173, 185 (Del. 1986) (concluding that the board of directors of a target corporation breached its duty of care to shareholders in adopting defensive measures to block a potential acquisition because, in so doing, the board considered factors other than wealth-maximization for shareholders).

34. Guido Calabresi & A. Douglas Melamed, *Property Rules, Liability Rules, and Inalienability: One View of the Cathedral*, 85 HARV. L. REV. 1089, 1105–10 (1972). For elaboration on Calabresi and Melamed's theory, see Michael I. Krauss, *Property Rules vs. Liability Rules*, *in* 2 ENCYCLOPEDIA OF LAW AND ECONOMICS 782, 786–87 (Boudewijn Bouckaert & Gerrit De Geest eds., 2000). *See also generally* Abraham Bell & Gideon Parchomovsky, *Pliability Rules*, 101 MICH. L. REV. 1 (2002) ("We contend that, while the Calabresi-Melamedian framework presents a solid basis for understanding legal entitlements, a more complete analysis must probe beyond the ostensible dichotomy between property and liability rules."). For the vast literature that further developed Calabresi's and Melamed's insights, or challenged them, see *infra* Section III.B.

35. Calabresi & Melamed, *supra* note 34, at 1092.

36. *Id.* For further discussion of the difference between property rules and liability rules, and the BP implications of their main arguments, see *infra* Section III.B.

C. The Best Welfare Point's Justification

1. The Best Welfare Point in Competitive Settings

A fundamental concept of welfare economics, known as the *first fundamental theorem of welfare economics*, is that a set of competitive markets leads to an efficient allocation of resources.[37] Economists derive this theorem from the invisible-hand hypothesis, and it determines the terms for efficiency in a set of connected markets.[38] The theorem suggests that, for product markets to allocate resources efficiently, manufacturers must compete and buy commodities, work, and services in competitive markets with perfect information.

In every set of manufacturing or other economic activity, however, one important market of necessary resources severely fails. The market for torts entitlements usually does not function at all. Torts entitlements are rarely subject to free exchange; the government must establish a tort system as a substitute to this market and enforce its operation.

I first assume a product and a commodity market with rational utility-maximizing players and perfect competition. The commodity is a tort entitlement that belongs to potential victims and is necessary for the product's manufacturing. In addition, the proverbial invisible hand determines production and prices without government intervention. In Figures 1.1 and 1.2 below, the demand curves D_P and D_E and the supply curves S_{P1} and S_{E1} intersect at point A in the product market and at point F in the tort-entitlements market, respectively, creating market equilibria with a product price P_{P1} and quantity Q_{P1} and a torts-entitlement price P_{E1} and quantity Q_{E1}. Under perfect competition in both markets, product-supplier profits (the triangular area $P_{P1}AO$ in Figure 1.1), product-consumer surplus (the triangular area $P_{P1}AC$ Figure 1.1), tort-entitlement-sellers' profits (the triangular area $P_{E1}FI$ in Figure 1.2), and tort-entitlement-buyers' surplus (the triangular area $P_{E1}FH$ in Figure 1.2) would be at their highest.

37. DAVID M. KREPS, A COURSE IN MICROECONOMIC THEORY 199–200 (1990).

38. *See* PINDYCK & RUBINFELD, *supra* note 12, at 595–615 (explaining market conditions that yield equilibrium through dynamic exchanges based on price signals); *see also* VARIAN, *supra* note 12, at 582–600 (same).

Figure 1.1. Supply and Demand in the Product Market

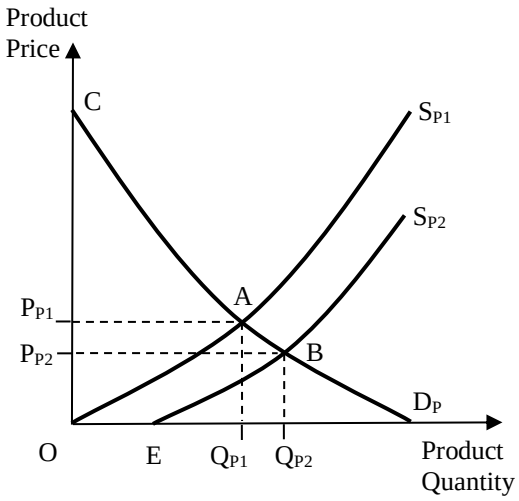
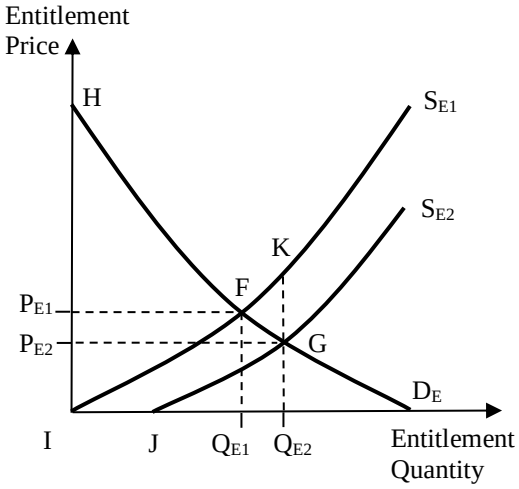


Figure 1.2. Supply and Demand in the Tort-Entitlements Market



My claim is that, where the tort-entitlements market fails, and the government establishes and maintains a tort-system substitute market using liability rules that allow takings at the price of the victim's damages, there is no price level that clears this artificial market. The DA criterion currently determines this taking price, which

reflects the entitlement supplier's costs. Thus, the market is different from an ideal competitive commodities market and is more comparable to one with perfect price discrimination, in which a supplier uses monopoly power and a marketing technology to set the price for each consumer individually at the highest possible price he is willing to pay, thereby taking all free market consumer surplus.[39] Economic theory predicts that perfect price discrimination of buyers could not happen in a competitive market in which only one equilibrium price prevails.[40] The core of my claim, however, is that in the case of a liability-rules market, the buyers—the entitlement-taking firms—do not have to transact with the entitlement suppliers and could take each entitlement at the price of the victim's costs—her damages—leaving her nothing from her potential profits from a possible transaction. Either the court's damage-assessment mechanism or negotiation between the injurer and the victim in the shadow of the court's expected ruling determines the price of the taking. This mechanism creates "perfect price discrimination of sellers."[41] My claim is thus that the current tort-law mechanism of setting entitlement prices does not represent an invisible-hand mechanism. Instead, when a potential injurer decides whether to perform a taking, he must estimate expected profits minus damages. If this amount is positive, he will consider taking the entitlement after taking into account the

39. For an economic definition of perfect (or first-degree) price discrimination and a discussion of its market effects, see, for example, PINDYCK & RUBINFELD, *supra* note 12, at 401–04; *see also* JEAN TIROLE, THE THEORY OF INDUSTRIAL ORGANIZATION 133–37 (6th ed. 1993); V. Bhaskar & Ted To, *Is Perfect Price Discrimination Really Efficient? An Analysis of Free Entry*, 35 RAND J. ECON. 762 (2004) (analyzing how perfect price discrimination affects welfare).

40. *See* GARY S. BECKER, THE ECONOMICS OF DISCRIMINATION 33 (2d ed. 1977) ("A group of *N* might produce woolen goods as marketable output and disutility to their employers as non-marketable output. According to this definition, the latter would not be considered part of their real productivity; if it were, market discrimination could not occur in a competitive economy."); *accord* PINDYCK & RUBINFELD, *supra* note 12, at 401–04. *See also generally* Meghan Busse & Marc Rysman, *Competition and Price Discrimination in Yellow Pages Advertising*, 36 RAND J. ECON. 378 (2005) (examining how competition affects second-degree price discrimination).

41. I name this phenomenon "perfect price discrimination of sellers" analogically to "perfect price discrimination of consumers," which the economic literature discusses. *See* BECKER, *supra* note 40; PINDYCK & RUBINFELD, *supra* note 12, at 401–04; Busse & Rysman, *supra* note 40.

possibility that a better taking may become available, including the costs of waiting and searching for a better entitlement.

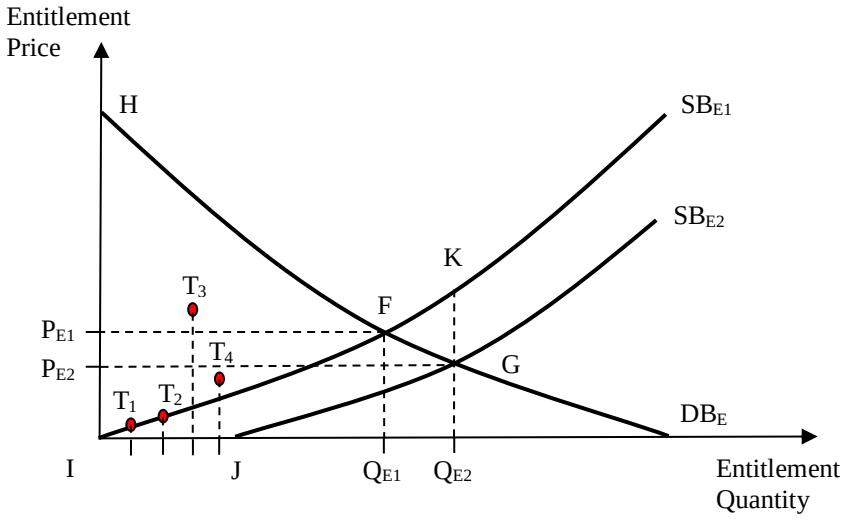
In Figure 2, I present a possible manufacturing process for a buyer—an entitlement-taking firm—that performed two takings (T_1 and T_2 in Figure 2). The buyer faces a decision whether to perform another taking (T_3 in Figure 2), thereby simultaneously increasing its manufacturing. The buyer could have performed its previous entitlement-takings in a theoretical competitive market, excluding its payment and profits. The buyer paid the supplier costs (damages) instead of the market price and reaped all profits from the taking instead of sharing them according to supply- and demand elasticity. Consequently, however, the buyer now faces a business opportunity, which is impossible in a competitive market: an entitlement whose expected costs exceed the theoretical market price.

Consider, for example, a hospital that offers elective surgeries for both medical and non-medical purposes and must decide whether to admit a high-risk patient with high expected DA. Suppose that the prices for elective surgeries for non-medical purposes are higher than the market price for the potential victim entitlements ($PT_3 > P_{E1}$). The hospital expects the procedure in question to yield profits, but since no market price is available, it may consider the transaction by comparing profits from that procedure to potential profits from another transaction, minus the expected costs of waiting and searching. Since the market of takings includes many potential transactions that are not affordable in a theoretical competitive market, the manufacturer firms may avoid searching and wasting costs by performing high-risk takings. In turn, the market supply of tortious entitlements increases and more regular-risk transactions become available. Therefore, with liability rules, the supply curve in the entitlement market shifts downward compared to the theoretical competitive entitlements market (curve S_{E2} instead of S_{E1} in Figure 1.2). Relative to the latter, in the entitlement market's equilibrium, there are more takings, and many of them are inefficient (entitlement takings located on line FK in Figure 1.2). Again, in the products market, this latter result shifts the supply curve downward (curve S_{P2} instead of S_{P1} in Figure 1.1). With liability rules, the takings process is different from the invisible-hand mechanism that regulates markets when prices are known. That is, under a DA regime, there are incentives that cause too many aggregate tortious entitlement-takings compared with competitive markets. This,

in turn, leads to too many product-market transactions in which the producers do not have to pay the full price of the tort-entitlements they take, and to an inefficient allocation of resources. Furthermore, all profit from the takings and all consumer surplus falls to the entitlement takers.

Another example is a cellular company deciding whether to rent a roof or purchase land to mount a new antenna. Under the liability rule, the company may consider renting a high-risk roof from a public-safety point of view. This may happen, since the taker compares his expected profits from an immediately wider signal range and the high risk of damages to his profits from a future transaction, with a risk of normal damages and potential losses from more searching and waiting for a less-risky transaction (like acquiring a parcel of stable land far from people who could be harmed by the antenna's operation). In the same way, construction companies conducting operations that are hazardous to their workers prefer to increase their activities above the optimal level.

Figure 2. A Process of Supply and Demand of a Single Buyer in the Buyer's Fraction of the Torts-Entitlements Market



The BP criterion should correct failed markets and mitigate their negative effects. Since determining the artificial market price

(P_{E1} in Figure 1.2) is impossible in most cases, taking half the profits from the entitlement-takings and giving it to the seller would help the failed market resemble an efficient one. Under the DA criterion, many transfers of rights in the entitlements market occur at a price below the artificial market price. Under the BP criterion, they would take place at a fair price, meeting welfare-distribution goals. Furthermore, under the BP criterion, potential injurers may reconsider rights transfers performed at a price above the artificial market price, and the incidence of torts may accordingly decrease.

Notably, the BP criterion does not bar transactions at a price higher than the artificial market price (which is unknown). Shrinking profits, due to the burden of paying victims their proportionate share, may incentivize potential injurers to invest in searching for normal-risk takings. This may reduce the supply of entitlements to a level that mitigates the effect of taking at the costs price. Under the BP criterion, expected profits would fall to a level of a competitive artificial market, and therefore buyers would consider the higher costs and invest near-optimally in searching for entitlements. In terms of my two previous examples, clinics would be more reluctant to perform high-risk elective procedures that are more appropriate to large and specialized hospitals, and cellular firms would seek roofs in less-crowded environments. The BP criterion avoids perfect price discrimination of sellers. This, in turn, would eliminate the negative effects of too many entitlement takings, a biased equilibrium in the products markets, and the taking of potential profits from entitlement owners. In sum, the BP criterion meets the requirements of both social welfare and economic efficiency by better mimicking the operation of a competitive market and is thus consistent with distributive justice.

2. Game-Theoretic Bargaining Considerations

Perceiving torts as takings leads to another aspect of tortious transactions, which considers each accident as a transaction and seeks for a criterion that ensures that each transaction maximizes the parties' welfare. The basic assumption of contract and property law is that, with low transaction costs, free bargaining between the parties leads to a Pareto efficient transfer of rights, meaning that at least one of the

parties' utility increases without reducing any other party's utility.[42] Importantly, if all transactions are Pareto efficient, this should yield a very good outcome for the society. Those transfers would enable a flow of resources to the people who value them most and would use them optimally for the benefit of others.[43]

Analogically, in torts, in a non-competitive setting in which the parties cannot rely on any known entitlement-market price in hypothetical bilateral bargaining for the transfer of rights from victims to injurers, a transaction could be Pareto efficient if the value of the right to the injurer is higher than it is to the victim, and they share the added value. In this hypothetical bilateral bargaining, however, all possible value divisions between the parties are Pareto efficient (as illustrated by the Pareto-efficiency allocation line in Figure 3). The BP (Point A in Figure 3) is one of them. Although seldom, this bargaining may even occur before the taking.

