PUNITIVE LIABILITY: A NEW PARADIGM OF EFFICIENCY IN TORT LAW

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Almost two decades ago, Dean Calabresi presented the first systematic analysis of the two dominant civil liability paradigms in contemporary tort scholarship: strict liability and negligence.1 In the intervening years, the law and economics literature has analyzed the choice between strict liability and negligence in great detail.2 Perhaps the greatest contribution this literature has made is the revelation that both strict liability and negligence may be inefficient, given the wide variety of complications presented by tort institutions.3 A related liter-
nature, not exclusively economic in focus, has argued that these institutional imperfections make traditional tort liability unfit as a mechanism of either compensation or deterrence.\(^4\)

Increasing popular disenchantment with our current tort system

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4. Perhaps the best summary of what I shall call the institutionalist critique of tort law is Sugarman, Doing Away With Tort Law, 73 Calif. L. Rev. 555 (1985). I discuss several specific institutional imperfections catalogued by Professor Sugarman below, see infra text accompanying notes 112-28, and show that the punitive liability systems discussed here will be likely to optimally deter accidental harm despite these imperfections. In brief, these imperfections consist of problems with the legal process itself (such as uncertain jury verdicts), with the defendant's decisionmaking process (such as ignorance of legal liability rules) or with collateral tort institutions (such as imperfect insurance). Sugarman argues that these problems blur the signal sent by liability rules, rendering tort ineffective as a deterrent, id. at 559-91, and make a jury damage award uncertain and variable in magnitude, rendering conventional tort liability a poor compensatory mechanism, id. at 591-603.

Professors Jeffery O'Connell and James Henderson, Jr. are the most prominent institutionalists focusing on the uncertainty, delay, and general inadequacy of the legal process in tort cases. Professor O'Connell has depicted the typical personal injury lawsuit as an essentially irrational presentation of technical detail designed by myopic trial lawyers to trigger emotional reactions in jurors confused by archaic instructions from often inadequate judges. Professor O'Connell characterizes the result as inevitably a chaotic, arbitrary, and costly legal roulette game. See J. O'Connell, The Lawsuit Lottery 29-153 (1979); O'Connell, A "Neo No-Fault" Contract in Lieu of Tort: Preaccident Guarantees of Postaccident Settlement Offers, 73 Calif. L. Rev. 898, 903-04 (1985) [hereinafter O'Connell, Neo No-Fault]; O'Connell, An Alternative to Abandoning Tort Liability: Elective No-Fault Insurance for Many Kinds of Injuries, 60 Minn. L. Rev. 501 (1976). He has recently proposed no-fault schemes under which tort lawsuits can be avoided if the defendant promptly begins periodic payment of the tort claimant's net economic losses. O'Connell, Neo No-Fault, supra, at 907 (implementing scheme through contracts whereby, for example, seller of product agrees to make payments provided buyer agrees to either accept tender within 90 days or claim in tort); O'Connell, Offers That Can't Be Refused: Foreclosure of Personal Injury Claims by Defendants' Prompt Tender of Claimants' Net Economic Losses, 77 Nw. U.L. Rev. 589, 601-04 (1982) [hereinafter O'Connell, Offers That Can't Be Refused] (proposing statute mandating this scheme). This Article does not meet all or even most of Professor O'Connell's criticisms of fault-based tort liability, but it does suggest that uncertainty, error, and variable damage awards will not affect the performance of punitive liability as a deterrent.

Professor Henderson's critique of tort liability is in a sense more central, for he argues that by the very nature of adversary presentation, certain problems which are polycentric and can be resolved only through simultaneous consideration of several interrelated elements cannot be rearranged in the essentially linear fashion necessary for adjudication. Henderson, Expanding the Negligence Concept: Retreat from the Rule of Law, 51 Ind. L.J. 467, 473, 475-76 (1976). The general implication of this supposition regarding adjudicability is that if adjudicated, polycentric "planning" or "design" problems will be resolved simply through the exercise of unprincipled judicial discretion and the litigants denied the opportunity to participate meaningfully in the decisionmaking process. Id. at 476. Thus, while cases involving little technical complexity, no special relationship triggering duty analysis, and few compelling practical concerns can be resolved by a jury employing the reasonable person test for negligence, id. at 478-79, the application of this standard to complex cases—paradigmatically, the products liability design defect case—causes jury decisions to degenerate into irrational, unpredictable, emotional reactions. See Henderson, Process Constraints in Tort, 67 Cornell L.
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has paralleled academic criticism.\(^5\) Virtually no aspect of current tort doctrine has been immune to criticism and legislative reform.\(^6\) However, attention has been focused on spectacular punitive damages cases.\(^7\) Despite empirical evidence suggesting that any increase in the size or frequency of punitive damages has been limited to a few geographical areas,\(^8\) large punitive damages awards have come to symbol-

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\(^6\) For an indication of the breadth of scholarly criticism, see Sugarman, supra note 4. State tort reform measures include restoration of various kinds of immunity, modification or abolition of the collateral source rule and joint and several liability, damage caps, and periodic payment mechanisms. For a somewhat dated but illustrative compilation of such reform initiatives, see Trolin, Controlling Liability Insurance Costs: State Actions and Future Initiatives in the Area of Civil Justice Reform, State Legislative Report, Jan. 1986, at 1; see also R. Bird & B. Trolin, General Summary of 1986 State Legislative Action, (National Conference of State Legislatures, updated May 22, 1986) (on file at the Columbia Law Review).


\(^8\) A recent American Bar Foundation study—the first large-scale, systematic empirical investigation of punitive damages—suggests that punitive damages are quite unusual, usually appearing in fewer than 10% of reported verdicts, and are confined to a small set of causes of action: personal violence, fraud, false arrest, and insurance bad faith. S. Daniels, Punitive Damages: Storm on the Horizon? 10–14 (American Bar Foundation, Preliminary Report of the Punitive Damages Project, Feb. 8, 1986); see also M. Peterson, Punitive Damages: Preliminary Empirical Findings 10–11 (Rand Note N-2542-ICJ, 1985) (data from San Francisco and Cook County show increases in both number and total amount of punitive damages in these counties from 1960–1984, but much smaller increases in San Francisco).

This preliminary finding sharply contradicts the impression given by anecdotal evi-
ize the problems perceived in the current system. Many recently enacted tort reform measures severely limit punitive damages. These measures are supported, at least indirectly, by a growing scholarship harshly critical of current standards for awarding punitive damages.

Against this background of popular and academic disenchantment with existing tort rules, this Article develops a new civil liability paradigm: "punitive liability." This new paradigm is an outgrowth of a more general theory that describes how pervasive errors by courts, juries, and private actors affect the incentives created by fault-based tort
dence that staggering punitive damages are frequently awarded. See, e.g., Morrison, Punitive Damages and Why the Reinsurer Cares, 20 Forum 73 (1984) ("punitive damage claims accompany a substantial part, if not the majority of the claims placed in litigation"); Owen, Problems in Assessing Punitive Damages Against Manufacturers of Defective Products, 49 U. Chi. L. Rev. 1, 6 (1982) (increasing number and size of punitive damage awards "may fairly raise concern for the future stability of American industry"); Sales & Cole, supra note 7, at 1154 ("the amount of punitive damages awarded in recent years, as if feeding upon itself, has escalated to astronomical figures that boggle the mind"). At least one court has seen fit to include such armchair wisdom in a published decision. See Moore v. Remington Arms Co., 100 Ill. App. 3d 1102, 1114, 427 N.E.2d 608, 616-17 (1981) (staggering punitive damage judgments now routine).


liability rules. One implication of the general theory is that properly safeguarded punitive damages can overcome the problems caused by errors in the determination of fault and create optimal incentives for choosing investments in safety. The recent attack on punitive damages may be correct in criticizing the standards therefor. Critics are mistaken, however, in the view that punitive damages are necessarily inconsistent with economically optimal deterrence: punitive liability may in fact be an efficient liability rule despite pervasive imperfections in existing tort institutions.

The argument for punitive liability begins by relaxing one of the primary assumptions underlying the efficiency of the negligence rule. The assumption is that the legal system does not err in determining fault, that is, the defendant is made to pay damages if and only if it violated the legal standard which announces the required level of care. As Professor Richard Epstein has recently observed, the problem with the assumption of costless and perfectly reliable litigation is that not only negligence but "all feasible systems of liability are identical in their allocative effects, and all are efficient." Hence, the model of perfect litigation does not provide a method for choosing, on efficiency grounds, between competing liability rules.

When errors are made in adjudicating fault, the equivalence of virtually all liability rules vanishes. Negligence is not necessarily efficient. Errors in fault determination have an ambiguous effect on the private incentive to invest in safety. Since negligent defendants are sometimes erroneously found not liable while careful defendants are erroneously punished, a smaller private benefit is derived from greater care than would exist in the world of perfect and costless litigation. Taking reasonable care no longer lowers the probability of liability from one to zero, but from something less than one to something

13. See, e.g., Brown, supra note 2, at 327 (ignores problems of burden of proof, the mistakes that the court can make, and the uncertainty of the outcome in analysis of effects that liability rules have on parties' behavior).
15. Id. This Article assumes that, absent error, the common law does set the negligence standard according to the efficiency calculus. Even if there were no process uncertainty, the common law negligence rule might be inefficient simply because judges neither acted nor intended to act so that "reasonable" care meant "efficient" care. This Article does not consider the much debated issue whether the common law was or is efficient. For that debate, see, e.g., W. Landes & R. Posner, The Economic Structure of Tort Law I-28 (1987); Landes & Posner, The Positive Economic Theory of Tort Law, 15 Ga. L. Rev. 851 (1981); Priest, The Common Law Process and the Selection of Efficient Rules, 6 J. Legal Stud. 65 (1977).
greater than zero. On the other hand, the defendant will realize a benefit from increasing care above the desired reasonable-care level, because the probability of liability will decrease as care is increased above the optimum. This benefit does not exist in a perfect liability system, in which the probability of liability falls discontinuously to zero precisely at the optimal level of care.\footnote{A more formal discussion of the influence of errors on private incentives under the negligence system is presented in Part A of the Appendix.}

In an ideal world, one could restore the optimality of negligence by eliminating uncertainty. But given that imperfect human institutions must find facts and interpret and apply general legal standards having only limited evidence of what the facts really are, errors, and hence uncertainty, are inevitable.\footnote{The foregoing presumes that liability is determined under a general balancing test, such as negligence. One response to the incentive problems caused by uncertainty in the adjudication of fault under a general standard is to replace standards with more precise rules. Professor Richard Epstein is the most prominent contemporary advocate for a return to what he argues were the more predictable, risk-segregating tort rules of the 18th, 19th, and early 20th centuries. See Epstein, supra note 14, at 1184, and Epstein, Products Liability as an Insurance Market, 14 J. Legal Stud. 645, 654–64 (1985). But, although the approach to uncertainty applied in this Article promises to shed new light on the debate between standards and rules, the present Article focuses on developing a general standard that will be efficient even when the negligence standard (and, for that matter, the strict liability standard) is not.}

Punitive liability is built upon the observation that two types of errors can be made in testing the hypothesis of fault. A false positive is an erroneous finding that the defendant was at fault, while a false negative is an erroneous failure to find a faulty defendant liable. Because the result would be the restoration of total certainty to the process of adjudicating fault, eliminating both kinds of error is not possible. The law does, however, contain tools that can be used to control, and even eliminate, false positives. These tools are the burden of proof and the nominal—that is, announced—substantive standard. If the burden of proof were raised and the required degree of care lowered to such an extent that defendants perceived essentially no chance of being found liable if nonnegligent, defendants would have no economic reason to invest in safety beyond the level of reasonable investment. Such radical safeguards, or "punitive safeguards," however, mean that it will be very improbable that any but the most grossly negligent defendant will be found liable. However, even a small chance of paying damages will deter negligence if the damages are high enough. This is the theory of optimal punitive liability presented here: a system that uses procedural and substantive safeguards to eliminate false positives, and hence overdeterrence, and also prevents underdeterrence through the award of very high damages.

The theory of optimal punitive liability establishes an idealized paradigm of efficient fault-based liability given the uncertainty of the
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fault-determination process. Part I describes this paradigm, sets out the assumptions necessary for punitive liability to serve as a perfect deterrent, and describes how the paradigm must be modified in cases where the plaintiff has limited access to evidence.

Part II compares punitive liability to current practice in tort law, and concludes that the subjective standard of “malice” is inappropriate, that the burden of proof may in some cases be too low, and that recent attempts to limit punitive damages are misguided. Part II further argues that, a fortiori, recent proposals for tort law reform that adopt “good faith” or “gross negligence” as the standard for compensatory damages are virtually certain to underdeter. Finally, Part II argues that punitive liability may lead to a more efficient allocation of judicial resources than traditional interventionist judicial responses may lead to.

Part III considers whether punitive liability is a realistic deterrent when the assumption that innocent defendants are never erroneously made to pay large punitive damages is relaxed. Imperfect punitive liability is compared to imperfect negligence liability using a broad criterion of efficiency which includes such factors as risk aversion, administrative costs, and market incentives. Part III argues that punitive liability may be economically preferable to negligence even when it departs from the paradigm and even when punitive safeguards are not fully effective. It also argues that if it is more difficult to control variation in jury damage awards than it is to control jury liability findings, then punitive fault-based liability may induce the efficient level of investment in safety when strict liability will not. On the other hand, Part III suggests that it may be necessary to retain some form of strict liability in order to curb excessive levels of activity, an objective that any efficient fault-based liability rule will fail to achieve. Finally, Part III demonstrates the robustness of punitive liability in the face of institutional imperfections that seriously harm the performance of strict liability and negligence.

Part IV considers how punitive liability measures up against the alternative tort law goals of just punishment and compensation. It argues that pain and suffering losses are relevant to deterrence in the sense that victims would want injurers to take such losses into account in choosing between risk and safety, and that such losses may be appropriate in punishing careless defendants, but that pain and suffering losses do not exist as an element of social cost independent of the culpability of the injurer. The Article concludes by recommending that pain and suffering losses be recovered only as part of a punitive damages award, under punitive safeguards designed to achieve optimal deterrence, and that compensation and activity level incentives be pursued in a companion system of strict liability for economic loss.
I. An Economic Theory of Optimal Punitive Liability

A. The Inefficiency of Negligence Under Uncertainty

The theory of efficient punitive liability presented here proceeds from the observation that uncertainty destroys the efficiency of negligence. There are several sources of uncertainty in the determination of fault by a judge or jury. If the decisionmaker's task is to decide whether the defendant violated a general standard such as "reasonable care under the circumstances," the decisionmaker can err in interpreting the standard, or in resolving the factual issues. On the other hand, even if the legal process determines fault perfectly, the potential defendant may lack good information about the legal standard, or may make errors in taking precautions. Errors in taking precautions could occur, for example, because a corporate product-safety policy is implemented by managers who, because of imperfect monitoring, have substantial leeway to implement their own conflicting objectives of attractiveness and economy in design. Regardless of the particular cause, however, uncertainty introduces two generic errors into the process of applying a fault-based liability rule: defendants who actually failed to comply with the legal standard may be found not liable, while liability may be imposed on defendants who did in fact comply. It has recently been shown that these generic errors make the efficiency of negligence ambiguous.19

The analysis in this part is based on certain assumptions. The defendant is a profit-maximizing (cost-minimizing) firm engaged in an activity that runs a risk of causing harm to others. The defendant firm can act to reduce the likelihood of harm, but victims can do nothing to affect either the probability or the gravity of injuries. The firm is sued by the victim whenever harm occurs, and it is never sued when a victim's harm was inflicted by some other cause. If sued, the firm is found liable if and only if it is found to have been at fault in causing the harm, which means that it is found to have taken less care to reduce the probability of harm than that required by the legal standard. If the firm is found liable, it must pay money damages to the victim; otherwise, it pays nothing. Suit is costless to society and to the individual parties. Settlement before trial is ruled out: whenever suit is brought, a trial to determine whether the firm was at fault necessarily follows. The firm is risk neutral, and therefore is concerned with expected damages rather than with the loss due to risk-bearing and other costs of possible legal liability.22

19. See C. Goetz, supra note 3; S. Shavell, Economic Analysis of Accident Law (1987); Calfee & Craswell, Some Effects of Uncertainty on Compliance with Legal Standards, supra note 3; Johnston, Uncertain Fact-Finding, supra note 12.
20. These assumptions are relaxed infra Part III.
21. Given a fixed level of activity, profit maximization is equivalent to cost minimization.
22. I have analyzed somewhat more formally how errors in adjudicating fault affect
For the purposes of this Article, ordinary negligence liability means a liability system that assesses compensatory damages against the defendant if and only if the plaintiff convinces the jury that it is more probable than not that the defendant failed to take reasonable care, where by “reasonable care,” the judge or policymaker means the efficient level of care under the circumstances, that is, the total expected social cost-minimizing level of care. A liability rule is \textit{ex ante} efficient if it causes actors subject to it to act so as to minimize total expected social cost. If administrative costs are invariant with respect to the form of the liability rule, if potential victims are legally unsophisticated, and if such victims do not behave with a view to the impact of their behavior on their ability to recover damages, the \textit{ex ante} efficient liability rule is one that induces the defendant injurer to choose that level of care which minimizes the sum of expected cost of accidents caused plus the cost of care.\textsuperscript{23}

If it is assumed that the actual damages assessed against the defendant equal the magnitude of social harm, and if the standard of care is set at the level that minimizes the expected total social cost, then the cost-minimizing defendant must take the care required by the standard when errors are not made by the jury in determining fault. The reason is that when no errors are made, there is a sharp discontinuity in the defendant’s marginal benefit of taking care precisely at the optimal level of care. Up to that level, the benefit to the defendant in reduced expected damages is exactly equal to the social benefit in reduced expected harm. But since the defendant’s expected damages fall to zero once it complies with the standard, there is no further reduction in damages available from taking more care, and hence no incentive to do so. Since the cost of increasing care is the same to the defendant and to society, the defendant’s marginal cost and benefit is equal to the social marginal cost and benefit up to the optimal level of care required by the standard. Since, by definition, social marginal benefit equals social marginal cost at this level, defendant’s marginal benefit must also equal marginal cost at this level. Thus, the level of care that solves the cost minimization problem of the defendant also solves the cost minimization problem of society.\textsuperscript{24}

\textsuperscript{23} This simple efficiency criterion has been frequently employed in the economic analysis of liability rules. See, e.g., Posner, supra note 2. Part III expands the efficiency criterion to include administrative costs and the cost of risk to risk averse individuals subject to the liability rule, among other factors. See infra notes 76–106 and accompanying text. Part III also discusses the problem of curbing excessive levels of activity. See infra notes 107–11 and accompanying text.

