

# ANY FREQUENCY OF PLAINTIFF VICTORY AT TRIAL IS POSSIBLE

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## ABSTRACT

A basic question about litigation concerns the frequency of plaintiff victory at trial and how cases that go to trial relate to settled cases. In a stimulating paper, Priest and Klein advanced a model in which there is a tendency for plaintiffs to prevail at trial with probability 50 percent. However, this note demonstrates that, in a simple, frequently employed model of litigation, it is possible for the cases that go to trial to result in plaintiff victory with any probability. Moreover, given any probability of plaintiff victory at trial, the probability of plaintiff victory among settled cases (had they been tried) may be any other probability. Further, data on the frequency of plaintiff victory does not clearly support the 50 percent tendency. In consequence, this note concludes that it does not seem appropriate to regard 50 percent plaintiff victories as a central tendency, either in theory or in fact.

A basic question about litigation concerns the frequency of plaintiff victory at trial and how cases that go to trial relate to cases that settle. In a stimulating paper, George Priest and Benjamin Klein advanced a model in which there is, under specified conditions, a tendency for plaintiffs to prevail at trial with probability 50 percent, regardless of the likelihood with which they would have won the cases that they settled.<sup>1</sup> Priest and Klein also presented actual statistics showing a surprising clustering of plaintiff victory frequencies at about 50 percent. The 50 percent probability is due in their model to a selection effect: cases that are clearly in favor either of the plaintiff or of the defendant are settled; it is only cases that are relatively unclear that the parties cannot settle, and these are

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<sup>1</sup> This 50 percent tendency is not the only point of George L. Priest & Benjamin Klein, *The Selection of Disputes for Litigation*, 13 *J. Legal Stud.* 1 (1984). Their more general point is that one cannot deduce in any simple way the characteristics of cases that settle from those that go to trial, and they offer a model of the relationship between settled and litigated cases.

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won by each side approximately equally in the Priest-Klein model.<sup>2</sup> Other authors have subsequently considered the Priest-Klein model,<sup>3</sup> and their analysis and data on the frequency of plaintiff victories have raised questions about the 50 percent tendency.<sup>4</sup>

In this note, I suggest that the theory describing settlement versus trial does not support a tendency toward 50 percent plaintiff victories. Indeed, the notion that a selection effect should engender a 50 percent tendency seems outwardly implausible. If, for example, plaintiffs have a greater than 50 percent probability of prevailing in all cases that are brought,<sup>5</sup> their success rate among the cases that go to trial must exceed 50 percent; no process of selection among the cases brought could possibly result in only a 50 percent likelihood of victory at trial.

Section I of this note considers a simple, frequently employed model of litigation involving asymmetric information and in which bargaining behavior is explicit.<sup>6</sup> It is possible in this model for the cases that go to trial to result in plaintiff victories with any probability. Moreover, any probability of plaintiff victory at trial may be associated with any other probability of plaintiff victory among settled cases.<sup>7</sup>

<sup>2</sup> *Id.* at 17–22. As Priest and Klein are careful to explain, their result is only a limiting tendency, and it is also subject to certain qualifications (notably, the result does not hold if parties' stakes at trial are unequal). See Section II *infra* on the assumptions under which there is a tendency toward 50 percent plaintiff victories.

<sup>3</sup> The list includes Theodore Eisenberg, Testing the Selection Effect: A New Theoretical Framework with Empirical Tests, 19 J. Legal Stud. 337 (1990); Keith N. Hylton, Asymmetric Information and the Selection of Disputes for Litigation, 22 J. Legal Stud. 187 (1993); Joel Waldfogel, The Selection Hypothesis and the Relationship between Trial and Plaintiff Victory, 103 J. Pol. Econ. 229 (1995); Donald Wittman, Is the Selection of Cases for Trial Biased? 14 J. Legal Stud. 185 (1985); and Donald Wittman, Dispute Resolution, Bargaining, and the Selection of Cases for Trial: A Study of the Generation of Biased and Unbiased Data, 17 J. Legal Stud. 313 (1988).

<sup>4</sup> Wittman, Is the Selection of Cases for Trial Biased? *supra* note 3; and Hylton, *supra* note 3, find in the models that they examine that the 50 percent result does not necessarily hold in theory, and they and Eisenberg, *supra* note 3, present data on plaintiff victories diverging significantly from 50 percent; see Section II *infra*.

<sup>5</sup> This might well be the situation if, for example, the governing legal rule was one of strict liability.

<sup>6</sup> This is essentially the model developed in Lucian Arye Bebchuk, Litigation and Settlement under Imperfect Information, 15 Rand J. Econ. 404 (1984).

