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JURIES, HINDSIGHT, AND PUNITIVE DAMAGE AWARDS: FAILURES OF A SOCIAL SCIENCE CASE FOR CHANGE

*Richard Lempert**

INTRODUCTION

In their recent *Arizona Law Review* article entitled *What Juries Can't Do Well: The Jury's Performance As a Risk Manager*,¹ Professors Reid Hastie and W. Kip Viscusi purport to show that juries are likely to do a poor job in setting punitive damages, largely because jurors cannot avoid the influence of what is called "hindsight bias," or the tendency to see the likelihood of an event higher in retrospect than it would have appeared before it happened. In particular, they argue that hindsight bias and other cognitive biases undermine the utility of jury-set punitive damage awards as risk management devices. They also present information which they think shows that judges do a better job than juries in setting punitive damage levels. Their claims are interesting, but they are either wrong or unsupported by the evidence they present. In particular, if punitive damage awards are not a useful risk management device, jury hindsight bias, as I shall show, is not an important reason.

HASTIE AND VISCUSI'S ARTICLE

Hastie and Viscusi divide their article into two parts. The first part reports an original study of the hindsight effect among jury-eligible citizens.² In this study, Hastie and Viscusi asked one group of subjects, without telling them about an accident, to judge whether it is reckless behavior to continue to send trains over a portion of track

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1. Reid Hastie & W. Kip Viscusi, *What Juries Can't Do Well: The Jury's Performance as a Risk Manager*, 40 *ARIZ. L. REV.* 901 (1998).

2. *Id.* at 904-08.

that the National Transportation Safety Board has found dangerous.³ They asked another group of subjects to make a similar judgement knowing that an accident has happened.⁴ The Hastie and Viscusi study has the great virtue of attempting to use judges as a control group.⁵ This is important. If a task, like setting punitive damages is taken from the jury, it must be given to the judge if it is to be accomplished in litigation. Hastie and Viscusi believe their study shows that juries exhibit substantial hindsight biases and that these biases are substantially greater than the biases judges exhibit.⁶ From this they conclude that if punitive damages are aimed at risk management, the task of setting them should be taken from juries and given to judges.⁷ We shall see, however, that their study design does not allow them to conclude that they have found any hindsight bias, much less biases of a magnitude that would justify inroads on the Seventh Amendment and a major transfer of authority from juries to judges.

The second part of Hastie and Viscusi's article reviews some of what we know about cognitive biases in human decision making and suggests their implications for jury decision making on punitive damages.⁸ This part is largely speculative. Here, importantly, there is no information about judges. Nor is there any reason, including, as we shall see, the results of their empirical study, to regard judges as less susceptible to cognitive biases than jurors.

SPONSORED BY EXXON

The Exxon corporation, which was assessed five billion dollars in punitive damages following the Exxon Valdez oil spill disaster, helped fund the research which resulted in the paper by Hastie and Viscusi.⁹ The authors' recommendation in their conclusion, that the task of assessing punitive damages be transferred from the jury to the judge, if punitive damages are to be allowed at all is, no doubt, one that Exxon finds congenial. It is tempting to dismiss this policy recommendation and the research underlying it because of Exxon's sponsorship alone.

This would be a mistake. I have known Professor Hastie for years and have even coauthored a paper on the hindsight effect with him.¹⁰

3. *Id.* at 905.

4. *Id.*

5. *Id.* at 904.

6. *Id.* at 906-07, 917.

7. Hastie & Viscusi, *supra* note 1, at 917.

8. *Id.* at 909-16.

9. *Id.* at 901 n.**.

10. David Wasserman et al., *Hindsight and Causality*, 17 PERSONALITY & SOC. PSYCHOL. BULL. 30 (1991).

Moreover, Hastie's early book, *Inside the Jury*, established a standard for high quality jury simulation research which even today is too seldom attained.¹¹ I know from personal experience, that he is a fine methodologist and I can also testify that he is a researcher of considerable integrity, as evidenced by his immediate willingness to share with me the stimulus materials used in his study and unpublished data from it, when he knew I was writing a critique. While I am not similarly acquainted with Professor Viscusi, he has a national reputation as a leader in the study of and movement to promote rational risk assessment. Thus, the research reports of these scholars and the policy recommendations they derive from their research deserve careful attention, regardless of who has paid for the study.

The sponsorship of this work, and the reason I mention it, however, is relevant in one particular: Exxon is certain to welcome Hastie and Viscusi's interpretation of their data, their more general assessment of jury biases, and their resulting policy recommendations. Almost all of Hastie and Viscusi's interpretations and recommendations seem consistent with the Exxon Corporation's likely political agenda. It is naive to assume that Exxon paid for this research from purely eleemosynary motives. Rather, it seems likely that having paid for this research, Exxon will seek to disseminate the authors' apparent findings and their conclusions in judicial and political arenas where they will help to make the case against jury awards of punitive damages. For this reason it is important that Hastie and Viscusi's research and the conclusions drawn from it be carefully evaluated before the results are disseminated. Ordinarily this might happen in a scholarly journal's peer review process, but law reviews seldom subject social science submissions to peer review. I hope that this commentary can substitute in some degree for the peer review that a study like this would ordinarily receive.¹²

The lack of peer review is particularly important given what the authors have written. I say this because, despite my respect for Hastie and Viscusi and for the corpus of their work, I do not think that their article would have survived social science peer review in its current

11. REID HASTIE ET AL., *INSIDE THE JURY* (1983).

12. Indeed, my comments at the Symposium where this paper was presented and on an earlier draft of this article may already have served a peer review function to some degree. I know the paper's treatment of the lack of statistical significance of the judicial hindsight data, see Hastie & Viscusi, *supra* note 1, at 906, was changed to reflect comments I made at the Symposium. In addition, both Professor Hastie and the editors of the *Arizona Law Review* had a chance to review a draft copy of this paper before their editorial process was finished. Some of what I wrote may have resulted in changes in the paper during the editing process, but fundamental changes were not made, or else I would not be publishing this critique.

form. In particular, there are many reasons why one may not safely draw any policy recommendations from Hastie and Viscusi's article. Moreover, their interpretation of the results of their original study and their review of what others have found are often questionable and, at places, untenable.

BASIC FAILINGS

Perhaps one can make an empirical case against entrusting the task of setting punitive damages to juries. The authors, however, do not make an adequate social science case for this change, and their recommendation that this should be done deserves *no* weight in any policy arena. In particular, the institution of punitive damages arguably has nothing to do with risk management, so a system of punitive damages can be justified without regard to its implications for risk management.¹³ But even if one treats punitive damages solely as a method of risk management, showing that judges are less influenced by hindsight than jurors (the intended empirical contribution of the Hastie and Viscusi paper) does nothing to call the jury's role in setting punitive damages into question. Indeed, hindsight bias does more to undercut the case for jury-determined punitive damage awards under traditional rationales for punitive damages than it does under Hastie and Viscusi's risk management rationale.¹⁴

An initial reason to be cautious about accepting Hastie and Viscusi's conclusions is that neither their own research nor the research they summarize in the second part of their paper involve deliberations. Hastie and Viscusi despair of correcting cognitive biases, and in particular of reducing hindsight bias through any debriefing procedures, but they do not consider the possible efficacy of procedures which not only acquaint jurors with the danger of these biases but also encourage them to discuss these dangers in their deliberations.

In civil juries, there is often a wide range of damage estimates, and the range is likely to be wider where the standard for damages has few objective references, as is the case with punitive damages.¹⁵ Normal

13. My own position is, however, that the implications of punitive damages for risk management should not be ignored in the debate over punitive damages. If one assumes that punitive damages are justified on a retributive justice theory alone, one could still conclude, if their imposition substantially distorted efficient risk-taking, that the justice benefits they bring are not worth their other social costs. Thus, the authors' research is relevant to the debate on punitive damages. My concern is with the weight it should be given.

