Does jury bias matter?

Amy Farmer\textsuperscript{a}, Paul Pecorino\textsuperscript{b,\*}

\textsuperscript{a}Department of Economics, University of Arkansas, Fayetteville, AR 72701
\textsuperscript{b}Department of Economics, Finance and Legal Studies, University of Alabama, Box 870224, Tuscaloosa, AL 35487

March 1999; received in revised form September 1999; accepted December 1999

Abstract

Froeb and Kobayashi (1996) find that endogenous expenditure decisions at trial tend to eliminate an exogenously given jury bias. For interior solutions, they find the initial bias to be totally eliminated. We find, however, that once the participation constraint of the plaintiff and defendant are taken into account, strong priors by the jury tend to deteriorate the quality of the cases which are filed by the plaintiff and defended by the defendant. We also explore an alternative form for jury bias, and find that it is generally non-neutral with respect to the trial outcome. Further, we find that the use of the English rule may exacerbate the effects of a strong jury bias. © 2000 Elsevier Science Inc. All rights reserved.

1. Introduction

Many people believe that the presence of jury bias is a problem that may interfere with the ability of the civil justice system to deliver fair and accurate judgments. For example, if members of a jury have a bias towards plaintiffs and against large corporations, it is common sense to believe that plaintiffs will fare better than the true merits of their case warrant. However, contrary to this intuition, Froeb and Kobayashi (1996) develop a model in which an exogenous jury bias is systematically eliminated by the endogenously produced evidence of the plaintiff and the defendant.\textsuperscript{1} The party who is favored by the jury bias, “free rides” on

\textsuperscript{*} Corresponding author. Tel. 205-348-0379.
E-mail address: ppecorin@cba.ua.edu (P. Pecorino).

\textsuperscript{1} Other model of endogenous legal expenditure include Braeutigam, Owen and Panzar (1984), Katz (1988) and Hause (1989) in the context of civil litigation. For a model of endogenous expenditure at criminal trial, see Kobayashi and Lott (1996).
the prior beliefs of the jury and spends less on producing evidence at trial than a similar player who is not favored by the jury. Further, strong prior beliefs by the jury (which do not necessarily reflect bias) reduce spending at trial by both parties to the dispute. Their findings suggest that jury bias may be less of a problem than initially thought.

In Froeb and Kobayashi, jury bias causes the effective arguments perceived by the jury to differ from the actual arguments by a constant term. We consider a multiplicative form of bias and find, in contrast to Froeb and Kobayashi, that jury bias generally persists in equilibrium and therefore affects the outcome at trial. We consider a weaker version of the Froeb and Kobayashi result under which jury bias is systematically reduced by the endogenous spending decisions of the parties to the dispute and identify parameter values under which this occurs in our framework. There are even some parameter values under which the existence of a small jury bias causes its estimator of the defendant’s liability to lie closer to its true value. However, for other parameter values, we find that jury bias is accentuated by the endogenous spending decisions of the parties to the dispute. Thus, in a model with multiplicative bias, a weaker version of the Froeb and Kobayashi result does not hold in general.

In performing this analysis, we model bias as influencing perceptions at the margin, in the sense that a biased jury and an unbiased jury will evaluate identical arguments differently when deciding a case. In the Froeb and Kobayashi framework, the starting point for the jury reflects bias, but the jury “keeps score” correctly for the arguments which are placed before it. Imagine, however, a distinction between the objective arguments placed before the jury and the way these arguments are perceived by the jury. We consider a model in which a bias in favor of the plaintiff means that more weight is placed on arguments made by the plaintiff at trial than those made by the defendant.3

Babcock and Loewenstein (1997) review the literature on self-serving bias in the context of bargaining. Clearly, the evaluation of a case by a jury differs from the bargaining problem in important ways, but Babcock and Loewenstein do cite evidence that differently situated individuals often evaluate the exact same evidence differently. This corresponds to our assumption that the bias operates at the margin to the benefit of the “favored” party.4 As an example, consider one jury in California which is predisposed to mistrust tobacco companies and one jury in North Carolina which might be predisposed to view tobacco companies

---

2 The authors note that this total elimination of bias is sensitive to the assumptions of the model.

3 See Daughety and Reinganum (1998) for a paper in which bias refers to a systematic deviation from the truth as an equilibrium outcome. This does not result from jury bias, but rather the incentives provided by the litigation game.

