Judicial Fact Discretion[1]

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Abstract

Does it matter for the outcome of a trial who the judge is? Legal practitioners typically believe that the answer is yes, yet legal scholarship sees trial judges as predictably enforcing established law. Following Frank (1951), we suggest here that trial judges exercise considerable discretion in finding facts, which explains the practitioners' perspective and other aspects of trials. We identify two motivations for the exercise of such discretion: judicial policy preferences and judges' aversion to reversal on appeal when the law is unsettled. In the latter case, judges exercising fact discretion find the facts that fit the settled precedents, even when they have no policy preferences. In a standard model of a tort, judicial fact discretion leads to setting of damages unpredictable from true facts of the case but predictable from knowledge of judicial preferences, it distorts the number and severity of accidents, and generates welfare losses. It also raises the incidence of litigation relative to settlement, and encourages litigants to take extreme positions in court, especially in new and complex disputes where the law is unsettled.

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1. Introduction

Does the identity of a judge matter for the outcome of a trial? Among practicing attorneys, including those teaching at law schools, as well as popular writers on the law (e.g., Feige 2006), the answer is a resounding yes. The sympathies, the mood, the attitudes, and the psychology of a judge are of utmost importance for what happens in the courtroom. A distinguished trial judge writes that "there is a terrific importance in the trial court, never equaled in any appellate court, of knowing who is the judge" (Wyzanski 1972, p. 208).

Legal scholarship, in contrast, while increasingly recognizing the importance of political preferences and attitudes of appellate judges, sees trial courts as exercising a much more mechanical and predictable role of applying the established law to facts. Although sometimes trial courts make errors, at least some of those are corrected on appeal, further reducing the scope for trial court discretion (Kaplow 1994, Kaplow and Shavell 1994, 1996, Shavell 2006).

How can these views be reconciled? In this paper, we argue that the practitioners' position is closer to reality, because it acknowledges the considerable discretion that trial courts have in finding fact. While constrained by law, trial courts can select, describe, and characterize the facts to which the law is applied with some freedom. When a judge exercises such fact discretion, his identity begins to matter[2].

In his "Courts on Trial," the distinguished American legal realist Jerome Frank defined this concept of judicial fact discretion:

> When the oral testimony is in conflict as to a pivotal fact-issue, the trial judge is at liberty to choose to believe one witness rather than another. In other words, in most cases the trial judges have an amazingly wide "discretion" in finding the facts, a discretion with which upper courts, on appeals, seldom interfere, so that, in most instances, this "fact discretion" is almost boundless. … As one court put it , "the word 'discretion' is properly enough used to express the judicial judgment in discriminating as to weight and cogency between different witnesses… which must be exercised in reaching any conclusion of fact from evidence." (Frank 1951, p. 57).

[2] According to Brunetti (1998, p. 1493) "much has been written about judicial philosophy and almost nothing has been written about the fact-finding aspect of trial court decision making… An entire bibliography published in 1993 of every book and article ever written about judicial decision-making contains no source on fact-finding by trial courts."

Frank recognized that some fact discretion is unavoidable, since judges necessarily have to decide which witness accounts to trust. But Frank (and later Posner 2005) also recognized that fact discretion creates significant leeways for the expression of judicial preferences, which derive from political, social, or economic views, or even from a judge's career concerns. Such expression need not even be conscious. Judges may unconsciously interpret the evidence, or disregard some inconvenient truths, through the lens of their experiences, beliefs, or ideologies, or perhaps even something as mundane as attitudes toward specific litigants or lawyers[3]. These practices are entirely human and usually not unethical. Yet they lead to significant unpredictability of judicial decisions from the objective facts of a case, and elevate the importance of knowing "who the judge is" for predicting the outcome of a trial.

In this paper, we introduce judicial fact discretion into a formal analysis of trial court decision making, and examine its consequences[4]. To this end, we identify two distinct motives for the exercise of judicial fact discretion. The first, emphasized by legal realists, is judicial bias[5]. As Posner (2005, p. 14) – echoing Frank (1930, 1932) – writes about federal district (i.e., trial) judges: "But [deciding a particular case in a particular way might increase the judge's utility] by advancing a political or ideological goal, economizing on the judge's time and effort, inviting commendation from people whom the judge admires, benefiting the local community, getting the judge's name in the newspaper, please a spouse or other family member or a friend, galling a lawyer whom the judge dislikes, expressing affection for or hostility toward one of the parties – the list goes on and on."

[3] In the words of Karl Llewellyn (1951, p. 45) "[A judge is] a lawyer, and as such skilled in manipulating the resources of persuasion at his hand. A lawyer, and as such prone without thought to twist analogies, and rules, and instances, to his conclusion. … More, as a practiced exponent of the art of exposition, he has learned that one must prepare the way for argument. You set the mood, the tone, and you lay the intellectual foundation – all with case in mind, with the conclusion – all, because those who hear you also have the case in mind, without the niggling criticism which may later follow. You wind up, as a pitcher will wind up – as in the pitcher's case, the wind-up often is superfluous. As in the pitcher's case, it has been known to be intentionally misleading."

[4] Although our model focuses on judges, much of the discussion – particularly the sections focused on judicial bias -- is applicable to juries as well. Strictly speaking, our model deals with fact-finder fact discretion.

[5] Gennaioli (2004) formally introduces judicial bias into a model of adjudication. Gennaioli and Shleifer (2007) and Ponzetto and Fernandez (2006) examine the consequences of appellate courts' bias for the evolution of the law. Mullainathan and Shleifer (2005) model a similar kind of "fact discretion" by the media in its reporting of the news.

The second motive, specific to trial judges, is the dislike of being overruled by appellate courts. As Posner (2005, p.16) comments: "Judges also don't like to be reversed, even though a reversal has no tangible effect on a judge's career if he is unlikely to be promoted to the court of appeals in any event." Appellate courts typically do not revisit facts found by trial courts, but only the application of the existing law to those facts[6]. When such application is uncertain, a trial court has an incentive to "fit" the facts into the settled precedent, so that from the point of view of the appellate court, the application of the law to the facts is uncontroversial.

We consider each of these motives for the exercise of judicial fact discretion in a standard model of a tort. In this model, the first best efficient legal rule is strict liability with all harms being legally cognizable for the calculation of damages. In section 3 we assume that trial courts follow this rule, but can distort facts about harm. We show that the damages awarded by judges are unpredictable from true facts of the case, but predictable from knowledge of judicial preferences. Depending on the distribution of judicial biases, damages may be too flat or too steep as a function of true harm, which reduces welfare by affecting the number and the severity of accidents. Section 4 shows that the same results hold when trial court decisions are appealed. Trial courts avoid reversal by simply finding the level of harm triggering their preferred damages.

When the law is unsettled, appellate review *increases* trial courts' incentive to distort harm. This is due to trial courts' uncertainty over appellate bias. Because different appellate courts resolve new cases differently, trial courts can avoid being overruled by fitting their finding of harm into a settled precedent. Crucially, this implies that under unsettled law even unbiased judges distort harm so as to avoid reversal by biased appellate courts.

In section 5, we introduce fact discretion into a model of litigation. We find that the possibility of fact discretion encourages litigants to take extreme positions in court and increases

[6] In some rare instances, such as "clear error" or "constitutional facts" (Hoffman 2001), federal appeals courts review facts. The rarity and special features of these instances only justify our basic assumption of no factual review. If in addition appellate courts are biased (as in our model), it is unlikely that a review of facts reduces fact discretion.

the amount of litigation, as opposed to settlement, especially in the instances where the law is unsettled and judges are motivated to find facts that avoid reversal.

In sum, fact discretion not only creates leeways for the expression of judicial biases, but also undermines the appeals process and adversarial litigation. Although these mechanisms are sometimes believed to put a beneficial check on trial courts, under fact discretion they lose their effectiveness. Taken together, our results suggest that trials are likely to perform poorly in the areas of law that are fact-intensive, relatively new (so precedents are undeveloped), and vulnerable to judicial bias. The controversial product accident litigation may fit this description.

An Example of Judicial Fact Discretion

Before turning to the formal analysis, we present an example of the exercise of judicial fact discretion in one famous case. We note, first, that fact discretion has been studied in the context of appellate courts, where the idea has been that appellate judges sometimes "simplify" the facts to elucidate a legal principle. A very clean example of this is Cardozo's extreme mischaracterization of facts in *MacPherson v. Buick* (Henderson 2003), but Cardozo appears to have altered the facts at least marginally in *Palsgraf* as well (Posner 1990). Dershowitz and Ely 1971) denounce the Burger Supreme Court for its extreme mischaracterization of facts in *Harris v New York*, an exercise of fact discretion that the authors call "the failure of candor."

Our example of judicial fact discretion in action comes from one of the first cases in the standard torts textbook (Keeton, Sargentich, and Keating 2004), *Garratt v. Dailey*. In textbooks, the case stands for the proposition that knowledge of possible harm is sufficient to find intent in battery, so the plaintiff does not need to show purpose to harm to establish the defendant's liability. But the case is also a clear instance of judicial fact discretion. Although it does not deal with the exact situation we study, *Garratt v. Dailey* shows a trial judge completely changing his *fact finding* after an appellate court remands the case to him on a matter of law.