\textsuperscript{24} For further analysis of how a perfectly enforced negligence rule creates optimal incentives for compliance by creating a discontinuity in the private benefit of safety at precisely the level of optimal safety, see Cooter, Unity in Tort, Contract, and Property: The Model of Precaution, 73 Calif. L. Rev. 1, 7–11 (1985) [hereinafter Cooter, The
Put somewhat differently, a perfect fault-finding process tells the defendant that it will face the full social costs if it is negligent, but guarantees no liability if it just barely complies and takes due care. Since social costs are lower when due care is taken than when less-than-due care is taken, the defendant’s costs are also lowest when it exercises due care; a higher level of investment in safety, however, brings no return in terms of reduced damages because damages are zero at the due care level.

This sharp break in the private return on investing in safety is no longer present when the defendant and the jury make errors in choosing care and determining fault. In general, uncertainty in the determination of liability means that the defendant perceives a positive probability of being found liable even if it complies, or indeed overcomplies, with the legal standard. At the same time, under uncertainty, the defendant sees that it will not always be found liable should it fail to comply. If the liability determination process performs at all adequately, and if the defendant perceives a positive relationship between its degree of care and the risk of liability, then in general the defendant will also perceive that the probability of being found liable falls as it takes more care.

Thus, under uncertainty, there is a (generally) continuous private return to investing in safety even under an ostensibly fault-based liability system. Now it may happen that the injurer has the correct incentives in this uncertain world, but there is no intuitive (or formal)\(^2\) reason to believe that this will be so. To see why, it is necessary to look more closely at the two counteracting effects of uncertainty as reflected in the injurer’s private return to safety.

Errors can both weaken the incentive to invest optimally, because suboptimal investment is sometimes not punished, and increase the incentive to overinvest, to protect, for example, against a very harsh jury that erroneously punishes due care as negligence. Consider a defendant deciding whether to increase care above some value that is less than due care. The defendant’s incentive to increase its care level is increased relative to the incentive under perfect fault determination because now not only will the probability of harm fall as the defendant

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Model of Precaution]; Cooter, Prices and Sanctions, 84 Colum. L. Rev. 1523, 1526-30 (1984); Cooter, Economic Analysis of Punitive Damages, 56 S. Cal. L. Rev. 79, 82-89 (1982) [hereinafter Cooter, Punitive Damages].

25. Under uncertain liability determination, overdeterrence will result if the distribution of errors has relatively small variance, and underdeterrence if the dispersion is large. An accurate liability determination system in which errors are localized may overdeter; as the process becomes more random, underdeterrence becomes more likely. S. Shavell, supra note 19, at 95-96 (formal demonstration); Cooter & Ulen, An Economic Case for Comparative Negligence, 61 N.Y.U. L. Rev. 1067, 1087-90, 1107 (1987); Graswell & Calfee, Deterrence and Uncertain Legal Standards, 2 J.L. Econ. & Org. 279 (1986); Johnston, supra note 16, at 68 (formally characterizing this effect in terms of the accuracy of the legal process).
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increases care, but the probability of liability given suit will also fall. The defendant, in a sense, gets a double benefit from increasing care, but the benefit in terms of reduced probability of liability is only socially beneficial at suboptimal care levels. The problem is that this benefit will in general persist even when the defendant selects the optimal level or a supraoptimal level, thus creating the possibility that ordinary negligence liability may overdeter—induce too much care. In any particular instance, this double benefit may induce the rational, sophisticated defendant to be overly cautious. Conversely, the defendant's incentive to increase care is reduced because it knows that sometimes it will not be found liable even if it fails to increase its care above the suboptimal level. The defendant may rationally take too little care because there is little chance of liability even if it is negligent. Neither result can be ruled out as a matter of either intuition or mathematics.  

B. Uncertainty as a Rationale for Punitive Liability

Negligence liability may either underdeter or overdeter under conditions of factual uncertainty, and since there is no intuitive reason for thinking one kind of undesirable effect more likely than the other, it is not possible to tailor a policy response to a particular problem. Moreover, any particular change in the liability system will generally correct for underdeterrence or overdeterrence, but not both simultaneously. The system outlined in this section, “punitive liability,” recognizes this limitation, and achieves efficiency by making particular changes in the magnitude of damages and the burden of proof and/or standard of care. Raising the burden of proof above a mere preponderance, lowering the standard of care to require less than reasonable care, and assessing punitive, supracompensatory damages can induce the potential defendant to choose the socially optimal level of care.

To construct the punitive civil liability system, recall first that ordinary negligence liability is efficient under perfect liability determination only because nonnegligent defendants are never punished (eliminating the possibility of overdeterrence), while negligent defendants are al-

26. That is, there are no strong a priori reasons for thinking that the dispersion of errors is likely to be either large or small. It is this dispersion that determines whether the negligence rule will overdeter or underdeter. See supra note 25. Contrary to one's intuition, the negligence rule is most likely to overdeter in areas where the process of determining negligence is most accurate. (An "accurate" liability determination process is one in which error is localized.) Hence, improving the accuracy or precision of legal rules may actually exacerbate the overdeterrence problem. In work in progress, I am studying the implications of this result for the choice between general standards and precise rules.

27. Increasing the penalty, for example, will increase the deterrent effect of the negligence rule, but at the cost of making overdeterrence more likely. Conversely, putting severe limits on the plaintiff's ability to discover evidence will, ceteris paribus, decrease the likelihood of holding a non-negligent defendant liable, but at the cost of increasing the likelihood of erroneously failing to hold a negligent defendant liable.
ways punished and pay sufficiently high damages—at least equal to the magnitude of social harm—that they are discouraged from taking too little care (eliminating the possibility of underdeterrence). Leaving aside, for the moment, the problem of underdeterrence, this observation suggests that the way to eliminate overdeterrence when fact-finding is uncertain is to manipulate the available legal rules so that the defendant assumes that it will not be found liable if it is not negligent.

The crucial legal rules in accomplishing this objective are the burden of proof and the announced or nominal standard of care. Under the negligence rule, the defendant will be held liable if a jury decides that a preponderance of the evidence shows that it failed to take reasonable care. As demonstrated elsewhere, the preponderance-of-the-evidence, reasonable-care policy configuration defining negligence allows both false positives and false negatives to occur. These errors can induce either too little or too great an investment in safety.

Now consider changing the test for liability from negligence by a preponderance of the evidence to gross negligence by clear and convincing evidence. To find liability under the new test, a jury would need to be quite certain that the defendant's efforts fell short of reasonable efforts. As refined by appellate decision, the new liability test would perhaps preclude liability unless there was very little credible evidence that reasonable efforts had been made.

This liability test is ostensibly designed to punish severe violations of the standard of reasonableness if the jury is certain of such a severe violation. However, such a test can in fact eliminate the risk of inducing too great an investment in care. It can do so if the defendant is convinced that if it in fact makes a reasonable investment, then clear and convincing evidence will never support a finding of gross negligence. If this condition holds, and if the profit-maximizing defendant is motivated to invest in safety only to reduce its probability of liability, then there is no incentive to make a supraoptimal investment. The reason is that the defendant is sure of escaping liability by just barely complying with the norm of reasonableness, and therefore receives no benefit in a decreased probability of liability from further investment.

An immediate criticism of this liability test is that while it may guarantee a careful defendant that it will not be found liable, it will also drastically decrease the probability that a negligent defendant will be found liable. This seems to imply that the new test will underdeter. And indeed it would, if this were the end of the story.29

28. See Johnston, Bayesian Fact-Finding, supra note 12.
29. Note that if it were known that the process of fault determination was sufficiently accurate, and that by the argument made supra note 25 the negligence test would therefore over deter, optimal incentives could be restored by merely increasing the burden of proof or requiring greater substantive culpability. Punitive damages would be unnecessary. See Shavell, supra note 19, at 96. However, a fault determination process with very narrowly dispersed errors cannot overdeter by much. It is difficult to see how
But there is another policy instrument at our disposal: the measure of damages. The cost-minimizing, risk neutral defendant is interested in minimizing the sum of its cost of care and expected damages—the probability of liability multiplied by the magnitude of damages. If the magnitude of damages is raised above the merely compensatory level, then no matter how low the probability of liability, \( P \), expected damages, \( PD \), can be raised arbitrarily high by raising the magnitude of damages, \( D \), by an arbitrary amount. If such an arbitrary increase is possible, then the incentive-weakening effects of a higher burden of proof and a lower standard of care test can be offset by raising damages to a punitive, supracompensatory level. In general, moreover, it will not be necessary to raise damages arbitrarily high, but just high enough to make it cheaper for the defendant to escape liability by incurring the marginal cost of behaving reasonably than to behave marginally unreasonably.  

This simultaneous adjustment of the burden of proof, standard of care, and measure of damages will be \textit{ex ante} efficient because sufficiently high damages eliminate underdeterrence. Furthermore, a configuration of burden of proof and substantive standard that convinces the defendant that it will always escape liability by just barely complying

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the requisite increased burden of proof or heightened substantive standard could be formulated so as to exactly compensate for the overdeterrence. In any event, there is no way to determine if the process is accurate enough to make overdeterrence, rather than underdeterrence, the concern. By contrast, the punitive liability system presented herein is efficient regardless of the error dispersion and is relatively easy for judges to interpret and implement.

30. High punitive damages prevent underdeterrence by making it cheaper for the defendant to escape liability by taking optimal care than to incur an admittedly low probability of paying punitive damages by taking suboptimal care. The probability of paying if suboptimal care is taken is low because it is difficult to meet the punitive liability standard when the defendant has only been marginally negligent. Thus, to prevent underdeterrence, the lower the probability of liability for marginally unreasonable or suboptimal care levels under punitive safeguards, the higher the punitive damages must be. Where care is a continuous variable and the probability of liability given the care level is a continuous function, as the probability of liability approaches zero, damages would necessarily approach infinite magnitude to prevent suboptimal care from being privately optimal. See Part A of the Appendix. If, however, care is a discrete variable, then the greater the difference between reasonable care and the best kind of unreasonable care, the higher the probability of liability given unreasonable care and the lower the required magnitude of punitive damages. If, for example, the defendant must choose between reasonable care and no care, and if it is easy to distinguish no care from the next distinguishable level of care, then punitive damages of a modest amount will deter the defendant from taking no care. If, by contrast, the defendant can choose just slightly less than reasonable care, and it is difficult to distinguish between this and reasonable care, then very high punitive damages will be required to deter this slightly negligent level of care. This same point holds true when care is continuous, but the defendant’s estimate of the probability of liability given care is a step function. Considerations of bounded rationality—the inability of the defendant to form a truly precise idea of how the probability of liability varies with care—suggest that such a model is not unrealistic.
in taking due care precludes overdeterrence. I will call such a system "optimal punitive liability."

This system induces optimal care choices by announcing that only great departures from the optimum proven by very strong evidence will be punished, and that the damages will be severely punitive. But although some disparity between the announced rule and the intended effect is perhaps to be expected in an uncertain, error-filled world in which a rule can be construed either too loosely or too severely, it is remarkable that simultaneously tightening the liability test and increasing damages can achieve optimal care under uncertainty.

This perhaps counter-intuitive result reflects the more general proposition that from the point of view of efficiency it is not the actual blameworthiness of the conduct punished that matters, but the utility from condemning such conduct as blameworthy. Uncertainty introduces a distortion into the legal process, insofar as trial results are insufficiently informative of the degree of care actually taken. Recognizing this distortion, the legal test for liability must ostensibly punish only the very careless in order to achieve optimal deterrence by in fact refraining from punishing the careful.

C. A Comparison With Alternative Theories

It is important to note that the argument here is that punitive damages will be efficient, under appropriate safeguards, even if the probability of suit given harm equals one. A low probability of suit will always cause ordinary negligence to underdeter by reducing private expected damages below social harm. This is a common efficiency-based justification for punitive damages. The present argument is that negligence is inefficient and optimal punitive liability is efficient even when the victim always sues the proper defendant.

Another important distinguishing feature of the present approach is that it does not view punitive damages as an optimal deterrent against defendants who actually intend to be reckless or grossly negligent, but as an optimal deterrent for the rational profit-maximizing firm that chooses its level of care on the basis of its expected legal liability. Prominent economic analyses of punitive damages have hypothesized that efficiency requires assessing punitive damages only because some

31. This is a feature the efficiency criterion shares with utilitarianism. See H. Sidgwick, Methods of Ethics 428 (7th ed. 1962) ("in distributing our praise of human qualities, on utilitarian principles, we have to consider not primarily the usefulness of the quality, but the usefulness of the praise").

32. If $S$ is the probability of suit, then the relevant measure of damages for a risk neutral injurer who perceives the true probability of suit is not $D$, where $D$ is the magnitude of damages, but discounted damages, $SD$. For $S < 1$, $SD < D$, so even if fault is perfectly determined, ordinary negligence liability may still underdeter, because the private marginal benefit of care is less than the social marginal benefit of care.

33. See, e.g., S. Shavell, supra note 19, at ch. 6; Ellis, Fairness and Efficiency, supra note 11, at 25–26 (comparing probability of suit with probability of harm).
PUNITIVE LIABILITY

defendants have subjective costs of care above true social costs and get "illicit pleasure" from taking very little care, or because it is difficult to measure and collect damages from some injurers. These alternative theories share a common presupposition: the legal system is able to classify conduct as reckless or grossly wrong with perfect accuracy. If this does not hold, these theories fail, for they fail to account for the consequences of errors in assessing punitive damages. I assume to the contrary that it is just as difficult to distinguish negligence from non-negligence as it is to distinguish recklessness from negligence. The standard for punitive liability precludes punishing reasonable behavior by ostensibly punishing only grossly negligent behavior, and does not actually punish only grossly negligent behavior.

D. A Caveat: Limited Evidence Access

I have presented punitive liability as an efficient ex post regulatory

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34. Cooter, Punitive Damages, supra note 24, at 85–89, 98.
35. Landes & Posner, An Economic Theory of Intentional Torts, 1 Int'l Rev. Law & Econ. 127, 135–36 (1981); see also Ellis, An Economic Theory of Intentional Torts: A Comment, 3 Int'l Rev. Law & Econ. 45, 51 (1983) (noting that Landes & Posner's conclusions are suspect because they make the incredible assumption that the wrongdoer's private benefit of intentional wrongful conduct is negative). Both Landes & Posner, supra, at 136, and Cooter, Punitive Damages, supra note 24, at 86–88, assume that there is a discontinuity in the discernibility of negligence versus gross negligence or reckless indifference, that is that these behaviors are different in kind and clearly distinguishable from one another. The existence of some such qualitatively more wrongful behaviors is not inconsistent with the theory outlined here. If it is easy to identify these egregious cases, then it will be easy for the plaintiff to prove them even under the difficult punitive standards of proof and liability. The system will still deter ordinary negligence as long as some juries cannot distinguish negligence from gross negligence or recklessness.
36. For a contrasting theory which in the same spirit as the present article explains punitive damages as an instrument to correct for the incentive-weakening effect of errors in liability determination, see Png, Optimal Subsidies and Damages in the Presence of Judicial Error, 6 Int'l Rev. Law & Econ. 101 (1986).
38. My theory assumes that juries often cannot distinguish reasonable from negligent behavior or negligent from grossly negligent behavior. This does not, however, imply that juries cannot distinguish gross negligence from reasonable behavior. At the margin, gross negligence may be indistinguishable from negligence, but this borderline conduct (or evidence) is far different from the conduct (or evidence) on the borderline between negligence and reasonable care. For judicial confusion on this point, see Sisler v. Gannett Co., 104 N.J. 256, 278, 516 A.2d 1083, 1094 (1986), where the court rejected a gross negligence test for defamation of a private figure whose private affairs implicated the public interest and instead required actual malice in large part because of its perception that "it is not likely that average persons would easily recognize the vague and subtle difference between speech uttered negligently and that uttered recklessly." If the court's real concern was in not punishing reasonable speech, this was the wrong question to ask. The correct question is whether jurors can distinguish recklessly uttered speech from carefully uttered speech.
mechanism. In its structure and purpose, this system strongly resembles criminal liability.\textsuperscript{39} One important difference, however, is that the private plaintiff facing a typically well-represented, complex institutional defendant does not have access to the grand jury process. In cases in which the primary issue is the actual level or appropriate standard of care taken by such a defendant, even liberal modern discovery rules may not enable the plaintiff to produce enough evidence to overcome the defendant’s case and meet the difficult burden of proof called for by the theory of punitive liability. More precisely, there may be evidence sufficient to hold a negligent defendant liable under the punitive test, but the plaintiff may not have access to it.

If the jury somehow took account of evidence access problems of this sort, the system would not need to be changed. But when, as is perhaps typical, the jury does not adjust its decisionmaking to reflect relative evidence availability, it may be necessary to lower the plaintiff’s burden of proof from the otherwise very difficult level otherwise called for by the theory. If it were otherwise, the punitive liability test could underdeter by guaranteeing that not only careful but also negligent defendants will escape from liability.\textsuperscript{40} This qualification to the theory is important in evaluating the efficiency of the actual test for punitive liability currently employed by the court.

E. Summary of the Theory: A Premises Liability Example

The theory of punitive liability can be conveniently summarized by considering another example of decisionmaking by a legally sophisticated, institutional defendant.\textsuperscript{41} Suppose that a real estate syndicate owns a low-income housing development that has an alarming recent history of fires set by vandals. At current levels of security and maintenance, building door locks are constantly broken due to vandalism, the fire alarm system is often inoperable because of electrical problems, and, because there is only a part-time manager, no one is present to ensure security at the complex on weekends and weeknights.

Suppose now that the risk of fire could be substantially reduced at low cost by supplying smoke detectors, hiring a full-time security guard, and placing jimmy plates and secure locks on doors. The punitive liability system ostensibly tells the syndicate that it will be liable for enormous punitive damages if there is substantial evidence of gross

\textsuperscript{39} See infra notes 131–42 and accompanying text for a discussion of the relationship between the predominant criminal law goal of just punishment and the civil punitive liability system. A complete treatment of the choice between civil, privately enforced punitive damages and criminal penalties as alternative mechanisms of deterrence is, however, beyond the scope of this Article.

\textsuperscript{40} For a more complete explanation of this point, see Johnston, Bayesian Fact-Finding, supra note 12, at 175–78.

\textsuperscript{41} This example is based on Brown v. Maxey, 124 Wis. 2d 426, 369 N.W.2d 677 (1985).
negligence. This system will give the syndicate an incentive to take the cost-justified measures just outlined provided that syndicate managers perceive a slight chance of being found grossly negligent if they fail to take these steps. Substantial evidence is necessary for such a finding. Hence, syndicate managers will perceive a risk of punitive liability if they think that by doing nothing at all, or perhaps merely supplying smoke detectors while doing nothing to improve security, the plaintiff will be able to introduce testimony sufficient for a jury determination of gross negligence.