14. See *infra* text accompanying notes 20-27.

15. Daniel Kahneman et al., *Shared Outrage and Erratic Awards: The Psychology of Punitive Damages*, 16 J. RISK & UNCERTAINTY 49 (1988); Cass R. Sunstein et al., *Assessing Punitive Damages (with Notes on Cognition and Valuation in Law)*, 107 YALE L.J. 2071 (1998).

jury deliberations bring out reasons for these disparities and lead to compromises between the estimates of high and low damage jurors. To some extent, discussion itself may compensate for cognitive biases, which are *intrapsychic* processes. Even more important for present purposes is that, absent empirical investigation, one cannot know how deliberations would be affected by judicial instructions designed to counter hindsight and other biases.¹⁶ The likelihood of some ameliorative effect is sufficiently plausible so that a social science case for taking punitive damage judgements from juries cannot rest entirely on studies that lack deliberations. As two co-authors and I have shown, academic instruction in fields like psychology and medicine can reduce the influence of various cognitive failings, for even if these are ingrained, they are not immutable.¹⁷ Calling a jury's attention to the existence of cognitive biases and encouraging jurors to consider their possible effects in their deliberations may well have a similar ameliorative effect.¹⁸ To the extent that Hastie and Viscusi are correct and debriefing individuals is ineffective when the process is purely *intrapersonal*, providing information about cognitive biases cannot be expected to reduce their impact on judges.

16. Daniel Kahneman and his colleagues suggest that deliberations would not change the erratic nature of punitive damage awards beyond what one would expect from aggregating individual judgments into groups of six or twelve. Kahneman et al., *supra* note 15, at 68. I have also heard Professor Sunstein report, at the Working Group on Behavioral Economics at the Russell Sage Foundation, on unpublished data which indicate that deliberations do not make mock juror punitive damage awards more consistent. When these data are published, we may have a better idea of the effects of deliberations. Even if deliberations do not reduce the variability of jury awards, they might still reduce the effects of certain cognitive biases, like the hindsight effect. The articles I cited above are both authored by Professors Kahneman and Sunstein along with Professor David Schkade of the University of Texas. See *supra* note 15. Both articles and the study that Professor Sunstein orally reported on resulted from research that received funding from the Exxon Corporation. See, e.g., Sunstein et al., *supra* note 15, at 2071 n.iii. Thus, it appears that Exxon is making a concerted effort to build a social science case for reducing or taking away the jury's discretion in awarding punitive damages and that the Hastie and Viscusi study is a part of this effort. Funding policy-relevant research is not illegitimate corporate behavior, but one must be wary when an interested party, with a conclusion it wants to reach and potentially billions of dollars at stake, is the primary funder of research on an issue. Even if the funded research is done to the highest social science standards, a strategic choice of what to fund can paint a distorted picture of the empirical situation on which policy should rest. Indeed, Exxon has recently cited the above research in its appeal of the \$5.3 billion Exxon Valdez award. Elizabeth Amon, *Exxon Bankrolls Critics of Punitives*, NAT'L L.J. May 17, 1999.

17. Darrin R. Lehman et al., *The Effects of Graduate Training on Reasoning*, AM. PSYCHOLOGIST, June 1988, at 431.

18. Hastie and Viscusi cite a study by Kim A. Kamin and Jeffrey J. Rachlinski in which a simple caution by a judge to non-deliberating mock jurors about the dangers of hindsight had no ameliorative effect. Hastie & Viscusi, *supra* note 1, at 915 nn. 28-29. They then go on to say that no general remedies are known for hindsight effects. *Id.* at 916.

PUNITIVE DAMAGES AND RISK MANAGEMENT

Turning to the first portion of Hastie and Viscusi's article, their empirical study presents something of a puzzle, for even if one accepts its results uncritically, the study's findings do not support the authors' prime argument for taking punitive damages from the jury. Yet, if their results were valid and reliable, they would support the authors' policy recommendation for a reason they specifically disclaim.

Hastie and Viscusi state at the outset that they are concerned with punitive damages only as a risk management device.¹⁹ Under one classic view of negligence, one might see the jury as filling a risk management function when it decides whether certain conduct is so risky, in light of its likely benefits, as to constitute negligence, but this is not the theory that justifies punitive damages. Punitive damages exist to punish parties for harmful conduct that is deemed immoral, either because a legal duty was violated intentionally or because the conduct was so reckless, given its potential for harm, that the carelessness itself is regarded as immoral. Factors that juries are often explicitly invited to consider in setting punitive damages, such as the wealth of the defendant, have no necessary relationship to either the likelihood or the amount of harm done, two variables that are crucial to rational risk management.²⁰

This does not mean that punitive damages have no implications for risk management. Deterrence is often both a function and goal of punishment, and one could expect the possibility of punitive damages—verified either by past personal experience (specific deterrence) or observing the punishment of others (general deterrence)—to dissuade actors from intentional wrongdoing or reckless action. But deterrence is not the sole or even the primary justification for punitive damages. Indeed, since a finding of negligence or some other wrongful act must precede an award of punitive damages, deterrence—as opposed to the perceived good of punishing immoral behavior—is probably a less important justification for punitive damages than it is for most criminal punishment. This is because the damages awarded for the tortious behavior are supposed to compensate fully for the harm done; in theory, the prospect of paying such damages, enhanced by transaction costs, should deter most likely to be detected civil wrongs.

But accepting Hastie and Viscusi's view that punitive damages should be aimed at achieving efficient risk management, their study,

19. *Id.* at 902-03.

20. *See, e.g.*, CALIFORNIA JURY INSTRUCTIONS (BAJI), Civil, 14.72.2 (8th ed. 1995).

contrary to what they suggest, does not show that juries set punitive damage awards at levels that are inappropriate for this purpose. Hastie and Viscusi's argument that jury punitive damage awards are too high for efficient risk management is an argument for a *first best* world. In our second best world, where many tort claims are not litigated, where many law suits are settled without punitive damages, and where few cases going to verdict involve awards of punitive damages, it is likely (on the Hastie and Viscusi assumption that punitive damages have a legitimate role to play in risk management) that punitive damages are too seldom rather than too often awarded. If so, "excessive" awards in the few cases that give punitive damages may bring the amount and impact of punitive damage awards in a given time period closer to the socially optimum level than the levels which Hastie and Viscusi's proposed reform are likely to bring.

My argument is entirely speculative, for I have no idea what the optimum level of punitive damages is from a risk management standpoint. Nor am I confident that from a deterrence standpoint that an excessive award in one case can compensate for an inadequate award in another. But in our second best world, Hastie and Viscusi's argument that excessive punitive damages are awarded is equally speculative, if not more so; particularly if, as some economic models suggest, the total amount of punitive damages imposed is more important for risk management purposes than the incidence of damages across cases. This is because we know that many potentially valid tort claims are not brought or, especially when harm is substantial, are settled for less than the economic loss.

Hastie and Viscusi are, however, probably correct in arguing that juries entrusted with the task of setting punitive damages are not good risk managers.²¹ This is not necessarily because they award too much in punitive damages, since, as I have just suggested, they may award too little.²² Rather it is because, as Hastie and Viscusi point out, risk management is a difficult business, and even professionals with infor-

21. Hastie & Viscusi, *supra* note 1, at 902, 916-17.

22. Hastie and Viscusi seemed to have fallen into one of the cognitive traps they tell us juries are vulnerable to. They focus largely on the "present-present" cell; that is, cases in which punitive damages have been found justified and have been awarded by juries. They suggest that awards in these cases have been excessive or are likely to be. They speculate about the "absent-present" cell; that is, cases where punitive damages that are not justified are awarded, but in theory at least, courts can preclude judgments of this sort by reversing jury verdicts or not instructing on punitive damages in the first instance.