4 Among many studies, they cite one by Hastorf and Cantril (1954), who find that when Princeton and Dartmouth fans were shown a tape of the same Dartmouth-Princeton football game, they came up with different estimates about the numbers of penalties committed by both sides. Just as the two groups of students “saw a different game,” we would like to think of two different juries, one biased, one not, hearing different trials. A related result in the psychological literature is the hostile media effect, where two groups on opposing sides of an issue each viewed the same media report related to that issue. Each group perceived the media report as biased against their group. Thus, at least one group exhibited bias in the way it perceived the fairness of the media report. This suggests that bias is operative at the margin, as new information is placed before a group. (See Ross 1987: 130–2).
more favorably. If the same number of arguments put forth by a tobacco company’s expert witness are placed before these two juries, then under the formulation in our model, the jury in California will effectively perceive fewer arguments in favor of the defense than the jury in North Carolina. Thus, the bias we consider raises the marginal impact of argumentation by the favored party, other things held equal.

A second important finding is that bias affects the mix of cases that are filed by the plaintiff and defended by defendant. This is true in the Froeb and Kobayashi framework and more generally as well. Strong priors in the Froeb and Kobayashi framework cause weaker cases (from the respective parties point of view) to be brought by the plaintiff and defended by the defendant. This is a direct consequence of the decline in spending resulting from the bias.

Finally, the results suggest that the English rule may reinforce the effects of strong jury bias by amplifying the advantage of the party favored by the jury bias. In particular, a party disfavored by the objective merits but strongly favored by jury bias, may outspend their opponent at trial. In contrast, under the American rule, the party favored by the objective merits always outspends its opponent at trial.

2. Jury bias: implications for the mix of cases filed and defended

In their model, Froeb and Kobayashi (1996) show that a naive, biased jury hearing selectively produced evidence can produce an unbiased outcome. Specifically, their model shows that strategic decisions to produce costly evidence can eliminate the initial bias of a jury. This occurs because parties have an incentive to “free ride” on these prior beliefs by electing to produce less evidence. Ultimately, the final beliefs of the jury after the equilibrium number of arguments have been made match the true liability of the defendant as long as both the plaintiff and the defendant undertake legal expenditure. Although Froeb and Kobayashi acknowledge that the specification of their model may drive the finding that jury bias is completely neutral, they conclude that the problem of jury bias may not be as serious as initially thought.

A weaker version of the Froeb and Kobayashi result which upholds their basic intuition would be to find that endogenous legal expenditure generally reduces jury bias even if it does not eliminate it entirely. In fact, Froeb and Kobayashi find this to be the case whenever the jury’s priors lead either the plaintiff or defendant to spend 0 at trial. We will explore the issue of how endogenous spending interacts with jury bias more fully in Section 3.

Even in the context of the Froeb and Kobayashi model, however, jury bias may have significant consequences for the legal system. In particular, although cases that reach trial are ultimately decided in an unbiased manner, the mix of cases filed by the plaintiff and defended by the defendant will be affected by jury bias. We find that strong priors by the jury reduce case quality; specifically, plaintiffs are willing to bring and defendants are willing to defend lower quality cases when the jury has strong priors about the true level of liability in the case.
2.1. The Froeb and Kobayashi Model

Suppose that the plaintiff and the defendant can produce legal arguments at some cost. Assume that \( p \) is the true measure of the defendant’s liability under a comparative negligence tort standard. Using an analogy of flipping a coin where \( c \) is the cost of flipping, Froeb and Kobayashi assume that heads (\( H \)) is an argument in favor of the plaintiff while tails (\( T \)) represents an argument for the defendant. Further, it is assumed that the probability of producing a favorable piece of evidence on a given flip equals \( p \) for the plaintiff and \( 1-p \) for the defendant. As a result, the true merits of the case will affect each party’s cost of producing evidence. On average it takes \( H/p \) flips for the plaintiff to produce \( H \) favorable pieces of evidence and \( T/(1-p) \) flips for the defendant to produce \( T \) favorable pieces of evidence. The expected costs of producing this evidence are \( cH/p \) for the plaintiff and \( cT/(1-p) \) for the defendant. Note that the plaintiff (defendant) can produce a given number of arguments more cheaply than the defendant (plaintiff) if \( p \) is greater (less) than \( 1/2 \). Litigants selectively present the evidence they generate, so that neither party reports to the jury unfavorable evidence produced by their own legal expenditure.