Based on two main approaches to solving bilateral bargaining games, the BP criterion may play a major role in achieving a preferable solution, where only ex ante efficient takings would occur. First, among all possible Pareto efficient allocations of profits from the taking, the BP is the only focal point of the bargaining game—a convention that may support a possible Nash equilibrium of the bargaining.[44] Experiments demonstrated the existence of equal-sharing equilibrium (50:50), despite biases. For example, Roth and Schoumaker showed that in a bilateral bargaining game where the parties expected different profits—$20 for one and $5 for the other—it may be possible to construct a game in which two focal points are observed: the equal-sharing equilibrium (50:50) and a proportionate

42. For a definition and explanation of the Pareto efficiency criterion, see, for example, Arlen, *Tort Damages*, *supra* note 13, at 683; COOTER & ULEN, *supra* note 16, at 14; KREPS, *supra* note 37, at 153–55; PINDYCK & RUBINFELD, *supra* note 12, at 602; POSNER, *supra* note 12, at 13–17.

43. For an explanation of the efficiency of the process of exchange of rights and the roles of contract law and property law in supporting this process, see, for example, COOTER & ULEN, *supra* note 16, at 70–94, 276–82; POSNER, *supra* note 12, at 39–55, 95–105.

44. For an explanation of the focal point as an equilibrium in bargaining games, see KREPS, *supra* note 37, at 554–56; ERIC RASMUSEN, GAMES AND INFORMATION: AN INTRODUCTION TO GAME THEORY 32–33 (4th ed. 2007).

equilibrium (80:20).[45] Most interestingly, they showed that by playing multiple times against a computer programed to play only one of the two possible focal points, they could teach the players to believe that one of the focal points was the appropriate way to play.[46] They concluded that the parties' prior beliefs, or exogenous reputation, affected the equilibrium of bargaining games.[47] Accordingly, regulators may be able to teach participants in the tort-entitlements bargaining game that sharing is the obvious way to play. Notably, the BP is an unbiased solution for the bargaining, and is therefore preferred to DA from a distributive-justice perspective (assuming that no participant has excessive bargaining power based on their prior characteristics and beliefs).

The second approach to solving bilateral bargaining is Rubinstein's alternating-offers model. Rubinstein offered a protocol of bargaining in which two parties must reach an agreement about how to divide a pie.[48] Each has to make an offer, in his turn, and the other has to decide whether to accept it.[49] The pie shrinks in each bargaining round, since the parties prefer either to receive the money sooner than later or to save bargaining costs. Rubinstein showed that there is a unique equilibrium to the game,[50] in which the first player makes an

45. *See* Alvin E. Roth & Francoise Schoumaker, *Expectations and Reputations in Bargaining: An Experimental Study*, 73 AM. ECON. REV. 362, 371 (1983). For similar results, see Judith Mehta et al., *An Experimental Investigation of Focal Points in Coordination and Bargaining: Some Preliminary Results*, *in* DECISION MAKING UNDER RISK AND UNCERTAINTY: NEW MODELS AND EMPIRICAL FINDINGS 211 (John Geweke ed., 1992). For an evaluation of those experiments, see COLIN F. CAMERER, BEHAVIORAL GAME THEORY: EXPERIMENTS IN STRATEGIC INTERACTION 156–57 (2011); KREPS, *supra* note 34, at 554–56.

46. Roth & Schoumaker, *supra* note 45, at 367–70.

47. *See id.* at 371.

48. Ariel Rubinstein, *Perfect Equilibrium in a Bargaining Model*, 50 ECONOMETRICA 97 (1982). For an explanation of Rubinstein's solution for bargaining games, see KREPS, *supra* note 37, at 556–65; RASMUSEN, *supra* note 44, at 361–65. For experimental evidence regarding alternating offers, see KREPS, *supra* note 37, at 565–68.

49. Rubenstein, *supra* note 48.

50. *See generally id.*

offer that leaves him all the gains from the first round and his opponent accepts it.[51]

Now, assume two players, an injurer and a victim, that bargain over the added value from a future taking of the latter's entitlement (V-D). As in the focal point solution to the bargaining game, by assuming identical characteristics of the parties to a tort-taking sequential bargaining game, and the parties' equal probability to offer in each round of the game, the unbiased BP is the only Nash equilibrium. Seemingly, the damages criterion meets the Pareto-efficiency requirement,[52] and with an addition of a negligible sum to the victim's awards, it is a possible outcome of hypothetical bargaining in which the injurer holds all the bargaining power. The process of determining damages by either a court ruling or a negotiation occurring under the court's shadow, however, yields inefficient outcomes, since those mechanisms are subject to assessments errors.

The literature recognizes that the tort system's efficiency depends on an accurate standard for determining care and damages.[53]

51. If, in the case of a shrinking pie due to the value of time, the players' discount rate is $r > 0$, then their discount factor is $\delta = 1/(1+r)$ (if, for example, $r = 0.1$, then $\delta = 1/(1+0.1) = 0.909$). In this case, the unique equilibrium is for the player to be the first to offer $1/(1+\delta) > 0.5$ to himself and the remaining pie $-\delta/(1+\delta) < 0.5$ – to his opponent. Notably, when r is very small, the pie is shared almost evenly and when r is very large, the lion's share goes to the player who makes the first move.

52. *See, e.g.*, Arlen, *Tort Damages*, *supra* note 13, at 684–86.

53. For example, Cooter argued that a strict liability regime is more sensitive to court errors in damage measurements than a negligence regime, since for the potential injurer the stakes increases dramatically if he fails to perform due care. Robert Cooter, *Prices and Sanctions*, 84 COLUM. L. REV. 1523, 1539–40 (1984). Therefore, the negligence regime induces due care even if the court sets damages too high or too low. *See id.* at 1540. Shavell argued that strict liability also efficiently induces due care where courts' measurements of victims' damages "are correct on average." SHAVELL, *supra* note 24, at 131–32. Kaplow and Shavell argued that determining accurate DA is essential for determining optimal due care, and therefore negligence rules are also sensitive to court errors in damage measurements and might lead to injurers' inefficient investment in precaution. *See* Louis Kaplow & Steven Shavell, *Accuracy in the Assessment of Damages*, 39 J.L. & ECON. 191, 191–93 (1996). Craswell and Calfee argued that if courts err in setting the standard of care to a more-than-optimal level, but injurers cannot predict it, then under a negligence rule injurers might overinvest in precaution. Richard Craswell & John Calfee, *Deterrence and Uncertain Legal Standards*, 2 J.L. ECON. & ORG. 279, 280–83, 292–98 (1986). If courts set the standard of care to a less-than-optimal level, however, injurers may

Kaplow and Shavell argued that the injurer's decision about whether to take an entitlement depends on his assessment of the DA ex ante.[54] If the injurer expects them to be correct on average, a risk-neutral potential injurer would not change his behavior due to court's measurement errors; therefore, the injurer's takings decision is expected to be efficient.[55]

When courts' measurement errors are systematically biased in favor of potential injurers (Point C in Figure 3), however, the injurers have an incentive to perform inefficient takings—to commit torts—where the value of the entitlement for the injurer is lower than its value to the victim (V<D). For example, biases in favor of injurers may be expected where the law does not compensate for emotional harm caused to the victim's family;[56] uses conservative auditing or assessorial techniques to determine DA;[57] uses a damage criterion such as "two-thirds of the difference between the injured employee's average weekly wages before the accident and his wage earning

not lower their investment in due care. *See* Arlen, *Tort Damages*, *supra* note 13, at 693–95 ("[T]he possibility of error in [the injurer's] favor will not induce her to take less than due care."); *see also* Arlen, *Economics of Tort Law*, *supra* note 17, at 55–57 ("[U]nder negligence liability, court error [setting the standard of care at a suboptimal level] may induce injurers to take excessive care . . . ."). For an argument that, for the tort system to be efficient, courts must avoid over- and under-compensation, see POSNER, *supra* note 12, at 209–10. Over-compensation can increase the accident rate by incentivizing potential victims to be less careful, and by increasing the costs of safety devices. *Id*. at 223; *see also generally* COOTER & ULEN, *supra* note 16, at 217–22.

54. Kaplow & Shavell, *supra* note 53, at 194.

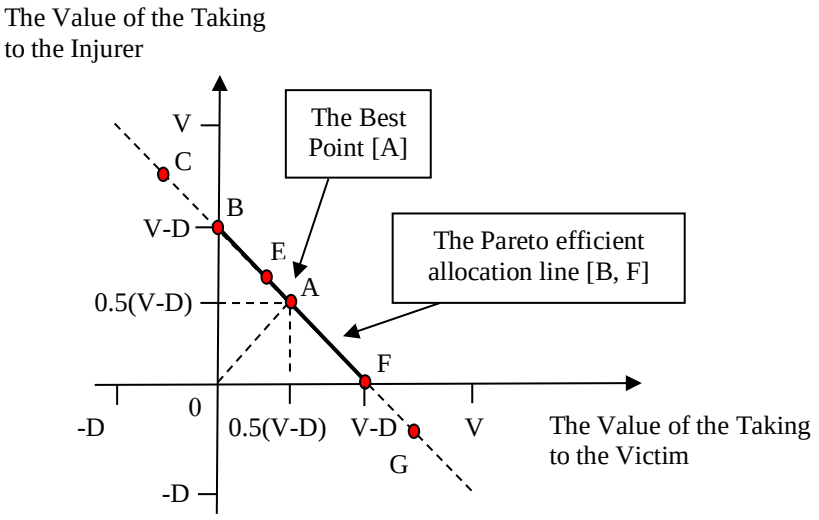
55. *Id.* at 194 n.5.

56. *See, e.g.*, Hota v. NME Hosps., Inc., 690 F. Supp. 1539 (E.D. La. 1988) (applying Louisiana law and granting summary judgment to a defendant hospital in a case alleging that parents suffered emotional harm when their infant fell out of a hospital crib onto the floor); *see also generally* DOBBS, THE LAW OF TORTS, *supra* note 10, at 821–52 (surveying the common law's development and approach to compensating for emotional harm).

57. See generally Jere R. Francis & Dechun Wang, *The Joint Effect of Investor Protection and Big 4 Audits on Earnings Quality around the World*, 25 CONTEMP. ACCT. RES. 157 (2008), for the connection between accounting conservatism and investors' protection.

capacity after the accident in the same or other employment";[58] or applies caps on pain and suffering.[59]

Figure 3. Possible Allocations of Profit from the Taking in Hypothetical Bargaining



58. Robert E. Grey, *Jurisprudence and the Body: Taking the Pulse of Health Law: The Use of Medical Impairment, Functional Loss, and Vocational Factors to Determine Loss of Wage Earning Capacity Under the 2012 Guidelines for Permanent Impairment*, 63 SYRACUSE L. REV. 353, 358 n.32 (2013) (discussing N.Y. WORKERS' COMP. LAW §15(5) (McKinney 2005 & Supp. 2012)).

59. *See, e.g.*, TENN. CODE ANN. § 29-39-102(a)(2), (b)–(c), (e) (2012) (capping non-economic damages using formulae tailored to certain contexts). For a discussion of the pros and cons of capping pain and suffering rewards and optimal regulation, see, for example, Ronen Avraham, *Does The Theory of Insurance Support Awarding Pain and Suffering Damages in Torts?*, *in* RESEARCH HANDBOOK ON THE ECONOMICS OF INSURANCE LAW 84–89 (Daniel Schwarcz & Peter Siegelman eds., 2015). *See also generally* Ronen Avraham, *Putting a Price on Pain-and-Suffering Damages: A Critique of the Current Approaches and a Preliminary Proposal for Change*, 100 NW. U. L. REV. 87 (2006) (describing various proposals for "pricing pain and suffering" to be "analytically problematic," and proposing a new method); Mark Geistfeld, *Placing a Price on Pain and Suffering: A Method for Helping Juries Determine Tort Damages for Nonmonetary Injuries*, 83 CAL. L. REV. 773 (1995) (arguing that using an ex ante full-compensation award for pain and suffering to provide jurors with better measurement guidance "would greatly diminish the flaw of the tort system in the way it awards monetary damages for pain and suffering").

An extensive literature explores other reasons for biases that might cause potential injurers to calculate their expected payments for takings as lower than the actual damages caused to the victims. Even with an accurate damages ruling, negotiation between the parties before and during trial proceedings may cause systematic biases where the victim agrees to less than a full coverage settlement. First, Bebchuk showed that litigation costs could lead to a settlement between the parties with biases in the division of rights.[60] Creating a credible threat to continue the trial to pursue a ruling the threatened party does not deserve, entailing more litigation costs for that party, may induce such a settlement. Second, information asymmetry between injurers and victims might lead to the same outcome.[61] Third, uncertainty as to the ruling might lead a risk-averse victim to compromise with a less risk-averse injurer.[62] Finally, Jacobi and Weiss explained that, when parties have different subjective discount rates, their evaluation of the same future ruling might lead to a settlement that deviates from their real legal rights.[63]

Victims' tendency not to sue, present in several areas,[64] could lead to the same effect. Regarding patient litigiousness, Hyman and

60. Bebchuk, *Credibility and Success*, *supra* note 1.

61. *See, e.g.*, Bebchuk, *Suing Solely*, *supra* note 1; *see also generally* Joseph A. Grundfest & Peter H. Huang, *The Unexpected Value of Litigation*, 58 STAN. L. REV. 1267 (2006) (arguing that, as information asymmetry increases, the value that risk-averse parties place on settlement increases); Avery W. Katz, *The Effect of Frivolous Lawsuits on the Settlement of Litigation*, 10 INT'L REV. L. & ECON. 3 (1990) (developing a model to demonstrate that defendants without information about the merits of a plaintiff's claim(s) may settle even frivolous lawsuits). *But see gennerally* Alon Klement, *Threats to Sue and Cost Divisibility Under Asymmetric Information*, 23 INT'L REV. L. & ECON. 261 (2003) (arguing that, even though a plaintiff may pursue a non-meritorious claim at trial if she can divide her litigation costs with a defendant, thus increasing settelment value to the defendant, the defendant may nevertheless stonewall if he has private knowledge of his own liability).

62. *See, e.g.*, Craswell & Calfee, *supra* note 53 (arguing that less certainty in the rule of law incentivizes defendants' under-compliance therewith, which can lead, in turn, to an increase in risk-averse plaintiffs' incentives to settle).

63. Osnat Jacobi & Avi Weiss, *The Effect of Time on Default Remedies for Breach of Contract*, 35 INT'L REV. L. & ECON. 13, 14–15 (2013).

64. For a review of empirical research on claiming rates in tort cases in the U.S., see Herbert M. Kritzer, *Propensity to Sue in England and the United States: Blaming and Claiming in Tort Cases*, 18 J.L. & SOC'Y 400, 402–04 (1991).