<sup>7</sup> If, for example, the probability of plaintiff victory at trial is 40 percent, the probability of plaintiff victory among settled cases (that is, the probability of victory had these cases gone to trial) might be any number below 40 percent or any number above 40 percent. This result, that the probabilities of plaintiff victory at trial and among settled cases could be any pair of probabilities, is the main contribution of this note to those of Hylton, *supra* note 3; and Wittman, *supra* note 3. Also, here an explicit and now standard model of bargaining about settlement versus trial is employed (Hylton and Wittman do not examine an explicit model of bargaining).

Section II of this note discusses the Priest-Klein model and compares it to the simple asymmetric information model. Although there are no errors of logic in the Priest-Klein model—and it is to be praised for its general and original conclusion that cases that go to trial are unrepresentative of settled cases—the assumptions of the model that lead to the 50 percent tendency appear to be special, and they implicitly rule out a general range of plausible situations.

#### I. THE FREQUENCY OF PLAINTIFF VICTORY AT TRIAL IN A SIMPLE ASYMMETRIC INFORMATION MODEL OF LITIGATION

In a simple asymmetric information model of litigation, one side to disputes has information about the probability of prevailing that the other side does not.<sup>8</sup> The side without information makes a single settlement offer or demand; if the other side rejects the settlement proposal, trial results.

##### A. *Defendants Possess Private Information*

Consider first the version of the model where defendants possess information that is unavailable to plaintiffs about the likelihood of prevailing. Here plaintiffs make a single settlement demand, the level of which is chosen to maximize their expected return (parties are assumed to be risk neutral). Trial results when a defendant finds the plaintiff's demand excessive, which is to say, when his chance of defeating the plaintiff is relatively high. Thus, the cases that proceed to trial are the ones where plaintiffs have a lower chance of winning than they would among cases that settle. The probability of plaintiff victory at trial depends on the underlying distribution of probabilities in all cases; it could be equal to any level; and the probability of prevailing among settled cases could be equal to any higher level.

To be specific, suppose that  $p$  is the likelihood of a plaintiff prevailing, given the information available to a defendant, and that  $p$  is distributed on an interval  $[a, b]$  (contained in  $[0, 1]$ ) according to density  $f(p)$ . A defendant for whom the likelihood of prevailing is  $p$  will be called a defendant of type  $p$ . Suppose that  $c_{\pi}$  is a plaintiff's trial cost and  $c_{\delta}$  is

<sup>8</sup> I consider asymmetry of information about the probability of prevailing rather than about the magnitude of the judgment because it is obvious that the latter kind of uncertainty cannot explain the 50 percent tendency. For example, if plaintiffs and defendants both knew that the plaintiff would prevail for sure (suppose that liability were strict) but disagreed about the amount at stake, the 50 percent tendency could not be true: some cases would go to trial because of disagreement about the judgment amount, and all such cases would be won by plaintiffs.

a defendant's trial cost, that  $d$  is the damage amount at stake (the parties agree about  $d$ ), and that  $ad > c_\pi$ , so that a plaintiff would be willing to go to trial against any type of defendant who refused his settlement demand. Let  $x$  denote a plaintiff's settlement demand. A defendant of type  $p$  will lose  $pd + c_\delta$  if he goes to trial, so he will accept a demand  $x$  if and only if  $x < pd + c_\delta$  or, equivalently, if and only if  $p > (x - c_\delta)/d$ ; when  $p \leq (x - c_\delta)/d$ , defendants will reject  $x$ , and plaintiffs will go to trial and obtain an expected return of  $pd - c_\pi$ .<sup>9</sup> Hence, plaintiffs will choose  $x$  to maximize

$$\int_a^{(x-c_\delta)/d} (pd - c_\pi)f(p)dp + [1 - F((x - c_\delta)/d)]x. \quad (1)$$

If the choice of  $x$ , denoted  $x^*$ , is interior to  $[a, b]$ ,<sup>10</sup> it is determined by the first-order condition

$$1 - F((x - c_\delta)/d) = [f((x - c_\delta)/d)(c_\pi + c_\delta)]/d. \quad (2)$$

The frequency of plaintiff victories among those who go to trial is

$$P_t = \frac{\int_a^{(x^*-c_\delta)/d} pf(p)dp}{F((x^* - c_\delta)/d)}, \quad (3)$$

namely, the conditional mean of  $p$  among the defendants with  $p$  below the threshold  $(x^* - c_\delta)/d$ . Among those who settle, the frequency of plaintiff victories (were there trial) is the conditional mean of  $p$  among the defendants with  $p$  above the threshold

$$P_s = \frac{\int_{(x^*-c_\delta)/d}^b pf(p)dp}{[1 - F((x^* - c_\delta)/d)]}. \quad (4)$$