Froeb and Kobayashi assume that the jury begins with a Beta(\( a, b \)) prior over the probability \( p \). The jury is “naive” in the sense that it ignores the selective way in which each party presents its evidence. The jury assumes that the evidence is randomly drawn and forms the following posterior estimate of \( p \):

\[
\hat{p} = \frac{(a + H)}{(a + b + H + T)}. \tag{1}
\]

In the absence of jury bias, \( a = b \), where larger values of \( a \) and \( b \) represent stronger priors.

The risk neutral litigants will maximize their expected payout by choosing an optimal stopping rule for \( H \) and \( T \). Under the optimal stopping rule, the plaintiff will [Eq. (2)]

\[
\max_H \hat{p}S - cH/p - k_p, \tag{2}
\]

where \( H \geq 0 \), \( S \) is the amount of harm which is assumed to be uncontested and \( k_p \) represents fixed costs of proceeding to trial. Fixed costs are not considered by Froeb and Kobayashi and will not affect the analysis until we consider the problem of endogenous participation in Section 2.2. We will discuss the assumption that \( k_p > 0 \) at that point. Similarly, the defendant will [Eq. (3)]

\[
\max_T - \hat{p}S - cT/(1-p) - k_d, \tag{3}
\]

where \( T \geq 0 \) and \( k_d \) is the defendant’s fixed cost of proceeding to trial. Under the optimal stopping rules, we have

\[
H = \frac{p^2(1-p)S}{c} - a, \text{ and} \tag{4a}
\]

\[
T = \frac{p(1-p)^2S}{c} - b. \tag{4b}
\]
assuming an interior solution for both the plaintiff and defendant. If we substitute from Eq. (4a) and Eq. (4b) into Eq. (1), we find that \( \hat{p} = p \). The endogenous spending decisions by the plaintiff and defendant totally eliminate jury bias. The solutions for \( H \) and \( T \) reveal that the equilibrium value of \( H \) is declining in \( a \) while the equilibrium value of \( T \) is declining in \( b \). In other words, there exists a tendency for the player favored by the jury bias to “free ride” on the prior beliefs of the jury and produce less evidence. The party who is favored by the objective facts of the case can produce evidence at lower cost and therefore produces more total arguments once the jury bias is accounted for. From Eq. (4a) and Eq. (4b), \( H + a > T + b \) iff \( p > \frac{1}{2} \).

2.2. The decisions to bring and defend suits

Although Froeb and Kobayashi find that jury bias is eliminated in an interior equilibrium, they do not address the decision to file and defend a suit. We find that although jury bias is neutral in terms of final jury beliefs, this bias will impact the profitability of bringing suit as well as the costs of defending suits in court. As Froeb and Kobayashi point out, a bias effectively gives the favored party a “head start” which will lower the marginal benefit of producing additional evidence. This lowers the incentives to produce arguments and therefore may have real effects on the decision to sue and the decision to defend a suit. We will consider below the plaintiff’s decision to file a case and the defendant’s decision to defend a case. We do not consider pretrial settlement except to allow the defendant to pay the default judgment \( S \) rather than bring a case to trial. \(^5\)

The plaintiff will choose to bring suit if the expected payoff from doing so is positive. Assuming the defendant’s participation constraint is satisfied, this will occur if and only if \( \hat{p}S - cH/p - k_p > 0 \) where \( k_p \) is the plaintiff’s fixed costs of bringing the suit. \(^6\) Note in equilibrium \( \hat{p} = p \), and use (4a) to find that the plaintiff will file a suit if [Eq. (5)]

\[
p^2S + ac/p > k_p. 
\]

It is easily seen that an increase in \( a \) relaxes this constraint. As \( a \) rises, the set of plaintiffs who are willing to file suit expands. The average value of \( p \) for these additional cases is lower than the average value for cases which are brought when \( a = 0 \). Thus when \( a > 0 \), the average case brought by the plaintiff is weaker than when \( a = 0 \). Note that \( \frac{ac}{p} \) represents the value of the “free” arguments provided by the jury’s prior beliefs on the case.