Silver reviewed several studies and concluded that less than 1% of patients experiencing medical malpractice sued for compensation.[65] Research conducted by RAND's Institute for Civil Justice found that claiming rates for traffic accidents range from 39% of all cases arising from vehicle accidents in which the victim was not the driver to 89% for those leading to serious injuries.[66] Even in class actions, full compensation does not attain because plaintiffs in securities fraud cases, including institutional investors, sometimes fail to cash their settlement checks.[67]

This Article argues that potential injurers, such as hospitals performing elective surgeries or cellular firms building dangerous facilities, would not consider all the risk to potential victims and increase operations above the efficient level. This is not only due to the market failure the current tort system causes, but also to biased damages measurements, if any.

On the other hand, there are forces that push DA higher. Measurements can be biased in favor of plaintiffs when, for example, mean rather than median wages are used to calculate losses. Using a too-low interest rate would also lead to a higher present-award value,[68] as would using punitive damages.[69] Note also that biases caused by litigation and settlement process could lead not only to under-compensation but also to over-compensation. For example, calculation of pecuniary losses depends on multiple, elusive variables

65. David A. Hyman & Charles Silver, *Medical Malpractice Litigation and Tort Reform: It's the Incentives, Stupid*, 59 VAND. L. REV. 1085, 1088–92, 1094 (2006). For further discussion, see TOM BAKER, THE MEDICAL MALPRACTICE MYTH 22–42 (2005); see also BAKER, *supra*, at 37 ("[T]he careful reader will notice that [studies analyzing rates of medical malpractice claims] are getting old and *wonder whether more patients have started bringing malpractice claims* in recent years. [Insurance data from Texas and Florida, respectively the second- and fourth-most populous states, demonstrate that] [*t*]*hey have not*." (emphasis added)).

66. *See* DEBORAH R. HENSLER ET AL., COMPENSATION FOR ACCIDENTAL INJURIES IN THE UNITED STATES 123, 127 (1991).

67. Geoffrey Miller, *Group Litigation in the Enforcement of Tort Law*, *in* RESEARCH HANDBOOK ON THE ECONOMICS OF TORTS 262, 268 (Jennifer Arlen ed., 2013).

68. *See generally* POSNER, *supra* note 12, at 224–28 (explaining the effects of discount rates on total compensation).

69. *See infra* Section III.D.

and criteria for noneconomic losses.[70] Porat argued that, when a potential injurer faces two courses of action with differing expected harms to a potential victim, such as a doctor choosing negligently between two medical practices, the injurer harmfully causes excessive risk equal to the difference between the risks of those two possible courses of action.[71] Therefore, Porat claimed, courts do not take this difference into account in DA rulings—or do not offset risks, as he calls it—and award the victims full damages, and as such, those rulings cause over-deterrence.[72]

As demonstrated in this section, there are numerous considerations involved in predicting the direction of the total DA vector that reflects all biases from the legal criterion's directions and magnitude. If parties are ex ante informed about its course, however, their pre- or during-trial settlement would tend to that direction. This means that, if the parties know the expected award, and it is below the accurate level, inefficient taking would occur with undesirable social outcomes. If those expected awards are above the accurate level, but lower than the value of the taking to the potential injurer, however, the taking would be efficient with distributive effects that favor the victims. In efficiency terms, the BP is the point least sensitive to erroneous awards, assuming normal distribution of actual awards, including all kinds of errors and negotiation effects. With sufficiently low variance, the BP, as the reference point for random and systematic errors and negotiation influences, ensures Pareto efficiency and, on average, zero deviation from equal sharing of benefits from entitlement takings.

70. *See, e.g.*, W. Kip Viscusi, *Empirical Analysis of Tort Damages*, *in* RESEARCH HANDBOOK ON THE ECONOMICS OF TORTS 460, 466–73 (Jennifer Arlen ed., 2013) (analyzing difficulties with quantifying economic and noneconomic damages).

71. Ariel Porat, *Offsetting Risks*, 106 MICH. L. REV. 243, 244 (2007) [hereinafter Porat, *Offsetting Risks*]. See also generally Benjamin Shmueli, *Offsetting Risks in Tort Law: Theoretical and Practical Difficulties*, 37 FLA. ST. U. L. REV. 137 (2009), for a discussion of the possibility and desirability of using the offsetting-risk principle to decrease DA.

72. Porat, *Offsetting Risks*, *supra* note 71, at 245–46.

3. Moral Luck, Behavioral Economics, and How We Learn to Err

Due to the current failure of tort law to compensate for accidents with small damages, we constantly learn to err. This result creates a "moral luck problem,"[73] which occurs when there are elements relevant to the outcome of a legal rule outside the potential injurer's control. For example, in tort law, if a reckless firm improperly protects its workers, and even risks their lives, but no actual harm manifests, then, under current tort law, the court cannot find the firm liable for negligence. If a firm changes its practice of due care for a short time and a worker is injured, however, the court finds it liable. This problem becomes worse under strict liability, especially where the legal clarification is out of court, since data on managers' behavior does not have the same deterring effect. Various scholars note that the problem of moral luck lies at the core of the argument between moral theories and law and economics, as the law-and-economics school rejects moral issues as important legal criteria for establishing wrongdoing and, in turn, establishing proper relief.[74] Using behavioral law-and-economics findings, I argue that all approaches should consider moral luck.

Traditional economic analysis of tort law suggests that the victim's losses should be the criterion for determining her awards in

73. For an introduction to the moral luck problem, see generally, for example, THOMAS NAGEL, MORTAL QUESTIONS 24–38 (1979); see also generally BERNARD WILLIAMS, MORAL LUCK 20–39 (1981). For moral luck in tort law, see generally, for example, John C.P. Goldberg & Benjamin C. Zipursky, *Tort Law and Moral Luck*, 92 CORNELL L. REV. 1123 (2007) [hereinafter Goldberg & Zipursky, *Tort Law and Moral Luck*] ("[T]he centrality of causation to tort liability provides no grounds for condemning tort law as morally arbitrary."); see also generally Christopher Jackson, *Tort, Moral Luck, and Blame*, 60 CLEV. ST. L. REV. 57 (2012) ("[F]ollowing the moral luck objection to its logical end requires us to take on controversial commitments in the realm of moral philosophy.").

74. *See generally* Goldberg & Zipursky, *Tort Law and Moral Luck*, *supra* note 73, at 1138–67 ("[Tort law] is, in short, a law of wrongs and redress, not a law of punishment on the basis of blame or desert."); *accord* Jackson, *supra* note 73, at 60–79 (analyzing various arguments for the basis of compensation in tort law). *See also* Jackson, *supra* note 73, at 75 (quoting Posner, *supra* note 22, at 31) ("Characterization of the negligence standard as moral or moralistic does not advance analysis. The morality of the fault system is very different from that of everyday life. Negligence is an objective standard. A man may be adjudged negligent though he did his best to avoid an accident . . . .").

the case of wrongdoing. Assume, for example, that a firm must consider the proper investment and working methods for a new manufacturing technology for a project with an expected profit of $100,000, excluding precaution costs. The managers' policy is to evaluate three possible levels of precaution after several weeks of experimentation.[75] If the managers choose to invest $10,000 in precautionary measures (the lowest level), there is a 100% probability that an accident will occur, albeit with a small loss of $100 to the worker; a probability of 10% that an accident will occur with a loss of $10,000; and a probability of 5% that an accident will occur with a $1,000,000 loss. If the managers choose to invest $15,000 (the medium level), the three probabilities will drop to 98%, 6% and 2%, respectively. Finally, investing $20,000 (the highest level) will reduce them to 97%, 3%, and 0%, respectively.

Additionally, assume a negligence regime for employees' and public members' accidents. If the managers know or reasonably should know the information summarized in Table 1, which a court or fact-finder could verify, then the firm will be held liable for negligence if it fails to invest in precautions that minimize total costs of accidents (the sum of the costs of investing in precaution plus the expected costs of the accident; see Table 1). The efficient investment of $20,000 in my example achieves the maximum expected profits of $80,000 ($100,000–$20,000), and avoids inefficient increase of risks greater harm to potential victims.[76]

75. See generally Eric A. Posner, *Probability Errors: Some Positive and Normative Implications for Tort and Contract Law*, 11 SUP. CT. ECON. REV. 125, 128–33 (2003), for analysis of risk-estimation problems in three probabilities categories.

76. For Porat's suggestion to apply the offsetting-risks principle and reduce damage awards in cases where a potential injurer faces two courses of action with different expected harm to a potential victim, see *supra* note 71, and accompanying text.

Table 1. Expected Accidents and Avoidance Costs in a Case of Increasing Risks

Investment in precaution measures	Probability of accidents with small harm (%)	Probability of accidents with medium harm (%)	Probability of accidents with severe harm (%)	Expected costs of accidents	Expected total costs of accidents[77]
10,000	100	10	5	51,100	61,100
15,000	98	6	2	20,698	35,698
20,000	97	3	0	397	20,397

My claim is that, with imperfect information, the managers' task of determining the proper investment in precautions to avoid an inefficient increase in risk is both elusive and difficult. In particular, it is hard to estimate the probability of different types of accidents vis-à-vis each investment level.

In the modern manufacturing industry, workers do not learn a trade from their fathers and practice it for the rest of their lives. Instead, manufacturing firms constantly develop and train professional workers in rapidly changing production technologies and safety procedures, whose short lifecycles are becoming ever shorter.[78] Furthermore, the task of estimating risks is difficult because workers tend not to report incidents and assert their rights, especially where the burden of reporting and claiming is greater than the financial

77. If the managers choose to invest $10,000 in precautionary measures, the expected total costs of accidents are $61,100 (*(1x100+0.1x10,000+0.05x1,000,000)+10,000*), if they invest $15,000, the expected total costs of accidents are $35,698 (*(0.98x100+0.06x10,000+0.02x1,000,000)+15,000*), and if they invest $20,000, the expected total costs of accidents are $20,397 (*(0.97x100+0.03x10,000)+20,000*).

78. For a history of the developments in worker training across various epochs, see generally, for example, Kurt Kraiger & J. Kevin Ford, *The Expanding Role of Workplace Training: Themes and Trends Influencing Training Research and Practice*, *in* HISTORICAL PERSPECTIVES IN INDUSTRIAL AND ORGANIZATIONAL PSYCHOLOGY 281, 282–99 (Laura L. Koppes ed., 2007); see also generally Brian A. Altman, *Determining US Workers' Training: History and Constructivist Paradigm*, 33 J. EUR. INDUS. TRAINING 480, 483–86 (2009).

incentives.[79] This lack of incentives to file claims is also a characteristic of other potential victims. Records show, for example, that despite regulatory efforts to the contrary, occupational injuries continue to be a major problem: in the United States alone, 4,585 and 4,821 fatal occupational injuries occurred in 2013 and 2014, respectively.[80]

This problem becomes worse under strict liability, especially where the legal clarification is out of court, as is common in workers' compensation systems. Under a negligence regime, court rulings motivate potential injurers and victims to invest in information gathering, motivate the managers to invest in expertise and a better

79. *See, e.g.*, John W. Ruser, *Examining Evidence on Whether BLS UnderCounts Workplace Injuries and Illnesses*, MONTHLY LAB. REV. 20, 27–29 (2008) (discussing possible explanations for under-reporting); *see also* Alison D. Morantz, *Has Devolution Injured American Workers? State and Federal Enforcement of Construction Safety*, 25 J.L. ECON. & ORG. 183, 203 (2009) (suggesting that either a language barrier or an inability to secure gainful employment with another firm may deter undocumented workers from reporting minor accidents). *Cf. generally* Leslie I. Boden et al., *Using Capture-Recapture Analysis to Identify Factors Associated with Differential Reporting of Workplace Injuries and Illnesses*, *in* SECTION ON SURVEY RESEARCH METHODS - JSM 2010 1, 3 (2010), https://stats.bls.gov/osmr/pdf/st100300.pdf ("Under the [workers' compensation] system, benefits may be requested by workers but disputed by the employer. . . . In such cases the employee may request that the State office of [workers' compensation] resolve the dispute via a hearing before an administrative law judge. . . . [Between 2000 and 2006] about 18 percent [of workers' compensation claims in Wisconsin] . . . were marked as denials . . . . About 13.6 percent . . . were litigated annually."). Most jurisdictions in the U.S. and other countries impose a no-fault regime for compensating employees for workplace accidents, known as workers' compensation system. In the U.S., the injured employee files a claim with the relevant government agency, and the law bars negligence suits in regular courts. *See, e.g.*, Arthur v. E.I. Dupont de Nemours & Co., 58 F.3d 121, 123 (4th Cir. 1995) (discussing a typical workers' compensation statute in the United States, which gives employers immunity from civil suits resulting from workplace injuries, provided that an injury does not arise from "deliberate intent").

80. *See* U.S. DEP'T OF LABOR, BUREAU OF LABOR STAT., CENSUS OF FATAL OCCUPATIONAL INJURIES (2011 FORWARD), http://data.bls.gov/timeseries/FWU00X00000080N00.

risk-assessment system, and make better use of managers' reputation to solve incomplete information problems.[81]

According to behavioral law and economics,[82] and particularly Tversky and Kahneman's cognitive bias approach, in order to solve such challenges as risk estimations, individuals employ heuristics: cognitive shortcuts or rules of thumb.[83] These enable quicker decisions at the cost of biased judgments.[84] To return to my example, when individuals estimate risks, and especially when they estimate the probability of a certain type of accident occurring, they do not possess full data and computers to calculate; they use their own estimations and heuristics instead.[85]

81. Noam Sher, *New Differences Between Negligence and Strict Liability and Their Implications on Medical Malpractice Reform*, 16 S. CAL. INTERDISC. L.J. 335, 340 (2007).

82. For the behavioral law and economics approach to the effects of irrationality on behavior and market operation, see generally, for example, POSNER, *supra* note 12, at 18–26 (explaining how the effects of "systematic departures from rationality" provide an alternative lens through which to analyze economic problems); see also generally Russell B. Korobkin & Thomas Ulen, *Law and Behavioral Science: Removing the Rationality Assumption from Law and Economics*, 88 CAL. L. REV. 1051 (2000) (providing "an early blueprint for research in 'law and behavioral science'"); Thomas Ulen, *Rational Choice in Law and Economics*, *in* 1 ENCYCLOPEDIA OF LAW AND ECONOMICS 790, 800–01 (Boudewijn Bouckaert & Gerrit De Geest eds., 2000) (discussing psychology-driven analyses of economic problems that depart from the expectations of rational choice theory); VARIAN, *supra* note 12, at 566–80 (broadly summarizing some of the tents of the behavioral-economics school of thought); NICK WILKINSON & MATTHIAS KLAES, AN INTRODUCTION TO BEHAVIORAL ECONOMICS 74–86 (2012) (explaining some of the foundations of behavioral-economics model that supplement concepts of rationality). *Cf.* Christine Jolls & Cass R. Sunstein, *The Law of Implicit Bias*, 94 CAL. L. REV. 969, 973–75 (2006) ("[W]e believe that legal responses to implicit bias are illuminatingly analyzed in terms that bring such bias in direct contact with cognitive psychology and behavioral economics.").