Brian Dailey, a five year old boy, accompanied his mother on a visit to his aunt, Ruth Garratt, in the garden of Garratt's house. The boy allegedly pulled a chair from under his aunt as she started to sit down, she fell and injured herself, and subsequently sued Brian. According to the appellate court review of the evidence, "the trial court accepted the boy's statement that he had moved chair and seated himself therein, but, when he discovered that plaintiff was about to sit at place where chair had been, *attempted to move chair toward plaintiff, and was unable to get it under plaintiff in time*." (cite, italics added) Having accepted the boy's view that he was trying to help his aunt rather than hurt her, the trial court ruled for the boy on the grounds that he did not have the purpose – and therefore intent – to harm her.

The appellate court ruled that purpose to harm is not required to prove intent in battery, and that knowledge of possible harm is sufficient, and remanded the case to the trial judge (in this case, superior court). "Upon remand for clarification on the issue of the defendant's knowledge, the superior court reviewed the evidence, listened to additional arguments and studied briefs of counsel, and entered a finding to the effect that the defendant knew, with substantial certainty, at the time he removed the chair, that the plaintiff would attempt to sit down where the chair had been, since *she was in the act of seating herself when he removed the chair*." (cite, italics added) The trial court shifted all the way from the finding that the boy was moving the chair *toward* the aunt as she was sitting down to the finding that he was pulling it *from under* her.

There may be a number of explanations, some innocent, for how the trial court found such entirely different facts after the case was remanded. But there are two simple stories. First, the judge might have been initially annoyed with the aunt for bringing a case against her 5 year old nephew, presumably to collect insurance, and so accepted the boy's somewhat bizarre testimony to reach his initial verdict. He could have, and of course eventually did, accept the other testimony instead. This judicial bias view of fact discretion is analyzed in Section 3.

Alternatively, the trial judge might have feared reversal. When he thought that the standard of intent in battery was purpose, he found the facts under which the boy could have hardly had the purpose to harm his aunt, namely that he was moving the chair *toward* her. Under the legal rule the judge believed, the factual finding that the boy was pulling the chair from under his aunt would have raised the question of his purpose, and exposed the judge to the risk of reversal if the appeals court ruled that pranks are not purposeful. To the judge's surprise, the appellate court took a radically different view of the standard of intent in battery. So when the trial judge learned that the standard of intent was merely knowledge of possible harm, and not purpose to harm, he found the facts under which knowledge was pretty much obvious, even to a 5 year old. Had he stuck to his old finding of facts that he boy was trying to put the chair back, the question of knowledge would have been legally controversial. In both of his decisions, the trial judge found the facts that render the application of the law that he believed to be in place utterly straightforward. We consider this motivation for fact discretion in Section 4.

2. The Model

Consider a tort where injurer *I* harms victim *V*. *I* could be a company using explosives and *V* a resident whose person or property is damaged in an accident with explosives. *V*'s harm from the injury, denoted by h, is uniformly distributed on $[0,1]$. We assume that *I* knows the victim's harm *h* before he engages in the potentially harmful action.[7]

At a cost $c(p) = (1/2)p^2$, *I* can take precautions $p \in [0,1]$ and avoid the injury with probability *p*. For example, p could represent the company's effort to transport explosives more securely or to store them further away from *V*'s property. Since the level of harm h is known in advance to *I*, expected social losses from taking precautions *p* are given by:

$$(1-p)h + (1/2)p^2 \qquad (1)$$

[7] If *h* is unknown to *I*, the problem becomes trivial. The analysis goes through if *I* is imperfectly informed about *h*.

First best precautions are then equal to $p_{fb}(h) = h$. Aggregate social losses in the first best (L_{fb}) when *I* takes optimal precautions are equal to:

$$L_{fb} = \int_0^1 \left[(1-h)h + (1/2)h^2\right]dh = 1/3 \qquad (2)$$

We study torts where there is no contract, or alternatively where it is too costly for the parties to specify precautions contractually. As in the standard model of torts (Posner 1972, Shavell 1987), *I*'s precautions are shaped by the damages set by courts in light of the prevailing legal rule. For simplicity and in line with the explosives example, we study the strict liability regime, but distinguish two situations within that regime. The first, "settled law," is defined as $d(h) = h$ for all possible kinds or levels of harm.[8] This definition of settled law includes both strict liability *and* the assumption that all harms are legally cognizable – the situation that yields first best precautions under standard assumptions. In the second situation we consider, "unsettled law," not all factual scenarios have been previously considered by courts, so the function $d(h)$ has been defined only for some fact situations *h*. In the explosives example, it might not have been settled by precedent whether mental anguish is a legally cognizable form of harm. Unsettled law tends to be the standard situation in new or complex areas of law (Llewellyn 1960, Stone 1985).

The timing of the model is as follows: at t = 0, *I* observes *h* and takes precautions; at t = 1/2, *V* is injured; at t = 1, a trial judge is randomly selected from the population of judges. The selected judge observes *h* (we drop this assumption in Section 5), finds *h'* that is potentially different from *h*, and awards damages $d(h')$ to the victim.

A judge's fact finding policy is thus summarized by the function $h'(h)$ assigning to every true harm level *h* the utility maximizing harm level actually found by the judge. In our definition, the judge engages in fact discretion when the facts found $h'(h)$ differ from those revealed at trial *h*. There are several ways in which judges may be able to "work on the facts" of a case. Some of

[8] Studying fact discretion under negligence rules would complicate the analysis because in that case precautions may jump rather then change smoothly with judicial error. We leave the study of negligence rules for future research.

the evidence presented to them may be oral, and so they may choose whom to believe. The documents in the evidence may include ambiguous language, which judges are free to interpret. The victim's harm may depend on a multitude of conflicting factors. By emphasizing certain pieces of evidence and neglecting others, a judge may discretionally alter the facts of the case to meet his desired level of harm.

To find *h'* when true harm is *h*, the judge bears the cost $c(h'-h)^2/2$. A larger discrepancy between estimated and true harm is more costly to the judge. A smaller *c* reflects a lower cost of fact discretion. Empirically, a low *c* may capture factual complexity. The higher is the number of material dimensions determining *h*, the greater is judicial discretion in estimating it.

A study of fact discretion requires that we specify judicial preferences. We define judicial preferences over damages, so that judge *j*'s loss from setting damages *d* in case *h* is equal to:

$$L_j = \left[d - d_j^*(h)\right]^2/2. \tag{3}$$

Here $d_j^*(h)$ is the judge's ideal level of damages when true harm is *h*. A measure one of judges is distributed according to their ideal damages. Share u of judges is *unbiased* and has $d_j^*(h) = h$, share ι of judges is biased for the injurer (*pro-I*) and has $d_j^*(h) < h$, share ν of judges is biased for the victim (*pro-V*) and has $d_j^*(h) > h$. Notice that u measures the polarization of judicial preferences: the smaller is u, the greater is the share of biased judges in the population. Empirically, u may measure the political or social sensitivity of a dispute. For example, environmental torts or discrimination disputes are likely to have a smaller u.

3. Enforcement of Settled Law under Judicial Fact Discretion

In this section, we consider how, under settled law, judicial fact discretion affects the predictability of damages from case facts, precautions, welfare, and the pattern of accidents.

Consider how trial courts enforce settled law. At any harm level *h*, judge *j* finds h'_j and sets $d_j = h'_j$ so as to minimize $\left[d - d_j^*(h)\right]^2 / 2 + c(h'-h)^2 / 2$. This judge *j* sets:

$$d_j(h) = \frac{d_j^*(h) + ch}{1+c}. \tag{4}$$

Judge *j*'s choice of damages is a weighted average of his ideal damages $d_j^*(h)$ and true harm *h*. Unbiased judges set the first best damages, the damages of *pro-I* (p*ro-V*) judges are lower (higher) than true harm *h*. The discrepancy between biased judges' damages and true harm decreases in *c*. If judges can freely distort facts ($c = 0$), they set their ideal damages. If instead fact discretion is impossible ($c = \infty$), adjudication is entirely driven by the case facts.

3.1 Unpredictability of Damages and Social Welfare

Before moving to the *observable* implications of fact discretion for trial courts' behavior, expression (4) allows to examine how fact discretion affects precautions and welfare. Since *I* chooses *p* before knowing the judge's type, his choice of precautions at *h* is:

$$p_{sl}(h) = E(d_j(h)|h) = \frac{E\left[d_j^*(h)\right] + ch}{1+c}, \tag{5}$$

which is an average of the damages set by *pro-V*, *pro-I*, and *unbiased* judges. The pattern of precautions at a given harm *h* depends entirely on the average judicial bias at *h*. If $E_j(d_j^*(h)) > h$, judges are on average *pro-V* and the injurer takes over-precautions. If $E_j(d_j^*(h)) < h$, judges are on average *pro-I* and the injurer takes under-precautions. Correct precautions are only taken if judges are on average unbiased, i.e. when $E_j(d_j^*(h)) = h$. We find:

Proposition 1: Under settled law, if for some *h*, $E_j(d_j^*(h)) \neq h$, then first best social welfare is attained if and only if $c \to \infty$. Social losses relative to the first best fall as *c* or *u* increase. The marginal social cost of a decrease in *c* is larger when *u* is smaller.