A defendant will defend such a suit if doing so yields an expected payment less than a default judgment that would cost \( S \), the true value of damages. Thus, a defendant will defend a suit if \( -\hat{p}S - cT/(1 - p) - k_d > -S \). Again note \( \hat{p} = p \) and use Eq. (4b) to find that the defendant will defend a case if [Eq. (6)]

\[^5\] This is standard in much of the literature on endogenous expenditure at trial. For an exception, see Hause (1989).
\[^6\] For the sake of brevity, we do not consider the case where the participation constraints of both parties are violated. The outcome in such a case would depend upon which party had a first mover advantage which would enable her to commit to forcing the case to trial. This issue has been extensively discussed in the rent-seeking literature. See the references in note 8 below.
(1 - p)^2S + bc/(1 - p) > k_d. \quad (6)

Once again, \( b > 0 \) will loosen this constraint and lead defendants with generally weaker (high \( p \)) cases to take them to trial. Thus, it is evident that the existence of jury priors is not neutral in terms of the number and quality of cases that arrive in court.

If \( a > 0 \) and \( b = 0 \), plaintiffs with poorer cases (relative to \( a = 0, b = 0 \)) will be induced to file suit, while the defendant’s decision to defend is unaffected. Thus, relative bias matters. However, even when \( a = b \) (i.e., no bias and \( \hat{p} = p \)), as the strength of these priors rise, so too will the number of suits. This happens because stronger jury priors imply a lower return to spending on the production of legal arguments which in turn lowers the overall expenses of bringing and defending a suit. As a result, weaker cases will be initiated by the plaintiff and weaker cases will be defended by the defendant.

We have not established a welfare result because we have not developed a context within which we can assert which cases “should” be brought under an optimal civil tort system. We have established a positive result showing the case quality (for both the plaintiff and defendant) tends to deteriorate as the jury priors become stronger. This may explain the desire by the courts to obtain (to the extent possible) juries uncontaminated by prior knowledge of a particular case.

In the absence of fixed costs, all cases are filed by the plaintiff and all cases are contested by the defendant. This is strongly counterfactual and suggests that fixed costs are relevant in the context of this model. For the plaintiff, these could include filing costs, while for both parties these could include the psychic costs of going through the legal process.

3. Bias at the margin

3.1. The general set up

In the previous section we established that even if bias is neutral in terms of trial outcomes, it is not neutral in the determination of which cases make it to trial. In this section we seek to understand the impact of bias on the trial outcome itself. Froeb and Kobayashi do not claim to provide general results, and it is unlikely that jury bias will be completely eliminated in any general model. In this section, we consider a plausible alternative specification of jury bias to analyze its effects on civil suits. Importantly, we consider a bias that affects the marginal impact of an argument placed before the jury. Thus, when there is a bias in favor of (for example) the plaintiff, the jury places greater weight on an argument produced by the plaintiff than on an argument produced by the defendant.

We consider trial to be a two-stage process. In the first stage, arguments \( H \) and \( T \) are produced and processed by the jury into effective arguments. This processing reflects jury bias. The jury is either unaware that it has a bias which affects its information processing, or is unable to completely correct for its bias. In the second stage, the jury
uses these effective arguments to form the naive classical estimator \( \hat{p} \). Consider the following specification from which both the Froeb and Kobayashi model and our model discussed below emerge as special cases. Jurors transform the actual arguments \{H, T\} into the effective arguments \{a H^r, b T^r\}. The parameter \( r \) reflects scale effects in the perceptions of arguments by the jury. If \( r < 1 \), there are diminishing returns in the sense that marginal production of effective arguments is diminishing in the number of true arguments produced. Conversely, when \( r > 1 \) there is a form of increasing returns in argumentation. Finally, \( r = 1 \) implies a constant rate of transformation between true arguments and effective arguments perceived by the jury. To avoid lengthy discussions of what happens when an interior Nash equilibrium fails to exist, we will generally focus on cases where \( r \leq 1 \).

The parameters \( a \) and \( b \) reflect the type of additive bias analyzed by Froeb and Kobayashi. We will analyze a multiplicative bias in which bias affects perceptions at the margin. This bias is reflected in the parameters \( \gamma \) and \( \beta \), where \( \gamma > 1 \) (\( \beta > 1 \)) reflects a bias in favor of the plaintiff (defendant) and \( \gamma < 1 \) (\( \beta < 1 \)) reflects a bias against the plaintiff (defendant).