It is clear that  $P_t < P_s$ ; those plaintiffs who go to trial win less frequently than those who settle would have. This is because defendants go to trial when plaintiffs' demand exceeds defendants' expected loss, which is when plaintiffs are relatively unlikely to prevail.<sup>11</sup>

I now show that  $P_t$  can be any number in  $[0, 1)$  and that  $P_s$  can be any number greater than  $P_t$  (this is not obvious from [3] and [4]). It is sufficient to demonstrate this for a discrete case, where there are just two types of

<sup>9</sup> I adopt the convention that when  $p = (x - c_\delta)/d$  and the defendant is indifferent between accepting and rejecting  $x$ , he rejects.

<sup>10</sup> It might be optimal for the plaintiff to demand only  $ad + c_\delta$  and settle with all defendants. (A necessary condition for this is  $1 - f(a)(c_\pi + c_\delta)/d < 0$ .)

<sup>11</sup> This relationship is also true in Hylton, *supra* note 3.

defendant.<sup>12</sup> Let  $p_L < p_H$  be the probabilities of plaintiff victory for the two types of defendant, assume that  $p_L d > c_\pi$ ,<sup>13</sup> and let  $\alpha$  be the fraction of  $L$ 's. A plaintiff will demand one of two amounts: either  $p_L d + c_\delta$ , which will result in settlements with both types of defendant (the  $L$ 's will just accept the demand and the  $H$ 's will gladly accept); or  $p_H d + c_\delta$ , which will just result in settlements with the  $H$ 's and in trials with the  $L$ 's. A plaintiff will demand the higher amount, and trials will result with the  $L$ 's, when

$$\alpha(p_L d - c_\pi) + (1 - \alpha)(p_H d + c_\delta) > p_L d + c_\delta; \quad (5)$$

note that  $p_L d - c_\pi$  is the plaintiff's expected gain when he goes to trial against  $L$ 's. When (5) holds, the observed frequency of plaintiff victories at trial will be  $p_L$ . Condition (5) may be rewritten as

$$(p_H - p_L)d > \frac{\alpha(c_\pi + c_\delta)}{(1 - \alpha)}. \quad (6)$$

It is clear that for any  $p_L < 1$ , (6) can be satisfied (where also  $p_L d > c_\pi$ ).<sup>14</sup> It is also clear that given any  $p_L$ , (6) can be satisfied by any  $p_H$  greater than  $p_L$ .<sup>15</sup> Thus, as claimed, the probability of plaintiff victory at trial may be any number in  $[0, 1)$ , and the probability of victory among settled cases may be any higher number.

*B. Plaintiffs Possess Private Information*

Now consider the version of the model where the roles of plaintiffs and of defendants are reversed: it is plaintiffs who have private information about winning and defendants who make single settlement offers to them. In this model, analogous arguments to those just given show that defendants choose  $x$  to minimize

$$F((x + c_\pi)/d)x + \int_{(x+c_\pi)/d}^b (pd + c_\delta)f(p)dp; \quad (7)$$

that, if it is an interior solution,  $x^*$  is determined by

$$F((x + c_\pi)/d) = [f((x + c_\pi)/d)(c_\pi + c_\delta)]/d; \quad (8)$$

<sup>12</sup> The discrete case (of interest in its own right) can always be approximated as closely as desired by a continuous density.

<sup>13</sup> This is the condition that  $ad > c_\pi$ , guaranteeing that plaintiffs will want to go to trial against any type of defendant.

<sup>14</sup> For example, given any  $p_L < 1$ , choose any  $p_H > p_L$  and any  $d > 0$ . Then select  $\alpha$ ,  $c_\pi$ , and  $c_\delta$  sufficiently low that (6) is satisfied. (Also, choose  $c_\pi$  sufficiently low that  $p_L d > c_\pi$ .)

<sup>15</sup> This is evident from the previous note.

that

$$P_t = \frac{\int_{(x^* + c_\pi)/d}^b pf(p) dp}{[1 - F((x^* + c_\pi)/d)]}; \quad (9)$$

and

$$P_s = \frac{\int_a^{(x^* + c_\pi)/d} pf(p) dp}{F((x^* + c_\pi)/d)}. \quad (10)$$

Thus,  $P_t > P_s$ , the opposite of before. This is because the plaintiffs who refuse defendants' offers are those who have a high chance of winning at trial. An argument analogous to that given above involving the discrete distribution demonstrates that  $P_t$  may be any probability in  $(0, 1]$  and, for any  $P_t$ ,  $P_s$  may be any lower probability.