Intuitively, judicial bias is responsible for the welfare loss from fact discretion. As pointed out by Kaplow and Shavell (1996), if damages are on average equal to true harm, then the first best is attained irrespective of judicial errors. If instead average damages are sometimes different from true harm, the first best is no longer attained. The deviation of precautions (and welfare) from the first best depends on *c* and *u*. An increase in judges' ability to misrepresent harm (i.e., a decrease in *c*) distorts precautions, thereby reducing welfare. A similar effect is triggered, for a given *c*, by an increase in the proportion of biased judges (a decrease in *u*). The extent of fact discretion and judicial bias interact: as *c* falls, biased judges are better able to distort the setting of damages, so judicial polarization has a more detrimental impact on precautions.

Aside from the welfare cost of fact discretion, what might be some of the *observed* consequences of this behavior of trial judges? First, the outcome of a dispute in this model is obviously determined by who the judge is. More specifically, the analysis has implications for statistical predictability of judicial decisions *from case facts*. By "unpredictability" we mean the variability of damages for given facts (i.e., true harm *h*). That is, at harm *h* we define:

$$\text{unpredictability}\ (h) \equiv V_j(d_j(h)) = \frac{V_j(d_j^*(h))}{(1+c)^2}, \tag{6}$$

where $V_j(d_j(h))$ is the variance of damages at harm level *h* and $V_j(d_j^*(h))$ is the variance of judicial ideal damages at harm *h*. We have:

Corollary 1: Under settled law, unpredictability increases with $V_j(d_j^*(h))$ and falls with *c*.

Under fact discretion (i.e., if $c < \infty$), dispersion of judicial views fosters unpredictability in damages, even when legal rules are fixed. We expect more variability of outcomes in politically sensitive cases where the dispersion of judicial biases is large. In addition, unpredictability falls when it is harder for judges to engage in fact discretion (when *c* is higher).

3.2 Average Damages and the Number and Severity of Accidents

To obtain predictions on average damages and on the number and severity of accidents, we must consider how $E_j(d_j^*(h))$ varies with harm. We do so by presenting a flexible specification of judicial biases that allows us to stress the role of two key factors: the relative proportion of *pro-I* and *pro-V* judges and the slope of bias with respect to harm. We assume that all *pro-V* and *pro-I* judges have ideal damage schedules $d_V^*(h)$ and $d_I^*(h)$ respectively, given by:

$$d_V^*(h) = h + h^\alpha(1-h) \text{ and } d_I^*(h) = h - h(1-h)^\alpha, \tag{7}$$

with $\alpha \geq 0$. To understand these expressions, consider the *pro-V* bias $h^\alpha(1-h)$. The term h^α says that a *pro-V* judge is tougher with *I* when harm is higher. The term $(1-h)$ implies that the *pro-V* bias cannot exceed $(1-h)$, namely the distance between current and maximum harm. This last term simply ensures that the ideal damages of *pro-V* judges are in $[0,1]$. The term $(1-h)^\alpha$ correspondingly captures the idea that a *pro-I* judge is more lenient when harm is lower, while h is the maximal leniency he is allowed to entertain. In this specification, parameter α captures the sensitivity of judicial bias to the facts of the case. When α is high, a judge's bias is higher the more the evidence favors his preferred party. *Pro-V* judges are especially biased when harm is high, *pro-I* judges are especially biased when harm is low. If instead α is small, then judicial bias is insensitive to evidence. At any harm level *h*, then, the *pro-V* bias mainly depends on the maximum harshness (1-*h*) a judge is allowed to entertain, the *pro-I* bias on the maximum leniency *h* a judge is allowed to entertain.

One can interpret α as the judge's moral restraint (Bauer 1933). When α is low, the judge is morally unrestrained and his decision is very biased even if the facts of the case strongly disfavor his preferred party. For example, when $\alpha = 0$, ideal damages do not depend on actual harm: $d_V^*(h) = 1$, $d_I^*(h) = 0$. In this case, at low levels of harm, *pro-V* judges have the greatest leeway to distort damages and the *pro-V* bias is stronger; at high levels of harm, *pro-I* judges have

the greatest leeway to distort damages and the *pro-I* bias is stronger. When instead α is high, judges are morally restrained and bias their decisions only if the evidence favors their preferred party. As a consequence, at low levels of harm the *pro-I* bias is stronger, while at high levels of harm the *pro-V* bias is stronger. Notice that α determines the extent of moral fault: at higher levels of harm, adjudication is more *pro-V* precisely when judges are morally restrained (α is high), and more *pro-I* when instead judges are unrestrained (α is low). In the intermediate case of $\alpha = 1$, *pro-I* and *pro-V* biases are exactly equal at every level of harm.

Consider the slope of average damages with respect to harm under the functional forms in (7). In the interest of analytical simplicity, Sections 4 and 5 focus on the case where $\alpha = 0$ (judges are morally unrestrained). We then have:

Corollary 2. When $\alpha > 1$, average damages are too steep in *h*. When $\alpha \leq 1$, average damages are too flat in *h*. When $\alpha = 1$ and $\iota = \nu$, average damages are first best.

The key parameter determining the slope of average damages is "moral restraint" α. When $\alpha > 1$, average damages are too steep. Figure 1 below plots the case with $\alpha = 2$:

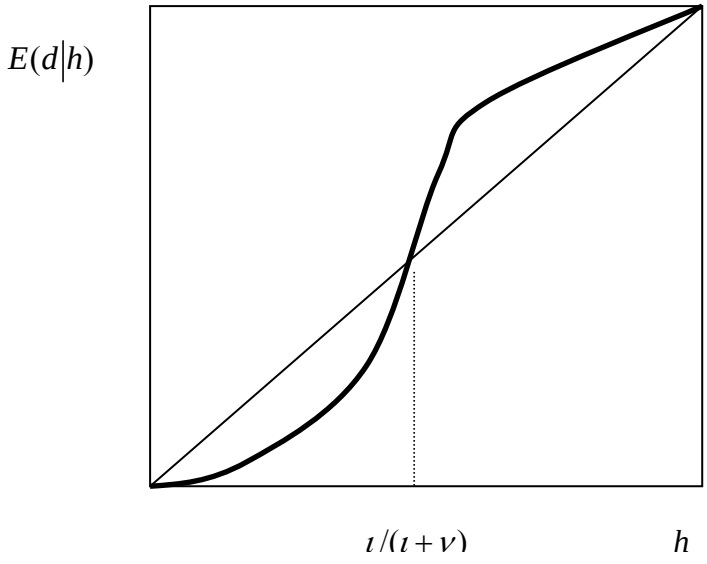

Figure 1

The bold line plots average damages under fact discretion (for $\alpha = 2$), the diagonal plots the first best level of damages. The two curves intersect at $h = \iota/(\iota + \nu)$, but average damages are generally not optimal. In particular, judges' moral restraint implies that the *pro-V* bias is relatively stronger at high levels of harm. As a result, average damages are too steep as a function of harm, being too low at low *h* and too high at high *h*.

What about the opposite case where $\alpha < 1$? Figure 2 below plots the case where $\alpha = 0$:

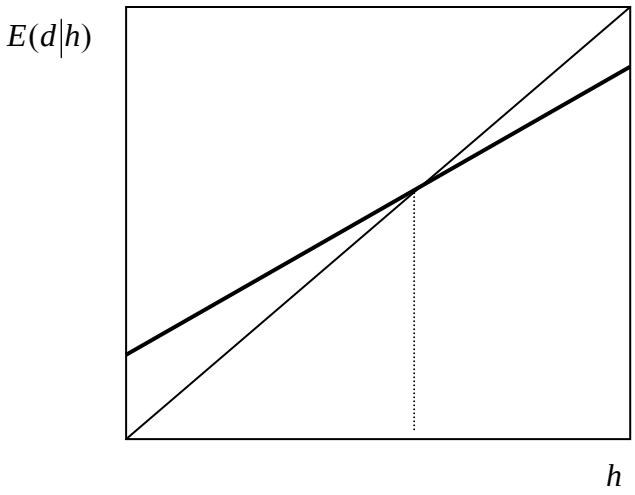

Figure 2.

The bold line plots average damages under fact discretion (for $\alpha = 0$) against first best damages (the diagonal). Unlike in the previous case, now expected damages are too flat. The reason is that, for $\alpha = 0$, the damages set by biased judges are insensitive to harm: the ideal damages of *pro-V* judges are equal to 1, those of *pro-I* judges are equal to 0, regardless of *h*. As a result, when $h < \nu/(\iota + \nu)$ average damages are too high; when $h > \nu/(\iota + \nu)$, they are too low.

This flexible formulation of judicial biases also allows for the possibility that *pro-V* and *pro-I* biases exactly cancel out, so that average damages are unbiased and the first best is attained. This knife edge case arises when $\alpha = 1$ provided that $\iota = \nu$, namely that there is an equal proportion of *pro-I* and *pro-V* judges. This result shows that when legal errors are not purely

random, as in Kaplow and Shavell (1996), but rather a product of the deliberate decisions of utility maximizing judges, it is unlikely that opposite errors cancel out on average.