Hastie and Viscusi ignore the "present-absent" cell; that is, cases in which punitive damages are merited from a risk-management standpoint and are not awarded or are awarded in insufficient amounts. Under standard deterrence models which see the possibility of a trade-off between certainty and severity, one cannot evaluate whether deserved punitive damages are

mation gathered specifically for risk management purposes have a difficult job doing it well.²³ Moreover, jury trials are not aimed at providing the information needed for optimum risk management, and the system's constraints, such as those imposed by the rules of evidence and adversarial experts, are poorly suited to rational risk management. These are, perhaps, reasons why punitive damages are not justified primarily as a risk management device. They are certainly reasons why risk management should not be their primary justification.

PUNITIVE DAMAGES AND HINDSIGHT

Even if we do not reject Hastie and Viscusi's argument because they misunderstand the rationale for punitive damages or because they are writing for a first best world, their claim that it is hindsight bias that makes juries poor risk managers is problematic. Contrary to what their argument implies, from a risk management standpoint, hindsight can be helpful. Indeed, when it comes to risk management, it is a mistake to talk about a hindsight *bias* since *ex post* risk estimates are likely to be more accurate than *ex ante* estimates. For example, estimates of the risk of launching the Challenger space shuttle in cold weather were probably far more accurate after it exploded than they were before the tragic event.²⁴ Once an event thought to be extremely rare happens, unless one has very good data to the contrary, one *should* revise upwards estimates of the likelihood the event would happen. Certainly, from a risk management standpoint the costs of failing to take precautions against the event should be similarly raised. For example, before the Exxon Valdez disaster, one might have dismissed as ridiculous the possibility that a major corporation would allow a person with a potential drinking problem to captain a supertanker navigating perilous waters. After that disastrous oil spill, we know more about how large corporate bureaucracies work and about the low salience that environmental risks may have when corpo-

awarded in excessive amounts without knowing the amount of deserved punitive damages that are never awarded.

Indeed, the situation is even more complex. If the negligence penalty is set to optimize deterrence, the appropriate amount of punitive damages depends on the degree to which the negligence system fails to impose on tortfeasors the costs of their negligence. But to return to the main point, Hastie and Viscusi's error in focusing only on punitive damages that are awarded illustrates a point on which I think they and I agree: none of us, even the most intelligent, is immune to cognitive biases.

23. Hastie & Viscusi, *supra* note 1, at 916.

24. DIANE VAUGHN, *THE CHALLENGER LAUNCH DECISION: RISKY TECHNOLOGY, CULTURES AND DEVIANCE AT NASA* (1995).

rations make personnel decisions. Since additional valid information leads us to perceive the risk of corporate irresponsibility as higher, it is rational to put a higher price on such risk taking than we would have before the accident happened. A high punitive damage award is a way of signaling this price to other potential risk takers. While the Alaskan jury's punitive damage award is a price set *ex post* from the point of view of Exxon, the information it conveys about the potential price of careless behavior is *ex ante* from the point of view of all oil shippers, including Exxon, as they contemplate the appropriate degree of future precautions. The jury, like any other risk manager, can do nothing about a risk that has been realized. It can only aim at establishing an efficient level of risk taking in the future. This is best done with the help of hindsight. Hastie and Viscusi's demonstration of jury hindsight bias would call the jury's performance as a risk manager into question only if they could show that juries estimated accident probabilities more accurately before rather than after they happened. They have not done this, and in many situations they could not do this because the additional information often will lead to more accurate judgments.

Whether a jury would be misled by hindsight in a situation where *ex post* risk assessments are worse than *ex ante* assessments is an open question. Consider a vaccine that has been used 20,000,000 times with a serious adverse reaction once in every 50,000 doses. If a jury trying a case brought by someone who had suffered an adverse reaction estimated the risk at more than one in 50,000, we could regard their judgement as distorted by a hindsight bias that would, in a first best world, hamper efficient risk management. Hastie and Viscusi should have used a situation like the vaccine situation to test their hypotheses that hindsight bias makes juries poor risk managers. Had they done so, a hindsight bias might not have emerged. Although I do not dispute the susceptibility of all humans to hindsight bias, a well-established incidence rate may counter hindsight's distorting effects. On the other hand, when no likely valid baseline exists, as with rare events like the Challenger disaster, the Exxon Valdez incident, or the hypothetical case that Hastie and Viscusi chose to study, the information that hindsight brings is likely, from a risk management standpoint, to make for better rather than worse decisions.²⁵

25. Hastie and Viscusi make the point that people might overestimate risks that are novel or that are associated with highly publicized accidents. Hastie & Viscusi, *supra* note 1, at 910, 912. This may be, but litigation allows a party to put an unusual accident or novel risk in context, just as in the vaccine hypothetical I use, the company can show how unlikely an adverse reaction was. The large punitive damage awards that Hastie and Viscusi point to do not show that juries

It is puzzling that Hastie and Viscusi chose to address the hindsight bias problem only from a risk management standpoint, because the traditional justification for punitive damages as punishment is more threatened than the risk management perspective by the hindsight biases that Hastie and Viscusi think they show. If punitive damages are intended to punish actors for the immoral action of intentionally or, in the case that concerns us, recklessly endangering the well being of others, the recklessness of the conduct should be determined from the actor's *ex ante* perspective, because if the conduct was reasonably viewed as not reckless when it occurred, the actor's behavior was not so immoral as to justify punishment. Indeed, if a rational, careful actor would not have seen the possibility that her action would cause harm or would only have foreseen harm whose social costs were outweighed by the costs of taking precautions, the actor should not be found negligent at all and surely has not behaved so badly as to justify punitive damages. Hindsight bias can lead to unjustified punitive damage awards, because overestimates of *ex ante* risk probabilities can make behavior which appeared reasonable at the time it occurred appear reckless in retrospect. The awards are unjustified, not because they over-deter risk taking, but because they punish tortfeasors for behavior that did not appear reckless when it occurred.

EXTERNAL VALIDITY PROBLEMS AND DESIGN FLAWS

No doubt, the *ex ante* probabilities of accidents are often overestimated in retrospect because hindsight biases are a well-documented fact of human cognition. If the overestimation were of the magnitude which Hastie and Viscusi report (i.e., powerful enough to double—from 33% to 67%)²⁶ the *ex ante* likelihood of a punitive damage award, there would be considerable reason to worry about the justice of these awards. But the Hastie and Viscusi study tells us almost nothing about the likely magnitude of inappropriate hindsight effects on punitive damage verdicts. The study's external validity is sufficiently low, given the many differences between the experimental conditions and the situations of actual juries, that generalizing from the study's results to actual juries would be risky. This is true even if the study did not also have design flaws so substantial as to undercut its experimental findings.

are unable to place accidents in context, for a desire to punish rather than risk management can explain the size of large awards.

26. Hastie & Viscusi, *supra* note 1, at 906. This increase is higher than the authors' study would justify even if the study did not have fatal design flaws. See *infra* text accompanying notes 32-44.