### C. *Either Plaintiffs or Defendants Possess Private Information*

Combining the results from the two versions of the model, we see that any  $P_t$  is possible and that for any  $P_t$ ,  $P_s$  may be any other probability (higher or lower than  $P_t$ ).<sup>16</sup>

## II. THE PRIEST-KLEIN MODEL AND ITS COMPARISON TO THE SIMPLE ASYMMETRIC INFORMATION MODEL

In the model examined by Priest and Klein, it is assumed that before trial, each party obtains similar information about the trial outcome, from which each formulates a probability of winning at trial.<sup>17</sup> Trial results

<sup>16</sup> I surmise that the conclusion reached here that  $P_t$  and  $P_s$  may be any pair of probabilities would also hold under many assumptions different from the simple ones I made about bargaining and the structure of information. In a given model, the analyst's freedom to choose the distribution of information and litigation costs should tend to allow him to produce all, or a wide range of, pairs of  $P_t$  and  $P_s$ .

<sup>17</sup> Specifically, it is assumed that the plaintiff will prevail if a variable  $Y$  that will become apparent at trial and that summarizes the parties' legally relevant behavior (such as the defendant's degree of fault) exceeds a legal decision standard  $Y^*$  (such as a due care level). Before trial, each party observes an imperfect indicator of  $Y$ : the plaintiff observes a variable  $Y_\pi$  equal to  $Y$  plus a random error  $\epsilon_\pi$ ; and the defendant observes  $Y$  plus an independent random error  $\epsilon_\delta$ , where  $\epsilon_\pi$  and  $\epsilon_\delta$  have equal variance. Each party infers from his observation the likelihood of the plaintiff's winning at trial (the likelihood that the as-yet-unobserved  $Y$  exceeds  $Y^*$ ).

when the plaintiff's expected judgment exceeds the defendant's by more than the sum of litigation costs.<sup>18</sup>

Plaintiffs win at trial with a frequency tending toward 50 percent when (1) parties obtain very accurate information about trial outcomes and when (2) the information that each receives is statistically identical.<sup>19</sup> The reasons why these assumptions lead to the 50 percent tendency need not be reviewed<sup>20</sup> for the purpose of pointing out that the assumptions are special in nature and that they have special implications. The first assumption about accuracy of parties' information implies that virtually all cases are either seen by the parties as leading with very high probability (or with certainty) to a plaintiff victory, or else they are seen as leading with very high probability to a defendant victory; these cases naturally settle. The second assumption implies that the distribution of plaintiff beliefs about victory is essentially the same as the distribution of defendant beliefs about plaintiff victory (they differ from each other by chance in particular instances).<sup>21</sup>

The assumptions rule out all manner of situations, including those in

<sup>18</sup> Priest & Klein, *supra* note 1. Their model of settlement versus litigation is a special case of the disparate beliefs model developed in John Gould, *The Economics of Legal Conflicts*, 2 *J. Legal Stud.* 279 (1973); William M. Landes, *An Economic Analysis of the Courts*, 14 *J. Law & Econ.* 61 (1971); and Richard A. Posner, *Economic Analysis of Law*, Ch. 21 (4th ed. 1992). (The Priest-Klein model is a version of that model in that it gives a description of the origin of the parties' disparate beliefs.)

<sup>19</sup> More precisely, the 50 percent result is a limiting one and can be proved under certain assumptions. (Essentially these assumptions seem necessary to me; only a sketch of the proof of the 50 percent result is supplied in Priest & Klein, *supra* note 1.) Suppose that the errors  $\epsilon_\pi$  and  $\epsilon_\delta$  are identically distributed, independent, symmetric about zero, and have a mean of zero. Further, consider a family of such error distributions parameterized by  $\beta$ , where, as  $\beta \rightarrow \infty$ , the probability mass of the error becomes concentrated about zero (that is, for any  $k < 1$  and any neighborhood  $N$  of zero, the likelihood that the error will be in  $N$  is at least  $k$  for all  $\beta$  sufficiently high). Then it can be demonstrated that as  $\beta \rightarrow \infty$ , the probability of plaintiff victories at trial approaches 50 percent. Note that when  $\beta$  is high, the error is likely small, so that the parties' information is very accurate.