83. *See generally* Amos Tversky & Daniel Kahneman, *Judgment Under Uncertainty: Heuristics and Biases*, 154 SCIENCE 1124 (1974) ("This article shows that people rely on a limited number of heuristic principles which reduce the complex tasks of assessing probabilities and predicting values to simpler judgmental operations.").

84. *See id.*

85. In the example of a hospital that offers elective surgeries and must decide whether to admit a high-risk patient with high expected DA, and a cellular company facing the decision of whether to rent a roof or land to mount a new antenna, managers

The availability heuristic is one of the most common cognitive mechanisms people employ to estimate risk.[86] It allows individuals to "assess the frequency of a class or the probability of an event by the ease with which instances or occurrences can be brought to mind."[87] In my example of assessing the probability of different types of accidents (see Table 1), managers may use availability of information about accidental events as criteria for their managerial tasks and decisions regarding resource allocation.

With imperfect information, managers might err and invest too little in precaution ($15,000 instead of $20,000 in Table 1). Under current tort law, only accidents with damages are recoverable and subject to trial. In the usual case, during the assessment period of the new safety measures and procedures, only minor accidents happen, without any report or claim.[88] This reflects the moral luck problem in tortious cases.[89] Therefore, the managers might mistakenly under-assess the probability of every type of accident; this is the mechanism that teaches managers and individuals facing risk assessments to err.

Another cognitive bias that scholars have extensively reviewed in the literature—"over-optimism"—may also cause individuals to underestimate probabilities of negative events, even where accurate and objective information exists.[90] Empirical studies show that

might choose a patient or a roof with higher than efficient levels of risks. *See supra* Section II.C.1. Furthermore, due to the use of cognitive mechanisms, doctors and managers might mistakenly under-assess how the risks of medical malpractice and radiation negligently hurt people, respectively, and the amount of expected damages. This might lead to the occurrence of too many accidents.

86. Tversky & Kahneman, *supra* note 83, at 1127–28.

87. *Id.* at 1127.

88. For analysis of the effect of multiple small accidents when managers estimate risk in three probability categories, see Posner, *supra* note 75, at 130–31. For the phenomenon of minor injuries in the workplace and its importance to behavioral economic analysis of workplace risk, see generally Emma J. K. Wadsworth et al., *The Bristol Stress and Health Study: Accidents, Minor Injuries and Cognitive at Work*, 53 OCCUPATIONAL MED. 392 (2003).

89. *Cf. generally* NAGEL, *supra* note 73; WILLIAMS, *supra* note 73; Goldberg & Zipursky, *Tort Law and Moral Luck*, *supra* note 73; Jackson, *supra* note 73; *cf. also* Posner, *supra* note 75.

90. For an overview of the literature on over-optimism and its effects on legal issues, see generally Sean Hannon Williams, *Probability Errors: Overoptimism, Ambiguity Aversion, and the Certainty Effect*, *in* THE OXFORD HANDBOOK OF

individuals tend to underestimate risks of accidents and overestimate their ability to prevent negative events.[91] The related bias of "overconfidence" leads individuals to overestimate the validity of the information they receive and the accuracy of their assessments.[92]

Empirical research also shows that, even in the face of negative feedback over time and cumulative negative information, people tend to revise assessments too partially and too slowly due to motivated reasoning biases like "confirmation bias."[93] When people simply ignore some risk-related information without reinterpreting it, a phenomenon called "no-risks bias" occurs.[94]

As for the influence of optimism on the individual level of care, Posner showed mixed results.[95] Surprisingly, under unilateral care circumstances, a medium level of optimism might cause overinvestment in precaution since, in Posner's model, it causes the decision-maker to think that added investment in precaution would have a greater effect on reducing risks than it actually has.[96] High optimism expectedly leads to underinvestment in precaution.[97] Under

BEHAVIORAL ECONOMICS AND THE LAW 335, 336–43 (Eyal Zamir & Doron Teichman eds., 2014).

91. *Id.* at 336–37.

92. *See* Tversky & Kahneman, *supra* note 83, at 1126 (discussing the "illusion of validity" of judgment that results from overconfidence).

93. *See generally* Margit E. Oswald & Stefan Grosjean, *Confirmation Bias*, in COGNITIVE ILLUSIONS: A HANDBOOK ON FALLACIES AND BIASES IN THINKING, JUDGEMENT AND MEMORY 79, 79–94 (Rüdiger F. Pohl ed., 2004) (explaining confirmation bias and analyzing its effects); *cf.* Williams, *supra* note 90, at 339 (presenting confirmation bias reflected in individuals' tendency to search for, remember, and interpret information in a way that confirms their prejudgment).

94. *See, e.g.*, Jonathan Baron et al., *Attitudes Toward Managing Hazardous Waste: What Should Be Cleaned Up and Who Should Pay For It?*, 13 RISK ANALYSIS 183, 190–91 (1993) (analyzing "zero-risk bias" in environmental clean-up efforts); *see also* Barbara Luppi & Francesco Parisi, *Behavioral Models in Tort Law* 11 (Univ. of St. Thomas, Legal Studies Research Paper No. 12-37, 2012), https://ssrn.com/abstract=2165856 ("[I]n some situations, individuals tend to disregard risks that are perceived to be very small, such as in the so-called zero-risk bias.").

95. *See* Posner, *supra* note 75, at 125 ("Evidence from experiments and empirical studies suggests that people make systematic errors when they estimate probabilities. The exact nature of these errors remains controversial . . . .").

96. *See id.* at 130–31.

97. *Id.*

bilateral care circumstances, optimism leads to underinvestment in precaution (with too-high activity level).[98] Halbersberg and Guttel argued that Posner's outcomes, although insightful, depend on his choice of irrationality parameters added to the standard model.[99] Adding over-optimism, not only to the probability of accidents, but also to the effectiveness of precautions, causes the mixed outcomes. Without it, overinvestment in unilateral cases with medium over-optimism would be avoided.[100]

Looking back at these cognitive psychological findings, it seems that there are overwhelming effects of individual irrationality that could lead managers to underestimate the probability and risk of accidents. In turn, this might lead to underinvestment in precaution and higher-than-optimal accident costs, including DA. Research shows that correcting cognitive biases is hard, in part because additional information and incentives do not sufficiently compensate for estimation difficulties.[101] The BP compensation rule may incentivize workers to report minor accidents and sue for firms' liability (including for compensation by a worker compensation system).[102] Now, with proper incentives, workers would more likely duly report multiple minor accidents occurring during the initial assessment period in my example (see Table 1), enabling the managers, the regulator, the court, and the public to evaluate the firm's newly adopted safety procedures, declare them improper, and enforce increased and adequate investment in due care. In turn, BP can increase the firm's profits by helping it to avoid inefficient accidents.

Thus, I argue that modern manufacturing and managers' frequent risk estimations using cognitive mechanisms teach managers to err and create underinvestment in precaution. This exacerbates the moral luck problem, where numerous small accidents do not yield legal claims until it is too late. I argue that, in contrast to the DA, the BP can help solve the moral luck problem and counteract cognitive

98. *See id.* at 137–38.

99. *See* Yoed Halbersberg & Ehud Guttel, *Behavioral Economics and Tort Law*, *in* THE OXFORD HANDBOOK OF BEHAVIORAL ECONOMICS AND THE LAW 405, 413–14 (Eyal Zamir & Doron Teichman eds., 2014).

100. *Id.*

101. See *infra* notes 169–172, and accompanying text.

102. *See infra* Section III.C (discussing the topic of debiasing to reduce risk).

biases' negative tortious effects. Next, I turn to normative theories supporting BP as a preferable solution.

4. The Best Welfare Point and Corrective Justice

In the field of torts, corrective justice is a relation between the injurer and the victim, according to which the former must correct the wrongdoing he caused to the latter by paying her damages.[103] To create this relation, the injury the victim suffers and the harm the injurer causes are one and the same, a principle known as "correlativity."[104] Aristotle's notion of corrective justice holds that

103. For a comprehensive presentation of the corrective justice method of thinking, see generally Jules L. Coleman, *Tort Law and Tort Theory: Preliminary Reflections on Method*, *in* PHILOSOPHY AND THE LAW OF TORTS 183 (Gerald J. Postema ed., 2001) [hereinafter Coleman, *Tort Law and Tort Theory*] ("[O]ur concept of tort law is best explained by appeal to a principle of corrective justice."); see also generally Stephen Perry, *Loss, Agency, and Responsibility for Outcomes: Three Conceptions of Corrective Justice*, *in* TORT THEORY 24, 24–26 (Ken Cooper-Stephenson & Elaine Gibson eds., 1993) [hereinafter Perry, *Three Conceptions*] (arguing that liability should be based on the notion of responsibility for the outcomes of one's actions); Jules L. Coleman, *The Mixed Conception of Corrective Justice*, 77 IOWA L. REV. 427 (1992) [hereinafter Coleman, *Mixed Conception*] (positing that an ideal corrective justice theory will contain elements of traditional annulment and relational approaches); Jules L. Coleman, *The Practice of Corrective Justice*, 37 ARIZ. L. REV. 15 (1995) [hereinafter Coleman, *Practice*] (analyzing whether certain duties and remedies serve the interests of corrective justice); George Fletcher, *Corrective Justice for Moderns*, 106 HARV. L. REV. 1658 (1993) (reviewing JULES C. COLEMAN, RISKS AND WRONGS (1992)); Stephen Perry, *The Moral Foundations of Tort Law*, 77 IOWA L. REV. 449 (1992) [hereinafter Perry, *Moral Foundations*] (clarifying the concept of corrective justice through discussion of "reparation"); Ernest J. Weinrib, *Corrective Justice in a Nutshell*, 52 U. TORONTO L.J. 349 (2002) [hereinafter Weinrib, *Nutshell*] (summarizing the basic tenets of corrective justice theory from its Aristotelian roots); Weinrib, *Emerging Consensus*, *supra* note 2, at 108 ("From the perspective of corrective justice, the point of a tort action is to undo the injustice that the defendant has done to the plaintiff.").

104. For the correlativity principle, see, for example, Coleman, *Practice*, *supra* note 103, at 26–27 ("[C]orrective justice involves correlativity of some sort. . . . [I]n every account of corrective justice, there is presumed to be a relationship between the parties that makes the claims of corrective justice appropriate to them—and not to others."); Weinrib, *Emerging Consensus*, *supra* note 2, at 110, 116–19 ("Correlativity structures . . . injustice: the elements of liability can be explicated only in terms of concepts whose normative force applies *simultaneously to both parties*." (emphasis added)). Based on Aristotle, Kant, and Hegel's theories of corrective justice,

forcing the injurer to pay the victim's damages eliminates the wrongful gains of the former and the correlative loss to the latter.[105] As modern theorists have explained, however, since the injurer's gains and victim's losses are *not* necessarily identical, Aristotle's explanation evokes a puzzle.[106]

To solve this puzzle, Weinrib proposes a distinction between material and normative gains and losses.[107] Material gains and losses are actual changes in the parties' resources.[108] Normative gains and losses are gaps between the resources the parties have and what they should have "according to the norm governing their interaction."[109] For example, if someone negligently injured another, but the wrongdoing did not increase his resources, the injurer has normative, but not material, gains.[110] Weinrib argued that Aristotle perceived the gains and losses of corrective justice as normative and not material.[111] After the wrongdoing has happened, Weinrib explained, the victim's actual losses must be measured to enforce its correction.[112]

Weinrib's controversial theory also assumes that corrective justice contains another important element: personality. Weinrib, *Emerging Consensus*, *supra* note 2, at 110, 119–26. This element refers to the normative stand of the parties involved in an accident, stating that "all persons possess an equal capacity for rights and duties without being obligated to act toward any particular purpose." *Id.* at 111. Porat argues that Weinrib's theory and its elements of correlativity and personality focus on an ex post view and fail to take the important ex ante considerations of tort law into account. *See generally* Ariel Porat, *Questioning the Idea of Correlativity in Weinrib's Theory of Corrective Justice*, 2 THEORETICAL INQ. L. 161 (2001) [hereinafter Porat, *Questioning Correlativity*] ("The main purpose of this paper is to point out some of the difficulties that arise from this idea of correlativity as conceived by Weinrib.").

105. See *supra* notes 2–4, and accompanying text.

106. *See* Weinrib, *Gains and Losses*, *supra* note 4, at 277–79.

107. *Id.* at 282–83.

108. *Id.* at 282.

109. *Id.* at 282–83.

110. *Id.* at 283.

111. *Id.* at 286–89.

112. *Id.* at 288 ("Aristotle's observation about measurement alludes to the role of monetary damages in the rectification of wrongs. . . . Through the notion of damages, [the] injury takes the form of something repayable: a monetary amount is debited against the defendant's moral account with the plaintiff, and the payment of this sum discharges the defendant's liability and wipes the ledger clean.").

Hershovitz argued that Weinrib's distinction and emphasis on normative gains and losses to explain the base for tort liability is circular;[113] Weinrib argued that "corrective justice calls for undoing normative gains and losses," defining normative gains as the gains corrective justice requires that we undo.[114] Furthermore, Hershovitz claimed that Weinrib did not explain how to correct losses.[115] Alternatively, Hershovitz argued that philosophers should base their understanding of tort law goals on Goldberg and Zipursky's Civil Recourse Theory (which he claims is actually a corrective justice theory).[116] This theory views the tort system as a civil recourse mechanism whereby the state has to provide victims with the tools for recovery by putting the victim in a state as similar as possible to the state in which she could be or has been without the misfortunate interaction with the injurer.[117] To illustrate his point, Hershovitz argues that

> [o]nce Tom has taken Jerry's eye, Jerry cannot get it back. Taking Tom's eye will not make Jerry whole, but at many times and places, it would have gotten him

113. Scott Hershovitz, *Corrective Justice for Civil Recourse Theories*, 39 FLA. ST. U. L. REV. 107, 113 (2011).

114. *Id.* at 114.