Because in this model average damages determine *I*'s precautions, fact discretion also affects the observed severity of accidents. If average damages are too flat (i.e., if $\alpha < 1$), under-precautions and thus accidents prevail at high levels of *h*. For a given total number of accidents, there are too many major accidents. If instead average damages are too steep (i.e., if $\alpha > 1$), under-precautions and thus accidents prevail at low levels of *h*. For a given total number of accidents, there are too many minor accidents. Judges' "moral restraint" (Bauer 1933) determines the severity of accidents. If moral restraint is low, there are many major accidents because, at high levels of harm, the low damages set by *pro-I* judges induce under-precautions. If instead moral restraint is high, there are many minor accidents because, at high levels of harm, not only are *pro-V* judges very harsh with *I*, but *pro-I* judges are not sympathetic to him either.[9]

Consider next the impact of judicial biases on the total number of accidents. In this model, the total number of accidents is pinned down by average damages, and is equal to $1 - E\left[E(d_j(h)|h)\right]$. In the first best, the number of accidents is 1/2. Under fact discretion, we find:

Corollary 3. Under settled law, the number of accidents is first best if and only if $\iota = \nu$. The number of accidents increases in the relative proportion of *pro-I* judges, ι / ν.

The number of accidents depends on the relative proportion of *pro-I* and *pro-V* judges. If *pro-I* judges are relatively more prevalent, the average level of damages and thus precautions are too low, and there are too many accidents. The converse is true if *pro-V* judges are relatively more prevalent. The number of accidents should be higher in the areas of law where relatively more judges are biased in favor of the injurer.

[9] These results relate to the research on accuracy in adjudication (e.g., Kaplow 1994), which stresses that legal error may exert two opposite effects on precautions: false liability (excessive damages) induce over-precautions, false non-liability (or insufficient damages) induces under-precautions (Craswell and Calfee 1986). By modeling legal error as the deliberate decision of utility maximizing judges, we find that one key determinant of which of these two errors is more prevalent is the number of *pro-V* and *pro-I* judges. But we also find that whether over-precautions prevail at higher or lower levels of harm depends on the judge's moral restraint.

More broadly, while fact discretion makes facts less helpful in predicting trial outcomes, it makes judicial preferences more helpful for so doing. Independent measures of judicial bias should predict resolution of identical disputes. Knowing who the judge is should be useful to researchers, and not just to litigants. There is by now an enormous literature indicating that race, gender, and the party of the nominating President affects the decisions of appellate judges, especially in politically sensitive cases. Some of the key studies are George and Epstein (1992), Brenner and Spaeth (1995), Revesz (1997), Pinello (1999), Klein (2002), Sunstein, Schkade and Ellman (2004), and Hansford and Spriggs (2006). For trial courts, the evidence is more limited, although some studies find significant exercise of discretion in criminal sentencing (Partridge and Eldridge 1974, Abrams et al. 2006) and in bankruptcy decisions (Chang and Schoar 2006).

4. Fact Discretion and Appellate Review

A second possible determinant of fact discretion – pertinent to judges but not juries -- is appellate review. Our model of appellate review relies on the generally accepted idea that appellate courts take the trial courts' fact finding as given (except in the cases of "clear error"), but can reverse trial courts if the law was misapplied to the found facts. Although there are some exceptions, the acceptance of trial court's fact finding by appellate courts is a central feature of common law, which distinguishes it from the civil law tradition. One explanation is the greater reliance of common law adjudication on open trials and on oral examination of witnesses at trial as a strategy of gathering evidence, which is not easily compatible with appellate review of fact finding (see Merryman 1985, Glaeser and Shleifer 2002).

For concreteness, suppose that a (randomly selected) trial court solves dispute h by choosing $(d', h'(h))$, where $h'(h) \in [0,1]$ is the trial court's (potentially distorted) finding of facts and $d' \in [0,1]$ is the corresponding level of damages set by the judge. After the trial, the case is automatically appealed. The appellate court can either affirm or reverse the trial court's ruling.

We assume that trial judges dislike being reversed and incur a psychic or reputational loss $r > 0$ when this happens. We also assume that $\alpha = 0$, so that ideal damages are equal to 0 for *pro-I* judges, and 1 for *pro-V* judges, regardless of *h*. As before, the exercise of fact discretion is assumed to be costly to the trial judge.

An appeals court is randomly selected from the population of such courts. Crucially, appeals courts' preferences are identically distributed to those of the trial courts. In contrast to Bueno de Mesquita and Stephenson (2002) and Shavell (2006), we thus allow appellate courts to also be biased. The selected appeals court verifies whether the facts $h'(h)$ found by the trial court warrant the applied level of damages d'. If they do, the appellate court affirms the trial court's ruling. Otherwise, the appellate court reverses the ruling. Since the appeals court does not need to work on the facts, it can costlessly set any damage level, i.e., faces $c = 0$.

In deciding whether to affirm or to reverse, the appellate court maximizes its utility but is compelled to apply the prevailing legal rule. If – given the trial court's fact finding $h'(h)$ – the trial court's damages d' are consistent with the prevailing legal rule, then the appellate court must affirm, even if its bias tempts it to set a different level of damages. In contrast, if the law specifies that a level of damages $d'' \neq d'$ should be set at $h'(h)$, then – irrespective of its preferences – the appellate court must reverse and award d''. The more interesting case arises when the law is unsettled, in that for some facts $h'(h)$ the prevailing legal rule does not specify what level of damages should be correctly applied. In the explosion example, suppose that precedents have not settled whether victims should be compensated for mental suffering. As we show in Section 4.2, in that case the decision to affirm or to reverse crucially depends on the appellate court's bias.

4.1 Appellate Review under Settled Law

An immediate consequence of the working of judicial review in our model is that, under settled law, judicial review is irrelevant: trial courts can avoid reversal and still be able to set their

preferred damages by simply distorting the facts. For example, when harm is h_0 but the trial judge wants to set $d' = h_1 \neq h_0$, he just needs to find $h'(h_0) = h_1$. Because the appellate court takes h_1 as given, it cannot reverse $d' = h_1$: this ruling is precisely the one mandated by strict liability for the facts found. Reversal would only occur if the trial court finds h_0 but sets $d = h_1$, since then $d = h_1$ is a misapplication of the law to the facts. Yet, the trial court never chooses the latter strategy: reversal can be simply avoided by engaging in fact discretion. We are back to the findings of Section 3. Note that, because in our model appellate courts are just as biased as trial courts, allowing the former to review the latter's fact finding would not change our results: it would only transfer to the appellate courts the ultimate control over fact discretion.

4.2 Appellate Review under Unsettled Law

Trial courts often deal with cases in which the mapping from true harm to damages remains unsettled by previous legal rulings. Because such gaps in the law are filled by appellate courts, a trial judge's freedom to set damages is limited by the appellate review of his decision.

This situation, which we call unsettled law, is typical in common law, where legal rules are a by-product of judges resolving specific disputes. When existing precedents fail to exhaust all factual circumstances, and new facts arise in a case, a trial judge who reports these facts truthfully must consider which precedent is controlling. After he renders his decision, the losing party may appeal his ruling by insisting that a more favorable precedent should be applied to the facts found by the trial court. An appellate court must then decide whether, given these facts, the current case as a matter of law is "closer" to the plaintiff's or the defendant's preferred precedent.

We capture the idea of unsettled law by studying the case with two precedents governing damages in the tort between *I* and *V*: one of them is the case (h=0, d=0); the other is the case (h=1, d=1). For harm levels away from the existing precedents, i.e. for $h' \in (0,1)$, the law is silent. This situation is represented below, with the two precedents highlighted in bold.

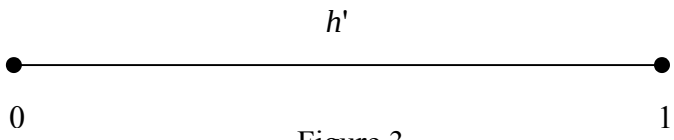

Figure 3.

To choose damages, an appellate court interprets the current case in light of existing precedents. It may deem *h'* sufficiently analogous to *h=0* and resolve the legal ambiguity in favor of *d*=0. Alternatively, the appellate court may deem *h'* analogous to the precedent *h*=1 and set *d*=1. Finally, the appellate court may distinguish *h* from both precedents and award a third (new) level of damages. As an example, suppose that a trial court finds that to properly estimate the total harm $h \in (0,1)$, a new influence on harm must be introduced (e.g., mental anguish in an explosion), which was not considered in existing precedents. An appeals court may deem the new aspect of harm immaterial and set damages by analogy with existing precedents, or it may distinguish the current case from precedents based on mental anguish, and deliver a new ruling.

The choice of different appeals courts among these alternatives is key to understanding how judicial review affects trial judges' incentives to engage in fact discretion. To avoid reversal, a trial court considering reporting facts $h \in (0,1)$ (i.e., considering whether to introduce the new influence on harm) must also consider what level of damages an appellate court will itself choose at $h \in (0,1)$. When all appellate courts are unbiased, the matter is simple. The trial court simply reports *h* and sets *d* = *h*, and the appellate court affirms by distinguishing the case from the precedents. In this case, unsettled law does not matter. Matters differ when some appellate courts are biased. Consider the appellate courts' reaction to a generic trial ruling *(d',h'(h))*.