<sup>20</sup> There are two key steps in the proof. The first (which I note for the record, as it is not supplied in Priest & Klein, *supra* note 1) is that, given any error distribution, for any  $t$ , the likelihood of trial is the same for  $Y = Y^* - t$  as it is for  $Y = Y^* + t$ . (This can be shown using the assumption that the error distribution is symmetric.) Consequently, if the density of  $Y$  were uniform, the frequency of plaintiff victory would be 50 percent. But, as  $\beta$  grows, the density of the error becomes concentrated about zero, so that trials can result only in a neighborhood of  $Y^*$ . And because the density of  $Y$  is continuous, it is uniform in the small and, thus, in a neighborhood of  $Y^*$ . This is the second step of the proof (and is essentially the argument given in Priest & Klein, *supra* note 1, at 21); it implies that the limiting frequency of plaintiff victory is 50 percent.

<sup>21</sup> For example, if the distribution of plaintiffs' beliefs were bell shaped with a mean of 42 percent, this would be exactly the distribution of defendants' beliefs. That the distributions of beliefs are identical follows from the assumption that  $\epsilon_\pi$  and  $\epsilon_\delta$  are identically distributed and that each observes  $Y$  plus his error term.

which one or the other party does not usually have very accurate information about trial outcomes and those in which one or the other party has substantially superior knowledge to the other. Thus the Priest-Klein assumptions rule out a situation where, for example, defendants have superior knowledge of trial outcomes (suppose that they have superior knowledge of whether they were negligent) and where defendants' chances of losing at trial range between, say, 60 percent and 100 percent (in which case the frequency of plaintiff victories at trial would exceed 60 percent).<sup>22</sup>

One suspects, however, that litigants' information about trial outcomes is frequently far from accurate and that it is also often decidedly unequal.<sup>23</sup> Therefore, models allowing for substantial asymmetry of information should be considered by analysts and be employed in empirical work intended to recover information about settlements from trial data.<sup>24</sup> Furthermore, we should expect to observe what we apparently often do, namely, fairly variable actual data on the frequency of plaintiff victories. For example, Theodore Eisenberg reports plaintiff success rates ranging between 52 percent and 84 percent for different categories of contract cases, between 12 percent and 84 percent for different categories of real

<sup>22</sup> It should also be noted that it is the assumptions just discussed, and not the omission of an explicit model of bargaining, that explains the 50 percent result. Were the Priest-Klein model modified to allow for, say, the plaintiff to make a demand of the defendant (but to remain unmodified as to what the two parties observe), it seems that the 50 percent conclusion would still hold because the two steps of the argument of note 19 *supra* appear to remain valid.

<sup>23</sup> For a variety of reasons, asymmetry of information about trial outcomes can exist despite the incentives that parties have to share information with one another (this fosters settlement) and their opportunities for discovery; see Steven Shavell, *Sharing of Information prior to Settlement or Litigation*, 20 *Rand J. Econ.* 183 (1989), on sharing of information and on discovery. Most obviously, discovery is not allowed of trial preparation material or in certain privileged areas, even though such discovery would yield information relevant to trial outcomes, and where discovery is allowed, it is arguably imperfect because the party engaging in discovery may not know what questions to ask or what data to obtain. Somewhat less apparent but of possible importance is that a party may have information pertinent to trial outcomes but that cannot be credibly conveyed (and may not be discoverable); consider, for example, information about a lawyer's skill or his experience with the judge (the judge's nods of approval to the lawyer in past cases).

Closely related, asymmetry of information about degree of risk aversion, legal costs, and the like, is often substantial and may result in trial (suppose the defendant falsely believes the plaintiff is very risk averse) even though the parties agree on the likelihood of the trial outcome.

<sup>24</sup> The Priest-Klein model can be adjusted to allow for one party to have superior information to the other. If one party's error tends to be smaller (for instance, in its variance) than the other's, the first party might be said to have superior information to the second; Wittman, *Dispute Resolution*, *supra* note 3, for example, permits this possibility. (However, such a modification does not reflect the point that the particular level of a party's offer and, thus, the probability and the character of trial outcomes, is the product of rational behavior.)



property cases, and between 25 percent and 60 percent for different categories of personal injury cases.<sup>25</sup>

To conclude, it does not seem appropriate to regard 50 percent plaintiff victories as a central tendency, either in theory or in fact. Still, as Priest and Klein properly emphasize, trial outcomes are quite distinct from random samples from the universe of underlying cases.

<sup>25</sup> See Eisenberg, *supra* note 3, at 357; Eisenberg also subjects the 50 percent hypothesis to statistical tests and rejects it. The data discussed in Kevin M. Clermont & Theodore Eisenberg, Trial by Jury or Judge: Transcending Empiricism, 77 Cornell L. Rev. 1124 (1992); Hylton, *supra* note 3; and Wittman, Is the Selection of Cases for Trial Biased? *supra* note 3, as well, raise questions about the 50 percent tendency.