115. *Id.*

116. *See id.* at 117–28 ("I have taken Goldberg and Zipursky to task for failing to see that they are, in fact, corrective justice theorists . . . ."). For a presentation of Goldberg and Zipursky's Civil Resources Theory, see generally John C.P. Goldberg & Benjamin C. Zipursky, *Unrealized Torts*, 88 VA. L. REV. 1625, 1641–49 (2002) [hereinafter Goldberg & Zipursky, *Unrealized Torts*]; see also generally Benjamin C. Zipursky, *Civil Recourse, Not Corrective Justice*, 91 GEO. L.J. 695, 710–13 (2003) [hereinafter Zipursky, *Civil Recourse*] (arguing that the panoply of remedies that have nothing to do with compensation, like nominal damages and punitive damages, "undercut" the corrective-justice view of tort law); Benjamin C. Zipursky, *Rights, Wrongs, and Recourse in the Law of Torts*, 51 VAND. L. REV. 1 (1998) [hereinafter Zipursky, *Rights, Wrongs, and Recourse*] ("I shall argue that our institution of private rights of action embodies a 'principle of civil recourse.'. . . The account I offer is intended to be a framework for the theory of tort law that is descriptive, not prescriptive.").

117. *See* Hershovitz, *supra* note 113, at 114–15, 127 ("The only way to undo a normative loss is to give a person what she was entitled to have in the first place, and rarely is that money. . . . Properly understood, all of the remedies courts offer in tort suits are tools for doing corrective justice.").

> even, in his own eyes and in others'. . . . Indeed, an act of revenge implicitly declares that the act renders the parties even. To serve as the ground for that declaration, the act itself must be proportional to the wrong. It is not surprising, therefore, that cultures that embraced revenge as a way of doing corrective justice had elaborate schemes for determining what constituted a proportional response, starting with the most famous equivalence of all—an eye for an eye.[118]

Based on a medieval Icelandic story, Hershovitz explained that, in this world without tort law, an eye for an eye was a default penalty rule, a threat that encouraged repayment and in turn a mechanism to avoid violence.[119] Furthermore, an eye for an eye was also a measurement system identifying the value of the victim's eye (claim) with the value of the injurer's eye to the injurer.[120]

In this Article, I propose the BP as an appropriate goal for corrective justice in tort law as well. Going back to ancient times, the most prominent rule of damages was "eye for an eye."[121] In Jewish tradition, this rule evokes great controversy.[122] The Old Testament

118. *Id.* at 122.

119. *Id.* at 123–24.

120. *See id.* at 123 (quoting WILLIAM IAN MILLER, EYE FOR AN EYE 49–50 (2006)) ("Instead of receiving a price for the taking of my eye, I get to demand the price you will be willing to pay to keep yours.").

121. For a review of this rule's development from Hammurabi's laws through Egyptian, Biblical, Greco-Roman, Christian, and Islamic laws to the modern ages, see generally Andrew R. Simmonds, *Measure For Measure: Two Misunderstood Principles of Damages, Exodus 21:22-25 "Life for Life, Eye for Eye" and Matthew 5:38-39 "Turn the Other Cheek"*, 17 ST. THOMAS L. REV. 123 (2004). For a review of deterrence in ancient laws, including the evolution and meaning of the "eye for an eye" rule, see generally Francesco Parisi et al., *Deterrence of Wrongdoing in Ancient Law* 13–18 (Univ. Minn. Law Sch., Legal Research Paper Series, Paper No. 14-38, 2014), https://ssrn.com/abstract=2510080.

122. *See* GEORGE ROBINSON, ESSENTIAL JUDAISM: A COMPLETE GUIDE TO BELIEFS, CUSTOMS, & RITUALS 242 (2000) ("The passage of Exodus in which the principle of 'an eye for an eye' . . . occurs is one of the most controversial in the Bible. . . . Many liberal Jews are uncomfortable with the message it sends."); Kimberly H. Carnot, *An "Eye for an Eye": Does God Sanction Capital Punishment?*, 25 VT. L. REV. 523 (2000) (discussing the theological and moral implications of a revenge-based justice system). *See also generally* Simmonds, *supra* note 121, at 152–54

mentions the rule three times in similar contexts.[123] In the first instance, two men fight and accidently harm a pregnant woman and her fetus; the command is to "give life for life, eye for eye."[124] The Talmud interprets this harsh text as monetary compensation for damages that should include the following mandatory elements: damages, pain (or pain and suffering), healing (medical expenses), loss of time and potential earnings and disgrace.[125] Why the Torah did not simply state "money for an eye," however, remains a puzzle.[126]

Amram argued that the difference between the Bible and the Talmud reflects a shift from retaliation to compensation as a main legal principle.[127] In Biblical tribal society, he argued, the victim or his family was the prosecutor in a mixed criminal and civil trial.[128] If the

(noting the theological underpinnings of various capital punishment methods under Talmudic law).

123. And if men strive together, and hurt a woman with child, so that her fruit depart from her, and yet no mischief follow: he shall be surely punished, according as the woman's husband shall lay upon him; and he shall pay as the judges determine. And if any harm follow, then thou shalt give life for life, eye for eye, tooth for tooth, hand for hand, foot for foot, burning for burning, wound for wound, stripe for stripe.

Exodus 21:22–25. The two other instances are: "And if a man cause a blemish in his neighbor; as he hath done, so shall it be done to him; breach for breach, eye for eye, tooth for tooth; as he hath caused a blemish in a man, so shall it be done to him again," *Leviticus* 24:19–21, and

> If the witness be a false witness . . . then shall ye do unto him, as he had thought to have done unto his brother. . . . And those which remain shall hear, and fear, and shall henceforth commit no more any such evil. . . . And thine eye shall not pity: but life shall go for life, eye for eye, tooth for tooth, hand for hand, foot for foot.

Deuteronomy 19:16–21.

124. *Exodus* 21:22–25.

125. SEDER NEZIKIN, *Bava Kamma*, THE MISHNAH 83b–84a. For references to literature presenting the Talmudic interpretation of the Biblical "eye for an eye" rule and the controversies regarding its meaning, see generally ROBINSON, *supra* note 122; Carnot, *supra* note 122; Simmonds, *supra* note 121, at 152–54.

126. *See* RAMBAM, HILCHOT CHOVEL UMAZIK 5:9 (suggesting that, through the wording "eye for an eye," the Torah teaches that if one injures another, monetary compensation is not enough to overcome the wrongdoing, and the injurer cannot atone until he both appeases the victim and the victim forgives him).

127. David Werner Amram, *Retaliation and Compensation*, 2 THE JEWISH Q. REV. 191, 191 (1911).

128. *Id.* at 201.

judge found the injurer liable, he then determined the price for his action and handed him over for retaliatory punishment.[129] For reasons of tribal and family connections, the human tendency to prefer money over revenge, and the social disutility of hurting the injurer, a custom was developed to receive ransom money and waive actual retaliation.[130]

Similar to ancient Biblical and medieval Icelandic trials, one can find the idea of monetary compensation as a ransom that substitutes for punishment in today's China.[131] Based on Confucian mores, a reconciliation mechanism operates outside the court system to settle minor criminal cases.[132] The reconciliation must be approved by the attorney's office or the court.[133] This procedure is designed to—among other things—maintain relations between the victim and offender.[134] These are often critical for disputes among large families in small villages, where the offenders' status could mean that victims might find themselves without work or family support.[135] Empowering victims also paves the path for their reintegration in rural society.[136]

Following Weinrib's, Hershovitz's, Goldberg's, and Zipursky's lines of argument, as well as Biblical, medieval Icelandic, and Chinese practices, I argue that corrective justice may adopt the notion of negotiation, usually in the form of hypothetical bargaining, as an appropriate correction to wrongdoing. In cases where the victim's

129. *Id.*

130. *Id.* at 201–02.

131. *See* Dennis Sing-wing Wong & Louis Wai-yin Mok, *Restorative Justice and Practices in China*, 8 BRIT. J. OF COMMUNITY JUST. 23, 24 (2010) ("[Restorative justice, which has emerged in China in recent decades,] emphasises [sic] asking offenders to take accountability for what they have done to victims and, at the same time, focuses on repairing harm done and making reparation whenever appropriate."); *see also generally* Shi Yan'an, Restorative Justice Practice in China? Status Quo, Challenge and Future of Victim-Offender Reconciliation in China (Mar. 29, 2007) (unpublished manuscript) (discussing reconciliation and mediation as alternatives to punishment in China), http://www.law.nyu.edu/sites/default/files/upload_documents/gffyananshipaper.pdf.

132. *See* Shi Yan'an, *supra* note 131, at 4, 16.

133. *Id.* at 5.

134. *Id.*

135. *See id.* at 13–14.

136. *See* Sing-wing Wong & Wai-yin Mok, *supra* note 131, at 31.

entitlement is alienable, the injurer wrongfully takes the entitlement with the victim's right to transfer it. The proper way to correct the harm is to give the victim the value of the entitlement including the value of the right to transfer it. In cases where the law bars consensual transfer of the entitlement, the value of the ability to transfer remains similar, even without legal recognition.

By sharing the added profits derived from the taking, the BP eliminates the unjustified benefits and harms derived from the taking of the entitlement, including the victim's right to sell it. People may not be expected to willingly allow taking, even though measuring the value of the right to agree to entitlement transfer is an appropriate criterion for eliminating the harm and the gains from wrongdoing. From the victim's point of view, her unfortunate situation should be corrected, although she is not entitled to windfall gains. If she could have gained from selling the entitlement prior to the accident, the gains from selling would be subordinate to her success in negotiating with the buyer. Selling the entitlement would win her the value of the entitlement to her plus part of the theoretical negotiation pie. Therefore, the sum of her damages plus her part in the negotiation pie is an adequate measurement for her losses and the injurer's gains. Dividing the hypothetical negotiation pie is the answer to Aristotle's puzzle: the victim's losses are identical to the injurer's gains only if the latter pays the victim her piece of the negotiation pie. The victim and the injurer could have achieved their part of the negotiation pie in theoretical bargaining prior to the accident. Therefore, for both parties, their rightful share of the negotiation pie should not be eliminated nor increased.

Weinrib explained that, following Aristotle's theory, the correlativity principle requires the equality of the parties' correlated elements.[137] Within the framework of adjustments to corrective justice proposed herein, the equal division of the gap between the injurer's gains and the victim's losses could produce equality, regardless of the parties' actual bargaining powers. If the injurer is a large firm and the victim is a customer or employee, real-life bargaining may ensure that the firm wins the lion's share. The BP ensures that the parties are equally powerful and that they equally share the negotiation pie.

137. *See* Weinrib, *Gains and Losses*, *supra* note 4, at 285–86; Weinrib, *Emerging Consensus*, *supra* note 2, at 130, 155–56.

5. An Analogy to Rawls's Criteria of Justice

Distributive justice, a theory that aims to provide moral guidance for law, institutions, and policies that affect the distribution of economic benefits and burdens in societies, is at the heart of this section.[138] Aristotle made the distinction between corrective and distributive justice: the former deals with the relation between injurer and victim, according to which the injurer has to correct the wrongdoing,[139] and the latter with criteria for sharing a benefit or burden between members of society.[140] Rawls developed his distributive justice theory based on the notion of justice as fairness.[141] Analogically, I argue that the BP is the fair, and therefore just, criterion for dividing the gains from tortious takings.

Rawls's search for fundamental principles of justice led him to develop the criterion of the hypothetical social contract, meaning that a social arrangement is just if it is adopted by rational and reasonable members of society.[142] The BP meets this criterion by dividing the

138. Above, I consider the rules' welfare effects and distributive justice's considerations as part of the efforts of the law and economics method and theories to enhance welfare by increasing efficiency and aiming at fair distribution. I then discuss corrective justice. In this Section, I analyze distributive justice's considerations in terms of a different normative theory. For a definition and explanation of the theory of distributive justice, see, for example, Julian Lamont & Christi Favor, *Distributive Justice*, *in* THE STANFORD ENCYCLOPEDIA OF PHILOSOPHY (Edward N. Zalta ed., 1996, rev. 2013), http://plato.stanford.edu/archives/fall2014/entries/justice-distributive/; *see also* ALLINGHAM, *supra* note 12, at 1–13; ROEMER, *supra* note 12, at 51–53.

139. *See supra* note 4, and accompanying text.

140. ARISTOTLE, *supra* note 4. For corrective justice as a different theory from distributive justice, see Weinrib, *Gains and Losses*, *supra* note 4, at 281; Weinrib, *Emerging Consensus*, *supra* note 2, at 117–18. *See also* Coleman, *Mixed Conception*, *supra* note 103; Coleman, *Practice*, *supra* note 103, at 23 (stating his conception of corrective justice as following from a more general theory of distributive justice); Stephen Perry, *Ripstein, Rawls, and Responsibility*, 72 FORDHAM L. REV. 1845, 1854–55 (2004) (suggesting that corrective justice, understood as a set of deontological constraints, is normatively and conceptually prior to distributive justice).

141. *See supra* notes 7–9, and accompanying text.

142. RAWLS, THEORY, *supra* note 8, at 10–15. For further explanation of the Rawlsian hypothetical social contract criterion of justice, see generally, for example, FREEMAN, *supra* note 7, at 18–44; see also generally POGGE, *supra* note 7, at 60–67.

gains of the tortious taking between the injurer and the victim. Efficient takings create added values to society that the impartial individual ostensibly does not want to avoid and to whose necessity he would hypothetically or reasonably agree. Potential injurers in society invest in producing goods, and in the course of so doing, they might accidently take entitlements belonging to others. One advantage of the BP criterion is that it best ensures only efficient takings in a way that best mimics the operation of a free market.

Another criterion developed by Rawls to address the characteristics of those members of society is the "veil of ignorance." This criterion means that a rule or policy is just if individuals commit themselves to this policy or rule in the position of free and equal persons who jointly agree without knowing their position;[143] for example, in our case, without knowing whether they will become injurers or victims of a future accident. Sharing the addition of the social pie resulting from each party's contribution—the injurer's effort and the victim entitlement—meets this fairness criterion by allowing them their honest share without knowing whether they would become injurers or victims. This outcome is strictly preferable for a risk-averse member of the society.

III. THE BEST WELFARE POINT: IMPLICATIONS AND PROPOSED REVISIONS TO TORT LAW

A. Cases Where Entitlment Has a Market Substitute

In tort cases, where, due to a wrongful act, the victim lost a good that has a perfect substitute in the market, current court rulings grant her the good's market price as her DA.[144] I argue that this creates legally enforced markets with perfect price discrimination by sellers, where buyers-injurers take entitlements at their costs. In entitlement markets, even functioning ones, market price reflects the influence of the tort law ruling.[145] Therefore, even where substitutes are available,

143. RAWLS, THEORY, *supra* note 8, at 118–23. For further explanation of the Rawlsian veil of ignorance criterion of justice, see, for example, FREEMAN, *supra* note 7, at 32–36; POGGE, *supra* note 7, at 64–67.