There are problems I have already alluded to, namely the absence of deliberations and the fact that the study does not tell us that *jury* verdicts, as opposed to *juror* verdicts, are affected by knowing an accident happened. Also, the jury's task in Hastie and Viscusi's foresight condition differed in important respects from the task it faced in the hindsight condition. In the foresight condition, respondents were asked whether to order the railroad to cease potentially dangerous operations,²⁷ while in the hindsight condition respondents were asked if they would award punitive damages.²⁸ Even if the standards for deciding the two questions were artificially made the same, as the experimenters tried to do, other values, such as a reluctance to have the government order private parties to behave in certain ways may have depressed the level of "anti-railroad" verdicts in the foresight condition. This may be why the verdict differences Hastie and Viscusi report are proportionally larger than differences in variables that more directly measure the effect of hindsight. Also, and more consequential as I shall show in detail below,²⁹ the legal judgment that the foresight and hindsight jurors were asked to make was different, as was the information given to them.

In addition, the Hastie and Viscusi study uses as its stimulus a fifteen minute videotape which embodies a script of less than 3,000 words.³⁰ The study's mock jurors receive so much less information than jurors receive in actual trials that there is no scientific basis for assuming that the magnitude of the effects found in the study resembles those found in actual trials. Moreover, in a trial where a high punitive damage award is possible, the defense counsel will, no doubt, emphasize both the reasonableness of the defendant's actions, given what was known before the accident, and the jury's obligation to take an *ex ante* perspective in deciding on punitive damages. Evidence and arguments about the situation *ex ante* might diminish substantially the effects of hindsight and perhaps even eliminate them. Even if jurors who are told to take an *ex ante* perspective cannot do this, jurors who are not only told to do this but who are also *immersed* in evidence that seeks to reconstruct the defendant's *ex ante* perspective may be able to do so. We simply do not know what is possible in this regard, par-

27. Hastie & Viscusi, *supra* note 1, at 905.

28. *Id.*

29. See *infra* text accompanying notes 31-44.

30. A more detailed description of the studies methods can be found in Reid Hastie et al., *Juror Judgment in Civil Cases: Hindsight Effects on Liability Judgments*, CRJP Technical Report #376 (1998), cited in Hastie & Viscusi, *supra* note 1, at 905 n.9. I am grateful to Professor Hastie for sending me copies of this unpublished report and of the stimulus materials he used in his study.

ticularly when the decision will be made only after substantial discussion.

Another flaw stems from an important difference between Hastie and Viscusi's hindsight and foresight conditions. In the hindsight condition, the jurors were told that the defendant railroad had already been found negligent.³¹ Thus, any hindsight juror who knew a bit about negligence law might think that the experimenter wanted them to assume that the railroad should have foreseen the possibility of the accident. The possibility of experimenter demand effects is substantial. Moreover, the hindsight juror's task differs substantially from the foresight juror's task. Foresight jurors had to determine if an accident was foreseeable and, if so, whether it was so likely that to ignore the possibility was reckless; hindsight jurors only needed to answer the latter question because the first question had been answered when negligence was found.

Even if hindsight and foresight jurors are identically situated, it is not clear that *ex post* information is irrelevant to punitive damage assessments. Punishment judgments are regularly informed by the existence and extent of the harm they are punishing. In real life situations, unless there has been an accident and harm done by it, punitive damages are likely to be unavailable or not awarded regardless of how dangerously a party has behaved. For example, a person who accidentally discharges a gun and is lucky enough not to hit anyone will probably face no penalty, even if the discharge is reported to the police. But if the person accidentally kills someone, she is likely to be prosecuted for negligent homicide or maybe manslaughter, even though the recklessness associated with the accidental discharge is the same in both cases. From the punishment point of view, being guided by *ex post* information in deciding how punitive to be may not be as counter-normative as I am willing to assume for purposes of discussion.

FATAL FLAWS

The other differences between Hastie and Viscusi's foresight and hindsight conditions are even more serious than the fact that only hindsight jurors were told the railroad had been found negligent. One difference means that the judgments of Hastie and Viscusi's hindsight subjects may have been appropriate and, at a minimum, cannot be

31. Hindsight Jury Opinion Study, *Durango River Hatchery v. Chicago W. R.R.* 2 (on file with *DePaul Law Review*).

strictly contrasted with the judgments of subjects in the foresight condition. The other difference invalidates the study's results entirely.

The authors' foresight condition involved a regulatory action (ordering the railroad to cease using a roadbed).³² Because of this, Hastie and Viscusi's foresight subjects are reporting their own judgments about the likely dangers of the railroad's continued operations. In the hindsight condition, the experimental subjects are deciding what the railroad should have known. Knowing an accident occurred, people who are unaffected by hindsight bias and so would maintain their *ex ante* accident probability estimates might nonetheless reassess their estimates of the likelihood that an expert organization, like a railroad, could have foreseen an accident. For example, knowing what we know about the Challenger disaster, we might conclude that NASA was reckless in not foreseeing the accident's possibility because the possibility was substantial enough and the accident occurred through a sufficiently obvious causal mechanism that an expert organization that put the safety of its astronauts first would have foreseen it. Had there not been the explosion, we might have given an inferior estimate of the *ex ante* probability from NASA's perspective because we would not have known nearly so much about the causes of the explosion and so could not have judged NASA's capacity to anticipate them. Even more important, if we could avoid hindsight bias, in the sense that our own *ex post* estimate of the chance of an explosion would be the same as our *ex ante* estimate, this very lack of consistency might mean that our estimate would not be a good one. Furthermore, it is not the legally relevant one. The legally relevant estimate in the Hastie and Viscusi experiment is the one that the railroad, *as an expert organization*, should have made *ex ante* and not the one that the lay jurors would have made had they been deciding before the accident whether to continue rail shipments.

This difference is worth mentioning not only because it poses an interesting and subtle challenge to the authors' results, but also because it is likely to compound the problems caused by the second major difference in the two conditions, one which reflects a design flaw at the heart of the Hastie and Viscusi experiment. In the foresight condition subjects were told in the experimental protocol in a section labeled *Possible Impact of a Derailment*:

There has never been a derailment at the Andara bridge. Furthermore, typically when derailments occur, the impact is quite limited. If cargo spills on the ground from overturned cars, it requires cleanup by the railroad, but the mess is usually limited to the area immedi-

32. Hastie & Viscusi, *supra* note 1, at 905.

ately surrounding the accident. However, should a car fall from a bridge into a river, there is the possibility of material entering the river and being carried downstream.

*Trains traversing the Andara bridge are usually made up of a hundred or so cars, most of which are empty. The loaded cars carry dry materials, like gravel, coal, and lumber, that do not dissolve in water. If such materials got into the river they would not be carried very far downstream. One exception is detergent. In many trains there is a single tank car of detergent. Should that tank car fall in the river and if it were to be punctured, detergent could spill into the river. It would kill fish as well as vegetation along the river as it was carried downstream. Businesses that depend on sport fishing in the river and the operations of a large trout hatchery could be disrupted.*³³

The protocol given to the hindsight subjects says nothing about the likely minimal impact of most derailings; indeed, it says nothing about the likely impact of a derailing at all except to note, in a subsection labeled *Arrangement of Loaded and Empty Cars*, that eighty-six of the ninety-seven cars in the train that derailed were empty and eleven were loaded.³⁴ Rather, it tells the mock jurors³⁵ that a car carrying 19,000 gallons of detergent was one of six cars that derailed, that it was punctured by a rock and that the trout hatchery was, “*devastated and may never recover.*”³⁶ Moreover, foresight subjects are told in the section labeled *Summary of the NTSB Order and Trial*, that there has not been a derailment at the bridge in the twenty years since it went into service³⁷ and this is repeated in the opening sentence of the paragraph on possible impacts that is quoted above.³⁸ Hindsight subjects receive the same introductory information about there being no derailment since the bridge went into service, but the matter is not again repeated for them.³⁹

So not only were the foresight subjects deciding as regulators and not as jurors, but they had highlighted for them the fact that there had never been an accident on the bridge and they were told that most

33. Foresight Jury Opinion Study, *Chicago W. R.R. v. National Transp. Safety Bd.* 5 (on file with *DePaul Law Review*) (emphasis added). Section headings in the protocol are set in bold type, and major categories, but not subcategories are underlined. I am grateful to Professor Hastie for supplying me with this protocol and with the equivalent protocol for the Hindsight/Jury condition.