In stage two, jurors form the following naive classical estimator:

\[
\hat{p}(H, T) = \frac{a + \alpha H^r}{a + \alpha H^r + b + \beta T^r}, \text{ for } H > 0 \text{ or } T > 0.
\]

Note that Froeb and Kobayashi’s estimator is simply the case in which \( \alpha = \beta = r = 1 \). Specifically, Froeb and Kobayashi allow the transformed arguments to differ from the true arguments by a constant. In this section we will consider a transformation in which \( a = b = 0 \). We consider the marginal effects of jury bias as opposed to a constant shift and, in addition, we allow \( r \) to deviate from 1. Letting \( \gamma = \alpha / \beta \), the jury’s estimator of \( p \) is

\[
\hat{p}(H, T) = \frac{\gamma H^r}{\gamma H^r + T^r}, \text{ for } H > 0 \text{ or } T > 0 \text{ and,}
\]

\[
\hat{p}(0, 0) = \frac{\gamma}{\gamma + 1},
\]

where \( \gamma, r > 0 \). Note that Eq. (8) is a contest success function with bias, which is standard in the rent-seeking literature. When \( \gamma > 1 \), there is a bias in favor of the plaintiff and when

---

7 In a Bayesian context, consider this to be the case of an uninformative prior. Froeb and Kobayashi (1996) consider a naive classical estimator, and their basic result is even stronger in this case. The initial bias of the jury is always completely offset by the endogenous spending by the plaintiff and the defendant because in this case, there are no corner solutions in which one of the two parties spends nothing at trial.

8 Farmer and Pecorino (1999) consider the case \( r > 1 \) for a model of endogenous legal expenditure where there is no jury bias. In this case, there may be no interior Nash solution to the game. There is extensive discussion of this issue in the rent-seeking literature. See, for example, Tullock (1980, 1984, 1985), Corcoran (1984), Corcoran and Karels (1985) and Higgins, Shughart and Tollison (1985).

9 The contest success function in Eq. (8) is the only one which satisfies the four axioms set forth in Clark and
\( \gamma < 1 \), there is a bias in favor of the defendant. The greater the bias towards the plaintiff, the greater (other things equal) is the value of the plaintiff’s marginal product of expenditure on the production of legal arguments.

With the specification in Eq. (8), the plaintiff’s problem becomes

\[
\max_H \left( \frac{\gamma H^r}{\gamma H^r + T^r} \right) S - \frac{cH}{p} - k_p,
\]

while the defendant’s problem is to

\[
\max_T - \left( \frac{\gamma H^r}{\gamma H^r + T^r} \right) S - \frac{cT}{1 - p} - k_D.
\]

The first order conditions to these problems imply

\[
\frac{\gamma r H^{r-1} T^r}{(\gamma H^r + T^r)^2} S = \frac{c}{p} \quad \text{and} \quad (9)
\]

\[
\frac{\gamma r H^{r-1} T^r}{(\gamma H^r + T^r)^2} S = \frac{c}{1 - p}. \quad (10)
\]

From Eqs. (8), (9) and (10) we get the following solutions to the model:

\[
H = \frac{\gamma r p \left( \frac{1 - p}{p} \right)^r}{c \left( \gamma + \left( \frac{1 - p}{p} \right)^r \right)^2} S, \quad (11a)
\]

\[
T = \frac{\gamma r (1 - p) \left( \frac{1 - p}{p} \right)^r}{c \left( \gamma + \left( \frac{1 - p}{p} \right)^r \right)^2} S, \quad (11b)
\]

\[
\hat{p} = \frac{\gamma p^r}{\gamma p^r + (1 - p)^r}. \quad (12)
\]

3.2. The effects of jury bias

Let \( p^B = \hat{p}(0,0) \) denote the estimator formed by the jury prior to the endogenous spending decisions of the plaintiff and defendant. From Eq. (8), \( p^B = \gamma / (\gamma + 1) \).

Equivalently, $p^B$ is the estimator that the jury would form if the plaintiff and defendant placed an equal number of arguments before it. In either case, we will interpret $p^B$ as the initial bias of the jury. We will consider the cases $r < 1$ and $r = 1$ in turn.

**Case 1: $r < 1$**

From Eq. (12) and our definition of $p^B$, we can get the relationships between $p^B$, $\hat{p}$ and $p$ given in Table 1. Even when there is no jury bias ($\gamma = 1$), we do not have $p = p$. When $p > 1/2$, we have $1/2 < p < p$ and when $p < 1/2$, we have $p < p < 1/2$. With decreasing returns to argumentation ($r < 1$), the outcome favors the disfavored party in the sense that they are better off under the jury’s estimated value of $p$ than under the true value of $p$. This party is outspent by the favored party, and this moves $\hat{p}$ towards $p$ (from 1/2), but the greater spending by the favored party is not enough to achieve $\hat{p} = p$. Note from Eq. (11) that $H > T$ if and only if $p > 1 - p$.