Imagine further that at economically unjustified additional expense—the provision of a sophisticated, nonelectrical heat-sensor fire alarm system connected directly to the fire department, the employment of yet another security guard, and the intensive screening of prospective tenants—the risk of fire to tenants could be further reduced, indeed, to almost zero. Punitive liability will not overdeter and induce the landlord to take these noneconomic measures because the landlord will believe that no jury will find that substantial evidence shows gross negligence since she can introduce evidence of all the reasonable steps taken. Provided this is true, the syndicate will perceive no economic benefit to taking the supraoptimal risk reducing measures, and will not do so.

To see the impact of asymmetric access to evidence, assume that all the experts who could testify as to the availability of economically justified risk-reducing measures are employed by the syndicate, as for example might be true if the syndicate monopolized low-income housing. The plaintiff will be unable, therefore, to introduce any evidence other than the testimony of tenants about the history of arson and the absence of security. This may necessitate lowering or shifting the burden of proof, because no jury will be allowed to find gross negligence under the substantial evidence requirement when there is no evidence that anything could have been done to reduce risk.

II. COMPARISON TO CURRENT PRACTICE

Optimal punitive liability is an instrument for achieving efficient ex ante incentives under uncertainty in the determination of fault. However, it is not claimed that the law serves or should exclusively serve the goal of optimal deterrence. In a tort system designed also to compensate victims of accidents, punitive liability is best viewed narrowly, as the deterrence-oriented component of a tort system that separately provides swift, certain, and uniform compensation. The theoretical desirability of punitive damages has only recently received serious attention, most of which has been critical and has certainly not viewed punitive liability as a general replacement for negligence or strict liability. It is worthwhile, therefore, to pause before further theoretical

42. See sources cited supra note 11.
analysis of optimal punitive liability to consider the correspondence between the system the model says will be optimal under various circumstances and the current system.

A. Assessing Traditional Standards for Punitive Damages

The theory presented here suggests that the alleged recent increase in the availability and magnitude of punitive damages in tort cases is not necessarily undesirable from the standpoint of optimal deterrence. It is not punitive damages, but punitive damages without the appropriate test for liability that is theoretically troublesome. Under current rules, the substantive standard for punitive damages may be too restrictive from the standpoint of efficiency. Under current rules, the substantive standard for punitive damages may be too restrictive from the standpoint of efficiency. On the other hand, the burden of proof for punitive liability may be too low, unless it is generally the case that the defendant has superior access to evidence that is unaccounted for.

The standard for punitive liability typically requires either subjective "malice," "ill will" or "bad faith," or objective "recklessness" or "gross negligence." The objective standard ostensibly assesses punitive damages when the defendant knows that his conduct creates a highly unreasonable risk of harm but proceeds in conscious or reckless disregard of the consequences. The objective standard, therefore, requires an objective determination of the relative social risks of and benefits from the defendant's behavior.

The subjective standard is designed to punish defendants who have either desired to cause the plaintiff's harm or believed that the

43. See S. Daniels, supra note 8, and M. Peterson, supra note 8 for evidence that punitive damage awards are infrequent in some jurisdictions, that the median size of awards varies from jurisdiction to jurisdiction, and that in at least one jurisdiction, the median award has remained stable.

44. See Restatement (Second) of Torts § 908(2) (1979) ("punitive damages may be awarded for conduct that is outrageous, because of the defendant's evil motive or his reckless indifference to the rights of others."); see also Smith v. Wade, 461 U.S. 30, 48 & n.13 (1983) (compiling cases); W.P. Keeton, D. Dobbs, R. Keeton, D. Owen, Prosser & Keeton on Torts § 2, at 10 (5th ed. 1984) [hereinafter Prosser & Keeton] (standard usually requires conduct to be "wanton or willful"; occasionally gross negligence stretched to include this). Illustrative opinions adopting or arguing for the subjective test include Smith, 461 U.S. at 60–90 (Rehnquist, J., dissenting); Linthicum v. Nationwide Life Ins. Co., 150 Ariz. 326, 723 P.2d 675 (1986); Tuttle v. Raymond, 494 A.2d 1353 (Me. 1985).

45. As noted in Prosser & Keeton, supra note 43, § 34, at 214, there "is often no clear distinction at all between ['recklessness'] and 'gross' negligence, and the two have tended to merge and take on the same meaning, of an aggravated form of negligence." For applications of the objective test, see Orchard View Farms, Inc. v. Martin Marietta Aluminum, Inc., 500 F. Supp. 984 (D. Or. 1980); Brown v. Maxey, 124 Wis. 2d 426, 369 N.W.2d 677 (1985). Perhaps a majority of courts have phrased the test for punitive damages in products liability as conscious or reckless disregard. Metzger, Corporate Criminal Liability for Defective Products: Policies, Problems, and Prospects, 73 Geo. L.J. 1, 36 n.235 (1984) (citing cases).

harm was substantially certain to follow, and necessarily involves an inquiry into the defendant's motive and purpose.\textsuperscript{47} The objective test is more inclusive than the subjective standard, because the subjective standard will generally be met only if the objectively observable amount of care taken is very low, constituting, for example, "gross negligence." The subjective test, however, may fail to be met even though the objective level of care is very low. A defendant will often perceive a chance that the evidence will show gross negligence even if it is only negligent, but may perceive no chance that the evidence will indicate such a total lack of care that "malice" or "bad faith" can be inferred. By the argument developed here, the subjective standard leads to suboptimal deterrence, because it guarantees negligent defendants that they will not be found liable.

Unlike the substantive standard for punitive damages, the burden of proof traditionally used in such cases is apparently too easy to satisfy. The burden of proof for punitive damages is usually a mere preponderance of the evidence, although the intermediate "clear and convincing" standard is becoming increasingly common.\textsuperscript{48} I have argued in the foregoing that the burden of proof should be above a mere preponderance.\textsuperscript{49} The exception to this rule is that the plaintiff's burden should be lowered if the defendant has a comparative advantage in access to evidence. Unless all cases involving punitive damages are cases in which such evidence asymmetries exist, such a uniform application of the preponderance of the evidence standard would depart from optimality.

An empirical investigation of the availability of evidence in punitive damage cases is beyond the scope of this Article, but it is noteworthy that two of the areas in which punitive damages awards have been most controversial are medical malpractice and products liability. The appli-

\textsuperscript{47} See \textit{Smith}, 461 U.S. at 60-64 (Rehnquist, J., dissenting); J. Chiardi & J. Kircher, supra note 46, \S 5.02, at 11-14.


\textsuperscript{49} See supra text accompanying notes 27-31.
cation of the doctrine of res ipsa loquitur in medical malpractice and the adoption of strict products liability have been motivated in large part by the difficulty plaintiffs in such cases have in obtaining evidence. This suggests that a lower burden of proof (or even a shifted burden) would be appropriate in punitive liability cases involving medical malpractice or product defects. Close analysis might well reveal that punitive damages are rarely applied in cases not exhibiting problems with accessibility to evidence similar to the problems in medical malpractice and products liability. It is therefore impossible to conclude that the burden of proof for punitive damages is generally too low.

The indeterminacy of these conclusions regarding the performance of the current burden of proof and substantive standard for punitive damages points out what is really the most important difference between the theory and current practice. The theory says that judges should adjust the burden of proof and substantive standard, taking into account evidence asymmetries and juror errors in interpreting and applying the substantive standard (and perhaps also burden of proof) so as to assure defendants that they will not be found liable for punitive damages if they behave reasonably. The appropriate burden of proof and substantive standard should thus differ depending upon the general type of case—insurance claims settlement, medical malpractice, products liability, and other general categories of cases should be analyzed separately. Current doctrine does not do this. It instead attempts to apply a single test for punitive damages regardless of the case type. The law is unable to administer a liability test that asks judges to categorize cases—strict liability is precisely such a test. Rather, current doctrine evinces an undifferentiated approach to punitive liability be-


51. Barker v. Lull Eng’g Co., 20 Cal. 3d 413, 431-32, 573 P.2d 443, 455, 143 Cal. Rptr. 225, 237, (1978) (burden to show that product is not defective shifted to the manufacturer because of manufacturer’s superior access to the relevant evidence). Interestingly, in French law, the owner of a thing causing harm is presumed to be liable and has the burden of showing that the victim, a third party or fortuitous event caused the damage. Moreover, under Swedish law, drivers causing harm are presumed to be negligent. O’Connell, Offers That Can’t Be Refused, supra note 4, at 610 nn. 96-97. I have argued in Johnston, Bayesian Fact-Finding, supra note 12, at 175-78, that burden shifting of this sort may be efficient. Decisions from New Jersey suggest that American law may have gone much further toward incorporating this insight than most commentators seem to realize. See Feldman v. Lederle Laboratories, 97 N.J. 429, 455-56, 479 A.2d 374, 388 (1984) (in strict liability warning cases defendant bears burden of proving that information regarding product risk was not reasonably available or obtainable); NOPCO Chem. Div. of Diamond Shamrock Chem. Co. v. Blaw-Knox Co., 59 N.J. 274, 281 A.2d 793, 797-98 (1971) (burden shifted to defendants where plaintiff unable to identify which carrier or bailee damaged machine).
cause the law has failed to realize the potential utility that punitive damages have as an instrument of optimal deterrence.

The final element of a punitive damages system is the measure of damages. The only prescription of the theory developed here is that punitive damages should exceed compensatory damages and be high enough to preclude underdeterrence.\(^5\) One of the most frequent criticisms of current punitive damage practice is that there are no rules determining the amount of punitive damages.\(^5\) Traditionally, the amount of punitive damages "is determined by the jury upon consideration of the character of the defendant’s misconduct, the nature and extent of the plaintiff’s injury, and the wealth of the defendant."\(^5\) Although punitive damages are often remitted or reversed on the ground that the award reflected passion and prejudice,\(^5\) or is simply too large,\(^5\) the only common law limitation is that punitive damages must bear a reasonable relation to actual damages.\(^5\) Some states have statutory ceilings on the amount,\(^5\) stipulate the ratio of punitive damages to actual damages,\(^5\) or leave the determination of punitive damages for the judge,\(^5\) but these statutes are still quite rare and often limited to selected types of cases.\(^5\) As a general matter, punitive damages are open-ended and fluctuate greatly even within a single geographic area.\(^5\)

While the open-ended and to a large degree arbitrary magnitude of punitive damages may call into question the fairness of these dam-

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52. See supra notes 27–31 and accompanying text.
53. See Wheeler, supra note 11, at 285 (commenting on how the "complete absence of standards and guidance creates a serious risk of error in determining the size of punitive damages..."); see also Ellis, Fairness and Efficiency, supra note 11, at 56–60 (commenting on how "uncertain criteria for determining the magnitude of punitive damage assessments exacerbate the problems caused by vague liability standards"). This criticism is by no means new. See Morris, Punitive Damages in Torts Cases, 44 Harv. L. Rev. 1173, 1189 (1931).
55. See Wheeler, supra note 11, at 290–91, 291 n.101 (citing cases).
56. See Owen, supra note 54, at 1319–22.
57. See Ellis, Fairness and Efficiency, supra note 11, at 58–60 (criticizing this reasonableness criterion as too uncertain); Owen, supra note 8, at 9, 48.
58. See supra note 10 and infra note 145.
59. See Wheeler, supra note 11, at 298–300.
62. See S. Daniels, supra note 8, at Tables 1–8.
optimal deterrence is not inconsistent with unlimited and variable awards, provided that the punitive liability test excludes false positives. This observation cautions against changing current practice by capping punitive damages: such caps could severely weaken incentives for safety by taking away the threat of high damages necessary to counteract the incentive-weakening effect of punitive safeguards.

B. Implications for "Good Faith" or "Gross Negligence" Based Liability Rules

The issue raised by the current method for awarding punitive damages is whether high, open-ended punitive damages induce too great an investment in safety measures. Many recent tort reform proposals present precisely the opposite issue: whether too little care will be taken when safeguards that would be appropriate in punitive liability litigation are instead applied to liability for merely compensatory damages. These tort reform proposals may be motivated by the same problem of juror error or bias that underlies this Article's argument for punitive liability. The argument suggests that the outright abolition of punitive damages and the adoption of a system which, for example, imposes actual damages if the juror finds clear and convincing evidence of recklessness, is virtually certain to underdeter if the increased burden and reduced standard actually succeed in insulating careful defendants from liability. Current tort reform measures of this sort could drastically reduce the incentives of defendants and cause them to choose suboptimal safety levels.

In the model developed here, punitive damages are required in or-

63. Such variability is inconsistent with the goal of retribution, which requires a definite, fixed relationship between the gravity of the conduct punished and the gravity of the punishment. See infra notes 131-37 and accompanying text. It is often claimed that uncertain criteria for determining the size of punitive damage awards are unfair. See, e.g., Ellis, Fairness and Efficiency, supra note 11, at 56-60.

64. The proposal that damages be capped is quite common, see, e.g., Owen, Deterrence and Desert in Tort: A Comment, 73 Calif. L. Rev. 665, 672 (1985); Wheeler, supra note 11, at 311-22, and has recently been enacted in some states, see supra note 10 and infra note 145.

65. Examples of this species of reform legislation include Tennessee's recently revised Dram Shop statute, Tenn. Code Ann. § 57-10-102 (Supp. 1986), which prohibits even compensatory damages unless the plaintiff shows beyond a reasonable doubt that the sale of liquor was the proximate cause of injury, and Kan. Stat. Ann. § 60-3402(c) (Supp. 1986), which applies the clear and convincing evidentiary standard to all medical malpractice actions. Along somewhat similar lines, Havighurst, Altering the Applicable Standard of Care, Law & Contemp. Probs., Spring 1986, at 265, 273, proposes that the parties to health care contracts might contractually raise the threshold of actionable negligence in order to offset the bias of the legal system toward finding liability in close cases. Professor Havighurst recognizes that "[s]uch a clause would . . . result in a denial of compensation in some cases involving only arguable negligence," but apparently does not see any underdeterrence problem arising from such an increased threshold. Id. However, the likelihood that such a contract would involve agreeing to suboptimal care, absent any penalty clause, is perhaps one reason (the other being judicial hostility) why such clauses are rarely seen.
PUNITIVE LIABILITY
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to counteract the steep increase in the probability of falsely acquit-
ting negligent defendants caused by raising the burden of proof and
lowering the standard of care. Any restriction of punitive damages may
be undesirable if the burden of proof is raised and the standard of care
is dropped, because variation in open-ended jury damage awards can
magnify the deterrent force of such awards. This may be necessary in
some circumstances to prevent underdeterrence.66

By this same argument, existing tort rules that impose compensa-
tory damage liability under standards such as subjective “good faith” or
objective “gross negligence” are not optimal. Even the more inclusive
of the two, the objective gross negligence test, will fail to optimally de-
ter whenever it succeeds in its ostensible purpose of excluding reason-
able conduct from the ambit of liability. For if reasonable conduct is
not punished, unreasonable conduct will be punished with a much
lower probability. This necessitates increasing the magnitude of dam-
ages to avoid underdeterrence. Hence, merely compensatory liability
will be inadequate.

Perhaps the most prominent illustration of a tort liability rule es-
tablishing a gross negligence standard and compensatory damage lia-

66. If the defendant is risk averse, then the greater the dispersion around the ex-
pected damage award, the greater the marginal utility from increasing care. Of course,
beyond a certain point, solvency constraints make the threat of a larger damage award
meaningless, since bankruptcy laws make it impossible to have a negative net worth.

67. See generally ALI, Principles of Corporate Governance: Analysis and Recom-

68. See Joy v. North, 692 F.2d 880, 885 (2d Cir. 1982), cert. denied, 460 U.S. 1051
would not suffice to provide an adequate incentive to use due care in decisionmaking (assuming that care is costly and will only be taken to avoid or reduce the risk of liability). According to the theory developed here, if the business judgment rule actually excluded false positives, then it would need the boost to deterrence provided by punitive damages in order to create the correct incentives.\footnote{70}

C. Instrumental Versus Interventionist Responses to Uncertainty in Jury Decisionmaking

A truly rational defendant is assumed to recognize that legal liability turns on the jury's ability to infer fault from the trial evidence, not on whether its conduct actually met the announced legal standard. Of course, if it were possible to restore certainty to the determination of fault, the hypothesized sophisticated defendant would have optimal incentives under the negligence rule. To the extent that directed verdict and summary judgment practice, the traditional methods of direct judicial intervention in the determination of liability, are attempts to do just this, we are faced with a legal response to uncertainty and error that contrasts with the instrumental, jury-implemented approach taken here. Indeed, Justice Holmes' reputation as a torts jurist is derived substantially from his effort to transform general standards administered by juries such as reasonable care into more certain, precise judge-made rules.\footnote{71} Neither Holmes' strong desire for certainty, nor the instrumental response that he rejected, would have been satisfied by a rule imposing liability for failure to commit a dangerous patient only if the plaintiff can establish lack of (essentially objective) good faith.