34. Hindsight Jury Opinion Study, *supra* note 31, at 4.

35. Not all of Hastie and Viscusi's subjects were deciding as mock jurors, some were asked to decide as citizens. We will talk of “jurors” now, but later we will examine some of the implications of differences between the citizen and juror conditions.

36. Hindsight Jury Opinion Study, *supra* note 31, at 5-6

37. Foresight Jury Opinion Study, *supra* note 33, at 2.

38. *Id.* at 5.

39. Hindsight Jury Opinion Study, *supra* note 31, at 2.

derailments would do little damage beyond imposing clean up costs that could be borne by the railroad. They were also primed to think that there was only a one in 100 chance that an accident might cause serious harm,⁴⁰ and they thought that the most serious harm that might occur would be that the operations of a fish hatchery might be disrupted. The hindsight subjects, asked to decide as jurors, cannot be expected to mimic the judgments of foresight subjects because their view of the situation *ex ante*, totally apart from knowing that an accident occurred, differs from what the foresight subjects knew. Hindsight subjects did not know that cars carrying dry material would cause little harm to the river if they derailed, and they did not know that only one in about 100 cars in a train carries detergent. They knew that the car that derailed carried detergent,⁴¹ from which it is reasonable to infer that cars carrying detergent are not uncommon, and they knew that the derailment of a car carrying detergent *devastated* the fish hatchery;⁴² whereas, the foresight subjects thought it could, at most, *disrupt* its operations.⁴³ Also the experimental design makes the fact that there has never been an accident on the Andara bridge more salient for the foresight than for the hindsight subjects.⁴⁴ Given these differences in the hindsight and foresight protocols, had the experiment not revealed a difference between the judgments of hindsight and foresight subjects that looks like a hindsight effect, it would have been surprising.

None of this means that jurors do not exhibit hindsight bias. Given the seeming ubiquity of this bias in human decision making, it is likely they do. But the design of the Hastie and Viscusi experiment destroys the social science bases for attributing *any* of the judgmental difference in their experiment to the existence of hindsight bias. Factual differences between the two protocols impel hindsight jurors to give estimates of the chance of a serious accident that are higher than the estimates of foresight jurors, and these higher estimates should carry over, as they apparently did, to a greater willingness to treat ordering rail shipments over the Andara bridge as reckless behavior. If Hastie and Viscusi's subjects were immune to hindsight bias, the different

40. The foresight subjects might have realized, had they thought about it, that derailments often involve more than one car; nevertheless, the information that no more than one in a hundred cars would ordinarily contain detergent is a likely anchor in thinking about the probability of a serious accident.

41. Hindsight Jury Opinion Study, *supra* note 31, at 5.

42. *Id.* at 6.

43. Foresight Jury Opinion Study, *supra* note 33, at 5.

44. *Id.* at 2, 5.

conditions might still elicit markedly different accident estimates and punitive damage awards.

COMPARISON WITH JUDGES

The most original aspect of Hastie and Viscusi's study is their attempt to collect data on the hindsight biases of judges similar to that which they collected on jurors.⁴⁵ As Hastie and Viscusi recognize, transferring decision making responsibility from the jury to the judge makes little sense unless the judge is likely to do a better job.⁴⁶ I commend Hastie and Viscusi for understanding this, since many critics of jury decision making have not, and for trying to collect data that deal with the relative capacities of judges and jurors to ignore what they know from hindsight. However, contrary to what they tell us, we cannot conclude from their research, and could not even if the above design problems did not exist, that judges are less susceptible to hindsight bias than jurors.

In the first place, Hastie and Viscusi exaggerate the juror hindsight bias which their research reveals. The measure of juror hindsight bias which figures most prominently in their paper is the increase which their data show in punitive damage verdicts, from 33% in the foresight condition to 67% in the hindsight condition.⁴⁷ I have already suggested reasons why this change in verdicts may reflect legitimate uses of the information that hindsight provides rather than uses which violate legal norms. But totally apart from this, the number appears too high, for the authors unaccountably do not report a manipulation which proved significant in the study on which the first portion of the paper is based.⁴⁸

In the underlying study, Hastie and his colleagues (Viscusi was not a coauthor) divided their jury-eligible citizens into two groups, one of which was told to respond as ordinary citizens to the question of whether punitive damages should be awarded and the other of which was asked to decide on punitive damages as if they were jurors.⁴⁹ While 75% of subjects taking the citizen role would have found the railroad liable for punitive damages,⁵⁰ only 59% of subjects taking the juror role would have done so.⁵¹ Moreover, 37% of the subjects that

45. Hastie & Viscusi, *supra* note 1, at 905.

46. *Id.* at 917.

47. *Id.* at 906, 917.

48. For a fuller report of this study, see Hastie et al., *supra* note 30.

49. *Id.*

50. *Id.*

51. *Id.*

were told to act as jurors would have awarded punitive damages in the foresight condition.⁵² Line One of my Table One presents this information. It is only subjects asked to take the juror role who can appropriately be called *mock jurors*, so the hindsight effect in the first row of Hastie and Viscusi's Table One should increase from 37% to 59%, not from 33% to 67%. But even this number exaggerates hindsight bias, for it is a measure of verdict preferences and not a measure of the estimated chance of an accident in the hindsight and foresight conditions. Hastie and Viscusi directly measure the difference between *ex ante* and *ex post* evaluations of risk, as they ask for estimates of the probability of a serious accident.⁵³ In the foresight condition, their mock juror subjects had an average probability assessment of .37, while mock jurors in the hindsight condition set the probability at .56. The comparable figures for judges are .20 and .36.

TABLE ONE
VERDICT PREFERENCES AND ACCIDENT PROBABILITY ASSESSMENTS
FOR MOCK JUROR SUBJECTS, CITIZEN SUBJECTS, AND JUDGES⁵⁴

	Mock Juror Subjects			Citizen Role Subjects			Judges		
	Foresight n=51	Hindsight n=87	Hindsight Increment	Foresight n=51	Hindsight n=88	Hindsight Increment	Foresight n=47	Hindsight n=47	Hindsight Increment
Verdicts (percent anti-rail- road)	37%	59%	59%	29%	75%	159%	15%	25%	67%
Probabil- ity of a serious accident	.37	.56	51%	.32	.63	97%	.20	.36	80%

Contrary to the authors' suggestions, these data do not indicate that judges are less susceptible to hindsight biases than jurors. The accident probability assessments of the mock jurors' increased with hindsight by .19, while the judges' estimates increased by .16, not a statistically significant difference. Moreover, relative to their foresight judgments, the mock jurors' assessments of the accident probability increased by 51% with hindsight, but the average judicial estimate increased by 80%. With respect to verdicts, the proportion of mock jurors finding against the railroad increased by 22%, which is a 59% increase over the base established in the foresight condition. The ab-

52. *Id.*

53. Hastie & Viscusi, *supra* note 1, at tbl.1.

54. The data for this table were supplied to me by e-mail message from Professor Hastie dated September 12, 1998. The Hindsight Increment is defined as: (Hindsight-Foresight)/Foresight.

solute increase in the judges anti-railroad verdicts was only ten percentage points, but this is a 67% increase over the existing base.