Adding jury bias to the picture can either move $\hat{p}$ closer to $p$ or further away. For example, if the objective merits favor the plaintiff, a small jury bias $(1 < \gamma < (p/(1 - p))^{1-\gamma})$ in the plaintiff’s favor will move $\hat{p}$ closer to $p$, while a jury bias in favor of the defendant will move $\hat{p}$ further from $p$ (relative to $\gamma = 1$). Further, a large jury bias in favor of the plaintiff $(\gamma > (p/(1 - p))^{1-\gamma})$ will cause $\hat{p}$ to move past $p$. Thus, while it is clear that jury bias is not neutral, it is unclear how this bias affects the relationship between the jury’s estimate of $p$ and the true value of $p$. When $p > .5$, a sufficiently large bias in favor of the plaintiff $(\gamma > p/(1 - p))$ implies that endogenous spending accentuates the initial jury bias $(\hat{p} > p^B > p)$. Similarly, when the objective merits favor the defendant $(p < .5)$ and there is a sufficiently strong jury bias in favor of the defendant $(\gamma < p/(1 - p))$, the initial jury bias is magnified by the endogenous spending of the two parties $(\hat{p} < p^B < p)$.

**Case 2: $r = 1$**

In the limiting case $r = 1$, we have constant returns to argumentation. In this case, the formation of the jury’s estimator most closely resembles that of the Froeb and Kobayashi, except that bias is multiplicative rather than additive. In this limiting case, the jury’s estimator of $p$ simplifies to $\hat{p} = \gamma p/(\gamma p + 1 - p)$. Note that in the absence of bias, we have $\hat{p} = p$; the party favored by the objective merits of the case outspends his or her opponent by enough to ensure that the jury’s estimator forms an unbiased estimate of the truth.

When $r = 1$, Table 2 replaces Table 1. Again, a sufficiently strong jury bias may be
unambiguously amplified by the endogenous spending decisions of the plaintiff and defendant under certain circumstances. For example, when the facts favor the plaintiff \((p > 0.5)\), and \(\gamma > p/(1 - p)\), so that there is a strong jury bias in favor of the plaintiff, we have \(\hat{p} = p > p^B = 0.5\) and \(\hat{p} > p^B > p\) when \(\gamma > p/(1 - p)\). Conversely, we have \(\hat{p} < p^B < p\) when \(p < 0.5\) and \(\gamma < p/(1 - p)\) (i.e., the facts favor the defendant, and there is a strong jury bias in the defendant’s favor). In both cases, the endogenous spending decisions of the plaintiff and defendant reinforce the initial jury bias by pushing \(\hat{p}\) further away from \(p\). On the other hand, when \(p > 0.5\) and \(\gamma < 1\) or \(p < 0.5\) and \(\gamma > 1\), the initial jury bias is moderated by the endogenous spending decisions of the two parties.

These results show that there is no necessary relationship between the initial level of jury bias and the final bias reflected in the estimator \(\hat{p}\). In fact, from Eq. (12) and depending on the value of \(\gamma, \hat{p}\) can take on any value between 0 and 1 regardless of the true value of \(p\).

As in Section 2, jury bias will affect the participation constraints of both players. It is straightforward to show that if \(\gamma > 1\), the quality of cases that the plaintiff is willing to file will fall, while the quality of cases the defendant is willing to defend rises. Similarly, if \(\gamma < 1\), the quality of cases the plaintiff is willing to bring rises, while the quality of the cases the defendant is willing to defend will fall.

### 4. The English rule

Under the so-called English rule, lawyers’ fees are shifted to the party who loses at trial.\(^{10}\)

There are many variants of fee shifting that have either been proposed, or are actually in use. We will present a stylized model in which both parties are subject to fee shifting, where all costs other than fixed costs are subject to shifting. In order to conduct a sensible analysis of the English rule, we will need to reinterpret \(p\) and \(\hat{p}\), which we do in the subsection that follows. This is necessary, because under the comparative negligence interpretation, unless \(\hat{p} = 0\), there is always a finding for the plaintiff.