144. *See* Arlen, *Tort Damages*, *supra* note 13, at 683.

145. See *supra* Section II.C.1 for my analysis that the BP criterion may correct the problem of higher-than-efficient levels of accidents that occur in a DA regime.

replacing the lost good by one bought in the market, at the injurer's expense, does not give the victim the full value of the entitlement to a free and competitive market. For example, if a car is damaged by a wrongdoing, the value of the car received by the DA criterion, including a claim for diminished value, is too low, and reflects too many takings of cars, in turn sold in the market and decreasing the market price of all used cars, including repaired ones. The BP criterion, however, adequately mimics markets' operation and prevents their collapse or partial collapse.[146]

B. The Best Welfare Point's Implications for Liability and Property Rules

1. Calabresi and Melamed's Basic Distinctions

Calabresi and Melamed analyzed the relative efficiency advantages of property rules and liability rules, and they suggested that the former are preferable where transaction costs are low and a bargain between the parties is expected at minimum costs, enabling contractual entitlement transfer to the individual who values it most.[147] On the other hand, liability rules are preferable where transaction costs are high.[148] This latter principle became conventional wisdom,[149] followed by an extensive literature that either further developed their insights or challenged it.[150] My argument is that the BP criterion has

146. See *supra* Section II.C.1 for my analysis that the BP criterion optimally mimics the operation of free and competitive markets by offering to the parties the theoretical values to which they would have been entitled in those markets. For my recommendation to use market prices in highly competitive entitlement markets, see *infra* Section IV.B.

147. *See* Calabresi & Melamed, *supra* note 34. For their definitions and distinction between liability and property rules, see *supra* notes 34–36, and accompanying text.

148. Calabresi & Melamed, *supra* note 34, at 1119.

149. Bell & Parchomovsky, *supra* note 34, at 4.

150. For a review of this literature, see *id.* at 8–25 (explaining Calabresi and Melamed's contributions); Krauss, *supra* note 34 (same). *See also generally* Ronen Avraham, *Modular Liability Rules*, 24 INT'L REV. L. & ECON. 269 (2004) (building on Calabresi and Melamed's theory of liability rules' superiority to property rules); Ian Ayres, *The 1998 Monsanto Lecture: Protecting Property with Puts*, 32 VAL. U. L. REV. 793 (1998) (discussing call and put options to build on Calabresi and

the advantage of reducing transaction costs. This is derived from its ability to mimic market settings, to prevent their collapse or partial collapse, and to serve as a focal point for bargaining.

The BP criterion also makes liability rules and property rules similar. Notably, under liability rules, with courts applying the BP criterion, the costs of assessment by the court and other trial costs might make reaching a settlement before the trial or, if possible, before the tortious event, difficult to reach, and might involve both transaction costs and deviation from the parties' legal rights (in favor of either the injurer or the victim). Therefore, the outcome of the pretrial or pre-event bargaining shifts slightly to another point on the Pareto efficient

Melamed's work); Ian Ayres & J. M. Balkin, *Legal Entitlements as Auctions: Property Rules, Liability Rules, and Beyond*, 106 YALE L.J. 703 (1996) (arguing that Calabresi and Melamed did not go far enough); Ian Ayres & Eric Talley, *Solomonic Bargaining: Dividing a Legal Entitlement to Facilitate Coasean Trade*, 104 YALE L.J. 1027 (1995) (arguing that, while Calabresi and Melamed focused on tailored rules, a gap in scholarship regarding untailored rules existed); Lucian A. Bebchuk, *Property Rights and Liability Rules: The Ex Ante View of the Cathedral*, 100 MICH. L. REV. 601 (2001) (characterizing Calabresi and Melamed's work as an "ex post analysis," and positing an ex ante analysis); Louis Kaplow & Steven Shavell, *Property Rules Versus Liability Rules: An Economic Analysis*, 109 HARV. L. REV. 713 (1996) (arguing for application of liability rules to control externalities and property rules to protect possessory interests); James E. Krier & Stuart J. Schwab, *Property Rules and Liability Rules: The Cathedral in Another Light*, 70 N.Y.U. L. REV. 440 (1995) (critiquing Calabresi and Melamed); Saul Levmore, *Unifying Remedies: Property Rules, Liability Rules, and Startling Rules*, 106 YALE L.J. 2149 (1997) (characterzing Calabresi and Melamed's work as incomplete, and attempting to fill the gap); Daphna Lewinsohn-Zamir, *The Choice Between Property Rules and Liability Rules Revisited: Critical Observations from Behavioral Studies*, 80 TEX. L. REV. 219 (2001) (defending Calabresi and Melamed's work from recent critiques using behavioral and psychological analysis of bargaining); Dotan Oliar, *The Copyright-Innovation Tradeoff: Property Rules, Liability Rules, and Intentional Infliction of Harm*, 64 STAN. L. REV. 951 (2012) (using Calabresi and Melamed's framework to resolve disputes between copyright owners and technology innovators); A. Mitchell Polinsky, *Controlling Externalities and Protecting Entitlements: Property Right, Liability Rule, and Tax-Subsidy Approaches*, 8 J. LEGAL STUD. 1 (1979) (introducing tax subsidies for discussion in the context of the Calabresi-Melamed externalities framework); A. Mitchell Polinsky, *Resolving Nuisance Disputes: The Simple Economics of Injunctive and Damage Remedies*, 32 STAN. L. REV. 1075 (1980) (comparing damages and injunctions in the context of the Calebresi-Melamed externalities framework).

allocation line.[151] Above, I review multiple reasons for deviations from accurate compensation, based on the literature on litigation outcome biases.[152]

Also, in the case where, as known to the parties, the courts protect the entitlement by a property rule, the same outcomes apply. If the court applies the BP criterion in property rule cases, it affects the negotiation in the shadow of property rules. Property rules divide the pie from the taking, and therefore usually (albeit not as a rule) their negotiation outcome is expected to be located not far from the BP on the Pareto efficient allocation line,[153] depending on the parties' relative negotiation power. Furthermore, even under property rules applied by the courts, the very existence of the BP criterion as an alternative rule raises the value of the entitlement for potential victims to the price set by the BP, and marks a focal point that helps the parties reach a settlement.

The BP criterion makes the outcomes of bargaining in the shadow of liability and property rules similar, albeit not identical, and reduces the transaction costs of their application. This Article argues that liability rules and property rules should serve the BP as the proper goal of tort law and should be employed in a specific case or category of cases if best suitable for this objective. If, in a specific case or a category of cases, the transaction costs of either party are relatively high in a way that is expected to shift the negotiation's outcome away from the BP,[154] then the law should apply the other rule. To estimate the magnitude of this shift from the BP, the cumulative influences of transaction costs should be considered, and transaction costs with opposite effects may mitigate or even eliminate each other's effect in a way that makes it preferable to use a specific rule (even with high transaction costs). Furthermore, courts should also consider distributive effects where the vector of the cumulative influences turns in a different direction (for example, where the liability rule is expected to be in favor of the victim and the property rule in favor of the injurer). In order to achieve this goal, legislators and courts may use various means. For example, courts may tailor the actual liability rule by using

151. See *supra* Figure 3, specifically from point A to point E.

152. *See supra* notes 56–67, and accompanying text (explaining biases in litigation outcomes).

153. See *supra* Figure 3, specifically point E.

154. See *supra* Figure 3, specifically point A.

parties' specific characteristics, leading to another shift in either direction.[155] They may also impose restrictions on negotiating in the shadow of property rules.

2. Ayres and Talley's Solomonic Bargaining: Incentives for Disclosure of Private Information Under Liability and Property Rules

In a comprehensive study, Ayres and Talley challenge the notion that property rules are appropriate when transaction costs are low.[156] Ayres and Talley argued that in settings of "thin markets," where markets are partially functioning, liability rules induce contracting and trade by encouraging the parties to exchange private information.[157] The BP price depends on both DA and the value of the entitlement to the taker-defendant. Therefore, under liability rule, the BP criterion makes the negotiation, and the incentives to reveal information, much more similar to those of property rule bargaining. Under the current procedural law, liability rule incentives to reveal information depend mainly on courts' disclosure requirements,[158]

155. Under the tailored liability rule, courts adjust the liability criteria and reliefs to the parties' specific characteristics; non-tailored liability means that courts use objective criteria. Ben-Shahar and Porat argued that, with the growing availability of accurate information about actors' characteristics, negligence law should allow courts to tailor the standard of care to the specific actor's tendency to create risks and her abilities to reduce them. Ben-Shahar & Porat, *supra* note 13, at 631–32. Ayres and Talley argued that tailoring liability and DA has negative effects on the parties' incentives to reveal private information, in turn reducing the effectiveness of liability rules. *See* Ayres & Talley, *supra* note 150, at 1065–72.

156. Ayres & Talley, *supra* note 150, at 1030–33.

157. *Id.* at 1036–47. Ayres and Talley argued that, with liability rules protecting the entitlement, DA divide the bargaining into two types. *Id.* at 1042–43. First, since courts award the plaintiff only her damages, plaintiffs who value the entitlement more than the award would try to pay the defendant to waive his right in the entitlement. *Id.* at 1042. In order to make her offer credible, this high-valuing plaintiff has to offer the defendant more than the value of DA and this reduces her ability to strategically underestimate the value of the entitlement. *Id.* Second, plaintiffs who value the entitlement less than the award would try to sell it at a price lower than DA. *Id.* at 1043. This division of the bargaining into two types incentivizes disclosure of information and decreases parties' strategic behavior. *Id.* at 1043–44.

158. *See, e.g.*, COOTER & ULEN, *supra* note 16, at 391–99 (discussing how the likelihood of trial and discovery rules relate to voluntary disclosure of information).

which may restrict strategic behavior. Similarly, regulation may encourage property rule efficiency by forcing the parties to negotiate and exchange specific information, including information about the plaintiff's expected damages and defendant's expected profits from the taking.

3. Using Option Theory[159] to Demonstrate the Similarity of the Liability and Property Rules Under the BP Criterion

Assume an entitlement owned by a potential victim that might be lost due to wrongful taking. The value of the entitlement to the taker-injurer is known, *V*. The damage to the victim from the taking distributes with a known distribution, $D_i \sim Dist.(E(D),\sigma^2)$. Under a liability rule, and with courts ruling to give damages, the injurer owns a call option entitling him to buy the victim's entitlement at a strike price equal to those damages.[160] The injurer exercises the option if the entitlement's value is greater than the materialized victim's damages $(V>D_i)$. If he does, he gains all the profits from the taking.[161]

Ayres analyzed tort-remedy rules and defined a property rule protecting an entitlement owned by the victim as a put option.[162] A put

159. See IAN AYRES, OPTIONAL LAW: THE STRUCTURE OF LEGAL ENTITLEMENTS 3–6 (2005), for the use of option theory as an analytical tool in several fields of law. See Ayres & Talley, *supra* note 150, at 1041–46, for an option theory analysis of tort law and suggestions to use options as a tort remedy. *See also generally, e.g.*, Ayres, *supra* note 150 (discussing the relationship between put options and tort law); Bebchuk, *supra* note 150 (analyzing how the existence of options alters parties' incentives); Ayres & Balkin, *supra* note 150, at 729–33 (same); Krier & Schwab, *supra* note 150, at 471–72 (same); Levmore, *supra* note 150, at 2160 n.37 (discussing Krier and Schwab's work on options in tort).

160. An option is a contract where its owner has the right, but not the obligation, to buy (call option) or sell (put option) an underlying asset at an agreed-upon price (strike price) during a certain period of time (American-style option) or on a specific date (European-style option). ROBERT L. MCDONALD, DERIVATIVES MARKETS 35–44 (3d ed. 2013) (explaining the characteristics, dynamics, and functions of call and put options); ZVI BODIE, ALEX KANE, & ALAN J. MARCUS, INVESTMENTS 51–52, 679–89 (10th ed., 2014) (same).

161. See *infra* Figure 4, specifically the bold black line.

162. *See* Ayres, *supra* note 150, at 830 ("When transaction costs are high, either puts or call [sic] help overcome the holdout problem. But the transaction costs themselves . . . provide[] little reason for letting the defendant instead of the plaintiff decide whether payment will be made.").

option is a contract where the owner—in this case the seller-victim—has the right, but not the obligation, to sell an underlying asset—in this case the entitlement—at an agreed-upon price—in this case the outcome of the bargaining between him and the taker-injurer.[163] Assuming fair division of the bargaining pie, the victim's and injurer's profits from the taking under a property rule as a put option are equal.[164] Considering differences between call and put options, Ayers showed in his analysis that "[t]he mean of payoffs for initial entitlement holder is higher with a put than a call" and that "[t]he variance of payoffs for initial entitlement holders is lower with a put than a call."[165] Under the BP criterion and liability rule defined as a call option, however, the strike price changes to the amount equal to the damages plus half the added profits derived from the taking, which makes the payments according to the call option defined by a liability rule identical to those of the put option defined by a property rule.[166]

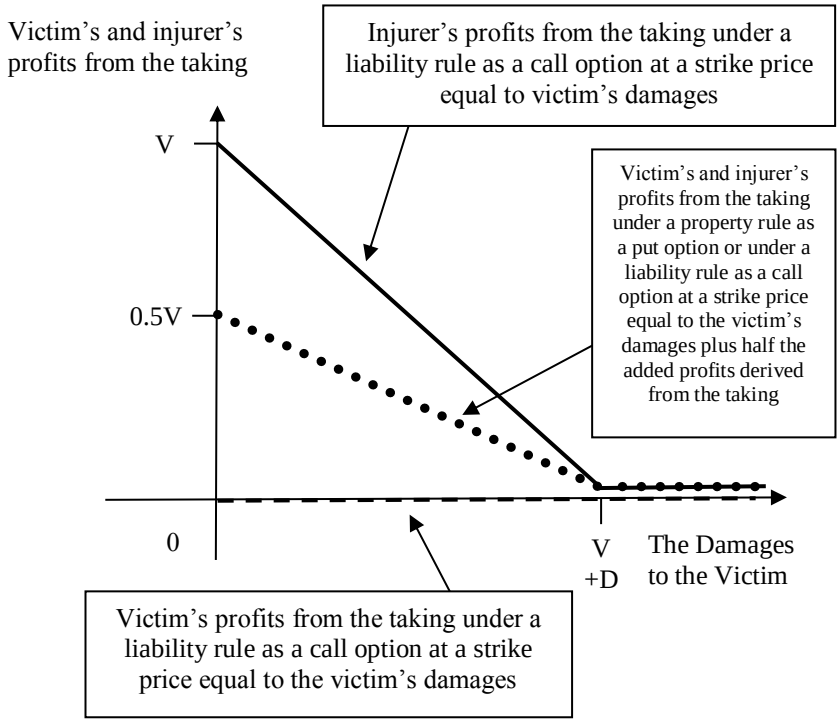
163. *See supra* note 160.