Lemma 1: At *h'*=0 and *h'*=1, the trial court is affirmed if and only if *d'*=0 and *d'*=1, respectively. If $h' \in (0,1)$, *pro-V* appeals courts reverse any *d'*<1, *pro-I* appeals courts reverse any *d'*>0, while *unbiased* appeals courts reverse any $d' \neq h'$.

Not surprisingly, appellate courts exploit legal ambiguities to affirm their biases. If the facts fit into existing precedents (i.e., *h'*=0 or 1), there is no legal ambiguity and appellate courts

affirm trial court rulings, consistent with those precedents (i.e., *d'*=0 or 1, respectively). But if $h' \in (0,1)$, the resolution of legal uncertainty over damages depends on the bias of the appellate court reviewing the case. A trial court's finding of no mental anguish is radically different from the finding that mental anguish should be excluded from the damage calculation. The former decision simply cannot be reversed, but the latter one can. Indeed, suppose the only harm at stake is mental anguish *h*, and the trial court rules that it is not cognizable for the damage calculation, so *d=0*. In this case, a *Pro-I* appellate court affirms the ruling that mental anguish is not cognizable, a *Pro-V* reverses and sets *d*=1, by analogy with the existing precedent of severe harm.[10] An unbiased appellate court also reverses, rules that mental anguish is an admissible harm, but sets damages *d* = *h*. The trial court can avoid this appellate scrutiny, and possible reversal, by simply distorting the facts of the case so that one of the precedents applies exactly. In this case, fact discretion is no longer a prerogative of biased judges (cf. *Garratt v. Dailey*).

To see that, consider how judicial review affects an unbiased trial judge's fact finding policy $h'(h)$? Suppose that $h \in (0,1)$. If the unbiased trial judge engages in fact discretion and rules $(d'=0, h'=0)$, he loses $(1+c)h^2/2$; if he rules $(d'=1, h'=1)$, he loses $(1+c)(1-h)^2/2$. In neither case he gets reversed. If instead the unbiased trial judge finds $h'(h) \in (0,1)$, by Lemma 1 he optimally finds the truth and rules $(d'=h, h'=h)$. In this case, his expected loss is:

$$\iota(h^2/2+r)+u0+\nu((1-h)^2/2+r) \tag{8}$$

The first term is the trial judge's loss from reversal by a *Pro-I* appeals court that sets *d*'=0. The third term is the trial judges' loss from reversal by a *Pro-V* appeals court that sets *d*'=1. If the appeals court is unbiased, it affirms the unbiased trial judge's ruling, who then loses nothing.

By comparing a trial court's loss from alternative strategies, we see that unbiased judges trade off the gain from setting first best damages against the total reversal cost. Reversal is costly to the trial judge for two reasons. First, the appellate court may set damages too far away from

[10] The assumption that precedents are equivalent to the biased judges' ideal points is not important for our results.

the trial judge's ideal points. Second, the trial judge bears the psychic or reputational cost *r*. Taking into account the behavior of all trial courts, we find:

Proposition 2: If $c \le 1$ and $r \ge 1$, there are two thresholds $\bar{h}_V, \underline{h}_I$ such that *pro-I* trial judges set (*h'=d'*=0) for $h \le \bar{h}_I$ and ($h' = d' = ch/(u+c)$) otherwise, *pro-V* judges set (*h'=d'*=1) for $h \ge \underline{h}_V$ and ($h' = d' = (u+ch)/(u+c)$) otherwise. There are two thresholds $\bar{h}_U, \underline{h}_U$ ($\underline{h}_U \le 1/2 \le \bar{h}_U$) such that *unbiased* judges set (*h'=d'*=0) for $h < \underline{h}_U$, (*h'= d'*= 1) for $h > \bar{h}_U$ and (*h'=d'=h*) otherwise.

As long as the cost of fact discretion is not too high (i.e., if $c \le 1$) and the reversal cost is sufficiently high (i.e., if $r \ge 1$), biased trial courts try to follow the precedent that is closest to their bias. They refrain from doing so (and moderate their exercise of fact discretion) only if the current facts are sufficiently far from their preferred precedent (relative to the reversal cost *r*).

More importantly, and in contrast with the previous section, under unsettled law even unbiased judges engage in fact discretion. Unbiased judges would ideally avoid fact discretion. However, with unsettled law, fear of reversal by a biased appellate court encourages them to distort fact finding so as to fit the current case into settled precedents. Since unbiased appeals courts never reverse (*d'=h,h'(h)=h*), unbiased trial courts facing no risk of appellate bias would always find $h'(h) = h$. Figure 4 depicts adjudication by unbiased trial courts in terms of the cutoff points $\underline{h}$, $\bar{h}$ for various decisions.

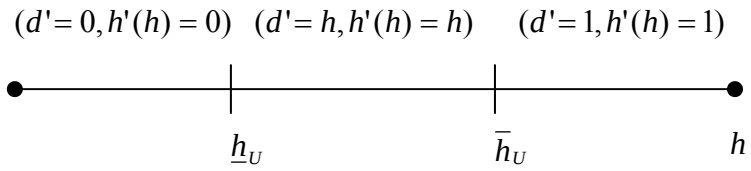

Figure 4.

Corollary 4: $\bar{h}_U - \underline{h}_U$ increases in *u*, *c* and decreases in *r*. There exists a $\hat{u}$ such that, for $u \le \hat{u}$, $\bar{h}_U = \underline{h}_U = 1/2$ and $\underline{h}_V = 0, \bar{h}_I = 1$.

The size of the region where unbiased trial courts do not engage in fact discretion increases in *c*, falls in the proportion of biased judges and in the pain of reversal *r*. The same is true for the region where biased courts prefer not to fit the case in their preferred precedents. In particular, when $u \le \hat{u}$, the cost of reversal is so high that trial courts always fit the case into existing precedents and even unbiased judges *always* engage in fact discretion.

What is the impact of unbiased courts' fact discretion on precautions and welfare? We answer this question by focusing on the case of Corollay 4 where $u \le \hat{u}$. Besides being analytically more tractable, this case allows a sharper evaluation of how judicial review affects fact discretion. Figure 5 below plots average damages in this case.

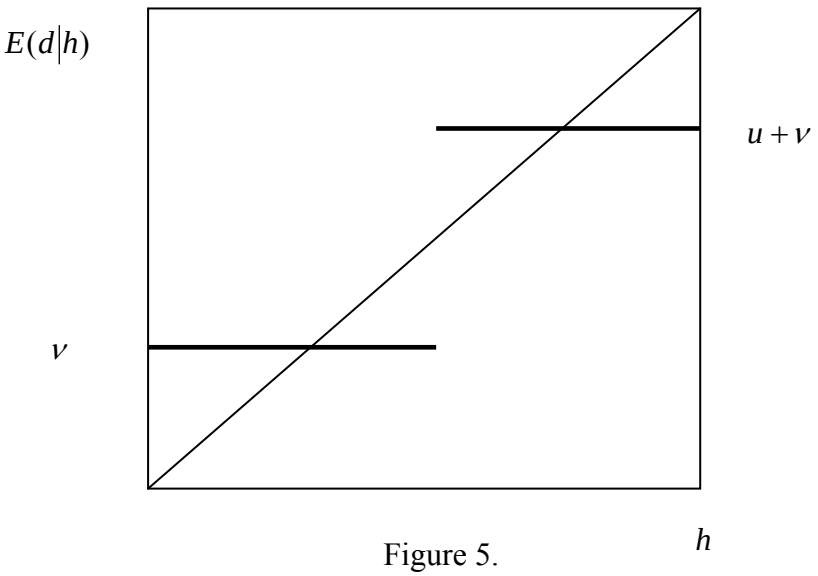

Figure 5.

Compared to settled law, where average damages smoothly increase with harm, under unsettled law damages jump sharply at $h = 1/2$. Now biased judges rule, irrespective of harm, according to their preferred precedent, while unbiased judges only condition adjudication on whether *h* is above or below 1/2. In this case, social welfare has the following properties:

Proposition 3: Under unsettled law, if $c \le 1, r \ge 1$ and $u \le \hat{u}$, welfare is lower than in the first best. There exists a $u^* \in [\hat{u},1]$ such that social welfare increases in u if and only if $u < u^*$.

Under unsettled law, fact discretion lowers social welfare relative to the first best. When $u < u^*$, as with settled law, judicial bias reduces the extent to which damages vary with harm, thereby inducing over and under-precautions. Yet, in contrast to settled law, under unsettled law greater polarization is beneficial for $u \geq u^*$. Intuitively, an increase in the share of biased judges reduces the jump in damages and thus in precautions at $h = 1/2$. Because the marginal cost of precautions is increasing, this beneficially reduces the average cost of precautions by smoothing them across harm levels. In contrast to Proposition 2, under the assumed parametric conditions the cost of fact discretion c does not affect social welfare at the margin.