---

\(^{10}\)There are some subtle issues involved when considering fee shifting in the context of this model. In particular, there is the issue of whether “discarded” evidence will be discovered in the process determining fees to be shifted. See Froeb and Kobayashi (1996) note 36. We do not attempt to address this issue here and assume all costs are shifted to the losing party.
4.1. A reinterpretation of $p$ and $\hat{p}$

The model needs to be reinterpreted if we are to consider certain legal rules other than comparative negligence. Consider a negligence rule under which the actions of the defendant in meeting the due care standard are viewed with some error. Suppose that the due care standard is represented by a level of care $X$ to be taken by the defendant. If the jury finds that the defendant failed to meet this standard, then it finds for the plaintiff and awards the full amount $S$. Define the defendant’s true level of care to be $X$. The jury will form an estimate of $X$ which we denote $\hat{X}$. This estimator reflects an error term, jury bias, and the legal arguments made by both parties to the dispute. If $\hat{X} > X$, the jury finds for the defendant and if $\hat{X} < X$, it finds for the plaintiff.

For the purpose of our discussion we just consider the role of the error term. Specifically, we assume the jury to be unbiased, and we ignore the adversarial presentation of evidence by the plaintiff and defendant. Imagine instead that the jury is presented with an unbiased sample of the evidence regarding $X$, where some combination of sampling error and cognitive limitation on the part of the jury introduce an error term into the process. We present this as a base case which will allow us to make a translation between the defendant’s actions under the negligence rule and $p$, which we have taken to represent the objective merits of the case. Assume that the error $e$ is symmetric about zero so that the jury observes $X + e$. The jury’s best point estimate of $X$ is $\hat{X} = X + e$. When $X = \bar{X}$, (i.e., the defendant just meets the due care standard) then in half of all cases we will have $\hat{X} - \bar{X} < 0$; the defendant is found liable by 50% of all juries. We associate this case with $p = .5$. Defendant actions $X > \bar{X}$ are associated with $p < .5$, while $X < \bar{X}$ is associated with $p > .5$. Thus, there is a mapping between the defendant’s actions under the negligence standard and the parameter $p$ used in this paper. Note that all cases with $p > .5$ are cases which the plaintiff “should” win because they are associated with cases where the defendant failed to meet the negligence standard. If a finding is for the plaintiff, then he receives the full award $S$, where $\hat{p}$ reflects the equilibrium probability of him winning such an award.

Under the negligence standard it is not necessarily true that any deviation of $\hat{p}$ from $p$ should be considered undesirable. For example, all cases where $p < 1/2$ are ones in which the defendant has met the negligence standard. If an unbiased jury could view $X$, the true level of care, it would find for the defendant in 100% of these cases; these are all cases the defendant should win based on the objective merits. If endogenous legal expenditure moves $\hat{p}$ towards 1, when $p > 1/2$ and towards 0 when $p < 1/2$, then it improves the chances that the party favored by the objective merits wins at trial. To the extent it is desirable that the party favored by the objective merits actually wins the case at trial, this effect should be considered a good thing. To preview the results below, we find in the absence of jury bias that the English rule behaves in this fashion in the following sense. If $p > .5$, we have $\hat{p}_E > \hat{p}_A$; the jury’s estimate of $p$ under the English rule exceeds its estimate under the American rule. Similarly, when $p < .5$, we have $\hat{p}_E < \hat{p}_A$. However, in the presence of a strong jury bias, it is possible that a party who is disfavored by the objective facts but favored by the jury will spend more than their
opponent at trial. In this case, fee shifting will reinforce the initial jury bias, and this effect is clearly undesirable.

4.2. The model with fee shifting

When fee shifting is added to the model from section 3, the plaintiff’s problem becomes

$$
\max H \hat{p}S - (1 - \hat{p}) \left( \frac{cH}{p} + \frac{cT}{1 - p} \right) - k_p,
$$

while the defendant’s problem is to

$$
\max T \hat{p} \left( S + \frac{cT}{1 - p} + \frac{cH}{p} \right) - k_D.
$$

Note in each case we assume that the fixed costs of litigation $k_p$ and $k_D$ are not subject to shifting. This is appropriate if they reflect psychic costs associated with proceeding to trial. Substitute for $\hat{p}$ from Eq. (7), take the first order conditions and solve to yield

$$
H = \frac{\gamma r pS}{c(1 - r) \left( \gamma + \left( \frac{1 - p}{\gamma p} \right)^{r/1-r} \right)},
$$

$$
T = \frac{rS(1 - p) \left( \frac{1 - p}{\gamma p} \right)^{r/1-r}}{c(1 - r) \left( \gamma + \left( \frac{1 - p}{\gamma p} \right)^{r/1-r} \right)}.
$$