\footnote{70. Rules imposing compensatory liability under stringent tests requiring the plaintiff to show gross negligence or a lack of good faith promise to become increasingly attractive to courts in light of what seems a growing judicial recognition of the problems and imperfections of litigation. A fascinating illustration of this is found in Currie v. United States, 644 F. Supp. 1074, 1083–84 (M.D.N.C. 1986), where the court, prompted in large part by the perception that ex post litigation is a highly imperfect mechanism for reviewing therapists' decisions, created a "psychotherapist judgement rule" that imposes liability for failure to commit a dangerous patient only if the plaintiff can establish lack of (essentially objective) good faith.}

\footnote{71. See O. Holmes, The Common Law 111–12 (1881): If, now, the ordinary liabilities in tort arise from failure to comply with fixed and uniform standards of external conduct, which every man is presumed and required to know, it is obvious that it ought to be possible, sooner or later, to formulate these standards at least to some extent, and that to do so must at last be the business of the court. It is equally clear that the featureless generality, that the defendant was bound to use such care as a prudent man would do under the circumstances, ought to be continually giving place to the specific one, that he was bound to use this or that precaution under these or those circumstances. The standard which the defendant was bound to come up to was a standard of specific acts or omissions, with reference to the specific circumstances in which he found himself. If in the whole department of unintentional wrongs the courts arrived at no further utterance than the question of negligence, and left every case, without rudder or compass, to the jury, they would simply confess their inability to state a very large part of the law which they required the defendant to know, and would assert, by implication, that nothing could be learned by experience. But neither courts nor legislatures have ever stopped at that point.}
instrumental approach to uncertainty in which the institutional roles of judge and jury and the uncertainty of jury decisionmaking are taken as given, and legal rules on liability viewed merely as systemic variables to be adjusted as needed to produce the correct incentives, has been widely adopted by the law.\(^72\)

Despite this relative lack of precedent for instrumental change in legal rules, there are several advantages that an instrumentally designed punitive liability system has over case-by-case judicial intervention through the directed verdict. First, although judges may be more uniform in their fact-finding and standard-setting decisions than jurors, substantial uncertainty would remain in a purely judicial liability system. Judges, too, must infer facts from limited, incomplete evidence, and judges, too, differ in interpreting general legal standards, as decisions by Justice Holmes’ own court amply illustrate.\(^73\)

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\(^72\) For a recent example of an instrumental response to uncertainty in the spirit of this Article, see Travelers Indemnity Co. v. Armstrong, 442 N.E.2d 349, 363 (Ind. 1982), where the court adopted the clear and convincing evidentiary standard for punitive damages in insurance claim cases and reasoned that a preponderance test would overdeter and induce insurers to pay rather than question dubious claims. Of course Justice Holmes has himself been quite properly characterized as an instrumentalist, concerned with the law as a mechanism of social engineering. See R. Summers, Instrumentalism and American Legal Theory 23–24 (1982). The instrumental tradition, in which judges were the “most prominent social engineers,” has been described as “our most influential theory of law in jurisprudential circles, in the faculties of major law schools, and in important realms of bench and bar” during the middle decades of this century. Id. at 19, 194. Many legal realists were quite clear that “social values” should play a role in rule choice, see Cohen, Transcendental Nonsense and the Functional Approach, 35 Colum. L. Rev. 809, 833–34 (1935), and quite economic at times in their thinking, see Llewellyn, The Effect of Legal Institutions Upon Economics, 15 Amer. Econ. Rev. 665, 666 (1925) (arguing that “control by law takes on the aspect of engineering,” and for the need to “invent such machinery as, with least waste, least cost, and least unwanted by-product, will give most nearly the result desired”). The general attitude that the fundamental purpose of legal rules is to alter behavior and accomplish social goals is of course also a foundation of instrumental law and economics judging. See, e.g., Easterbrook, Foreword: The Court and the Economic System, 98 Harv. L. Rev. 4, 5–7 (1984).

But “instrumental” is used here in a somewhat special sense to mean an approach that seeks to create efficient incentives without judicial displacement of the jury. Judicial motives for intervention, however, are quite often clearly instrumental in the broader, more customary sense.

\(^73\) Compare Baltimore & O.R.R. v. Goodman, 275 U.S. 66, 70 (1927) (Holmes, J.) (driver hearing neither a train nor a warning signal must stop, look, and in some circumstances get out of his car and look at train crossing, to avoid being found negligent) with
manding that judges find facts and decide how a general standard applies to certain specific circumstances diverts limited and specialized judicial resources from the task of lawmaking and adjudicating. Moreover, it is unclear upon what legitimate basis a judge may decide that a particular jury will not function as the judge would desire and should be supplanted. By contrast, like strict liability, punitive liability does not require a case-by-case judicial decision whether to intervene at the level of fact-finding and law-application, but rather requires a higher level of judicial policy determination of the appropriate treatment of an entire class of defendants. Categorizing a situation as suitable for strict liability is not unlike characterizing a group of cases as medical malpractice, or bad faith insurance settlement, and thereupon setting the correct punitive burden of proof and standard of care. Finally, the theory developed here provides a way to eliminate the adverse consequences of uncertainty while preserving the institution of trial by jury and reserving the jury for cases ostensibly involving gross departures from social norms.

III. THE ROBUSTNESS OF PUNITIVE LIABILITY

A variety of potential criticisms of punitive liability have yet to be considered. Some attack the narrow efficiency criterion assumed in Parts I and II, in which administrative costs, risk aversion, and the market were assumed away. A somewhat more central attack would focus on the possibility that punitive damages will overdeter if punitive safeguards are not always adjusted properly, and yet will often fail to compensate if these safeguards are so adjusted. Finally, the performance of

Pokora v. Wabash Ry., 292 U.S. 98, 103-06 (1934) (Cardozo, J.) (characterizing Goodman rule as unworkable, artificial, and insufficiently flexible and returning to a general reasonable care standard in train-crossing cases).

74. In Professor Twerski’s terminology, a court engages in “low-level lawmaking” when it directs a verdict on the standard of care and essentially functions like a jury; “high-level lawmaking” involves policy decisions regarding, for example, the classification of an entire type of activity as suitable for strict liability (or, for that matter, punitive liability), and it is such policy-based decisions for which courts presumably have unique expertise. See Twerski, Seizing the Middle Ground Between Rules and Standards in Design Defect Litigation: Advancing Directed Verdict Practice in the Law of Torts, 57 N.Y.U. L. Rev. 521, 528-29 (1982).

75. Note that in my model of deterrence, it is necessary that the substantive punitive liability standard be misinterpreted by juries who characterize negligence as gross negligence or recklessness even under a stiff burden of proof. The effectiveness of the punitive liability test thus does not depend on its accurate implementation by judges intervening through directed verdicts. This is an important distinction between this model and prior speculation regarding the effectiveness of punitive safeguards. Compare, e.g., Ellis, Fairness and Efficiency, supra note 11, at 51-52 (“the effectiveness of procedural changes, such as adopting a higher evidentiary standard, depends on whether courts would interpret them as a mandate to dispose more freely of marginal punitive damages claims through summary judgment, dismissal, or directed verdicts”) (footnotes omitted).
punitive liability will be affected by several institutional imperfections besides uncertain jury decisionmaking.

A. The Choice Between Punitive Liability and Negligence

1. Eliminating Overdeterrence Versus Restoring Certainty. — The assumption that the burden of proof and standard of care can be adjusted to make the defendant believe that it will not be found liable if it takes optimal care is a keystone to the elimination of overdeterrence, and hence, to the feasibility of optimal punitive liability. If the defendant perceives even a very slight chance of being found liable despite the taking of reasonable or greater care, then its marginal benefit of increasing care will remain positive at and beyond the optimal care level. Arbitrarily increasing damages may push the marginal benefit of care above its marginal cost for supraoptimal care levels, and thus overdeter.

The ambiguity of the effects on incentives when individuals do not perceive the probability of falsely punishing reasonable behavior to be zero parallels the ambiguity that besets ordinary negligence liability when liability determination is imperfect. Ordinary negligence liability is certain to be efficient only if the liability system perfectly distinguishes between negligent and nonnegligent defendants, creating the sharp discontinuity at the optimal-care level which ensures that the system cannot overdeter. Similarly, punitive liability is only certain to be efficient if it is possible to manipulate the burden of proof and standard of care so that the defendant is once again certain that it will never be found liable if it is not negligent.

Thus, in evaluating the competing claims to efficiency of ordinary negligence liability and punitive liability, one must ask which condition is more likely to hold: perfect liability determination, or the court's ability to set liability standards that convince the defendant that the evidence can never be bad enough for liability if it takes reasonable care. The former condition is commonly assumed in the literature on the efficiency of negligence rules. The latter condition, which is not commonly assumed in conventional models, is simply that if, for example, liability is found only if substantial evidence shows bad faith or gross negligence, and if in fact reasonable steps were taken, then the defendant will be certain that there will not be substantial evidence showing gross negligence. It would seem that the defendant can always be assured that some witnesses or documents will evidence reasonable care if it in fact takes reasonable care, particularly if most or all of the evidence starts out in the defendant's possession. And as for the ability to set liability standards that sufficiently toughen the evidentiary requirements for liability, one need only consider that in Texas, not a single jury-finding of gross negligence against an employer was ever upheld.

76. See supra notes 2–3.
under a test requiring "no evidence" of even "some care" for the plaintiff to prevail on appeal.\footnote{77. See Burk Royalty Co. v. Walls, 616 S.W.2d 911, 918-19 (Tex. 1981) (compiling cases under the "no evidence of some care" test which established the standard for review of the jury's gross negligence finding, but having clear applicability to awards of punitive damages under a standard of extreme negligence).}

An efficient negligence rule, on the other hand, requires perfect, or error-free, liability determination. This is possible only if each care level can be precisely and deterministically linked to a particular kind of evidence. In very few lawsuits is evidence this highly informative, and thus it would seem not too bold to assert that efficient punitive liability is at least as likely to be efficient as negligence liability.

2. Risk Aversion and Optimal Punitive Liability Versus Optimal Fines. — To the extent that optimal punitive liability calls for high, supracompensatory damages and a very low probability of finding liability, it bears some resemblance to the classic model of optimal law enforcement developed by Gary Becker.\footnote{78. Becker, Crime and Punishment: An Economic Approach, 76 J. Pol. Econ. 169 (1968).} It is well known that risk aversion generally destroys the optimality of Becker's high-fine, low-probability-of-conviction criminal sanction,\footnote{79. See Polinsky & Shavell, The Optimal Tradeoff Between the Probability and Magnitude of Fines, 69 Amer. Econ. Rev. 880 (1979). For a nontechnical explanation of the impact of risk aversion on the optimal fine and probability of conviction, see A. M. Polinsky, An Introduction to Law and Economics 77-85 (1983).} and it is therefore of some interest to inquire whether the optimality of punitive liability will also be affected by risk aversion.

When all the assumptions underlying the derivation of the optimal punitive liability hold, nonnegligent defendants think they will never be punished, and no defendant is negligent. Hence, since there is no probability that the defendant will suffer a monetary loss, there is no disutility due to risk bearing.

To understand why there is substantial risk bearing in the seemingly similar high-fine, low-probability-of-conviction optimal fines model requires briefly restating the world pictured by the fines model.\footnote{80. See Becker, supra note 78; Polinsky & Shavell, supra note 79.} It is a world in which persons may engage in a criminal activity, dumping hazardous waste, for example, but any person caught engaging in the activity is found guilty and must pay a fine. No one who did not commit the crime is erroneously captured and fined. Moreover, everyone caught and brought to justice is found liable. Efficiency dictates that only those defendants whose private gain exceeds the external harm should engage in the activity. In order to force potential criminals to engage in the socially appropriate cost-benefit calculus, the expected fine must be set equal to the magnitude of harm. Let $P$ denote the probability of being apprehended and fined, $F$ the magnitude
of the fine and $H$ the magnitude of harm to victims. Economic efficiency requires that $PF = H$.

An infinite number of policy vectors $(P, F)$ accomplish this goal. Becker's insight was that the probability of apprehension $P$ depends on the resources devoted to enforcing the fine. The higher $P$ is, the higher the opportunity cost to society in terms of the resources devoted to fine collection and enforcement. But $F$, the fine, is merely a transfer payment and may be costlessly increased. Thus the expected fine can be kept at its efficient level while the cost of law enforcement is reduced by increasing $F$ and reducing $P$. This policy may be bounded, because raising $F$ above the defendant's wealth will have no further effect, but the basic result of the optimal fines literature remains: set a low probability of apprehension and liability to minimize the cost of enforcement, and increase $F$ to a very high level to keep the expected fine equal to the magnitude of harm, $H$.

The problem with this policy, as pointed out by Polinsky and Shavell, is that if defendants are risk averse, those who should choose to engage in the activity because their gain exceeds social harm, $H$, and do so will bear enormous risk from the high fine, low probability of liability.81 Those who do not engage in the activity will bear no risk because they will never be caught and fined. The intuitive reason for this is that individuals are generally very averse to the probability of suffering a huge loss, even if the probability is very low.82 The remedy for this problem is to lower $F$ and increase $P$ relative to the optimal values under risk neutrality, so that the disutility of loss is lessened.83 This new policy, while reducing disutility due to risk, will still ensure that the only people who engage in the activity are those whose gain in utility exceeds the external harm.

This brief sketch suffices to indicate the major differences between the model in the optimal fines literature and the analysis presented here. The theory of punitive liability is not based on a "capture and convict" model of the legal process. Instead, it supposes a "capture and trial" model. By manipulating the burden of proof and standard of care, punitive liability lowers to zero the probability of finding a non-negligent defendant liable, and the legal sanction thus varies with the type of defendant. Nonnegligent defendants face zero expected damages, while negligent defendants face extremely high expected damages. In the optimal fines literature, the probability of capture is the same for all individuals, regardless of whether or not they are behaving in a socially optimal fashion when they engage in the activity. The

81. See Polinsky & Shavell, supra note 79, at 884–85.
82. For a nontechnical exposition of risk aversion that illustrates this proposition, see Blume & Rubinfeld, Compensation for Takings: An Economic Analysis, 72 Calif. L. Rev. 569, 601–05 (1984).
83. If one assumes declining marginal utilities, it is apparent that the risk effect cannot be eliminated unless there is no risk, that is, $P$ equals one.
model underlying the theory presented here corresponds roughly to a fines system, modified so that after capture, the defendant is only fined if the jury determines that the defendant was of the type that should not have engaged in the activity—that is, that the defendant's private gain was less than the social harm.

3. Risk Aversion and Imperfect Punitive Liability Versus Imperfect Negligence. — The difference between the model of punitive liability presented here and the model of optimal fines points out once again that the efficiency of punitive liability as developed thus far turns on the ability to set the burden of proof and standard of care so as to create a condition in which the defendant thinks it will not be held liable if it takes the optimal level of care. An obvious potential criticism of punitive liability is that if this condition does not hold—if false positives are not totally eliminated—defendants face a small probability of paying very high damages even if they behave optimally. Such a system would lower the expected utility of the risk averse defendant and might well induce it to take more than the socially optimal level of care in order to reduce its expected damages and risk. Hence, it is possible that the punitive liability system overdeters and imposes greater risk. If this is so, the negligence system could be preferable after all, depending on whether the lower risk under negligence is concomitant with suboptimal care.

While this is indeed a possibility, other less intuitively clear possibilities must also be considered in comparing a second-best punitive liability system to a second-best negligence system. In such a comparison, we consider not a wholesale shift from flawed negligence to ideal punitive liability, but a small movement from negligence toward a punitive system. It may be possible to move to a punitive liability system, a system with higher damages and a lower probability of liability than ordinary negligence, which will leave the defendant's expected utility and care level unchanged, lower the expected damages paid to victims, and hence also lower the expected or average lawyer's fee, assuming contingent fees. When the defendant is risk averse, the deterrent force of a penalty scheme is based not solely on the expected penalty, but also on the dispersion in the penalty. A punitive configuration involving a low probability of liability and supracaompensatory damages has a greater dispersion around the expected penalty than does a negligence system, and hence imposes more risk. To offset this increase in risk, the expected penalty must be lower in the punitive system if the defendant's expected utility is to be kept constant. The lower expected penalty does not necessarily reduce the defendant's incentive to take care because the risk averse defendant's benefit from taking care in-

84. The defendant might be induced to take too much care if it were risk neutral, but risk aversion magnifies the effect of false punitive liability assignments by adding reduction in risk to the marginal benefit perceived from taking more care.

85. I am attempting to prove this result formally in a work in progress.
PUNITIVE LIABILITY

includes not only a reduced expected penalty, but also reduced risk. 86

If the punitive liability system keeps care unchanged, lowers the probability of liability for that care level, and reduces the expected damages, then it should decrease the expected return to plaintiffs' lawyers pursuing this type of case. Although lawyers receive more per case under the high damage punitive liability system, their average award may fall because it is very difficult to win cases in the punitive liability system where the probability of finding both nonnegligent and negligent defendants liable has fallen. 87

Since the existence of a punitive liability system that compares to negligence in this way even when there are false liability assignments depends on the defendant's risk aversion and the cost of care, the comparison between any two systems cannot be made without knowledge of the relevant utility and cost functions. However, there is very little reason to reject punitive liability on the ground that it may induce too much risk. In fact, whatever increased risk may be felt by defendants as a result of the switch to punitive liability may be offset by the lowered probability of liability, which may also reduce the average payment to the plaintiffs' lawyers.

B. Administrative Costs of the Liability System

In the optimal fines model the probability of capturing and convicting offenders is lowered by reducing the resources devoted to, and hence the social cost of, law enforcement. The model assumes that it is

86. The defendant's marginal cost of care is also affected by risk aversion, since the opportunity cost of taking care in the low-wealth liability state is generally greater, the more risk averse the defendant. The ability to move to a punitive liability system with lower expected damages but unchanged expected utility and care depends on the magnitude of compensatory damages, the defendant's risk aversion and the cost of care.

87. Note that in this model, there will be lawsuits and hence payments to plaintiffs' lawyers even if all defendants take optimal care because in second-best systems of this sort, even nonnegligent defendants will sometimes be found liable. The expected award is calculated using the probability of liability given the equilibrium care choice of defendants under these second-best systems. The expected award falls because even if all plaintiffs who are injured sue, the probability of recovering given a negligently caused injury is lower under punitive liability than under negligence liability. The simplifying assumption that all injured plaintiffs sue is not crucial. Even if the probability of suit varied with the form of the liability rule, while expected damages and expected victim recovery might change, the average payment to lawyers in litigated cases would still be lower under punitive liability than under negligence liability, provided the punitive system induced as much care as the negligence system. Care will be at least constant if the probability of suit under the punitive liability system is not lower than under negligence. Of course, the lower chance of establishing liability in the punitive system could decrease the probability of suit, necessitates a relaxation of punitive liability standards to avoid underdeterrenting defendants who discount expected damages by both the probability of liability given suit and by the probability of suit. It is not clear, however, that the probability of suit would fall under punitive liability. On the impact of punitive liability on the probability of suit given harm and the choice between settlement and trial, see infra notes 88–89 and accompanying text.
possible to have fewer prosecutions even though the penalty is greatly increased. There is no difficulty in accomplishing this when the penalty is a fine paid over to the state and the prosecutor is a public employee who receives no monetary benefit from a successful prosecution. But under a regime of private enforcement, in which the “prosecutor” is a profit-maximizing attorney who receives a portion of the penalty as his reward for bringing the violator to justice, the high fine may attract more private prosecutors—plaintiffs’ attorneys—and ultimately increase the probability of apprehension and conviction. Under private enforcement, it may not be possible to achieve the optimal policy configuration of the fines model, because the high fine attracts enforcement resources and pushes the cost of enforcement above its optimal level.