More importantly, the main observable implications of fact discretion arising from judicial review line up with those arising from judicial bias. It is obviously still the case that the identity of the trial judge matters, and that measurable judicial bias affects trial outcomes, though now even unbiased judges make biased decisions. It is still the case that damages are unpredictable from true harm, the more so the greater the polarization of judicial biases. Specifically, we have:

Corollary 5: If $c \leq 1, r \geq 1$ and $u \leq \hat{u}$, under unsettled law $V_j(d_j(h)) = \nu(1-\nu)$ for $h \leq 1/2$, and $V_j(d_j(h)) = \iota(1-\iota)$ otherwise. Unpredictability increases as ι and ν increase.

With respect to the number of accidents, it is still the case that too many accidents occur if and only if $\iota > \nu$. With respect to the severity of accidents, it is still the case that at very high levels of harm damages are flat and there are too many bad accidents. However, the sharp jump in damages occurring at intermediate levels of harm implies that there are also too many moderate accidents, which is consistent with the steepness of incentives in that region.

One predicted consequence of judicial fact discretion arising from judicial review is new. Specifically, we expect that in complex and unsettled areas of law, where determination of liability requires answers to a variety of factual questions, the exercise of fact discretion would be more pronounced. If a researcher had an independent ability to observe the facts (perhaps from

the documentary record), and compare them to the judge's summary of the evidence, it is precisely in these complex fact-intensive areas of law that we expect the greatest mismatch between the true facts and the judge's representation of those facts. For it is precisely in these areas of law that mischaracterization of the evidence best protects the judge from reversal.

5. Fact Discretion and Litigation

So far we have focused on the behavior of trial judges, and treated the conduct of the litigants mechanically. In this section, we focus on the interaction between fact discretion and the behavior of litigants.[11] In particular, we examine the consequences of allowing judges both to invest in finding out the true harm and to rely on the information supplied by the litigants if they so choose. We compare the outcomes obtained under settled law, with those obtained under unsettled law. We show that with fact discretion: a) litigants take partisan positions during trial as opposed to presenting the truth, even with settled law but especially with unsettled law, and b) litigants may go to trial even when they agree on the facts of the case, because fact discretion introduces extra-factual uncertainty about the trial outcome, especially under unsettled law.

Consider the following game played by the litigants and the judge. Suppose the parties failed to settle and end up in a trial before a judge with a *known* bias (we discuss settlement later). Each party $P = I, V$ sends to the judge a message h_P concerning the level of harm. A litigant's message about harm represents his position in court and conveniently summarizes a possibly extensive characterization of evidence that the litigant submits to the judge. In this respect, a litigant's position is the more partisan, the closer it is to his desired level of damages.

We continue to assume that judicial preferences are given by (7), with $\alpha = 0$. Instead of assuming that the judge finds out h costlessly, we assume that, after receiving the parties'

[11] For simplicity, we abstract from I's choice of precautions and only study the choice of litigation vs. settlement.

messages, the judge decides whether to find out h at the cost of $k(h_V - h_I)^2/2$, with $0<k<1/3$.[12] If the judge does not find out the truth, he rules according to one of the parties' messages (the cost of that is assumed to be zero). If the judge becomes informed, he has the additional possibility of finding a new level of harm that is a combination of true harm and the judge's preferred message among h_I, h_V. For algebraic simplicity, we study the case where the weight attributed to the preferred party's message is positive but negligible.

5.1. Fact Discretion and Litigation under Settled Law

The Litigants' Positions under Settled Law

When appearing before a judge with a known bias, the party that judge favors sends a message equal to the judge's ideal damages. The other party's message is irrelevant: in front of a *Pro-V* judge, *V* sends $h = 1$ and the judge sets $d = 1$, irrespective of *I*'s message; in front of a *Pro-I* judge, *I* presents $h = 0$ and the judge sets $d = 0$. In this setting, the cost of fact discretion does not affect adjudication because the litigants themselves provide distorted facts to biased judges.

Suppose, in contrast, that the judge is unbiased. Let the litigants' messages be h_I, h_V, with $h_I \leq h \leq h_v$, where h is true harm. (This is always true in equilibrium.) Then, if the judge decides to find out the truth, he rules ($d' = h, h' = h$), bearing a loss of $k(h_V - h_I)^2/2$. If instead the judge does not find out h, his loss is identical if he sets either $d = h_I$ or $d = h_V$ and is equal to $(h_V - h_I)^2/6$. Because $k<1/3$, the judge is always better off finding h. What is the impact of such judicial strategy on the parties' optimal choice of h_I, h_V?

Proposition 4: Under settled law, if the judge is unbiased $h_I = h_V = h$ for any h, and $d = h$. If

[12] The cost is assumed to increases in $|h_I - h_V|$ because the parties' messages are barely informative when they are far apart and the judge must collect more data on his own and bear a higher cost. This assumption simplifies the analysis but our main results also hold with a fixed cost.

the judge is *pro-V*, then $h_V = 1$, h_I can take any value and $d = 1$. If the judge is *pro-I*, then $h_I = 0$, h_V can take any value and $d = 0$.

By allowing unbiased judges to accurately fine tune damages to harm, settled law gives unbiased judges a strong incentive to verify harm. As a result, each litigant tries to move closer and closer to the actual *h* so as to avoid having the judge shade damages against him. Settled law dampens partisanship by giving unbiased judges a strong incentive to scrutinize the litigants' positions in court. When $k > 1/3$, judges never find out the truth and Proposition 4 no longer holds. We assume that $k \leq 1/3$ to illustrate the difference between settled and unsettled law in shaping litigants' partisanship.

Litigation vs. Settlement under Settled Law

Suppose now that, before learning the judge's type, the disputants have an opportunity to settle. What is the impact of fact discretion for the incidence of litigation under settled law? If settlement is cheaper than litigation, then parties litigate only in the presence of bargaining frictions, which may result from litigants' over-optimism (Landes 1971, Posner 1972) or private information (Bebchuk 1984) about the merits of the case. Although in our model the parties fully agree on the facts of the case, they may still fail to settle if each party is optimistic about the possibility of getting a favorable judge. This latter scenario is even more plausible when, as argued by Frank (1930), a judge's bias reflects his idiosyncratic sympathy or antipathy toward specific litigants rather than more stable, and therefore predictable in advance, policy preferences. A judge may be annoyed with a lawyer from an earlier case, sympathetic to one who previously clerked for him, or deferential to a government attorney who works in the same building.

Consider the parties' decision to settle or litigate a case *h*. For simplicity, we follow Yildiz (2004) and study the situation where the parties' failure to settle is due to heterogeneous beliefs rather than to asymmetric information. Suppose that there is an equal proportion of *pro-I*

and *pro-V* judges and that *I* believes that the share of Pro-*I* judges is inflated by a factor $(1+\delta)$ and that of Pro-*V* judges is deflated by a factor $(1-\delta)$, while *V* misperceives the share of Pro-*I* and Pro-*V* judges the other way around. $\delta \geq 0$ captures the divergence in litigants' beliefs: when δ is higher, both parties are more optimistic about the case being tried by a favorable judge. If the individual litigation cost is $C > 0$, litigants' expected payoffs from litigating case *h* are:

$$\begin{aligned} Eu_{injurer} &= -(1/2)(1-u)(1+\delta)0 - (1-u)h - (1/2)(1-u)(1-\delta) - C \\ Eu_{victim} &= (1/2)(1-u)(1-\delta)0 + (1-u)h + (1/2)(1-u)(1+\delta) - C \end{aligned} \tag{9}$$

With these payoffs, the parties fail to find a mutually profitable settlement amount paid by the injurer to the victim and thus litigate if and only if:

$$(1/2)(1-u)\delta \geq C \tag{10}$$

From this expression, we immediately obtain:

Proposition 5: Under fact discretion, there exists a $\underline{\delta} \in [0,1]$ such that the parties litigate if and only if $\delta > \underline{\delta}$. $\underline{\delta}$ increases in *u*.

Because under fact discretion judicial bias affects the setting of damages, the parties litigate when they are sufficiently optimistic about the chance of getting a favorable judge (i.e., when δ is high enough). The required level of optimism is smaller when the proportion of biased judges is higher. By introducing extrinsic factors such as judicial bias into trials, judicial fact discretion may lead to wasteful litigation.

This analysis of litigation under fact discretion yields two empirical predictions. First, litigation should be more prevalent in the politically or socially charged areas of law, where judicial views are more likely to be polarized. Likewise, litigation should be more prevalent in more complex areas of law, where the application of legal rules requires the verification of many factual issues, even if the legal rules themselves are clear and unambiguous.

Second, when parties hold similar beliefs on the distribution of judicial bias and litigation

does not occur, we predict that – due to fact discretion – pre-trial (or more precisely, pre revelation of judge's type) settlement amounts in different cases would cluster around the mean settlement, especially if judicial polarization is high. This finding stands in contrast with the standard prediction of Priest and Klein (1984) that pre-trial settlements are especially likely to occur when the facts of a dispute are clear. In their model, settlement amounts should reflect the disparate facts of individual cases and presumably display considerable variance rather than converge to the mean. On the other hand, as do Priest and Klein, our model predicts that settlement amounts should spread out once the identity of the judge, and therefore presumably his type, is revealed. In such settlements, the party whose position the judge is expected to favor should receive most of the benefit in the settlement.