Substituting into Eq. (8), the solution for the jury’s estimate of $p$ becomes

$$
\hat{p} = \frac{\gamma (\gamma p)^{r/1-r}}{\gamma (\gamma p)^{r/1-r} + (1 - p)^{r/1-r}}.
$$

Compare Eq. (14) to Eq. (12) to see that in the absence of jury bias ($\gamma = 1$), endogenous expenditure under the English rule pulls $\hat{p}$ closer to 1 if $p > 1/2$ and closer to 0 if $p < 1/2$. Specifically, for $p > .5$, we have $\hat{p}_E > \hat{p}_A > .5$ and for $p < .5$, we have $\hat{p}_E < \hat{p}_A < .5$. As noted above, this effect may be considered a good thing, since it implies that there is a higher probability that the plaintiff wins when the defendant fails to meet the negligence standard, and a higher probability the defendant wins when she does meet the negligence standard.

When there is jury bias under the English rule, an analysis of Eq. (14) reveals that $H > T$ iff $\gamma p > 1 - p$. In other words, the “favored” party has the incentive to produce more arguments, but being “favored” may reflect jury bias ($\gamma \neq 1$) rather than just the true merits of the case. Recall that in the absence of fee shifting, $H > T$ iff $p > 1 - p$ so that the party objectively favored by the facts always produces more arguments to support their position even if the jury is biased against them. By contrast, with fee
shifting, it is possible that the party disfavored by the facts of the case will produce more arguments if the jury bias is sufficiently large. Specifically, it is possible that $\gamma p > 1 - p$ while $p < 1 - p$ or $\gamma p < 1 - p$ while $p > 1 - p$. In either of these cases, the jury bias causes the party with the objectively weaker case to produce more arguments. As a result, the endogenous spending decisions of the plaintiff and defendant will accentuate the initial jury bias. For example, if the objective merits favor the defendant ($p < .5$), but $\gamma p > 1 - p$, then we have $\hat{p} > p^B > .5 > p$. Under the American rule (see Table 1), we see that whenever jury bias is in favor of the party disfavored by the objective merits of the case ($p > .5$ and $\gamma < 1$ or $p < .5$ and $\gamma > 1$), jury bias is muted by the endogenous spending decisions of the two parties. Thus, if strong jury bias is believed to be a problem, fee shifting would appear to be a particularly unattractive remedy. 12

5. Conclusion

We find that jury bias is generally non-neutral in its effects on the incentives to file and defend cases. Bias is also nonneutral with respect to the estimator $\hat{p}$ that is formed by the jury and used to decide the case. This nonneutrality persists even after the endogenous spending decisions of the parties have been taken into account. However, it is surprisingly difficult to say anything systematic about the effect of bias on $\hat{p}$. While we use a standard rent-seeking function with bias in our analysis, the wide range of results we find would clearly all be possible if we used a more general function to relate trial expenditures and trial outcomes. This paper focuses on the effect of jury bias on the trial endgame and ignores the role of pretrial bargaining. A useful area for future research would be to embed this model of litigation expenditure and jury bias into larger model which includes pretrial bargaining. Among other features, such a model might include asymmetric information in order to motivate bargaining failure.

Acknowledgments

We would like to thank two anonymous referees and participants at the 1999 American Law and Economics Meeting at Yale University for providing helpful comments on the paper.

11 When $p < .5$ and $\gamma p > 1 - p$, this implies $\gamma > 1$. This in turn implies $p^B > .5$. The derivation of the expression in the text requires the use of Eq. (13), plus the definition of $p^B$ in Eq. (8).

12 In our analysis here, we are assuming an interior Nash equilibrium under which both parties are willing to proceed to trial. For an interior Nash equilibrium to exist it must be the case (in contrast to Froeb and Kobayashi (1996)) that $r < 1$. Consideration of the participation constraints of both parties may complicate matters some. Farmer and Pecorino (1999) analyze the interactions of participation constraints and the objective merits under the English rule in a model that does not consider jury bias.
References