In punitive liability, by contrast, the high damage award may not be sufficient to attract more plaintiffs’ lawyers because the probability of winning a lawsuit will fall due to alterations in the burden of proof and the standard of care. Whereas under ordinary negligence liability, the plaintiff’s attorney has only to convince the juror that it is more likely than not that the defendant failed to take reasonable care, under optimal punitive liability, he may need to persuade the juror by clear and convincing evidence that the defendant failed even to take some care or was guilty of a gross shortfall from reasonable care. The low probability of liability in the punitive liability system is intended to eliminate the risk of punishing nonnegligent defendants, and a side effect of this is to make it much more difficult for the plaintiff to win. This might well discourage attorneys from taking this kind of case. The concern under punitive liability would then be, not that private enforcement leads to too many suits, but too few.

It is not my purpose here to describe in detail formal conditions under which the switch to punitive liability might decrease the amount of legal resources devoted to enforcing the liability rule, but rather to note that punitive liability does not necessarily lead to higher administrative costs than negligence or, for that matter, strict liability. Strict liability is similar to the fines model insofar as it lowers the administrative costs of individual trials associated with a fault-based system by simply removing fault as an issue and assessing damages against all defendants without inquiring into negligence. However, in the model of liability determination on which my analysis is based, high punitive damages might well induce costly trials over fault, an expense avoided.

88. See Landes & Posner, The Private Enforcement of Law, 4 J. Legal Stud. 1, 14–15 (1975); see also Friedman, Efficient Institutions for the Private Enforcement of Law, 13 J. Legal Stud. 379, 395–96 (1984) (showing that when damage from the violation is large and virtually all violations should be deterred, wealth constraint may preclude attracting sufficient private enforcement resources, making public enforcement, or reward in excess of penalty, preferable); Polinsky, Private Versus Public Enforcement of Fines, 9 J. Legal Stud. 105, 115–120 (1980) (showing that private enforcement may be preferred to public).
in (pure) strict liability. But against this increase must be balanced the likely decrease in the number of trials caused by the lower probability of winning at trial. Of course, the prospect of an expensive punitive liability trial with uncertain and potentially huge liability might provide an incentive for unmerited suits brought to coerce settlements. A countervailing tendency, however, might be for the difficulty of establishing liability to make coerced settlements rare and the settlement of meritorious claims more likely, resulting in a cost reduction. Once again, the point is that administrative costs may under plausible conditions be lower under punitive liability than under ordinary negligence liability or strict liability and that this aspect of economic efficiency does not favor these more traditional forms of liability.89

C. Punitive Damages in a Market Setting

The analysis thus far has assumed that there is no formal market mechanism to force the defendant to internalize the expected harm. That is, the implicit assumption has been that the parties are strangers, and the threat of legal liability is the only force influencing the defendant firm to take care. This is not necessarily so where external harm is suffered by consumers of the firm’s product, and where the price paid for the product, and hence the firm’s profits, may depend directly on consumers’ perceptions of the expected harm from product failure or malfunction. The consumer’s estimated expected harm per unit should be subtracted from the price she is otherwise willing to pay for the product.90 At one extreme, a fully informed consumer will subtract the full expected social harm from that price. At the other end of the informational spectrum, when consumers are ignorant of the risks of harm, expected harm will have no effect on the price consumers will pay and thus on the firm’s profits. An intermediate assumption is that consumers underestimate harm, but that their perceived expected harm pro tanto lowers the price paid.91

89. Cf. Wheeler, supra note 11, at 313–14, (administrative costs might fall if a higher burden of proof in punitive damage cases discouraged meritless claims); see also A. M. Polinsky & D. Rubinfeld, A Note on Optimal Public Enforcement with Settlements and Litigation Costs (Stanford Law School, Law and Economics Working Paper No. 29, 1986) (showing how settlement possibilities and litigation costs can alter the optimal fines model).

90. For models assuming consumers subtract perceived expected harm, see, e.g., Polinsky & Rogerson, Products Liability, Consumer Misperceptions, and Market Power, 14 Bell J. Econ. 581 (1983); Spence, Consumer Misperceptions, Product Failure and Producer Liability, 44 Rev. Econ. Stud. 561 (1977).

The conclusions of this section parallel those in Schwartz & Wilde, Imperfect Information in Markets for Contract Terms: The Example of Warranties and Security Interests, 69 Va. L. Rev. 1387, 1429 (1983), where the authors conclude that if consumers underestimate the odds of product failure, prices are likely to be supracompetitive and warranty coverage suboptimal.

91. This three-case scenario is analyzed, using the formal framework developed in Polinsky & Rogerson, supra note 90, in the Appendix.
The net effect of consumer perceptions of the risk of harm is a negative relationship between expected harm and firm profits independent of liability for damages. If, however, consumers seriously underestimate expected harm, the market will provide only a very weak incentive for the firm to reduce expected harm, leaving legal liability as the primary mechanism inducing cost internalization. Ordinary negligence liability will in turn be of ambiguous ex ante efficiency, and optimal punitive liability will generate the efficient result. Even though the market may induce the defendant to take some care when consumers misperceive the magnitude of harm but still perceive some harm as possible, punitive liability will create an incentive to take optimal care and no more, provided that the burden of proof and standard of care are set so that overdeterrence cannot occur.

D. Victim Incentives Under Punitive Liability

Thus far, I have been concerned with constructing a punitive liability system that will be efficient in these settings: (1) nonmarket settings in which either victims cannot do anything to affect the probability of harm or victims behave without taking into account their ability to recover damages, and (2) market settings in which consumer-victims at least partially misperceive the risk of harm. If victims fully perceive the risk of harm, then any form of liability may be unnecessary in the market setting. In the nonmarket setting, the presence of victims who can affect the probability of harm by taking care and who are responsive to the signals sent by the liability rule raises the question of the roles that defenses such as contributory and comparative negligence might play in a punitive liability system. A complete discussion is beyond the scope of this Article, but a few remarks are perhaps in order. Under conditions of perfect liability determinations, when ordinary negligence is optimal, efficiency does not require the defense of contributory negligence. The defendant will always take due care and escape liability, and as a consequence, the potential victim will bear the full social costs. Assuming that damages equal actual harm, the potential victim will therefore select the socially optimal level of care.

Optimal punitive liability induces defendants to behave optimally when liability is determined without reference to the plaintiff’s behavior. When the plaintiff can also take care and affect the probability of harm, and a contributory negligence rule is enforced in an imperfect trial process, the defendant’s incentive to take optimal care will be un-

92. See id.
93. This result was first formally demonstrated in Brown, supra note 2, at 340–42, and has been restated recently in Haddock & Curran, An Economic Theory of Comparative Negligence, 14 J. Legal Stud. 49, 56–59 (1985); see also Posner, A Theory of Negligence, 1 J. Legal Stud. 29 (1972) (analysis of 1528 appellate court decisions, on the basis of which tort law is characterized as motivated by a principle of efficient resource allocation).
changed, provided that damages are very high. The reason is that even though the juror may sometimes find that the plaintiff was negligent when he was not, thus sometimes erroneously failing to punish the negligent defendant, optimal punitive liability still ensures that the non-negligent defendant will not be found liable. Thus the defendant cannot be induced to take too much care, and although the defendant will sometimes escape liability even when it is negligent due to erroneous findings of fact that the plaintiff was at fault, as we have seen before, this will not affect the defendant’s choice of care so long as damages are sufficiently high.

If the punitive liability standards are optimal and lead the defendant to choose the efficient level of care, that is, the level at which it believes it will not be found liable, then, as under the perfect negligence rule, the plaintiff will never recover damages. If the plaintiff knows this, the plaintiff’s problem will then be to choose his care level so as to minimize his expected damages plus his cost of care, given that the defendant is taking optimal care. This is society’s problem also, and thus under optimal punitive liability, there is no need for a defense of contributory negligence.

If punitive liability is only second-best, inducing nonoptimal defendant care and sometimes assessing punitive damages against non-negligent defendants, and if the plaintiff is risk neutral, then the prospect of recovering supracompensatory punitive damages can create perverse incentives for the plaintiff. The problem is that supracompensatory damages, taken literally, may give the plaintiff an incentive to lower his care to increase the probability of an injury and recovery. Were it not for a contributory negligence rule, the plaintiff then would take less than the socially optimal level of care unless his expected punitive recovery were zero. Even an imperfectly administered contributory negligence rule creates a positive relationship between the plaintiff’s care level and his chances of recovering supracompensatory damages. There is then a benefit to taking care, which could lead the plaintiff to choose the optimal care level.

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94. The plaintiff-victim must also expect that the defendant’s level of care is at its equilibrium level.
95. There are, of course, good reasons for thinking that the victim’s utility function is state-dependent. That is, no potential victim would want to incur the pain, suffering and disablement necessary to recover these “supracompensatory” damages, and would not attach high marginal value to income in such an injured state, preferring more safety and a lower probability of injury than my risk neutral model or a state-independent utility function model implies. The conclusions I reach in the context of this model might not hold with state-dependent utility where the victim has low marginal utility in the injured state. For examples of state-dependent utility analysis, see Cook & Graham, The Demand for Insurance and Protection: The Case of Irreplaceable Commodities, 91 Q.J. Econ. 143 (1977); Shavell, Theoretical Issues in Medical Malpractice, in The Economics of Medical Malpractice 35 (S. Rottenberg, ed. 1978).
96. See the Appendix.
97. See id.
Of course, an imperfect contributory negligence rule could also induce the plaintiff to choose too much or too little care, just as the imperfect negligence rules had ambiguous incentive effects. Of even greater interest, however, is the general impossibility of constructing a victim's version of optimal punitive liability. The problem is that punitive damages can cause the victim to take too little care. Always excluding false findings of victim negligence eliminates potential victim overdeterrence, but high punitive damages may still cause the victim to take too little care. If standards are instead adjusted to always find liability when the victim is negligent, the potential victim will never take too little care—since he faces the full social costs of the failure to do so—but there is no way to rule out the possibility that he will take too much care. Hence, while there is an optimal punitive liability system for injurers, it appears that any such system has an unclear effect on victims.

Still, the potential for a moral hazard problem of this sort on the victim's side will exist only when victims choose their level of care taking into account the possibility of recovering damages if injured, and act as if punitive damages will actually be supracompensatory. If victims are relatively insensitive to the legal rule, and believe that being injured will always involve a net loss to them, punitive liability need not weaken victim safety incentives.

E. Variability in Juror Damage Awards and Proximate Cause Limitations on the Scope of Liability: Optimal Punitive Liability Compared with Strict Liability

As noted previously, the only requirement with respect to the magnitude of damages under optimal punitive liability is that damages be high enough to offset the reduction in the probability of finding negligent defendants liable caused by raising the burden of proof and lowering the standard of care. In general, the magnitude of damages will need

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98. I have not explicitly analyzed comparative negligence, but recent work suggests that an uncertain comparative negligence rule (whether pure, modified, or slight/gross) will create stronger incentives for the injurer, and weaker incentives for the victim, than contributory negligence. This result falls out of the definitions of comparative negligence and contributory negligence. Cooter & Ulen, supra note 25, at 1091-92, 1104-10.

99. See the Appendix.

100. Cooter & Ulen, supra note 25, at 1092, argue that when injurers are better situated to take precautions than victims, the simple negligence rule should be preferred because it provides better incentives for the injurer than either comparative or contributory negligence. This recommendation is apparently inconsistent with their conclusion that uncertainty causes negligence rules always to overdeter. Id. But see id. at 1108 n.150 (overdeterrence only occurs given certain assumptions about the distribution of errors). In any case, Cooter & Ulen's argument supports the proposition that the possible adverse effects of punitive liability on victim incentives will be unimportant when victims are either insensitive to the legal rule or unable to evaluate and take precautions against risk.
to be considerably greater than the magnitude of actual harm, but provided that damages are high enough, it is irrelevant whether one jury sets damages much higher or lower than another. Such variation in damage awards does not affect the efficiency of optimal punitive liability. Moreover, as long as only negligent defendants are held liable, it does not matter if the defendant is held liable for unforeseeable harm or harm it did little to cause, since such undue expansions in the scope of liability can only increase the damages which will be assessed against negligent defendants, while nonnegligent defendants remain certain of escaping liability.

These results contrast dramatically with the consequences of variation in jury damage awards and relaxed proximate cause limitations (expanded scope of liability) for the efficiency of ideal strict liability. Under ideal strict liability, the defendant's marginal benefit of care equals the decrease in the probability of harm times the amount of damages because when damages are paid whenever harm occurs, the decrease in the probability of paying damages is simply equal to the decrease in the probability of harm. This will equal the marginal social benefit of care provided that damages equal actual harm. However, in an imperfect world, juries vary in their damage awards, and sometimes award supracompensatory damages. Moreover, the defendant is sometimes held liable for damage which it did not cause, or which would have occurred in any event. If errors are unbiased in the sense that high assessments cancel out low assessments and leave the expected damage award equal to actual harm, then strict liability will still create optimal incentives for the risk-neutral injurer. But if damage awards are systematically biased upward, reflecting, for example, juror hostility or liability for harm beyond that caused by the defendant, the defendant's expected damages may greatly exceed the social harm that the defendant has caused. Under these conditions, the private marginal benefit of care will exceed the social marginal benefit of care. As a consequence, strict liability will induce supraoptimal care. This result will also be possible under ordinary negligence liability when liability determination is imperfect, since a major effect of imperfect liability determination is to create a positive probability of erroneously assess-

101. This is because the adjustment of the liability standards to create a zero chance of finding nonnegligent defendants liable will result in a very low probability of holding marginally negligent defendants liable.
102. Ideal strict liability is a system in which the defendant always pays actual damages when it is found to have caused harm, regardless of its level of care, and errors are not made in determining causation.
ing damages against a nonnegligent defendant,\textsuperscript{104} which implies that the marginal private benefit of care may still be positive at the optimal level of care, which in turn implies that the defendant may increase its care beyond the optimum.

This possibility does not exist under a punitive damages system that assesses damages only against negligent defendants. Thus, the choice between strict liability and punitive liability may well turn on the comparative ability to control juror errors in overestimating actual damages versus juror errors in unduly expanding substantive liability standards. While both fault determination and damage assessment can be controlled in a jury system through judicial intervention in the form of directed verdicts and reductions in the juror's damage assessments, there are no corresponding legal rules vis-à-vis the burden of proof and the standard of care by which the judge can indirectly or instrumentally limit high damage awards. Changes in damage awards must be made directly, by actually setting the award.\textsuperscript{105} Moreover, the controls over damage awards must be such that the expected award can be set equal to actual social harm. If expected damages are too high, there will be too much care, while inadequate damages necessarily imply too little care. Strict liability may therefore dominate negligence in the sense that un-biased error in damage assessment does not affect the (risk neutral) efficiency of strict liability, whereas unbiased but imperfect fault determination does destroy the efficiency of negligence. But punitive liability may be optimal when fault determination is both imperfect (or stochastic) and biased, since the possibility that jurors will set the substantive standard too high (or penalize even small deviations from due care) was explicitly incorporated into the substantive standard for punitive liability. Strict liability is not efficient when actual damage awards

\begin{itemize}
\item \textsuperscript{104} See Shavell, supra note 103, at 489.
\item \textsuperscript{105} As observed in Jaffe, Damages for Personal Injury: The Impact of Insurance, 18 Law & Contemp. Probs. 219, 221 (1953), "Judges consign [damage questions] uneasily to juries with a minimum of guidance, occasionally observing loosely that there are no rules for assessing damages in personal injury cases." The difficulty of controlling jury damage awards without directly displacing the jury has been a major obstacle in obtaining agreement on tort reform. A recent ABA Commission has recommended greater use of remittitur and additur to set aside or augment pain and suffering awards which are so excessive or so inadequate as to be "clearly disproportionate to community standards," and also recommended that more guidance be given to the jury on the "appropriate range" of pain and suffering damages. ABA, Report of the Action Commis-
\end{itemize}

sion to Improve the Tort Liability System 13-14 (1987). The only concrete suggestion for guiding jury awards mentioned in the report was to have trial judges present a non-binding range of awards to the jury. The majority of the Commission rejected this suggestion as too interventionist. Id. at 15. This reaction parallels traditional judicial hostility toward reducing the uncertainty and unpredictability of damages for intangible loss through schedules of awards in similar cases. See Wry v. Dial, 18 Ariz. App. 503, 514-15, 503 P.2d 979, 990-91 (1973) ("[R]eferences to verdicts in other cases . . . is a dangerous game. . . . No two juries are alike. We hope the day will never come when awards for pain and suffering in personal injury suits are based upon predetermined schedules.")
are biased. Negligence is not efficient when fault determination is unbiased but uncertain. Punitive liability, however, may be efficient when both fault determinaiton and damage assessment are biased and uncertain.106

F. The Activity Level Issue: The Economic Purpose of Strict Liability

Efficiency is concerned not only with giving injurers the correct incentive to invest in safety, but also with giving the correct signal regarding the appropriate level of activity to engage in. The problem encountered by a fault-based liability rule such as punitive liability is that, when it is ideal, injurers will behave reasonably and therefore never be found liable. Hence, injurers will not be forced to internalize any of the external harm they cause.107 If a firm that took reasonable abatement steps is certain that there will be no liability for accidental factory pollution, it will have no incentive not to operate the factory at excessively high levels. And if punitive liability is not ideal, but rather leaves even those injurers who behave reasonably facing potential liability, then there is no general assurance that expected liability will equal the expected social harm injurers generate.

The failure of a fault-based liability rule to send the correct activity level signal need not, however, lead one to reject punitive liability. The general solution is to couple punitive liability with a tax (or subsidy) that is paid by injurers whenever an accident occurs. If expected damages given optimal care are less than expected social harm, the tax makes up the difference and thus visits on injurers the full expected harm they cause, ensuring the appropriate incentive to choose not only safety but also the optimal activity level.108

Of course a tax paid by injurers whenever harm occurs is just a form of strict liability. This analysis thus implies that punitive liability, designed never to impose liability against careful defendants, should be coupled with strict compensatory liability. Punitive damages prevent underdeterrence but punitive safegarnards ensure that defendants will have zero or very low expected damages when they take reasonable care. This will encourage excessive levels of the activity unless additional damages are imposed on injurers whenever harm occurs.

There is, then, a theoretical justification for a liability system that couples punitive and strict compensatory liability. The punitive liability system would be designed to provide the correct incentive for safety,

106. Of course, if jurors refuse to award sufficiently high damages, punitive liability can underdeter, but this is true of all three systems and therefore does not affect the comparison.

107. This point was first made by Shavell, supra note 2, at 14.

108. For a simple but more formal demonstration of the need for such a tax in conjunction with a fault-based liability rule subject to error, see Png, supra note 36, at 103–104.
while strict compensatory liability would ensure the appropriate level of the activity.