The difference between the judges and mock jurors that stands out is one that Hastie and Viscusi do not comment on: the difference in *ex ante* verdicts and probability estimates. As Table One indicates, the average judicial estimate of the probability of a serious accident in the foresight condition is only 20%, while the average mock juror's estimate is 37%, and only 15% of the judges in the foresight condition would have prevented the railroad before the accident from using tracks the National Transportation Safety Board found dangerous, while 37% of the mock jurors would have done so. This difference in base line estimates is similar though not as extreme if one looks at subjects responding as concerned citizens.

These differences in foresight condition estimates suggest that Hastie and Viscusi's judges had values or experiences that differed from those of the citizens who participated in their study. Differences in the hindsight condition seem in large measure to be a function of differences in the foresight base line and so are profoundly affected by the same differences in values and experiences. Judges may not be less susceptible to hindsight effects than jurors, but their values or experiences may make them more resistant to finding businesses liable for punitive damages or less likely to think that businesses would push to engage in activities that had a high risk of serious accidents.

Moreover, although Hastie and Viscusi speculate that the judicial role or experience of judging might insulate judges from hindsight biases,⁵⁵ their judge data may simply reflect sample biases which affect the base line measures and restrain absolute (but not relative) shifts caused by hindsight. The judges in the Hastie and Viscusi study were attending a program in law and economics, which may well have attracted judges who are more pro-business than judges generally.⁵⁶ Moreover, the Hastie and Viscusi sample included appellate judges.⁵⁷ Trial judges, as a group, may have different values or, because their experiences differ, they may respond differently in hindsight. This is important because if Hastie and Viscusi's suggestions were adopted, it is the trial judges rather than appellate judges who, in the first instance, would be assessing punitive damages. Of course if trial judges had this role, corporations like Exxon would have a special incentive to fund local judicial elections or lobby for trial judge appointments,

55. Hastie & Viscusi, *supra* note 1, at 917.

56. *Id.* at 905.

57. *Id.*

and those chosen as trial judges might be more likely to have values that those potentially exposed to punitive damages would welcome.

Perhaps the biggest puzzle presented by Table One is the substantial difference between citizens asked to reach decisions as citizens and those asked to reach decisions as jurors. It is the group of citizens deciding as citizens which drives the hindsight effect differences that Hastie and Viscusi report. I hesitate to venture an explanation for this, and it is possible that the differences, particularly the difference in average accident probability estimates, are due to chance. Yet the difference in the magnitude of the hindsight effect in the verdict condition is not only statistically significant, but it is also so large (46% versus 22%) as to be striking. A possible explanation is that just being asked to think about a problem as a juror curbs tendencies to view a problem in hindsight. Alternatively, the mock juror subjects may have felt that they needed to be more cautious than the citizen role subjects in awarding punitive damages because their role had them making a decision with consequences. If either of these explanations is true, actual juror verdicts should be affected even less by hindsight than the verdicts of the juror subjects in this study because actual jurors will not be playing a role; rather, they will know their decisions matter.

If I am correct and what Hastie and Viscusi see as the lesser susceptibility of judges (as compared to jurors) to hindsight bias instead reflects differences in values and experiences—exaggerated perhaps by sample biases—there is no cause to celebrate the advantage that Hastie and Viscusi believe judges enjoy. If the goal is to achieve a just result that is also sensible from a risk management standpoint, the fundamental question is which group's estimates in foresight and in hindsight are more accurate. We do not know whether judges' or jurors' estimates are more accurate, and Hastie and Viscusi's article does not address this issue.

There are other problems with Hastie and Viscusi's empirical research and the conclusions they draw from it. At one point they use Learned Hand's well known formula for negligence to suggest the accident probability a subject should have to find the railroad negligent (ignoring the fact that the hindsight subjects had been told the railroad had been found negligent).⁵⁸ They then calculate benefit/cost ratios associated with the award of punitive damages where the costs

58. Hastie and Viscusi describe Judge Hand's formula as follows: "If an accident's cost multiplied by its probability of occurrence exceeds the cost of untaken precautions, then in the event of a mishap, the defendant should be judged at least negligent." Hastie & Viscusi, *supra* note 1, at 907.

are the cost to the railroad of taking the precautions that would have prevented the accident, and the benefits are the damages done in the accident multiplied by the *ex ante* probability estimate for each subject that the accident would occur.⁵⁹ They seem to regard the fact that no judge awarded punitive damages with a subjective benefit/cost ratio of less than 3.65 as a good thing for Hastie and Viscusi feel that their calculations suggest that “judges have a sense of rationality in situations believed to create the most irrationality.”⁶⁰ But there is no reason to believe that a benefit/cost ratio of 3.65 is an appropriate threshold for finding that conduct was so reckless as to merit punitive damages. Indeed, in the legal world in which we live punitive damages may be awarded when actual damages are only nominal, so very small benefit/cost ratios are consistent with legal norms.⁶¹ Thus, the arguably greater sensitivity of judges to benefit/cost ratios in awarding punitive damages, something else they purport to show, does not mean that their judges’ punitive damage awards are normatively superior to their mock juror awards.⁶² Indeed, it does not even mean that

59. *Id.* at 908.

60. *Id.*

61. Where punitive damages are awarded although damages are small or nominal, one might expect to find that the breach of duty is intentional rather than reckless, but behavior can be so reckless as to justify punitive damages even though by happenstance the damages done are small. To the extent a benefit/cost ratio is a guide to the recklessness of behavior, the cost measure should not be the harm actually done by the behavior but the harm that would have reasonably been expected to have occurred in the event of an accident. In calculating their benefit/cost ratios, Hastie and Viscusi use the harm actually done in the accident, which for some people may be lower than the harm which they thought the railroad should have anticipated *ex ante*.

62. This portion of the analysis too is highly questionable. Whether damages are low or high, Hastie and Viscusi’s data indicate that their mock jurors are quite sensitive to benefit/cost ratios; the higher the ratio the greater the probability of a ruling against the railroad. What seems irrational in the data is that among the “citizen mock jurors” who were told that damages were \$240,000, a very low benefit/cost ratio (.04-.10) was needed to elicit the same tendencies to award punitive damages that it took a high benefit/cost ratio (4.17-10.44) to elicit among the jurors told that the accident had caused \$24 million in damages. Hastie & Viscusi, *supra* note 1, at 921 tbl.3.

These data are interesting and deserve further exploration. But they do not necessarily reveal counter-normative behavior by jurors, nor do they show judges performing better than jurors. As constructed, the benefit/cost ratios are sensitive to each respondent’s judged likelihood of a serious accident. The data simply show that regardless of damages, those who thought that the railroad should have anticipated there would be a serious accident if they continued to use the track, were more likely to award punitive damages than those who thought an accident less foreseeable, an entirely normative result in both the low and high damages conditions.

Hastie and Viscusi did not provide their judges with a scenario in which damages were low. Had such a condition been part of the judge study, I expect that many of them too would have awarded punitive damages despite low benefit/cost ratios because they, like the low damage jurors, would have thought that the railroad should have anticipated the accident and merited punishment for not doing so. Even from a risk management standpoint, the apparent inconsistency between the low and high damage award mock jurors is not necessarily counter normative. It is possible that in looking ahead to the next accident or, considering what damages might have

the judge's awards are superior from a deterrence standpoint. If judges never award punitive damages when benefit/cost ratios are low and award them only half the time when they are high, actors, like the railroad, involved in the experiment's accident and other railroads, may be overly prone to risky operations in the future. Certainly nothing about the theory of punitive damages or risk management through tort awards suggests that a benefit/cost ratio of at least 3.65 should exist before punitive damages are awarded.