164. See *infra* Figure 4, specifically the dashed line.

165. Ayres, *supra* note 150, at 808.

166. See *infra* Figure 4, specifically the dotted line.

Figure 4. The Value of the Taking to the Injurer and to the Victim Under a Liability Rule as a Call Option and Under a Property Rule as a Put Option.



This outcome may dramatically changes courts' considerations in a case or category of cases where they have to choose between a liability and a property rule. It highlights the courts' aim to achieve a division of the added value from the taking that approximates the BP as much as possible, and that deviations from its accurate value should be their primary concern.

C. Debiasing to Reduce Risks

The moral luck problem is related to the problem of increased risks due to cognitive biases.[167] Debiasing in tort law is the task of mitigating these biases' negative effects, including underinvestment in

167. *See supra* Section II.C.3.

precautions. Research shows, however, that it is an elusive task since, for example, incentives such as increased DA do not affect ex ante estimations by cognitive mechanisms,[168] and providing information does not sufficiently affect estimation problems.[169]

Luppi and Parisi argued that regulation that exempts parties with optimism bias from liability when the accident is caused solely by biased risk perception is preferable to regulation imposing liability when optimism bias leads to an accident. They explain that, in a bilateral accident setting, imposing liability for errors due to optimism bias creates incentives for debiasing.[170] Since the parties rely on each other's liability, however, this may not create an incentive to invest in precautions to correct the other party's optimism bias.[171] Exempting the injurer when the accident is caused solely by biased risk perception restores his incentives to invest in precautions.[172]

Modern manufacturing is characterized by short technology cycles so that precaution measures rapidly change and firms frequently have to re-estimate risk.[173] My analysis demonstrates that firms' and managers' risk estimations and resulting investments in precautions—rather than the behavior of employees or other members of society—are key factors in ensuring optimal welfare.[174] Therefore, this Article argues that correcting injurers' risk estimation errors is crucial. Furthermore, exemption from liability might create an adverse selection problem,[175] since it is difficult to distinguish in practice between two types of accidents: (1) those caused solely by biased

168. *See supra* note 93, and accompanying text.

169. *See, e.g.*, Christine Jolls & Cass R. Sunstein, *Debiasing Through Law*, 35 J. LEGAL STUD. 199, 203 (2006) ("In extreme cases, however, debiasing through law could come to resemble a system of government propaganda in violation of widely shared normative commitments.").

170. Barbara Luppi & Francesco Parisi, *Beyond Liability: Correcting Optimism Bias Through Tort Law*, 35 QUEEN'S L.J. 47, 58–60 (2009).

171. *Id.*

172. *Id.* at 61–62.

173. *See supra* Section II.C.3.

174. *See supra* Section II.C.3.

175. For the imperfect information problem of adverse selection, see, for example, COOTER & ULEN, *supra* note 16, at 48–49 (demonstrating adverse selection in insurance markets); KREPS, *supra* note 37, at 625–60 (explaining adverse selection in, inter alia, "lemon" automobile markets); PINDYCK & RUBINFELD, *supra* note 12, at 634 (defining "adverse selection").

perception of risk; and (2) those caused by negligent or willful underinvestment in precautions.

Since debiasing is simultaneously difficult and crucial, this Article argues that courts and regulators should give victims of minor accidents proper incentives to file a complaint and litigate. A normal distribution of damages with high probability of minor accidents and low probability of serious and fatal ones means, in practice, a high probability of multiple minor accidents occurring before the risk of a severe accident materializes. To prevent the inefficiency of underinvestment in precautions from leading to the latter outcome, courts and regulators should facilitate accident reports and claims. The BP criterion gives victims of minor accidents an incentive to sue, thereby bringing about disclosure of injurers' risk assessment errors in a timely manner and serving as an effective debiasing mechanism.

The BP criterion, however, does not always ensure high enough incentives for a victim to bring her claim to court.[176] If the DA and half of her share of the additional profits add up to a small amount, the victim still does not have much of an incentive to litigate. Suitable for groups of consumers and workers, the class action mechanism may increase her incentives. In many cases, an early class action may result in increased investments in precautions, a lesson for the managers for current and future cycles' risk assessments, and relatively low rewards for the plaintiffs. A belated, individual suit or class action after the occurrence of serious or fatal accident, on the other hand, may be expected to be much more expensive for victims, firms, and the court system alike.

176. Schroeder argues that the corrective justice theory of tort law can be based on a principle of liability for risks, and that this principle is sometimes preferable to the harm-caused principle as a basis of tort liability, especially in the context of toxic exposure. *See generally* Christopher H. Schroeder, *Corrective Justice and Liability for Increasing Risks*, 37 UCLA L. REV. 439 (1990). The risks-based liability principle distinguishes between corrective and distributive justice and focuses on norms and moral responsibility. *Id.* Simons responded that Schroeder's compensation formula is only one of several that meet corrective justice requirements. Kenneth W. Simons, *Corrective Justice and Liability for Risk-Creation: A Comment*, 38 UCLA L. REV. 113, 117–18 (1990). For example, injurers would only pay into a pool if they cause harm while victims to risk-exposure would recover only risk-exposure damages from the pools. *Id.* at 117. *See also generally* Christopher H. Schroeder, *Corrective Justice, Liability for Risks, and Tort Law*, 38 UCLA L. REV. 143 (1990) (addressing Simons's critiques of his theory).

To mitigate the high costs of individual suits or class actions, regulators may consider a shield to manufacturers when the accident is mainly caused by a biased risk perception, damages are small, and the injurer agrees to fund a mechanism of inspection. A proper mechanism of inspection should inspect the managers' risks assessment in question, order corrections to the current assessment and investment in precaution, and offer further corrections for future cycles.

D. Punitive Damages

After finding the injurer liable for wrongdoing, courts may impose punitive damages in cases where, prior to the wrongful act, it was expected that the wrongdoer would escape liability,[177] like in medical malpractice cases in which victims are often not aware of the wrongdoing, and therefore there is a small probability that they would sue.[178] By increasing DA, courts may theoretically restore deterrence. Polinsky and Shavell suggested that, in cases in which the wrongdoer might escape liability, punitive damages should be added to DA, with the total damages equaling the harm multiplied by the reciprocal of the probability that the injurer will actually be found liable.[179] It is hard to determine a multiplier that determines the accurate level of punitive

177. *See* Arlen, *Tort Damages*, *supra* note 13, at 695. For a discussion of the goals and use of punitive damages in American courts, see, for example, COOTER & ULEN, *supra* note 16, at 257–61; see also Catherine M. Sharkey, *Punitive Damages as Societal Damages*, 113 YALE L.J. 347, 356–72 (2003) (surveying literature on the origins and traditional policy rationales offered for punitive damages). For a review of the extensive literature discussing the economic implications of punitive damages, see generally, for example, Catherine M. Sharkey, *Economic Analysis of Punitive Damages: Theory, Empirics, and Doctrine*, *in* RESEARCH HANDBOOK ON THE ECONOMICS OF TORTS 486 (Jennifer Arlen ed., 2013) [hereinafter Sharkey, *Economic Analysis*]. Furthermore, the Supreme Court of the United States has noted that "punitive or 'exemplary' damages have long been a part of Anglo-American law." Pac. Mut. Life Ins. Co. v. Haslip, 499 U.S. 1, 25 (1991).

178. For the victims' tendency not to sue in different categories of tort cases, see *supra* notes 64–67 and accompanying text.

179. A. Mitchell Polinsky & Steven Shavell, *Punitive Damages: An Economic Analysis*, 111 HARV. L. REV. 869, 874 (1998). For a numerical example, see Example 2, *supra* Part I.

damages that ensure optimal deterrence.[180] If DA are systematically too low, the same under-deterrence problem arises.[181] In cases of death and serious bodily injury, the criterion for determining damages is theoretically vague. Courts award victims with pecuniary losses plus awards for pain and suffering, and empirical studies show that they tend to be under-compensated.[182] As before, punitive damages may hypothetically restore deterrence, a task that remains elusive.[183]

Hylton suggests eliminating injurers' gains as a measure of punishment in cases where the offender gains less than the victim loses.[184] As shown here, however, when the offender gains more than the victim loses, DA are insufficient for reasons of efficiency and welfare distribution, as well as on justice grounds.[185] Furthermore, in cases where the offender gains less than the victim loses, injurers' gains after paying full DA are negative, and additional punishment is

180. *See* Arlen, *Tort Damages*, *supra* note 13, at 695 (explaining that courts should calculate damage awards by taking the "victim's loss divided by the injurer's probability of detection"); Sharkey, *Economic Analysis*, *supra* note 177, at 490–91 (examining the difficulties in using multipliers).

181. *See* Arlen, *Tort Damages*, *supra* note 13, at 693 ("[T]he possibility of error [in damage awards in an injurer's favor] will not induce her to take less than due care."); *see also* Sharkey, *Economic Analysis*, *supra* note 177, at 490–91.

182. *See* Jennifer Arlen, *An Economic Analysis of Tort Damages for Wrongful Death*, 60 N.Y.U. L. REV. 1113, 1121–34 (1985) (analyzing the Pareto efficiency and Kaldor-Hicks efficiency of wrongful death damages); *see also* Sharkey, *Economic Analysis*, *supra* note 177, at 490–91.

183. For a discussion of the problem of determining DA in cases of death and serious bodily injury, see POSNER, *supra* note 12, at 228–33; see also Arlen, *Economics of Tort Law*, *supra* note 17, at 48; Arlen, *Tort Damages*, *supra* note 13, at 697–711; Sharkey, *supra* note 173, at 490–91. For literature discussing the advantages and disadvantages of capping pain and suffering awards, see *supra* note 59. *See also generally* Mark A. Geistfeld, *Punitive Damages, Retribution, and Due Process*, 81 S. CAL. L. REV. 263 (2008) (discussing how and why to impose punitive damages in wrongful death cases); Joni Hersch & W. Kip Viscusi, *Saving Lives Through Punitive Damages*, 83 S. CAL. L. REV. 229 (2010) (using Viscusi's "value of a statistical life" as an input in calculating punitive damage awards).

184. Keith N. Hylton, *Punitive Damages and the Economic Theory of Penalties*, 87 GEO. L.J. 421, 423 (1998). Sharkey argued that Hylton's view of deterrence is inconsistent with optimal deterrence, since he permits punishments to promote total deterrence. Sharkey, *Economic Analysis*, *supra* note 177, at 492–93.

185. *See supra* Sections II.C.1–5.

costly.[186] If an injurer knows ex ante that his gains are expected to be lower than the DA, he does not perform the taking, regardless of any further punishment. If he does not know that, punishments for inefficient takings may increase investment in screening between efficient and inefficient takings. On the other hand, however, they might cause potential injurers not to perform efficient activities and takings due to uncertainty regarding the risk of punishment.

The BP criterion aims to enable efficient takings by obliging injurers to pay the victims DA plus half of the added profits from the taking.[187] As in the case of court measurement errors,[188] the BP criterion best enforces efficient tort takings and the reduction of inefficient takings, even if new measurement errors occur due to the probability that the wrongdoer might escape liability. Under the DA criterion, the probability that the wrongdoer might escape liability causes certain under-deterrence and inefficient taking. Under the BP criterion, however, if the probability that the wrongdoer might escape liability is not too high, only efficient takings occur and it otherwise mitigates under-deterrence and its negative effects. Therefore, the BP criterion reduces the need for courts to impose punitive damages in order to restore deterrence.

If this under-deterrence problem is detected, and courts apply corrective measures such as Polinsky and Shavell's formula, the BP is the best reference point. Under the BP criterion, the correction is more efficient if the multiplier is mistakenly not high enough in comparison to the same correction under DA. If, due to measurement error, the multiplier is systematically higher than the optimal level, but not extremely high in a way that eliminates all injurer gains, efficient takings still occur. Only the improbable case of systematic measurement errors causing the multiplier to be extremely high would possibly lead to over-deterrence; in this unlikely case, the BP criterion mitigates over-deterrence and its negative effects (in comparison to the

186. See *supra* note 53, for literature suggesting that a compensation higher than DA leads to over-deterrence, in turn might lead to a higher-than-optimal level of investment in precaution.

187. See Example 2, *supra* Part I, for a numerical example demonstrating the calculation of total damage award and total compensation under the BP criterion, using a multiplier in cases where there is a positive probability that injurers escape liability.

188. *See supra* Section II.C.2.

same error under DA). The same analysis applies in cases of death and serious bodily injury, where courts may adjust awards using different formulas to mimic unbiased awards and add to the total compensations that equal the damages plus half the added profits.[189] The BP criterion may best enforce efficient tort takings.

IV. DETERMINING THE BEST WELFARE POINT

A. Calculating Injurer's Profits (in Addition to Victim Damages) Is a Common Task

The BP criterion requires calculating injurer's profits. The law uses profits as a criterion for multiple obligations, and courts must often determine the profits of an individual or an entity. For example, corporate profits are subject to income taxation, and corporations may decide to share the remaining profits among its shareholders as dividends.[190] Parameters of corporate profits include gross and net profits as presented in companies' financial statements.[191]

Furthermore, the *Restatement (Third) of Restitution and Unjust Enrichment* suggests that, in cases of "unjust enrichment of a conscious wrongdoer," the victim is entitled to restitution:

> the unjust enrichment of a conscious wrongdoer . . . is the net profit attributable to the underlying wrong. The object of restitution in such cases is to eliminate profit from wrongdoing while avoiding, so far as possible, the imposition of a penalty. Restitution remedies that pursue this object are often called "disgorgement" or "accounting."[192]

189. See *supra* notes 10–11, and accompanying text for a numerical example demonstrating the calculation of total damage award and total compensation under the BP criterion, using a multiplier in cases of death and serious bodily injury.

190. *See generally* Steven A. Bank, *The Dividend Divide in Anglo-American Corporate Taxation*, 30 IOWA J. CORP. L. 1 (2004).

191. See, for example, 1 FRANK WOOD & ALAN SANGSTER, FRANK WOOD'S BUSINESS ACCOUNTING 66–71 (9th ed. 2002), for an accounting definition and calculation of Gross and Net Profits.