5.2. Fact Discretion and Litigation under Unsettled Law

The Litigants' Positions under Unsettled Law

As we showed in Section 4, when the law is unsettled, even unbiased judges may set damages at the extremes. In our model of litigation, this fact has two key implications. First, unbiased judges may prefer to remain uninformed, because – in contrast to settled law – unsettled law does not allow them to set their preferred damages anyway. Second, litigants may take partisan positions to cater to even an unbiased judge's need to fit the facts into the existing law.

To see how this works, suppose that $u \le \hat{u}$, so unbiased judges only consider whether harm is larger or smaller than 1/2 to choose between d=0 and d=1 (see Corollary 4). Then, if the parties send $h_I = 0$, $h_V = 1$, and the judge becomes informed, he obtains:

$$\int_0^{1/2} (h^2/2)dh + \int_{1/2}^{1} \left[(1-h)^2/2\right]dh + k/2 = \frac{1}{24} + \frac{k}{2} \qquad (11)$$

This expected loss equals the judge's average loss from setting d=*0* when $h \le 1/2$ and d=1 when h > 1/2, plus the search cost k/2. Although the judge is fully informed, he rules according to the

parties' extreme messages to avoid reversal. If instead the judge does not find out harm, his expected loss is the same if he sets d=0 and d=1 and is equal to 1/6. Overall, we find:

Proposition 6: If k>1/4, under unsettled law even if the judge is unbiased the parties' messages are $h_I = 0$, $h_V = 1$ and the judge randomizes between d = 0 and d = 1. If the judge is biased, then the outcome is the same as under settled law.

The key difference between settled and unsettled law concerns trials before an unbiased judge. With unsettled law, unbiased judges sometimes remain uninformed and choose to fit the case into an existing precedent. As a consequence, competition between parties is radically different from that prevailing under settled law. Now competition leads to extreme partisanship, not to convergence to the truth. To avoid reversal, even an unbiased judge may (randomly) endorse a partisan message such as $h_I = 0$ or $h_V = 1$ as opposed to a message claiming that h is in the middle. Litigants then compete by proposing extreme views so as to cater to the judge's demand for precedent-fitting narratives that render reversal less likely. In court, plaintiffs overreach and over-claim, while defendants refuse to acknowledge even the slightest liability for harm, each hoping that the judge simply buys their story. One feature of this equilibrium is that no information trickles up to appellate courts, which slows down legal evolution.

Litigation vs. Settlement under Unsettled Law

In Section 5.1 we saw that, under settled law, one determinant of the decision to settle was over-optimism about judicial bias. We now show that under unsettled law, litigation is more likely, as disagreement over the judge's bias is not even necessary to obtain litigation.

Key to this finding is the result (Proposition 7) that, under unsettled law, even unbiased judges might remain uninformed and thus indifferent among extreme outcomes (as long as u is low enough). In such a case, litigants can hope to sway adjudication to their side through

courtroom tactics, persuasion techniques, and so on. As a consequence, litigants' optimism about their ability to sway and influence the decision of an indifferent judge can lead them to litigate, irrespective of their optimism about judicial favour.

For concreteness, parameterize the parties' overconfidence about their ability to sway an unbiased judge with $\sigma > 0$. The injurer (victim) believes that he will be able to influence unbiased judges to set d=0 (d=1) with probability $(1/2 + \sigma)$. Then, much in the spirit of expression (10), settlement fails when:

$$\left[(1/2)(1-u)\delta + u\sigma\right] \geq C \qquad (12)$$

Just as under settled law, divergence in beliefs as to the proportion of biased judges (δ) in the population fosters litigation. However, under unsettled law, the litigants' optimism (σ) about their ability to move an unbiased and therefore indifferent judge to their side also promotes litigation. Under settled law, the impact of σ is downplayed because unbiased judges become informed and have strict preferences over damages. While under settled law, then, the parties readily settle after knowing the judge's type, under unsettled law they may fail to do so even if the judge is unbiased because disagreement remains until the ruling is released. Fact discretion promotes litigation to a greater extent when the law is unsettled.

Taken together, the results in sections 3-5 suggest that the common law system of dispute resolution will perform particularly poorly when the cases are factually complex, the law is unsettled, and fact-finder preferences are important for the determination of damages (or for that matter of liability). These conditions seem to describe adequately the determination of damages for pain and suffering, as well as of punitive damages, in product accident cases. Law and economics scholarship has been highly critical of how damages are set in these situations (Viscusi 1988, 1998, Cooter 1988), blaming the randomness of observed outcomes on the lack of clarity in the law, the sentiments of judges and juries, and the actual complexity of finding the correct answer. These conditions are, of course, a recipe for trouble in our model.

6. Conclusion

We have presented two models of judicial fact discretion. In the first, the motivation for the exercise of fact discretion is a trial judge's preference over the outcomes of litigation. This model is probably most relevant for politicized or otherwise emotionally charged disputes. In the second model, the motivation for the exercise of fact discretion is trial judges' aversion to reversal by appellate courts, which leads them to fit the facts of the current dispute into available precedents. This model is probably most relevant for new and developing areas of law, with significant factual complexity and relatively few precedents. For both models, we have shown that, consistent with the standard view of practicing attorneys, the outcome of a trial is determined at least in part by who the judge is. Fact discretion leads to judicial behavior that is unpredictable from the facts of the case, but predictable from the knowledge of judicial preferences. We have also shown that the exercise of fact discretion leads to systematic distortions in individual behavior, to excessive and acrimonious litigation, as well as to welfare losses.

In conclusion, we briefly mention some issues suggested by our model that we did not analyze. First, the model implies clearly and perhaps significantly that summaries of relevant facts that accompany written judicial opinions cannot be trusted. As we saw in *Garratt v Dailey* and discussed throughout the paper, when judges summarize the facts, they do so to justify their legal conclusions. When a judge exercises fact discretion, this summary need not reflect the true facts of the case, even as seen and believed by the judge. In some instances, the summary of the facts might be possible to check against other available documents. Unfortunately, from the viewpoint of a researcher, a journalist, or a law student, the judge's summary is often all that is available. This aspect of judicial opinions does not necessarily undermine the study of legal principles, but may shed only a dim light on the actual facts of any given case.

Second, without conducting a full analysis, our model suggests some possible strategies for using legal procedure to contain the effects of fact discretion. One strategy is to limit the

range of legally cognizable harms. The economic loss doctrine might be one important manifestation of this general principle. Another strategy is to introduce procedural rules concerning admissibility of evidence or even, as in civil law systems, more extensive appellate review of fact finding. When judicial fact discretion becomes extreme, dispute resolution in court may become socially inefficient. In those instances, adjudication can be replaced by ex ante regulation that does not rely on fact finding (Glaeser and Shleifer 2003).

Third, we have focused our analysis on the exercise of fact discretion by judges, although of course the same phenomenon might be as or more prevalent among juries (Kalven and Zeisel 1966). In the case of juries, legal strategies aiming to control fact discretion tend to focus on the rules of evidence rather than on re-specifications of legal rules that might not impress juries.

As a final point, we note that this paper is part of a growing body of research that suggests that the consequences and the efficiency of alternative legal arrangements cannot be evaluated without an explicit discussion of preferences and incentives of law enforcers. Rules and arrangements that appear highly desirable with benevolent and unbiased law enforcers, such as strict liability with all harms being legally cognizable, lose at least part of their appeal when enforced opportunistically. Judicial fact discretion is but one, although possibly very important, manifestation of this broader problem.

Proofs

Proof of Proposition 1. Social losses are $\int_0^1 \left[(1-p_{sl}(h))h + p_{sl}(h)^2/2\right]dh$. For each *h*, optimal precautions are $p_{fb}(h)=h$. If for some *h*, $p_{sl}(h)\neq h$, social losses are larger than in the first best. Hence, if for some *h* $E\left[d_j^*(h)\right]\neq h$, the first best is attained iff $c\to\infty$. A marginal change $p_{sl}'(h)$ triggers a change $L'=\int_0^1 p_{sl}'(h)\left[p_{sl}(h)-h\right]dh$ in social losses. It is immediate to find that $\partial p_{sl}'(h)/\partial c = \left[h-p_{sl}(h)\right]/(1+c)$ and $\partial p_{sl}'(h)/\partial u = \left[h-p_{sl}(h)\right]/(1-u)$. This implies that $\partial L/\partial c<0, \partial L/\partial u<0, \partial^2 L/\partial c\partial u>0$.♠

Proof of Corollary 1. By inspection. ♠

Proof of Corollary 2. Consider $\alpha>1$. Damages are first best at *h* = 0, *h* = 1 and at $h^*=(\iota/\nu)^{1/(\alpha-1)}/\left[1+(\iota/\nu)^{1/(\alpha-1)}\right]$. Damages are too steep iff $\partial E d_j^*(h^*)/\partial h>1$ because damages are too low iff $h<h^*$. This is always true for $\alpha>1$. Consider $\alpha<1$. Damages are first best at *h* = 0, *h* = 1 and at $h^*=(\nu/\iota)^{1/(1-\alpha)}/\left[1+(\nu/\iota)^{1/(1-\alpha)}\right]$. Damages are too flat iff $\partial E d_j^*(h^*)/\partial h<1$ because damages are too low iff $h>h^*$. This is always true iff $\alpha<1$. Consider $\alpha=1$. If $\iota=\nu$ damages are optimal at any *h*. If $\iota\neq\nu$ damages are only optimal at *h* = 0 and *h* = 1. For $h\in(0,1)$ damages are too low if $\iota>\nu$ and too high $\iota<\nu$.♠