Under current doctrine, punitive damages cannot be awarded unless the plaintiff first establishes actual damages, which are awarded in addition to strict compensatory liability. The actual tests for strict liability and punitive damages may depart significantly from the theoretical paradigms developed and assumed here, but the theory nonetheless has an important general implication: the availability of both punitive and strict compensatory liability can be rationalized as a system that can, under appropriate conditions, create correct incentives for both safety and activity levels. That is, the availability of both types of relief need not be justified by the different goals served by punitive and strict liability, but rather by the dual aspects of optimal deterrence.

G. The Institutional Robustness of Punitive Liability

In order to merit serious attention as a proposed deterrent, a liability rule should be able to generate optimal incentives for safety even when many of the institutions implementing the rules are imperfect. That is, it should possess the quality of institutional robustness.

The focus thus far on imperfection in the institution of jury decisionmaking has, of course, neglected many other sources of institutional imperfection. Professor Stephen Sugarman has recently provided an exhaustive account of institutional imperfections that affect judicially administered liability rules. The practical feasibility of punitive liability as a robust mechanism of deterrence can be conveniently exposed by explaining its relative immunity to these imperfections.

1. The Imperfect Institution of the Jury Trial. — Variations in jury damage awards, and errors in liability determination due to inherently fuzzy fact-finding and vague legal standards have already been discussed. Punitive liability has been designed with just these problems in mind.

109. See Oliver v. Raymark Indus., 799 F.2d 95, 97 (3d Cir. 1986) (interpreting Nappe v. Anschelewitz, 97 N.J. 37, 477 A.2d 1224 (1984), as holding that punitive damages may be assessed without underlying compensatory damages only in intentional tort cases); J. Ghiardi & J. Kircher, supra note 46, at 6.16; Prosser & Keeton, supra note 44, at § 2.

110. The argument that punitive damages are inappropriate in conjunction with strict liability has been overwhelmingly rejected. See Fischer v. Johns-Manville Corp., 103 N.J. 643, 655, 512 A.2d 466, 475 (1986) (compiling cases).

111. For a lucid statement of the traditional rationalization that strict liability and punitive damages are not inconsistent because strict liability is designed to compensate while punitive damages punish and deter, see Maxey v. Freightliner Corp., 450 F. Supp. 955, 961 (N.D. Tex. 1978), aff’d, 623 F.2d 395 (5th Cir. 1980), rev’d, 665 F.2d 1367 (5th Cir. 1982) (en banc).

112. See Sugarman, supra note 4.

113. See id. at 566 nn.34–35.
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It is efficient despite the uncertainties of the jury trial system, unlike ordinary negligence liability and strict liability.

2. Uncertainty in Identifying the Wrongdoer. — Uncertainty that suit will be brought against the party that caused the harm and the symmetric problem that the wrong agent may be identified as causing the harm has also been considered. The probability that suit will not be brought when harm occurs will be more than offset if punitive damages are high enough. The efficiency of punitive liability will not be affected by wrongly assessing damages for harm that the defendant did not cause, because even second-best punitive liability rarely punishes a nonnegligent defendant. It is only this kind of error that impairs optimality.

3. Ignorance of the Law. — Ignorance of the threat of legal liability and/or the rules determining liability, irrational discounting of the probability of liability or magnitude of damages is not equilibrium behavior for a profit-maximizing institutional defendant, and thus cannot persist in reasonably competitive markets. While such a state may characterize the transition from one type of liability system to another, the liability rule may eventually be accurately understood and responded to. Indeed, the move from a negligence rule, which sends vague signals about when conduct is "reasonable," to a punitive liability system, which announces that defendants will be severely punished but only if the jury is certain that the defendant was guilty of egregiously little care, may well dramatically increase defendants' awareness of the sanction for disobeying the legal command.

4. Oversensitivity to the Threat of Legal Liability and Inappropriate Responses. — When defendants respond to the threat of liability by exploiting inherent limitations of the liability determination process by, for example, failing to preserve evidence, the tort system's efficacy is threatened. Since evidence destruction or nonproduction is simply one way that plaintiffs are denied access to evidence, the model developed above suggests that this problem might be dealt with by lowering the plaintiff's burden or shifting the burden of proof to the defendant. The kind of case in which evidence destruction is cheapest and most effective is that in which the defendant has greater access to the evidence to begin with, and thus the general prescription of lowering or

114. Id. at 569.

115. Id. at 565–69.

116. As Wheeler, supra note 11, at 283 has observed, "the stigma that arises from a punitive damages award may in some cases equal or exceed that which arises from a criminal conviction." This stigmatizing effect allows punitive liability to overcome the potential concern that the public at large will not properly understand the jury's verdict: the safeguards that prevent punitive liability from overdetering the legally sophisticated have the additional benefit of clarifying the message sent to the general public. Punitive liability findings should be fewer in number but more dramatic in tone than negligence findings.

117. Sugarman, supra note 4, at 581–85.
shifting the burden for that class of case should significantly reduce the relevance of this kind of inappropriate behavior.

5. The Problem of Solvency Constraints. — Inability to affect the defendant's behavior beyond the point where punitive damages are equal to the defendant's wealth\(^{118}\) causes an increase in the magnitude of damages beyond that point to have no effect on the defendant's incentive to take care. Therefore, if the defendant's net worth is lower than the magnitude of damages necessary to prevent underdeterrence (which will more likely be true when the magnitude of possible social harm greatly exceeds the defendant's net worth) then punitive liability will not be efficient.

This is an inherent limitation on the effectiveness of any *ex post* monetary sanction as a deterrent.\(^{119}\) Under these circumstances, some form of nonmonetary sanction may be necessary to make *ex post* liability rules preferable to *ex ante* regulation.\(^{120}\) A virtue of punitive liability when the wealth constraint is binding is that by finding liability, the juror clearly condemns the defendant's conduct as egregious. This kind of moral condemnation, as opposed again to the vague signal sent by ordinary negligence liability, may carry a stigmatizing effect that provides exactly the nonmonetary sanction necessary to provide an adequate deterrent when monetary damages are of limited effectiveness due to the solvency constraint.\(^{121}\)

Perhaps of even greater interest, however, are the roles that variation and unpredictability in the size of punitive damage awards play in counteracting the solvency constraint. For although damages in excess of an injurer's wealth are ineffective as an incentive for alleviating risk

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118. Id. at 571–72. This problem was first formally identified and analyzed in the context of Becker's optimal fines model in Block & Lind, Crime and Punishment Reconsidered, 4 J. Legal Stud. 241 (1975). More recently, it has been shown that under a perfectly enforced negligence rule, injurers will take no care if their net wealth is sufficiently low, but will choose the efficient level of care as their assets increase, even when their assets are less than the loss they may be forced to pay, and that injurers will choose the efficient level of care at lower wealth levels than they would under strict liability, because of the large, discontinuous marginal benefit of optimal care under a perfect negligence rule. Shavell, The Judgment Proof Problem, 6 Int'l Rev. L. & Econ. 45 (1986).

119. Because the permissible amount of punitive damages falls with the defendant's wealth, see Ellis, Fairness and Efficiency, supra note 11, at 61, current punitive damages practice may constrain the effectiveness of punitive damages at a threshold below the solvency constraint itself.

As observed in Owen, supra note 8, at 19–20, there may be great practical difficulties in measuring the wealth of a corporate defendant that lessen the effectiveness of the wealth rules. Nonetheless, the theory of punitive liability suggests that all such sub-solvency constraints cause underdeterrence.

120. There are additional social costs that reduce the desirability of nonmonetary sanctions such as imprisonment, however. See Shavell, Criminal Law and the Optimal Use of Nonmonetary Sanctions as a Deterrent, 85 Colum. L. Rev. 1232 (1985).

121. Cf. supra note 100.
or choosing the appropriate level of a risky activity, increasing the probability of paying bankrupting punitive damages will increase safety. In choosing to be more careful, the injurer benefits by reducing the probability of the undesirable state of affairs in which it must pay damages. When the frequency of bankrupting punitive damages goes up, the liability outcome becomes more unattractive and there is therefore a bigger benefit from reducing the probability of liability. The cost of safety likewise depends upon whether the injurer is found liable, and if so, for how much and with what consequences. In a state in which the injurer suffers a bankrupting punitive damage award, care has no marginal cost. When damages exceed tangible wealth, care expenditures can be viewed as merely reducing the amount the injurer pays in punitive damages. Thus, when the frequency of bankrupting punitive damage awards increases, the marginal cost of care, weighted by the probability that bankrupting and nonbankrupting damage awards occur, must decrease. Taken together, an increase in the marginal benefit of care and decrease in the marginal cost imply that care will increase to the extent that a bankrupting punitive damage award is more likely.

This is not to suggest that huge, bankrupting punitive damage awards are desirable; such desirability would depend upon whether the injurer's activity is justified by a cost-benefit analysis and should be continued. Rather, it is to point out how an inherent feature of punitive damages—in this instance, variable and sometimes bankrupting awards—helps punitive damages overcome an institutional imperfection—in this instance the deterrence-weakening effect of the solvency constraint.

6. Extravagant Transaction Costs in the Litigation-Oriented System. — As was noted earlier, high punitive damages may increase expenditures on litigation, but the standard for punitive liability may well encourage early settlement and discourage frivolous suits. Since fewer suits may be brought, the total cost of punitive liability may be lower than under either strict liability or ordinary negligence, which invoke the costly judicial machinery even in cases where the defendant's conduct was

122. See Shavell, supra note 118, at 45–49. This analysis assumes that insurance is not available. When it is, the solvency constraint may reduce the motive to purchase liability insurance, and injurers will either buy no insurance or less insurance than they would if their assets were greater. See id. at 45, 49–54; see also Huberman, Mayers & Smith, Optimal Insurance Policy Indemnity Schedules, 14 Bell J. Econ. 415 (1983) (option of bankruptcy may limit the purchase of insurance to less than full coverage, such limit depending in part on the policyholder's wealth and the provisions of the bankruptcy statutes); Keeton & Kwerel, Externalities in Automobile Insurance and the Underinsured Driver Problem, 27 J. L. & Econ. 149, 152–61 (1984) (formal analysis showing that limited liability distorts individual's decision about how much risk to bear); Schwartz, Products Liability, Corporate Structure, and Bankruptcy: Toxic Substances and the Remote Risk Relationship, 14 J. Legal Stud. 689, 705–14 (1985) (remote risk impositions frustrate compensation and efficiency goals).

123. See Appendix for formal proof.
either blameless or merely negligent. Finally, direct regulation involves increased record-keeping costs and a costly and ongoing bureaucratic intrusion into the business of the defendant. These informal speculations regarding the relative transaction costs of punitive liability, negligence liability, and direct regulation warrant further rigorous theoretical study and empirical testing. Yet they caution against rejecting punitive liability because of the fear of increased transaction costs. Moreover, any increase in transaction costs must be weighed against the benefits gained from reserving the costly judicial process for cases in which the (apparent) liability message is severe punishment of the defendant for engaging in unequivocally bad behavior.

7. Imperfect Insurance Markets. — Insurance markets that do not adjust the cost of insurance to accurately reflect the risks generated by the defendant's conduct introduce the potential for underdeterrence due to moral hazard. This criticism suggests a simple remedy that is consistent with the approach still taken in a substantial number of jurisdictions: the prohibition of insurance against punitive damage liability. This might leave some risk averse defendants bearing a great deal of risk, but as argued earlier, uninsured punitive liability may be preferable to ordinary negligence liability, despite its cost in terms of

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124. See generally Sugarman, supra note 4, at 596. There is very little empirical evidence on the transaction costs of the current tort system, and no empirical study of comparative costs under various forms of civil liability and direct regulation. A recent and commonly cited study showing very high transaction costs in civil liability is J. Kakalik, P. Ebener, W. Felstiner, G. Haggstrom & M. Shanley, Variation in Asbestos Litigation Compensation and Expenses (1984), but this study examines only asbestos litigation, which arises out of a very special kind of mass exposure class action suits. The Rand Corporation's Institute for Civil Justice has also produced a somewhat more general study, J. Kakalik & A. Robyn, Costs of the Civil Justice System (1982), but this study ignores private expenditures, which are presumably the largest component of total costs. On the need for empirical analysis of the comparative transaction costs of tort law and regulation, see Oi, Tort Law as a Regulatory Regime: A Comment on Landes and Posner, 13 J. Legal Stud. 435, 440 (1984).

125. See Sugarman, supra note 4, at 573–81.

126. Moral hazard is the tendency of imperfect insurance to create perverse incentives for the insured to reduce expenditures on safety because premiums do not reflect the actual risk generated by a particular insured. For expositions of moral hazard, see K. Abraham, Distributing Risk 14–16, 35–36 (1986); K. Arrow, Insurance, Risk and Resource Allocation, in Essays in the Theory of Risk Bearing (1971); Pauly, The Economics of Moral Hazard: Comment, 58 Am. Econ. Rev. 531 (1968); Shavell, Moral Hazard and Insurance, 93 Q.J. Econ. 541 (1979).

disutility due to risk bearing. Moreover, it generally may be desirable to prohibit liability insurance whenever there is a nonmonetary component to the victim's losses for which victims cannot be compensated, because then the reduction in injurer incentives brought about by moral hazard (even under coinsurance) directly lowers the welfare of victims. The more victims are risk averse, and the greater the cost of insurance, the more likely it is that prohibition of insurance will be desirable on efficiency grounds. I argue below that it generally will be necessary to exclude nonmonetary losses from the scope of compensatory liability and that such damages should be recovered only as part of a punitive damage award. Thus, in the general system proposed here, liability insurance for punitive damages may be undesirable in any event, in which case the imperfections in the insurance market would be irrelevant. Finally, even if it is desirable to allow insurance against punitive damages because of the relative risk aversion of victims and injurers, the open-ended nature of such victims and injurers, the open-ended nature of such damages may eliminate much of the incentive-weakening effect of coinsurance.

This brief review of some of the more important institutional imperfections in the current tort system shows that many of these imperfections will not affect the optimality of punitive liability, while those that may also will affect the performance of any liability rule, and will most likely be least damaging to punitive liability. Punitive liability may well be an efficient, institutionally robust form of liability.

IV. PUNITIVE LIABILITY AND THE MULTIPLE GOALS OF TORT LAW

A. Efficiency, Just Punishment, and the Concept of Fault

To the extent that punitive liability is designed to assess a severely punitive monetary sanction on condition that the innocent, nonnegligent defendant is never punished, it resembles criminal liability. However, the definition and meaning of "fault" from the perspective of optimal deterrence is very different from that of just punishment. This difference implies that the punitive liability paradigm will not necessarily serve the goal of just punishment. In particular, the theory of optimal punitive liability implies that the standard of care should be lower (or required degree of fault greater) if punitive liability is intended to punish rather than deter.

From the point of view of ex ante efficiency, the firm is at fault when-

128. See supra text accompanying notes 84–87 and the Appendix.
129. Shavell, On Liability and Insurance, 13 Bell J. Econ. 120, 128 n.24 (1982).
See also S. Shavell, supra note 19, at 228–35.
130. See infra text accompanying notes 151–56.
ever it chooses less than the socially optimal amount of care.\textsuperscript{132} Fault from this vantage point is knowingly subjecting society to an unreasonable risk of harm. Under ordinary negligence liability, overdeterrence can only occur when there is a chance that a defendant who was not at fault in this sense will nonetheless be found liable. In punitive liability, a low standard of care, if necessary at all, is merely an instrument used to exclude the nonnegligent or faultless defendant from the reach of the overly harsh juror. The goal of efficiency does not distinguish between the defendant guilty of gross negligence and the defendant that just falls short of reasonableness. Both are subjected to the threat of punitive liability in order that neither kind of violation be chosen.

Viewed somewhat differently, an ideal deterrence-oriented liability system will assign liability whenever the defendant intended to and actually took less than due care. In an imperfect liability system, however, the connection between the intended level of care and that found by the juror is weak. The inference of an intention to be negligent from a factual finding of inadequate care approaches certainty only when very low care has been found. Hence, the juror's fact-finding is not fully informative of intent.

An enormous gulf separates this interpretation of fault and this justification for lowering the standard of care for punitive damages from those that follow from the just punishment rationale. As used here, just punishment refers to retribution or "the deserved infliction of suffering on evildoers."\textsuperscript{133} The ethical basis of the retributive concept of punishment has been succinctly stated by John Rawls:

\begin{quote}
What we may call the retributive view is that punishment is justified on the grounds that wrongdoing merits punishment. It is morally fitting that a person who does wrong should suffer in proportion to his guilt, and the severity of the appropriate punishment depends on the depravity of his act. The state of affairs where a wrongdoer suffers punishment is morally better than the state of affairs where he does not; and it is better irrespective of any of the consequences of punishing him. (emphasis added)\textsuperscript{134}
\end{quote}

As Rawls' last sentence makes clear, the retributive rationale is decidedly noninstrumental. The retributive principle therefore yields these corollaries: first, that "a person may be punished if, and only if, he has

\textsuperscript{132} This conception of fault has been posited as predominant in tort law. As described in the leading treatise, in the law of torts "fault" must be understood in a broad sense, meaning "nothing more than a departure from a standard of conduct required of a person by society for the protection of his neighbors." Prosser & Keeton, supra note 44, § 75, at 535.

\textsuperscript{133} See H. Packer, The Limits of the Criminal Sanction 36 (1968).

\textsuperscript{134} Rawls, Two Concepts of Rules, 64 Phil. Rev. 3, 4-5 (1955). For a somewhat different formulation stressing the notion of punishment in accordance with desert, see Hosper, Retribution: The Ethics of Punishment, in Assessing the Criminal 181, 183 (R. Barnett & J. Hagel, eds. 1977).
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voluntarily done something morally wrong; secondly, that his punish-
ment must in some way match, or be the equivalent of, the wickedness
of his offense."135 The requirement of voluntariness is fulfilled “if the
offender willed the result or if it was the natural and probable outcome
of the act and the offender was aware of that probability.”136 As re-
duced in current practice, the proportional punishment corollary cap-
tured in Rawls' explanation assumes that the measure of gravity of an
offense “should not be, or not only be, the subjective wickedness of the
offender but the amount of harm done.”137

Under the retributivist view, punitive damages are required even
under perfect liability determination, and the magnitude of such puni-
tive damages is determined directly by the requirement that the punish-
ment be proportional to the gravity of the offense. A severe monetary
sanction indicating social condemnation of the defendant’s behavior as
“subjectively wicked” should be assessed only against morally blame-
worthy “conscious indifference” to or “callous disregard” of the risk of
harm to others, only, that is, against behavior that indicates “malice,”
“bad faith,” or, generally, an “evil mind.” Minor deviations from the
standard of care should not be punished as harshly as major deviations.