THE LITERATURE ON COGNITIVE BIASES

The Hastie and Viscusi study is a modest one with a simple stimulus, with limited and legally ambiguous result measures, and with possible sample biases, to name just some of its problems. Nevertheless, valuable lines of social science research often begin with modest first steps. If Hastie and Viscusi's data analysis and their willingness to draw policy conclusions from their findings were as modest as their study, I would not have written this critique. However, Hastie and Viscusi put far more weight on their empirical work than it will bear. Moreover, even if their work were better done and the results less open to questions, no single social science study or small group of studies can justify as dramatic a change in a long standing legal institution, like punitive damages, as that which Hastie and Viscusi propose.

Their exaggeration of their study's import is particularly unfortunate given that a sponsor of the work has a strongly partisan interest in the results and may seek to publicize the study's conclusions in policy arenas that are poorly equipped to appreciate the study's serious

occurred in the accident they knew about, low and high damage jurors were closer in their estimates of the damages that might have been foreseen (or would occur next time) than they were in the actual damage figures provided them. Hastie and Viscusi asked their mock jurors to estimate the *ex ante* chances of an accident but they never ask them to estimate the damage it might cause.

In addition, in looking at the association of risk perceptions with judgments against the railroad, Hastie and Viscusi make the judges as a group look more rational than they are by ignoring data from half their judges on the ground that so few judges in the foresight condition would have found against the railroad that the relationship between judges and risk perception is "insensitive." *Id.* at 906. In fact, there are only four fewer judges finding against the railroad in the foresight condition than in the hindsight condition (7 versus 11). Ignoring the foresight condition means that the authors do not tell us that six judges ruled against the railroad with lower perceptions of accident risk than many of their fellow judges who did not award punitive damages, including 10 of the 11 judges whose risk ratings were in the highest quartile. Even if four more judges with risk perceptions in the highest quartile had voted for punitive damages, the data would have suggested that foresight judges as a group did not show a strong relationship between willingness to award punitive damages and their risk assessments. By ignoring the data from the foresight judges, Hastie and Viscusi make the judges as a group appear more rationally consistent than they seem to have been.

shortcomings. But rather than being ultra-cautious in their analysis to be sure their work was not misused, Hastie and Viscusi attempt to bolster the results of their empirical study with a broader discussion of empirical studies of lay judgment of uncertain risks.⁶³ This discussion too is seriously flawed. It draws questionable implications from the best of the research it cites, and it offers additional speculations that are poorly grounded in empirical research, if they are grounded at all. In short, the second part of their article, like the first part, offers no reason to transfer punitive damage judgements from juries to judges.

At the most general level, the studies that report common failings of human reasoning give us little reason to expect that judges will outperform jurors. These studies usually involve individual rather than collective decisions, and few are set in a context designed to mimic legal decision making. Although much of the research on cognitive biases and other failures of human reasoning is well done and calls our attention to failures of rationality that are likely to affect juror decisions because they seem endemic to human reasoning, even here there is need for caution.

For example, we are told that jurors are likely to overestimate the likelihood of accidents with small probabilities of occurrence.⁶⁴ But this argument is based on studies which typically involve far less case specific information about risk than jurors receive at trials. Moreover, if a risk can be shown to be so low that it is not careless to incur it, a tort defendant will be entitled to a directed verdict, and a jury will never hear the matter. In addition, when the issue is punitive damages, overestimating a tiny risk by orders of magnitude may still lead to a risk estimate that is so small that unless an outcome was catastrophic, punitive damages will either be ruled inappropriate as a matter of law or will not be imposed by a jury. The best empirical evidence that there is a problem here would be cases in which the human tendency to overestimate very small risks led to awards of punitive damages not justified by true risk levels. Significantly, the authors identify no cases in which jurors awarding punitive damages apparently did so because of this or any of the other cognitive failures they discuss. We might still wish to think about ways to minimize cognitive failures that might affect jury verdicts, but, absent cases in which these failures seem to have led to unfairness or irrationality, it is hard to see a problem that justifies such a broad institutional change as moving the punitive damage decision from juries to judges.

63. *Id.* at 906-16.

64. *Id.* at 910-11.

A further problem with the argument in the second part of their article is that the authors' strong views about what is rational ignore values that rational people possess. For example, as evidence of human irrationality, they cite studies indicating that consumers value a reduction in the risk of injury from a household chemical product from 5/10,000 to zero, more than they value a reduction from 15/10,000 to 5/10,000.⁶⁵ But the argument that this preference is irrational assumes that the only cost of the injury risk is the harm the injury causes. It ignores the harm that the threat of injury causes. Reducing a risk to zero reduces both worry and the costs of taking precautions that minimize worry. Reducing, but not eliminating, a risk may still leave these costs; hence it is not irrational to place a substantial premium on eliminating a feared risk entirely. It is often the case that eliminating the last vestiges of a risk, such as a risk of disease, is more expensive than reducing the risk from a moderate to a low level, but eliminating risks entirely is often a political goal, and our willingness to spend toward this end may rise as the goal is approached. If jurors place a special value on eliminating risks, they are not acting unreasonably. Hastie and Viscusi's perspective on rationality is not that of either the political or legal system. Nor does the research that Hastie and Viscusi cite indicate that juries that are told of a defendant's efforts to eliminate risk will underestimate the degree of risk reduction the defendant has achieved. Absent research that uses more ecologically valid stimuli, such as simulated trials, we do not know what juries will do, nor, if the tendencies Hastie and Viscusi point to actually affect jury decision making, whether these effects are so strong as to justify changing the tasks we assign juries.

Hastie and Viscusi also suggest that juror assessments of the likelihood that an event will occur will inappropriately increase with the severity of its consequences. In particular, they suggest that when an accident has had severe consequences, the jury will believe that the apparent chance of the accident *ex ante* was higher than it would have seemed had less damage been done, or, perhaps, that the accident was more easily avoidable.⁶⁶ In deciding whether an accident resulted from negligence, the jury, according to Hastie and Viscusi, should make risk calculations uninfluenced by the fact that an accident occurred, and it should decide whether the risk was justified not on the basis of the harm actually done, but in light of the amount of harm that would have been expected *ex ante* given the apparent risk. The authors cite no research that suggests juries decide in the way they

65. *Id.* at 911.

66. *Id.* at 911-12.

fear, and do not mention their failure to find such an effect in their own study. Their study included a low harm condition in which the railroad accident caused \$240,000 in damages and a high harm condition in which the accident caused \$24,000,000 in damages.⁶⁷ This damage manipulation had no significant effect on juror verdicts or any other of their outcome measures. Hence the authors' own research, perhaps the sole empirical study that bears on their fear, suggests there is no cause for concern. I would not, however, dismiss this concern based on their study's results, just as I would not treat this study as strong evidence for the existence of worrisome hindsight problems. But the failure of the authors' results to support their fears emphasizes how speculative and relatively unsupported by empirical research their laundry list of concerns is.

The authors also suggest (without citation) that people overreact to risks associated with new technologies, to risks that increases status quo risk levels, and to risks associated with highly publicized events.⁶⁸ With respect to the first two, it seems difficult to know whether people overreact because when we have little experience with a risk, it is hard to know what the appropriate reaction is. A jury which expects special care when risks are novel is not acting improperly, for a similar perspective operates in various regulatory arenas, as in, for example the special requirements, arguably not justified on efficiency grounds, that new drugs must meet before they are marketed. A jury which shares values firmly embedded in the political system is not, on this account, an irrational actor. Moreover, taking an *ex post* perspective when judging actors who create uncertain risks that are later realized may be wise on efficiency grounds as well. It counters actor incentives to downplay or ignore risks that might interfere with getting a profitable product quickly to market. A strong commitment to an *ex ante* perspective might encourage corporations and other actors to forego gathering risk relevant information since if something goes wrong it is hard to hold an actor at fault if it had no idea an accident might happen. While, in theory, risk creators might be made to pay for failing to adequately evaluate the risks they were creating, this can be very hard to prove. The prospect of punitive damages if something goes very wrong may effectively balance the biases promoted by self interest and short time horizons and so may prevent risks from being realized, which is ordinarily better than compensating for them afterwards.