192. RESTATEMENT (THIRD) OF RESTITUTION AND UNJUST ENRICHMENT § 51(4) (Am. Law Inst. 2011).

Disgorgement is the basic remedy in unjust enrichment law and is used as part of the restitution principle in many fields.[193] Eliminating gains from wrongdoing can also serve as an antitrust remedy, as in cases of dominant firm misconduct.[194] In securities regulations, the disgorgement remedy can deter fraud, as in cases of insider trading.[195] Finally, in intellectual property laws, trademark owners are eligible to receive disgorgement damages in instances of willful (and sometimes even unintentional) infringement.[196] A related example is copyright infringement, where proving actual damages is difficult and rare, and disgorgement is the main remedy.[197] In contract law, too, where expectation damages are the general rule, *Restatement (Third) of Restitution and Unjust Enrichment* suggests a disgorgement remedy for willful breach of contract whereby an adequate damage remedy is

193. For discussion on the disgorgement remedy and unjust enrichment law in other fields, see generally Mark P. Gergen, *Causation in Disgorgement*, 92 B.U. L. REV. 827 (2012) (critiquing the Restatement's approach to disgorgement); see also George P. Roach, *Unjust Enrichment in Texas: Is It a Floor Wax or a Dessert Topping?*, 65 BAYLOR L. REV. 153 (2013) [hereinafter Roach, *Unjust Enrichment in Texas*] (examining Texas courts' resistance to equitable remedies using unjust enrichment); Caprice L. Roberts, *Supreme Disgorgement*, 68 FLA. L. REV. 1413 (2016) (examining disgorgement's impact on the law of contracts, remedies, and restitution).

194. *See e.g.*, Einer Elhauge, *Disgorgement as an Antitrust Remedy*, 76 ANTITRUST L.J. 79, 80–81 (2009). Elhauge explains that "even where this analysis is difficult, it may well be easier to calculate the amount of illicit profits than it is to calculate the amount of harm to each victim." *Id.* at 81.

195. *See generally* Thomas C. Mira, Comment, *The Measure of Disgorgement in SEC Enforcement Actions Against Inside Traders Under Rule 10b-5*, 34 CATH. U. L. REV. 445 (1985).

196. For the debate over a defendant's willfulness as a prerequisite for awarding disgorgement damages in trademark infringement cases, see generally Rachel A. Zisek, *Where There's a Will, There's a Way: Reconciling Theories of Willful Infringement and Disgorgement Damages in Trademark Law*, 22 J. INTELL. PROP. L. 463 (2015).

197. *See* Harper & Row, Publishers, Inc. v. Nation Enters., 471 U.S. 539, 567 (1985) ("[R]arely will a case of copyright infringement present such clear-cut evidence of actual damage."); *see also generally* Richard C. Wolfe & Serona Elton, *Proving Disgorgement Damages in a Copyright Infringement Case Is a Three-Act Play*, 84 FLA. B.J. 26 (2010).

not available.[198] In tort law, on the other hand, victims can sue for their lost profits.[199] In intentional torts, the injurer's profits from the wrongdoing may be taken into consideration in determining whether a punitive award was excessive or inadequate.[200]

B. Methods to Determine the Best Welfare Point

This Article argues that, in market settings, even where substitutes are available, forcing an injurer to replace the lost good with a good bought in the market does not give the victim the full value of the entitlement in a free and competitive market.[201] Nevertheless, in highly competitive entitlement markets, the influence of forced takings may be small, and if the BP criterion would be the rule, they are expected to be insignificant, and market price can serve as a proper criterion for determining the BP. In other cases, where entitlement markets do not function well—due to an injurer's monopoly power,

198. RESTATEMENT (THIRD) OF RESTITUTION AND UNJUST ENRICHMENT § 39(1) (Am. Law Inst. 2011). Anderson explains that this disgorgement remedy contradicts efficient breach of contract theory, discusses the debate over its use as a contract law remedy, and argues that it is suitable only in rare cases. *See generally* Roy R. Anderson, *The Compensatory Disgorgement Alternative to Restatement Third's New Remedy for Breach of Contract*, 68 S. METHODIST U. L. REV. 953 (2015). For pioneering research describing the dilemma of using the injured party's expectation damages or disgorgement principle for breach of contract remedies, see generally E. Allan Farnsworth, *Your Loss or My Gain? The Dilemma of the Disgorgement Principle in Breach of Contract*, 94 YALE L.J. 1339 (1985).

199. In tort law, victims are entitled in some cases to their lost net profits. *See, e.g.*, J. Ross Pepper, *Cover Story: Recovering Lost Profits: Prove. Calculate. Award*, 44 TENN. B.J. 14, 14–15 (2008) ("In Tennessee, lost profits have been awarded for breach of contract, ordinary negligence, conversion, wrongful eviction, wrongful replevy, unconstitutional and illegal actions by a legislative body, and intentional interference with contract.").

200. Not all jurisdictions acknowledge punitive damages as a legitimate tort law measure. Furthermore, the U.S. Supreme Court restricts their applicability. *See generally, e.g.*, Exxon Shipping Co. v. Grant Baker, 554 U.S. 471 (2008) (vacating an order awarding punitive damages and remanding for a remission of the award); *see also* State Farm Mut. Automobile Ins. Co. v. Campbell, 538 U.S. 408, 425 (2003) (holding that a punitive damages award may not exceed a 1:1 ratio in relation to compensatory damages in certain contexts without violating due process). For a list of factors that courts consider determining whether punitive awards are excessive or inadequate, see Pacific Mut. Life Ins. Co. v. Haslip, 499 U.S. 1, 21–22 (1991).

201. *See supra* Section III.A.

for example—the entitlement market determines the BP even less. Furthermore, screening problems could make it hard to determine the market's competitiveness level. The law could address these problems by allowing the victim to prove the injurer's additional profits from the taking.

The *Restatement (Third) of Restitution and Unjust Enrichment* suggests this mechanism for measuring the value of restitution, by allowing the victim disgorgement awards in an amount no less than the market value of benefits obtained by the defendant's misconduct.[202] Unless this first rule imposes higher liability, the unjust enrichment "is the net profit attributable to the underlying wrong."[203] The injurer's additional profits (half of which the victim is entitled to receive in addition to her damages) could be determined by the gap between the entitlement's value in the injurer's hands, including his profits from the additional activity that caused the harm, minus the victim's damages. If there are no added profits from the taking, the injurer should pay the victim only her damages.

Net profits and other data firms present in their financial statements may provide good indications and essential facts required for determining disgorgement awards and, in turn, the BP. If, in a specific case or category of cases, the task of determining disgorgement awards is difficult, juries and courts may use the net

202. RESTATEMENT (THIRD) OF RESTITUTION AND UNJUST ENRICHMENT § 51(2) (Am. Law Inst. 2011).

203. *Id.* § 51(4). For further rules addressing specific issues of calculating disgorgement awards, see *id.* cmt. d (discussing the use of market value to fix a minimum liability in restitution); *id.* cmt. e (discussing how to identify an attribution of wrongdoing to defendant's profits). For further discussion of methods for disgorgement awards' measurement, see George P. Roach, *Counting the Beans: Unjust Enrichment and the Defendant's Overhead*, 16 TEX. INTELL. PROP. L.J. 483, 495 (2008) ("Disgorgement is a relatively new term for the remedy of unjust enrichment as limited to conscious wrongdoers and fiduciaries. Only recently have drafts of the *Third Restatement* offered any definition. At present, the courts have difficulty in applying the term and fail to understand that it still relates only to the award of the defendant's profits."); Roach, *Unjust Enrichment in Texas*, *supra* note 193.

profit margin (net profits divided by net sales)[204] to calculate the BP.[205] If, in a specific case or category of cases, the court suspects that the injurer firm has manipulated its specific net profit margin, or that it is inconsistent with the firm's operations, it may use the specific industry's net profits margin to calculate the BP.

V. HARM VERSUS GAIN-BASED COMPENSATION AND THE BEST WELFARE POINT'S PROS AND CONS

In this Part, I discuss the feasibility and limitation of the BP critierion, and further discuss and compare it to the two main conceptions of liability: harm-based and gain-based compensation. Polinsky and Shavell argued that harm-based liability (DA) is preferable to gain-based liability.[206] Theoretically, they explained, both deter wrongdoings in a legal system in which harm and gains are correctly assessed.[207] Courts might err in measuring either damages or gains, however, and taking court errors into account gives the advantage to the harm-based liability.[208] Under gains-based liability, underestimation of gains by courts leaves gains to the injurer regardless of the amount of damages; therefore, underestimation of gains can lead the injurer to commit wrongdoing when the harm is higher, and even much higher than his gains (an inefficient taking).[209] An underestimation of harm does not have the same effect: under harm-based liability, when the harm is sufficiently higher than gains, the potential injurer will not commit a wrongdoing even if the court is

204. For a definition of the term Net Profit Margin and a comparison to other measures for firm's objectives, see generally, for example, Michaël Dewally & Yingying Shao, *Industry Cluster and Performance Sensitivity*, 39 J. ECON. & FIN. 824 (2015); see also Louis de Mesnard, Profit Margin Ratio, Markup, Profit Margin Per Unit, Economic Profit, and Profitability as Objectives for the Firm: An Economic Point-of-View (May 16, 2017) (unpublished manuscript), http://ssrn.com/abstract=2579727.

205. *BP = DA(1+0.5(1+NPM)*, where DA is victim's DA and NPM is the injurer firm's Net Profit Margin.

206. A. Mitchell Polinsky & Steven Shavell, *Should Liability Be Based on the Harm to the Victim or the Gain to the Injurer*, 10 J.L. ECON. & ORG. 427, 428 (1994).

207. *Id.*

208. *Id.*

209. *Id.* at 428–29.

expected to err.[210] Taking court errors into account, the BP is the optimal criterion to deter inefficient takings and secure efficient takings.[211] It is less sensitive to court errors in awarding damages and with sufficiently low errors leads to efficient takings and otherwise best mitigates error effects.

Cooter and Porat proposed damages equal to an injurer's gain from untaken precaution, divided by the probability of liability (disgorgement damages for accidents).[212] They calculated an injurer's gains by his savings from undertaking precaution, and this amount is lower than normal damages awards.[213] In their example, a doctor fails to invest $20 in precaution causing a $1,000 harm to a victim; the probability the doctor would be held liable is 0.1.[214] Therefore, the normal damage award is $1,000. Under their suggestion, however, the doctor has to pay disgorgement damages of *$200 (20/0.1)*—the minimum amount that would deter the doctor.[215] Cooter and Porat claimed, inter alia, that sometimes it is harder for courts to measure victims' utility loss than injurers' gains from saving in precaution.[216] In these cases, they suggested, disgorgement damages should be a mandatory rule of compensation.[217] Indeed, while damages are higher than disgorgement awards, and therefore provide more efficient incentives for the injurer's activity level, sometimes reducing compensation by using disgorgement awards has positive effects on victims' precautions and activities. With lower compensation, the victim bears a higher risk of harm and therefore restrains his risky activity. If compensatory damages have chilling effects on socially desired activities by injurers, disgorgement awards may mitigate those

210. *Id.*

211. *See supra* Section II.C.

212. Robert D. Cooter & Ariel Porat, *Disgorgement Damages for Accidents*, 44 J. LEGAL STUD. 249, 256 (2015).

213. *Id.* at 250–51.

214. *Id.* at 250.

215. *Id.*

216. *See id.* at 250–51.

217. *See id.* at 274 ("We favor reforming the law to adopt DDA when it is easier to measure than compensatory damages and its incentive effects are better on balance.").

effects. In these particular cases, they claimed, disgorgement awards is the preferable rule.[218]

This Article argues that the BP criterion is superior to DA, and these arguments apply a fortiori for the lower disgorgement awards—especially when determining disgorgement by injurer's savings from untaken precaution and not by his profits from the taking. In market settings and bilateral bargaining, potential injurers have higher gains from inefficient taking than their gains from untaken precaution.[219] They get the victim's entitlement and all the added value from the taking; fines equaling disgorgement damages—not taking into account the value of the victim's entitlement and especially applying the lower disgorgement criterion of savings from untaken precaution—would not deter inefficient takings. Moreover, court errors in measuring disgorgement awards might have a tremendous deterrent effect on inefficient takings.

In modern manufacturing with it short technology cycles and rapidly changing precaution measures, potential injurers' precautions—rather than employee or consumer behavior—are the key factors in welfare maximization.[220] If courts permit the use of multipliers outside intentional torts to correct under-deterrence, as suggested by Polinsky and Shavell, I argue that the BP criterion with a multiplier is superior to DA with a multiplier.[221] Inter alia, with small enough court measurement errors, the BP criterion still enforces efficient tort takings and the elimination of inefficient takings, and otherwise best mitigates the effect of measurement errors.

An extensive literature explores the multiple facets of tortious compensations by either DA or injurer gains and compares their effects.[222] Using the two methods combined, the BP criterion achieves efficiency, welfare distribution, and justice.

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218. *Id.* at 252–55.

219. *See supra* Sections II.C.1–2.

220. *See supra* Sections II.C.3. & III.C.

221. For Polinsky and Shavell's suggestion and my arguments for the superiority of the BP criterion, see *supra* Section III.C.

222. *See generally, e.g.*, Donald Wittman, *Should Compensation Be Based on Costs or Benefits?*, 5 INT'L REV. L. & ECON. 173 (1985) ("In this paper we will show the critical role that asymmetries in information have on the choice of payment structure [in restitution cases]."); *see also generally* Richard A. Epstein, *The Ubiquity of the Benefit Principle*, 67 S. CAL. L. REV. 1369 (1994) (arguing that restitution is a

VI. CONCLUSION

I have sought support for my argument that the BP is an optimum welfare point that efficiently divides the pie created by any human activity that secures gains for one party while imposing risks of tortious harm on others, and is simultaneously just. I have shown that this point is efficient and just, and that juries and courts should seek to approximate it as a goal for tort law and as a criterion for compensation.

The current law gives manufacturers and other potential injurers license for unlawful takings from employees and other individuals, at a payment equal to the entitlement's costs. Thus, it gives the potential injurers incentives to perform inefficient takings and to use the option built into this license to secure all added value from tortious takings. Hence, it is necessary to redefine tort law objectives by switching to the efficient and just BP criterion for allocating social resources, tortious entitlements, and goods and services.

fourth pillar of the common law, along with property, torts, and contracts); Saul Levmore, *Obligation or Restitution for Best Efforts*, 67 S. CAL. L. REV. 1411 (1994) (attempting to explain why courts have not taken an aggressive cost-benefit approach to resolving contracts cases like they have in torts cases, and postulating a set of claims where such an approach would be appropriate); Alexander Stremitzer & Avraham D. Tabbach, *The Robustness Case for Proportional Liability*, 14 THE B.E.J. OF THEORETICAL ECON. 371 (2014) ("We analyze efficiency of different liability rules in the presence of two sources of imperfections. . . . We therefore evaluate whether certain liability rules are better suited than others to induce socially efficient behavior in the presence of these imperfections."); Donald Wittman, *Liability for Harm or Restitution of Benefit?*, 13 J. LEGAL STUD. 57 (1984) ("This paper uses economic theory to provide a systematic framework for analyzing . . . fundamental entitlement issues in law and political philosophy.").