The standard of care that must be met in order to avoid punitive
liability is therefore directly determined by the retributivist goal. Effi-
ciency, by contrast, is compatible with a wide variety of punitive liability
systems, for although the benchmark system does require the plaintiff
to meet a high burden of proof in persuading the juror that the defend-

135. H.L.A. Hart, Punishment and Responsibility 231 (1968); see also Ellis, Fair-
ness and Efficiency, supra note 11, at 5–6 (offender must have chosen to commit the
prohibited act).
136. Ellis, supra note 11, at 6.
137. H.L.A. Hart, supra note 135, at 234; see also G. Fletcher, Rethinking Criminal
Law 460–65 (1978) (discussing concept of wrongdoing and the requirements of objec-
tive harm and subjective intent). For more on the retributive theory of punishment, see
H.L.A. Hart, supra note 135, at 210–37, and S. Kadish, S. Schulhofer & M. Paulsen,
Criminal Law and Its Processes 187–95 (4th ed. 1983). Recently, the retributivist claim
that guilt merits punishment has been justified not merely with reference to some intuitive
sense of the fittingness of guilt and punishment, but by theories of political obliga-
tion grounded in the Kantian (or Rawlsian) notion of reciprocity. J. Murphy,
Retribution, Justice, and Therapy 83 (1979), describes this view as follows:

In order to enjoy the benefits that a legal system makes possible, each man
must make certain sacrifices—e.g. the sacrifice of obeying the law even when he
do not desire to do so. Each man calls on others to do this, and it is only just
or fair that he bear a comparable burden when his turn comes. Now if the
system is to remain just, it is important to guarantee that those who disobey will
not gain an unfair advantage over those who obey voluntarily. Criminal pun-
ishment thus attempts to maintain the proper balance between benefit and obe-
dience by insuring that there is no profit in wrongdoing.

For more on this ethical theory of retribution, see J. Murphy, supra, at 77–115;
Murphy, Does Kant Have a Theory of Punishment?, 87 Colum. L. Rev. 509 (1987) (qual-
ifying earlier views); see also Fisse, Reconstructing Corporate Criminal Law: Deter-
(surveying other efforts in this area).
ant took very little care, it may be possible to eliminate false positives just by increasing the burden of proof if jurors do not err in applying the standard. It is indeed essential to the efficiency of punitive liability that the slightly negligent defendant, who faces only a small chance of being found liable, face extremely high damages. For as noted earlier, it will usually be necessary to label some marginally bad behavior as very bad in order to ensure that acceptable behavior is never punished.\textsuperscript{138}

However, errors in the legal determination of fault should also lead the retributivist to lower the announced legal standard of care from the level of care that should actually trigger severe condemnation. Since the juror may sometimes find that less care was taken than was actually the case, and the goal is to punish only those defendants who have evidenced "malice" by taking very little if any care to lessen those risks, the retributivist will in general wish to set the burden of proof at a higher level (lower if the defendant has the burden) and the standard of care at a lower level than would the efficiency-minded analyst. While the retributivist wants to punish only extreme violations of due care, the efficiency minded analyst is concerned only that those who comply with the norm are not punished and does not care whether marginal violations are punished. If a given configuration of the standard of care and burden of proof suffice to eliminate the possibility that the law will say a careful defendant was grossly negligent, that configuration will still, in general, leave open the possibility of condemning a slightly negligent defendant as grossly negligent. This may well be intolerable to the retributivist, who will wish to further lower the standard of care and/or increase the plaintiff's (or decrease the defendant's) burden of proof relative to the levels in this initial configuration. Thus, the retributivist must also take account of disparities between the legal system's message about the defendant's behavior and the reality of that behavior, and because of these disparities, just punishment requires finding a greater degree of negligence to support punitive damages than does optimal deterrence.

However, unlike the standard for punitive liability, the magnitude of punitive damages will not necessarily differ under the alternative goals of efficiency and retribution. The reason is that optimal deterrence requires only that punitive damages reach a minimum level sufficient to eliminate incentives for suboptimal care. Consequently, provided that this minimum is not unfairly high relative to compensatory damages, the magnitude of punitive damages can be compatible with both optimal deterrence (or economic efficiency) and just punishment (or fairness).

The logic leading to this result can be underscored by reviewing

\textsuperscript{138} On the relationship of this economic result to utilitarian analysis of the separation between the utility of the punishment and the utility, or the lack thereof, of the conduct punished, see supra note 30.
Judge Posner's contrary conclusion that retributivist just punishment and economic optimal deterrence clash over the magnitude of optimal fines. The difference is wholly accounted for by different assumptions in the underlying theories of what efficiency requires. Consider Posner's argument for incompatibility:

The economic function of punishment is to make criminals internalize the social costs of their activities. This is done by imposing a fine... such that the expected punishment cost of the crime to the criminal is equal to the social cost of the crime... As Bentham pointed out, if the probability that the fine will be imposed is less than one, the fine must be greater than the social cost of the crime in order to make the expected punishment cost equal to that social cost.

Thus in Posner's world, economic efficiency necessitates the creation of a "wedge—anathema to retributivists, who believe that punishment should be equal or proportional to the gravity of the crime—between the punishment and the crime."

Assuming that retribution requires only proportionality and not equality between the magnitude of harm and the magnitude of the punishment, Posner's perceived incompatibility is entirely dependent upon his underlying formal assumption that actual harm must equal expected damages (using this essay's terminology) in order to achieve optimal deterrence. But as stressed in the theoretical development above, an efficient punitive liability system can be designed that is far more robust and does not require such precise measurement of damages. Policy instruments such as burden of proof and standard of care eliminate overdeterrence, and require only that expected punitive damages be high enough to destroy incentives to take suboptimal care, rather than that they precisely equal actual harm.

B. Punitive Liability and Strict Liability for Pecuniary Loss: A Proposed Two-Part Tort Liability

Punitive liability has been presented as a fault-based liability rule that will induce socially efficient levels of investment in safety even when the legal system errs in labeling conduct as faulty. As already argued, to control also the level of risky activities would require pairing punitive liability with strict liability. But if the strict liability system were ideal, that is, it imposed perfectly compensatory damages, there would be no need for punitive liability because strict liability would ac-

140. Id. at 73.
141. Id. at 73-74.
142. This formal assumption is directly based on Becker, supra note 77, at 181.
143. See supra notes 107-11 and accompanying text.
complish both compensation and deterrence (in both the care and activity level senses of deterrence).

As has also been argued, however, the optimality of strict liability requires unbiased damage assessment. Yet it is precisely the uncertainty, bias, and arbitrariness of jury damage awards that is the focus of outcry over the reform of our current tort law. Awards for pain and suffering and other forms of noneconomic loss have been particularly subject to attack. In large metropolitan areas, astronomically large pain and suffering awards have become increasingly frequent, a trend that has been linked, at least theoretically, to the increasing cost and decreasing availability of liability insurance. In light of these facts, pure strict liability, in which liability attaches merely upon a showing of causation, could well threaten severe overdeterrence.

Still, compensation and the related notion of loss-spreading have been identified by many commentators as the primary goals driving the post-war expansion in tort liability, and clearly punitive liability alone would be a woeful compensatory mechanism (as well as a poor control over activity levels). The solution proposed here is to pair

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146. See M. Peterson, supra note 8.

147. See Priest, supra note 5.


149. In long-run equilibrium, under the first-best punitive liability system, defendants take the socially optimal level of care and are not found liable, leaving victims uncompensated. Under second-best punitive liability or disequilibrium conditions (when some defendants do not comply, say because they have failed to adjust upward their expected damages to reflect the switch from compensatory to higher punitive damages), many victims will go uncompensated. The general condition under punitive liability that nonnegligent defendants not be punished necessarily implies that negligent defendants will often escape liability, which means that many victims of negligent conduct will go uncompensated. Victims who do receive damages will receive supracompensatory damages, and although part of these awards may be absorbed in their lawyers' contingency
punitive liability with strict liability for economic loss. The punitive system would create the optimal incentive for investment in safety, and the strict liability system would compensate at close to the optimal level of compensation as well as achieving second-best control of activity levels. Pain and suffering and other noneconomic damages would be recoverable as a part of any punitive damage award.\textsuperscript{150}

A complete exposition and defense of such a system is obviously well beyond the scope of this Article, but it is important to sketch the basic rationale.

There is little reason to think that an optimal compensation scheme would include recovery for pain and suffering. The theoretical argument is that optimal compensation is that which a sufficiently wealthy and well-informed individual would purchase in a first-party insurance policy.\textsuperscript{151} Given the low marginal utility of income for an injured person relative to that person's utility in a healthy state, such an individual would prefer spending the income when healthy rather than spending it on a premium for pain and suffering payments later.\textsuperscript{152} This theoretical observation seems borne out by the empirical fact that there is no first party insurance policy that provides for any form of pain and suffering payment.\textsuperscript{153}

Parallel to this essentially economic argument against the inclusion of pain and suffering damages, damages under punitive liability will still be intended to exceed any compensatory norm.\textsuperscript{150} By pain and suffering damages, I mean nontransferable damages. Damages for lost work or medical expenses caused by pain would be recoverable as economic damages in the strict liability system. See Ingber, Rethinking Intangible Injuries: A Focus on Remedy, 73 Calif. L. Rev. 772, 782–83 (1985).

150. By pain and suffering damages, I mean nontransferable damages. Damages for lost work or medical expenses caused by pain would be recoverable as economic damages in the strict liability system. See Ingber, Rethinking Intangible Injuries: A Focus on Remedy, 73 Calif. L. Rev. 772, 782–83 (1985).

151. To be more precise, there are two possible measures of optimal compensation: how much the victim would pay to avoid facing risk, and how much the victim would need to be paid in order to maintain her utility, given that she must be subject to risk. See Knetsch, Legal Rules and the Basis for Evaluating Economic Losses, 4 Int'l Rev. L. & Econ. 5 (1984); Kornhauser, Theory and Fact in the Law of Accidents (Book Review), 73 Calif. L. Rev. 1024, 1032 (1985). See generally H. Varian, Microeconomic Analysis 263–68 (2d ed. 1984) (discussing compensating and equivalent variations). These two may differ when the potential loss is large, but this does not affect the point made in the text regarding the optimality of payment for pain and suffering.

152. For development of this argument, both informally and formally, see Shavell, supra note 95. Of course, the individual might prefer that care be exercised to lower the probability of pain and suffering and associated low utility states. See note 95 supra. This underscores the distinction between deterrence and compensation incorporating pain and suffering in a punitive system could give victims the deterrence they want without depriving them of a desired element of compensation.

153. See Priest, Compensation Systems and Tort Law: A Preliminary Comparative Approach (Yale Law School Civil Liability Program, Working Paper No. 50, 1986). In an important empirical work, O'Connell & Simon, Payment for Pain and Suffering: Who Wants What, When and Why?, 1972 U. Ill. L.F. 1, 18–28 found that the vast majority of accident victims surveyed did not know about pain and suffering payments before being compensated and said that such payments had no effect on their feelings of pain or resentment. Lack of consumer demand seems a more plausible explanation for the absence of first-party pain and suffering coverage than market failure, since any adverse
of pain and suffering in optimal compensation awards is the longstanding traditional legal criticism of such awards. The thrust of this critique is that it is difficult to see how pain and suffering can be compensated in any real sense anyway, and that such awards are in reality a form of covert punishment.

Assuming that pain and suffering is a noncompensable element of the individual's loss, the individual should theoretically prefer that injurers take optimal care to prevent the accident and consequent pain and suffering, rather than that the jury attempt to compensate afterwards. Thus, placing pain and suffering awards in the punitive liability system allows them to serve the deterrent (and retributive) purposes for which they are theoretically appropriate, without threatening overdeterrence. The only discordant note is that the deterrence-oriented punitive liability system will sometimes assess such awards against only marginally negligent defendants. If the criterion is just punishment, this result is still preferable to having pain and suffering damages assessed against nonnegligent defendants under the regimes of negligence or strict liability.

The remaining strict liability system is subject to two possible criticisms. The first is that even if the determination of causation is error-free, the strict liability system will not send the correct activity level signal, because noneconomic harm is not included in the compensatory strict liability award. However, this assumes that the status of pain and suffering as a compensable element of loss is independent of the

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154. See Jaffe, supra note 105, at 224 ("neither past pain nor its compensation has any consistent economic significance. The past experience is not a loss except insofar as it produced present deterioration."); see also Plane, Atyah's Accidents, Compensation and the Law 183-91 (4th ed. 1987) (arguing against damages for non-pecuniary loss); Ingber, supra note 150, at 778-85 (same); Morris, Liability for Pain and Suffering, 59 Colum. L. Rev. 476 (1959) (same); Peck, Compensation for Pain: A Reappraisal in Light of New Medical Evidence, 72 Mich. L. Rev. 1355 (1974) (advocating compensation only for pain having a physiological basis).

155. See Seffert v. Los Angeles Transit Lines, 56 Cal. 2d 498, 511, 364 P.2d 337, 345, 15 Cal. Rptr. 161, 169 (1961) (Traynor, J., dissenting) (damages for pain and suffering anomolous in a system concerned not with ad hoc punishment but with the shifting and distribution of losses through insurance); Morris, supra note 154, at 478 (pain and suffering damages originated in desire to appease the victim's wrath and effectively deter wrongdoing, not compensation).

156. See Ingber, supra note 150, at 809 (general, nontransferable damages should be available only when the purpose is to punish or deter). Abraham, Individual Action and Collective Responsibility: The Dilemma of Mass Tort Reform, 73 Va. L. Rev. 845, 896-97 (1987) has recently made a similar suggestion in proposing an administrative compensation fund for mass torts. His plan would give the compensation fund itself a quasi-subrogation action for punitive damages against the tortfeasor. Such an action is justified as reducing the threat of overdeterrence due to multiple punitive damage awards, and also as providing a "rough substitute" for pain and suffering damages, which would no longer be recoverable since the quid pro quo for the compensation fund would be the elimination of tort claims for compensatory damages.
jurer's care level. If the punitive system, which infrequently compensates for pain and suffering, induces injurers to take optimal care, then it may be that pain and suffering would *disappear* as a loss. That is, unlike pecuniary damages, the victim may not expect pain and suffering to be compensated by injurers who have done nothing wrong. Pain and suffering is not a cost that should be internalized unless the injurer is culpable. Hence, if the punitive liability system induces optimal safety, then pain and suffering would literally no longer exist as an element of social harm that should be taken into account in choosing activity levels.

The second criticism of strict liability is that it will not be a true no-fault compensation scheme, if it becomes, as is true of most current forms of supposedly strict liability, infused with fault principles. On the other hand, if it is truly no-fault, the cost and difficulty of determining causation will frustrate both the compensatory and activity-level control goals. Both points argue against the implementation of a strict liability system. The example of workmen’s compensation schemes suggests that neither is insurmountable. It is possible to set up the strict liability system outside the jury trial system, in an administrative setting where fault can be kept out of the process, and it is possible to define causation in a way that calibrates compensatory payments across activities and according to the level and risk of an activity in a second-best way.

Indeed, any compensation scheme that compensates for economic loss and attempts somehow to force injurers to internalize economic loss is consistent with my rationale for the proposed strict liability system. Recognition that many problems beset judicially administered liability rules is after all the basis of my proposed punitive liability system, and it may be preferable to adopt a compensatory alternative such as Professor O’Connell’s neo no-fault, or to eschew the private


158. The difficulty in defining compensable events is the great weakness of any no-fault or absolute liability system. As observed in O’Connell, Offers That Can’t Be Refused, supra note 4, at 596–97, the health-care provider “cannot be asked to pay every patient whose condition declines after treatment. Similarly the manufacturer cannot be asked to compensate every consumer injured while using its product.” See also Epstein, Medical Malpractice: Its Cause and Cure, in The Economics of Medical Malpractice, supra note 95, at 260–62. With uncertainty, any standard of causation and attribution of strict liability will reflect the tension between compensation and cost internalization. Excluding noneconomic damages, however, greatly lessens the spectre of crushing liability due to an expansive definition of legal cause.

159. Most tort reform proposals share a similar profound skepticism about the efficacy of judicially administered liability rules. See sources cited note 161 infra.

160. See O’Connell, Neo No-Fault, supra note 4. For earlier, similar proposals by Professor O’Connell and criticism of his no-fault ideas, see sources cited in Sugarman, supra note 4, at 624 n.300.
lawsuit entirely and have agency-administered social insurance.\textsuperscript{161} Of these proposals, those that anticipate financing compensation payments by charging accident sources are preferable, because they create an incentive, albeit perhaps second-best, for injurers to choose the correct activity level.\textsuperscript{162} An interesting possibility presented by pairing such a scheme with punitive liability would be the use of punitive awards to fund the compensatory component to the extent that funds remain after the victim and victim's lawyer have been given an adequate financial incentive to vigorously pursue the punitive claim.\textsuperscript{163}

The only novel assertion made here regarding punitive liability is that it may both punish and induce optimal safety. Even those who are critical of conventional tort liability and advocate its replacement often wish to preserve punitive liability for intentional torts to deter and satisfy society's need for retribution for such clearly wrongful con-

\textsuperscript{161} For examples of agency-administered social insurance schemes, see Franklin, Replacing the Negligence Lottery: Compensation and Selective Reimbursement, 53 Va. L. Rev. 774 (1967); Pierce, Encouraging Safety: The Limits of Tort Law and Government Regulation, 33 Vand. L. Rev. 1281, 1321-30 (1980); Sugarman, supra note 4, at 642-51.

\textsuperscript{162} For plans that would create safety incentives by imposing firm-specific charges, see Franklin, supra note 161, at 806-807; Pierce, supra note 161, at 1322-28. Compare Pierce, supra, with Sugarman, supra note 4, at 642-59 (arguing that the task of safety promotion should be delegated to safety agencies—distinct from the compensation agency—that would accomplish the task through strategies of direct regulation).

\textsuperscript{163} Some states have recently enacted statutes that divert substantial—and probably overly large—portions of private punitive damage awards to state funds. In Colorado, one-third of any punitive damage award goes to the water conservation board construction fund, see Act effective July 1, 1986, ch. 107, 1986 Colo. Sess. Laws 677 (codified at Colo. Rev. Stat. § 13-21-102); in Florida, 60% of any punitive damage award goes into a medical assistance or general revenue fund, see Act effective July 1, 1986, ch. 160, 1986 Fla. Laws 749 (codified at Fla. Stat. Ann. § 768.73(2)(b) (West 1986 & Supp. 1987); in Illinois, the trial judge has discretion to apportion a punitive damage award among the plaintiff, her attorney and the State Department of Rehabilitation Services, see Act effective Nov. 25, 1986, Pub. Act No. 84-1431, Art. 3, § 1, 1986 Ill. Legis. Serv. 282-83 (West) (codified at Ill. Ann. Stat. ch. 110, para. 2-1207 (Smith-Hurd Supp. 1987); and in Iowa, 75% or more of a punitive damage award must be paid to the state's civil reparations trust fund unless the action resulted from a tort directed at the particular plaintiff, see Act effective June 8, 1986, ch. 1211, 1986 Iowa Acts 913 (codified at Iowa Code Ann. § 668A.1 (West Supp. 1987)). An American Bar Association Commission has recently proposed that punitive damage practice be reformed so that courts routinely allocate part of each punitive award to the plaintiff and her attorney as rewards for bringing the action, with the remainder allocated to "public purposes." See ABA, Report of the Action Commission to Improve the Tort Liability System 19 (1987). This was the commission's only recommendation regarding punitive damages that the ABA House of Delegates did not pass. See 55 U.S.L.W. 2450-51 (Feb. 24, 1987).