67. Hastie et al., *supra* note 30, at 2.

68. Hastie & Viscusi, *supra* note 1, at 912.

Whether juries overestimate the *ex ante* risks associated with highly publicized events is hard to say. It is, despite the authors' suggestion, not at all clear that juries in the asbestos cases have overestimated the risks that the companies mining and using asbestos would have perceived had they tried responsibly to gather information on the safety of their product. With respect to other highly publicized risks, such as Bendectin and tobacco, most juries hearing cases arising from these risks have found for the defendants.⁶⁹

Another weakness of Hastie and Viscusi's argument is that they treat risks and information about them as givens rather than as the results of dynamic social processes. We are told, for example, that a preference for known risks (e.g., 2/1000 of a chance of harm) over more ambiguous risks with an equivalent expected likelihood of harm (e.g., a 50:50 chance of a risk that is either 1/1000 or 3/1000) means that juries will be inclined to be particularly harsh in situations of ambiguity and uncertainty; although, according to the authors, liability standards should be more lenient because precautionary behavior is more difficult when a risk's characteristics are ill-defined.⁷⁰ What the argument ignores is a risk creator's ability to reduce the ambiguity of a risk it is creating through monitoring, research, and experience. Punitive damages may be valuable because their prospect induces risk creators to reduce the ambiguity about the degree of risk they are creating. If following the authors' suggestion, the standard for liability were less strict when risks were ill defined, opportunistic risk creators would have an incentive to avoid learning more about the degree of risk they are creating. Where a risk has an apparent 50:50 chance of being either 1/1000 or 1/3000 it may be both wise and appropriate to hold the risk creator to a risk probability of 1/1000 unless the creator can show not only that the risk was ambiguous but also that taking steps to reduce the ambiguity was impossible or unreasonably costly. Since we are dealing with only risks that have been realized, we have reason to believe that the higher risk probability was the more accurate one.

69. See Jon D. Hanson & Kyle D. Logue, *The Cost of Cigarettes: The Economic Case for Ex Post Incentives-Based Regulations*, 107 YALE L.J. 1163, 1171 n.28 (1998) ("The plaintiffs in those suits [against the tobacco industry] alleged that cigarettes caused their illnesses and injuries, allegations that rang hollow for many judges and juries who apparently concluded that smokers had no one to blame but themselves."); Joseph Sanders, *The Bendectin Litigation: A Case Study in the Life Cycle of Mass Torts*, 43 HASTINGS L.J. 301, 361 (1992) ("The fact that far fewer [Bendectin] cases have been filed is a consequence of the lack of plaintiff success in the cases that have been tried.").

70. Hastie & Viscusi, *supra* note 1, at 912-13.

The authors also assert that juries are prejudiced against cost/benefit analyses, but except for a judge's speculation and some anecdotes reported in a newspaper article, they provide no evidence that companies that use cost/benefit analyses risk punitive damages by doing so. As they recognize in referring to the Pinto case, a jury's reaction to a cost/benefit analysis may respond more to the values a company recognizes in its analysis and, in particular, to the self-serving nature of some of them, than to the technique *per se*.⁷¹

CONCLUSION

In sum, the authors' attempt to canvas the literature on the foibles of human decision making and their attempt to draw from this literature implications for the jury's role in setting punitive damages is as unpersuasive as their similar willingness to draw powerful policy implications from their empirical study. Moreover, nothing in the literature they review suggests that judges will do better than jurors in assessing punitive damages. Indeed, to the extent discussion can alleviate some of the systematic shortcomings of human decision making, judges deciding alone should be more vulnerable to these shortcomings than jurors deciding collectively. Nevertheless, Hastie and Viscusi argue that judges, not juries should set punitive damages, if we are to have punitive damages at all. But neither their empirical study nor their review of the psychological literature on cognitive biases show that judges are cognitively superior to juries.

This does not mean that Hastie and Viscusi's preferred system would be worse than the current one in terms of risk management or even from a retributive justice perspective. One must always be open to reliable empirical evidence which supports proposals for changes in how we do our legal business. The problem with resting a major policy change on Hastie and Viscusi's article is that their empirical study, which seeks to compare jurors and judges, provides no reliable evidence of a difference favoring judges, and the evidence from the cognitive bias literature they review does not address the judge-jury difference at all. Social science evidence can support legal change, but there is properly a heavy burden on those who offer social science evidence for this purpose. Hastie and Viscusi's work does not come close to meeting this burden. Although the authors say they are "conservative" in advocating removing decisions from the jury,⁷² they are

71. *Id.* at 914.

72. *Id.* at 917.

quite radical in what they advocate, given the quality of the evidence they adduce.

I can think of no instances in which a single study can justify changing a familiar legal institution. Even excellent research that is directly on point should be replicated in different contexts before policy makers rely on what social science researchers have found. Legal institutions operate across a variety of contexts, and research results can be context specific. Researchers of the caliber of Hastie and Viscusi know this. Thus, it is hard to understand why they present an initial small step in exploring an interesting issue as if it were the last step needed to justify substantial legal change.

Perhaps it is because on theoretical grounds, apart from the research they report and review, Hastie and Viscusi are skeptical about the value of punitive damage awards,⁷³ and they are concerned that high punitive damage awards can be counterproductive in terms of the incentives they create.⁷⁴ Their policy recommendations suggest that they believe their concerns will be alleviated if judges rather than jurors set punitive damage awards. The support they think their hindsight study gives this recommendation indicates that they expect judges to award punitive damages less frequently than juries, and to award them in more modest amounts. This could happen if their recommendation that judges and not juries set punitive damages were adopted. But if it did happen, I do not think it would be because judges are more rational than juries or less susceptible to cognitive biases. Neither their study nor their review of literature makes this case. If judges can be expected to be more restrained than juries in awarding punitive damages, it is because judges are educated differently than jurors, generally have different class backgrounds, and, thus, have different values and experiences—perhaps including the experience of attending a corporation-funded law and economics training program.

There are, however, serious systemic dangers in turning over to judges decisions on punitive damages. One safeguard in the system is removed, as judges will no longer pass on the reasonableness of jury awards, which provides a check on the possible idiosyncrasy of both judicial and lay views about what level of punitive damages is appropriate. Also, in cases where punitive damages are sought, settlement negotiations will be more affected than they now are by the happenstance of which judge happens to be assigned a particular case, and

73. They conclude their article by suggesting that maybe punitive damages should be abolished entirely. *Id.* at 918.

74. *Id.* at 913-14, 917-18.

the power of judges to coerce defendants to settle is likely to rise dramatically. Moreover, having judges award punitive damages gives the plaintiff's trial bar, on the one hand, and corporations like Exxon, on the other, a powerful incentive to lobby for and against candidates for judicial office based on their likely attitudes regarding punitive damages. In those states that elect judges, the quality of judicial elections might change, and in judicial appointment states, a voice in selecting trial judges is more likely to become a reward that some of a governor's important financial backers seek. Where judges must be re-elected or reappointed, high profile decisions on punitive damages may be made with an eye to pleasing special constituencies important to a judge's prospects for reelection or reappointment. Ultimately, Hastie and Viscusi's suggestion to give the task of setting punitive damages to judges may threaten judicial integrity, and is also not proportionality nearly so much as it is anti-democratic.