Proof of Corollary 3. First of all, note that $Ed_j(h)=h+\left[\nu h^\alpha(1-h)-\iota h(1-h)^\alpha\right]$. In addition, $\int_0^1 h^\alpha(1-h)dh=\int_0^1 h(1-h)^\alpha dh=\frac{1}{(\alpha+1)(\alpha+2)}$. Thus, $1-E\left[d_j(h)\right]=1/2-\frac{(\nu-\iota)}{(1+c)(\alpha+1)(\alpha+2)}$.♠

Proof of Lemma 1. A trial ruling (*h'=d'*= 0) or (*h'=d'*= 0) is not reversed: appeals courts must follow precedent. In any other case, and for $h'\in(0,1)$, appeals courts can reverse. *pro-V* appeals courts reverse any *d'*<1, *pro-I* appeals courts any *d'*>0, *unbiased* appeals courts any $d'\neq h'$.♠

Proof of Proposition 2. We must consider three cases. A) *Unbiased* judges. For *h* = 0 and *h* = 1 the trial judge finds the truth, sets *d* = 0 and *d* = 1 respectively, and is not reversed. If $h\in(0,1)$ and the trial judge rules $(d'=0,h'=0)$, he loses $(1+c)h^2/2$; if he rules $(d'=1,h'=1)$, he loses $(1+c)(1-h)^2/2$. If the judge rules $(d'=h,h'=h)$, his loss is $(1-u)r+\iota h^2/2+\nu(1-h)^2/2$. Call $h_{U^*}\equiv\frac{\sqrt{\nu^2+2(u+c)\left[(1-u)r+\nu/2\right]}-\nu}{u+c}$ and $\underline{h}_U=\min\left[1/2,h_{U^*}\right]$. If $h\le 1/2$, the judge find the truth for $h>\underline{h}_U$, $(d'=0,h'=0)$ otherwise. If $h>1/2$, the judge finds the truth for $h<\bar{h}_U\equiv 1-\underline{h}_U$, $(d'=1,h'=1)$ otherwise. B) *Pro-I* judges. If the judge rules $(d'=1,h'=1)$ he loses $1/2+c(1-h)^2/2$, if he rules $(d'=0,h'=0)$ he loses $ch^2/2$. For $c\le 1$ the *pro-I* trial judge always prefers $(d'=0,h'=0)$ to $(d'=1,h'=1)$. If the judge sets $d'=h'\in(0,1)$, he solves $\min_{h'}(1-u)r+\nu/2+u(h')^2/2+c(h-h')^2/2$, thereby setting $h'=ch/(u+c)$ and bearing a loss of $(1-u)r+\nu/2+uch^2/2(u+c)$. Define $h_{I^*}\equiv\frac{1}{c}\sqrt{2(u+c)\left[(1-u)r+\nu/2\right]}$ and $\bar{h}_I=\min\left[1,h_{I^*}\right]$. Then, the judge rules $(d'=0,h'=0)$ for $h<\bar{h}_I$ and sets $d'=h'=ch/(u+c)$ otherwise. C) *Pro-V*

judges. If the judge rules $(d'=1,h'=1)$ he loses $c(1-h)^2/2$, if he rules $(d'=0,h'=0)$ he loses $1/2+ch^2/2$. For $c\le 1$ the *pro-I* trial judge always prefers $(d'=1,h'=1)$ to $(d'=0,h'=0)$. For $d'=h'\in(0,1)$ the judge solves $\min_{h'}(1-u)r+\iota/2+u(1-h')^2/2+c(h-h')^2/2$, thereby setting $h'=(u+ch)/(u+c)$ and bearing a loss of $(1-u)r+\iota/2+uc(1-h)^2/2(u+c)$. Define $h_{V*}\equiv 1-\frac{1}{c}\sqrt{2(u+c)[(1-u)r+\iota/2]}$ and $\underline{h}_V=\max[0,h_{V*}]$. Then, the judge rules $(d'=1,h'=1)$ for $h>\underline{h}_V$ and sets $d'=h'=(u+ch)/(u+c)$ otherwise. $r\ge 1$ implies that $\bar{h}_I>0,\underline{h}_V<1$.♠

Proof of Corollary 4. $\bar{h}_U-\underline{h}_U=1-2\underline{h}_U$, where $\underline{h}_U=\min[1/2,h_{U*}]$ and h_{U*} is defined by $(1-u)r+\iota h_{U*}^2/2+\nu(1-h_{U*})^2/2=(1+c)h_{U*}^2/2$. By using the implicit function theorem, one can verify that h_{U*} (and thus $\underline{h}_U$) decreases in *u*, *c* and increases in *r*. Similarly, one can prove that h_{V*} (and thus $\underline{h}_V$) increases in *u*, *c* and decreases in *r* while h_{I*} (and thus $\bar{h}_I$) decreases in *u*, *c* and increases in *r*. If $u\le \ddot{u}\equiv(8r-c)/(1+8r)$, then $h_{U*}\ge 1/2$ which implies $\underline{h}_U=1/2$. Furthermore, there exists a $\tilde{u}$ such that, for $u\le\tilde{u}$, $\bar{h}_I=1,\underline{h}_V=0$. Define $\hat{u}=\min[\tilde{u},\ddot{u}]$.♠

Proof of Proposition 3. If $c\le 1,r\ge 1,u\le\hat{u}$, precautions are $p(h)=\nu$ for $h\le 1/2$, $p(h)=1-\iota$ otherwise. Social losses are $L=\left[1-\nu+2\nu^2+3\iota+2(1-\iota)^2\right]/8$, which is always larger than 1/3, i.e. social losses in the first best. Set $\iota/\nu=\theta$ and rewrite $\iota(u)=(1-u)\theta/(1+\theta)$, $\nu(u)=(1-u)/(1+\theta)$. Then, $\partial L/\partial u=(-1+4\nu)\nu'(u)/8+[3-4(1-\iota)]\iota'(u)/8$. It is easy to see that $\partial L/\partial u\le 0$ iff $u\le\vec{u}=(3+3\theta^2-2\theta)/4(1+\theta^2)$. Define $u^*=\max[\vec{u},\hat{u}]$.♠

Proof of Corollary 5. By inspection.♠

Proof of Proposition 4. If the trial judge is *pro-V*, $h_V<1$ is not an equilibrium. If $h_V<1$ and $h_I<1$, for any "search" strategy of the judge, *V* deviates to $h_V=1$ as the judge endorses (at least partly) such higher message. If $h_V<1$ and $h_I=1$, then – for any "search" strategy of the judge - *I* deviates to a lower h_I to prevent the judge from increasing damages. Hence, a *pro-V* judge induces $h_V=1$, $h_I\in[0,1]$, $d=1$. The judge does not search. Similarly, the equilibrium in front of a *pro-V* judge has $h_V\in[0,1]$, $h_I=0$, $d=0$ and the judge does not search. In front of an *unbiased* judge, for any two reports h_I,h_V, with $h_I\le h\le h_v$, if the judge searches he rules $(d'=h,h'=h)$, bearing cost $k(h_V-h_I)^2/2$. If the judge does not search, his loss is identical if he sets either $d=h_I$ or $d=h_V$ and is equal to $\int_{h_V}^{h_I}[(d-h)^2/2][1/(h_V-h_I)]=(h_V-h_I)^2/6$, $d=h_I,h_V$. Because *k*<1/3, the judge always searches. When the *unbiased* judge searches, he negligibly shades damages towards the message that was closer to *h*. What about the parties' messages? First, parties' messages are never worse than the truth, i.e. $h_I\le h\le h_v$. Second, if the judge searches, the parties' competition to win the shading induces $h_I=h_v=h$ for every *h*. As a result, the equilibrium in front of an *unbiased* judge has $h_V=h_I=h$ and $d=h$.♠

Proof of Proposition 5. By inspection.♠

Proof of Proposition 6. In front of biased judges, the behavior of the parties does not change. Suppose the judge is *unbiased* and $u\le\hat{u}$. Even after observing the truth, an unbiased judge

chooses between d=0 and d=1 depending on whether h is larger or smaller than 1/2. Thus, if the parties expect the judge to search, it is optimal for them to send $h_I = 0$, $h_V = 1$. By searching, the judge obtains $\int_0^{1/2} (h^2/2)dh + \int_{1/2}^{1} \left[(1-h)^2/2\right]dh + k/2 = 1/24 + k/2$. If the judge does not observe h, he is indifferent between d=0 and d=1: his expected loss is 1/6 in both cases. Thus, even if the judge is unbiased, under unsettled law the parties send $h_I = 0$, $h_V = 1$. Furthermore, for $k \in [1/4, 1/3]$, under unsettled law unbiased judges decide not to observe harm. As a result, the parties send $h_I = 0$, $h_V = 1$ and the judge randomizes between d=0 and d=1.♠

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