\textsuperscript{164} See Sugarman, supra note 4, at 659-60; Owen, supra note 64, at 670-73. Compare, Englard, The System Builders: A Critical Appraisal of Modern American Tort Theory, 9 J. Legal Stud. 27, 49 (1980) (in traditional negligence action, goal is not deterrence but corrective justice, and impact of insurance and other social and economic factors makes it "highly probable that accident law will eventually become a combination of social insurance (the extreme distributional method) and criminal sanction (the extreme method of deterrence)").
There is increasing support for the general idea of a two-part accident law system that, like the one proposed, would consist of a streamlined compensatory mechanism (such as New Zealand-style social insurance) alongside punitive civil liability for extreme departures from social norms.

Thus, even if the strict liability compensatory component of my proposed liability regime is rejected on the grounds that it simply will be too subject to institutional imperfections, the central argument behind the proposed two-part system remains unaffected. This argument is that the best approach to tort reform is to create two systems to separately pursue the goals of compensation and deterrence, and that punitive liability can achieve part of the deterrence goal. I suggest that despite its many imperfections, the private lawsuit may still have an important didactic and regulatory role within the overall tort system as the forum for adjudicating punitive liability.

165. See, e.g., Sugarman, supra note 4, at 660; Owen, supra note 64, at 670-72 (punitive damages for intentional torts justified by retribution and deterrence, but amount of the award should be limited and “clear and convincing evidence” burden of proof used); see also Love, Punishment and Deterrence: A Comparative Study of Tort Liability for Punitive Damages Under No-Fault Compensation Legislation, 16 U.C. Davis L. Rev. 231, 282 (1983) (“tort liability for punitive damages should be preserved to punish and deter wrongdoers”).


167. For academic support, see sources cited in notes 165-66 supra. New Zealand courts have allowed punitive damage actions even though an accident compensation plan is in effect there, see Donselaar v. Donselaar, 1 N.Z.L.R. 97 (1982); Love, supra note 162, at 234-44 (analyzing this development in New Zealand law). In the United States, punitive damages are available in addition to workmen’s compensation in some states, see id. at 246-73, and, somewhat more rarely, in addition to no-fault compensation, see id. at 276-80.

168. See, e.g., Sugarman, supra note 4 (for catalogue of institutional imperfections which ruin tort law as a mechanism of cost internalization); see also Pierce, supra note 161, at 1295-1300 (significant costs are not internalized in a system that relies on private lawsuits because many claims for compensation are not pursued and fault is often difficult to establish).
A. The Efficiency of Punitive Liability

The assertions made in Part I of the text will be demonstrated here more formally. In this part of the appendix, all of the assumptions made in Part I, section A of the text, such as the impossibility of settlement, risk neutrality and the like are retained. In showing why it is that punitive liability will induce the defendant to take optimal care, the following formal notation will be employed:

\[ x = \text{actual level of care, with } x \in [0,1] \]
\[ e = \text{evidence type, with } e \in [0,1] \]
\[ B = \text{burden of proof, with } B \in [0,1] \]
\[ s = \text{announced standard of care} \]
\[ x^* = \text{optimal, cost minimizing level of care} \]
\[ e(B,s) = \text{evidence threshold given } B \text{ and } s \]
\[ c = \text{average marginal cost of care} \]
\[ h(x) = \text{probability of harm, given actual care } x, \text{ with } h'(x) < 0, h''(x) > 0 \]
\[ f(e;x) = \text{conditional density of } e, \text{ given } x, \text{ with support on a subset of } [0,1] \]
\[ H = \text{magnitude of social harm caused by the accident} \]
\[ D = \text{magnitude of damages} \]

In this model, the defendant is liable or not liable according to whether the evidence is sufficiently unfavorable to the defendant for the jury to say that the plaintiff has met his burden of proof. As I have shown elsewhere in more detail,\(^\dagger\) this implies that there will be some threshold level of evidence, the level of which depends on the burden of proof \(B\) and the substantive standard \(s\), such that liability is found by the jury if and only if the evidence is worse (to the defendant) than this type. Call the threshold \(e(B,s)\).

Under these conditions, the sophisticated potential defendant perceives that the probability of being found liable depends on the kind of evidence presented to the jury. If we let \(f(e;x)\) denote the defendant’s beliefs about how his actual care level is related, stochastically, to the evidence presented to the jury, then the defendant’s probability of liability is given by:

\[ F(e(B,s);x) = \int_0^{e(s)} f(e;x) \, de \]

Assuming that damages \(D\) are compensatory, that is, \(D = H\), the defendant’s cost minimization problem is given by:

\[ \min \ h(x)F(e(B,s);x)H + cx \]

which generally differs from the social problem, which is given by:

\[^\dagger\] See Johnston, Bayesian Fact-Finding and Efficiency, supra note 12, for an explanation of this result.
\[ \min h(x)H + cx. \quad (2) \]

From (1) and (2) we see immediately that the private and social marginal costs of care are equal. However, from (1) we have that the private marginal benefit of care, the reduction in expected damages equals
\[-(h'F + h \frac{\partial F}{\partial x})H. \quad (3)\]

This does not generally equal the social marginal benefit of care, the reduction in expected social harm, which is given by
\[-h'H \quad (4)\]

Hence, the private (interior) optimum that solves (1) will not necessarily equal \(x^*\), the socially optimal level of care which solves (2).

This is true under the ordinary negligence rule, which sets the burden of proof at a preponderance and \(s=x^*\) (assuming, of course unrealistically, that the known standard is always set equal to the efficient level of care). The idea of punitive liability is to manipulate \(B\) and \(s\) so that we make it drastically more difficult for a non-negligent defendant, a defendant whose actual level of care \(x\) equaled or exceeded \(x^*\), to be held liable. If we succeed in eliminating the risk of a false positive, or incorrect liability finding, then we will have \(F(e(B^*,s^*);x) = 0\) for all \(x>x^*\), (where \(B^*\) and \(s^*\) are the optimal punitive liability burden of proof and substantive standard) and from inspection of (3), we see that this ensures that the solution to (3) cannot exceed \(x^*\). This eliminates the possibility of rational overinvestment in care.

However, rational underinvestment in care would almost certainly result if we stopped at this point. This is true regardless of whether \(F(e;x)\) is continuous or, contrary to the implicit continuity assumption underlying the above first order conditions, a discontinuous step function or if care is a discrete rather than continuous variable. For in getting \(F(e(B^*,s^*);x^*) = 0\), we will generally have also greatly lowered \(F(e(B^*,s^*);x)\) for \(x<x^*\). Clearly from (3), if \(F\) and hence \(\frac{\partial F}{\partial x}\) are quite low, the private marginal benefit of care is almost surely lower than the social marginal benefit of care if damages are merely compensatory (viz., \(D=H\)).

Now if \(F(e;x)\) is continuous in \(x\), for all \(\epsilon > 0\), there exists some \(\delta\), such that for \(x\in[x^*-\delta,x^*]\), \(F(e(B^*,s^*);x) < \epsilon\), no matter how small \(\epsilon\) may be; hence (3) would also be arbitrarily small. To avoid underdeterrence we would need to increase the magnitude of damages above \(H\) toward infinity. Hence for \(D<\infty\), the private optimum under punitive liability would always be less than \(x^*\), the social optimum. However, if \(F(e;x)\) is a step function, or if \(x\) is a discrete variable, then for the highest suboptimal care level \(x'\), the probability of liability \(F(e(B^*,s^*);x')\) may well differ significantly from zero; we would need not have damages infinitely high to avoid underdeterrence.

B. Punitive Liability in a Market Setting

The question analyzed here is whether market incentives can re-
store the efficiency of the negligence rule. To see that the market will
do so only if consumers perfectly perceive expected harm, consider an
industry in which producers are subject to imperfect negligence-based
liability for harm caused by the product they manufacture. Assume that
only consumers of the firm’s product suffer harm when it malfunctions
or fails. No restriction will be placed on industry structure; that is, the
product market may be either perfectly competitive, oligopolistic, or
monopolistic. Instead, assume only that market price depends nega-
tively and linearly on the total quantity supplied and on consumers’
subjective expectation of noncompensable harm. That is, consumers
are aware that they may recover damages if they are injured due to
product failure, and subtract only their estimated harm net of compen-
satory damages from the price they are willing to pay for the product.
Assume that consumers underestimate both the magnitude of expected
harm and the magnitude of expected damages by the same factor \( r \),
with \( 0 < r < 1 \). Finally, let the market quantity supplied given by
\[
q = \sum_{i=1}^{n} q_i,
\]
where \( q_i \) is the \( i \)th firm’s quantity supplied, and there are \( n \) firms in the
industry. Assuming that only compensatory damages \( D \) are assessed
and that the price paid for a given firm’s product depends only on the
total market supply and on that firm’s care level and expected harm, let
the demand faced by firm \( i \) can be given by:
\[
p_i = a - b \sum_{i=1}^{n} q_i - (1-r) [h(x_i) - z(x_i)]H,
\]
where \( a,b > 0, h(x_i) = h(x_i) F(x_i), \) and \( h(x_i), F(x_i), \) and \( H \) are as defined
previously.

Each of the \( n \) firms chooses its output \( q_i \) and care level \( x_i \) to maxi-
mize its expected profits. Each of the firms has marginal cost of output
constant in the level of output \( q_i \) and linearly dependent on the care
level \( x_i \) given by \( c_{x_i} \). The firm also has an expected damage payment
per unit of output equal to \( z(x_i)H \). Firm \( i \)'s total expected cost per unit
of output is therefore given by:
\[
c_{x_i} + z(x_i)H.
\]
Its expected profits are equal to total revenue minus total expected
cost:
\[
[a - b \sum_{i=1}^{n} q_i - (1-r)(h(x_i)-z(x_i))H - c_{x_i} - z(x_i)H]q_i
\]
This can be simplified to:
\[
[a - b (q_i + \sum_{j=1}^{n} q_j) - (c_{x_i} + (1-r)h(x_i)H + rz(x_i)H)]q_i
\]
Suppressing subscripts for simplicity, the cost internalization effi-
cacy of the market and the deterrence-oriented role of punitive dam-
gages can now be neatly analyzed by considering the term \([1-r)h(x)H + rz(x)H \). Recall that the firm chooses the socially optimal level of
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care $x^*$ defined by the first order condition $-h'(x^*)H = c$ only when at (below, above) $x^*$, marginal private benefit equals (is greater than or equal to, less than or equal to) marginal social benefit. Using this framework, consider the following cases:

(i) When consumers are completely ignorant of the possibility of harm and $r=1$, the firm’s private benefit of harm simplifies to $z(x)H$. Intuitively, when consumers take no account of expected harm in their demand for the firm’s product, the only benefit to the firm from increased care and reduced expected harm is the reduction in expected damages. This case is identical to the nonmarket setting. Consequently, there is no assurance that the firm will choose the socially optimal level of care $x^*$. In particular, punitive damages are called for by economic efficiency in the same circumstances and for the same reasons discussed in the main text.

(ii) At the other extreme, assume perfect consumer knowledge of harm, corresponding to $r=0$. Regardless of the magnitude of compensatory damages or the nature of liability determination, consumers subtract expected social harm from the price they are willing to pay, and there is no role for damage liability as a cost internalization mechanism. Instead, the firm’s private benefit of care is the reduction in expected social harm $h(x)H$, and the market alone forces the firm to fully internalize expected total social cost. There is consequently no need for any sort of legal liability, and in particular no economic justification for punitive damages.

(iii) More generally, for values of $r$ such that $0 < r < 1$, we have that:

$$h(x)H = (1-r)h(x)H + rh(x)H = (1-r)h(x)H + rz(x)H$$

as

$$h(x)H > z(x)H,$$  \hspace{1cm} (8)

and the marginal benefit condition;

$$-h'(x)H = -[(1-r)h'(x)H + rh'(x)H] > -[(1-r)h'(x)H + rz'(x)H]$$

as

$$-h'(x)H > -z'(x)H.$$  \hspace{1cm} (9)

Conditions (8) and (9) are identical to those that determine the equivalence of social benefit to private benefit in the nonmarket setting. (See equations (3) and (4)). Once again, therefore, the efficiency oriented argument for punitive damages will be identical to that made earlier.

The basic interpretation of these results is that unless consumers
perceive the full magnitude of expected noncompensable harm, it is legal liability and not the market that induced the firm to take care. Hence, it is important to structure the liability system in a manner that induces optimal care even when external harm is suffered by consumers of the firm's product. Since punitive damages are a key element of optimal deterrence-oriented liability, they are just as appropriate in a market setting as in the general nonmarket setting, provided that consumer perceptions are not perfect.

C. Victim Incentives to Take Care Under Punitive Liability

1. If there is no contributory or comparative negligence rule, so that the plaintiff's care level has no legal effect on his probability of recovering damages if injured, then a) the plaintiff will take no care at all unless expected punitive damages given an injury are equal to or less than the magnitude of harm, and b) will take the socially optimal level of care only if there is no chance of recovering punitive damages if injured.

To establish these assertions, let the probability of liability (and hence of recovery by the plaintiff), be given by \( F(x,y) \), where \( y \) is the plaintiff-victim's care level, and \( x \) is defined as before, with \( \partial F/ \partial y > 0 \), and write the probability of an accident as \( h(x,y) \), with \( \partial h/ \partial y < 0, \partial^2 h/\partial y^2 > 0 \).

Assuming, throughout, a risk neutral victim, the victim's problem under a general punitive liability system with the probability of defendant liability \( F(x,y) \) and damages \( D \), with \( D>H \), is formally given by:

\[
\text{Max}_{y} \ h(x,y)[F(x,y)D-H] - cy, \tag{10}
\]

where for simplicity I have assumed that the victim's cost of care is also constant and equal to \( c \).

The first order condition defining the (assumed) interior optimum \( y' \) is:

\[
\frac{\partial h}{\partial y} \left[ F( )D-H \right] + D \frac{\partial F}{\partial y} h() = c. \tag{11}
\]

If the victim's care level has no bearing on the chances of recovering, then \( \partial F/ \partial y = 0 \) and since \( \partial h/ \partial y < 0 \), the corner solution \( y'=0 \) results if \( F()D-H>0 \). This establishes claim (1)(a).

The socially optimal level of victim care \( y^* \) is defined by \(- \partial h/\partial y(y^*,x^*)H = c \), and by inspection of (11), we see that when \( \partial F/\partial y = 0 \), this will be the same as the first order condition defining the private optimum \( y' \) only if \( F()D=0 \), which establishes part (1)(b).

2. The victim may take some care even if expected punitive damages exceed actual harm if the victim's care level imperfectly affects the probability of liability and recovery.

Under an imperfect contributory negligence or comparative negligence rule—due to any of the kinds of uncertainty considered in the text—we will have \( F(x,y) < 1 \) and \( \partial F/ \partial y > 0 \) for all \( y \). The victim will then perceive a positive benefit to taking care—the increased chance of
recovering supracompensatory damages—and by inspection of (11), may choose \( y' > 0 \) even if \( F(1)D > H \).

3. *It is generally impossible to design a victim’s version of optimal punitive liability.*

To see this, consider first a system that would *always* give punitive damages to a nonnegligent plaintiff victim, that is, a system with \( F(x,y) = 1 \) for \( y > y^* \). Under these conditions, for \( y > y^* \), the first order condition (11) will be negative for \( D > H \), implying that \( y' < y^* \). But for \( y < y^* \), raising damages \( D \) does not unambiguously shift the marginal benefit of care in the correct direction, and we cannot conclude that \( y^* \) is preferred to \( y < y^* \).

Consider now the mirror image of the first system by assuming \( F(x,y) = 0 \) for \( y < y^* \). Then the victim’s problem, given by (10), is identical to society’s for \( y < y^* \), so \( y' > y^* \). But increasing damages does nothing to ensure that \( y' = y^* \), as can be seen by considering (11).

D. Bankrupting Punitive Damage Awards and Safety Incentives

This part demonstrates the proposition in the text that as a bankrupting punitive damage award becomes more likely, the injurer’s care will increase.

Let the injurer’s Von Neumann-Morgenstern utility function be given by \( U(W) \), where \( W \) is wealth, with \( U' > 0 \), \( U'' < 0 \). Suppose that there are two types of punitive damage awards, \( D \) and \( P \), with \( P > D \) and \( P > W \) but \( W > D \), where \( W \) is now the initial tangible wealth of the defendant-injurer. Let the probability of a bankrupting award \( P \) be given by \( q \). As before, \( x \) is the level of care, \( C \) the cost of care, and \( z(x) = h(x)F(x) \), where \( h(x) \) is the probability of harm and \( F(x) \) is the probability of liability.

In a liability system where only the two punitive awards \( P \) and \( D \) are assessed with probability \( q \) and \( (1 - q) \), the injurer’s problem, to maximize its expected utility, is formally given by:

\[
\max_x q \, z(x)u(0) + (1-q) \, z(x)U(W-D-CX) + (1-z)U(W-CX),
\]

assuming the effect of a bankrupting punitive damage award is simply to reduce tangible wealth to zero. The exposition may be simplified by assuming, without loss of generality, that \( U(0) = 0 \).

The first order condition defining an interior solution \( x^* \) (which will be assumed) to (12) is given by:

\[
z'[((1-q)U(W-D-CX) - U(W-CX))] = c [(1-q)zU'(W-D-CX) + (1-z)u'(W-CX)].
\]

Taking the partial derivative with respect to \( q \), we find that \( \partial x^*/\partial q > 0 \), provided the second order condition for a maximum holds. In particular, the change in the marginal benefit of care (the left hand side in (13)) when \( q \) increases is given by,

\[-z'U(W-D-CX) > 0\]
(recalling that \( z' < 0 \)); and the change in the marginal cost (the right hand side in (13)) by

\[-zU'(W-D-CX) < 0.\]