

1994

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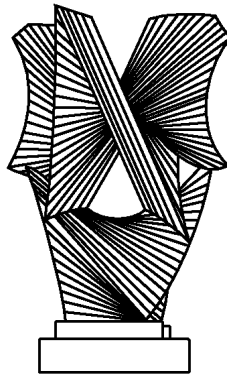
Recommended Citation

Geoffrey P. Miller & Robert H. Gertner, "Settlement Escrows" (Coase-Sandor Institute for Law & Economics Working Paper No. 25, 1994).

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CHICAGO

JOHN M. OLIN LAW & ECONOMICS WORKING PAPER NO. 25
(2D SERIES)



Settlement Escrows

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THE LAW SCHOOL
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SETTLEMENT ESCROWS

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This paper proposes and analyzes settlement escrows as a method to reduce delay in pretrial bargaining. A settlement escrow is an arrangement whereby an agent stands ready to receive cash settlement offers from the parties to a lawsuit. If the escrow agent receives offers which cross—if the defendant offers more to settle than the plaintiff demands—the court imposes a settlement at the midpoint of the offers. Absent settlement, the agent maintains absolute secrecy about the size of the offers received, or even the fact that an offer has been made.

We argue that such escrows are potentially beneficial because they permit parties to make reasonable settlement offers, the secrecy of which makes the timing and size of the offer communicate less private information. This reduces, but does not eliminate, the adverse inferences about the strength of the offeror's case that the offeree can draw from a reasonable offer. The settlement-inducing qualities of the escrow are explored in a game-theoretic model where more cases are settled (and are settled earlier) with an escrow in place than would be settled in its absence. Expected outcomes are typically closer to true expected damages than in the absence of a settlement escrow. In addition, we discuss how escrows may reduce delay and impasse if failure to settle is due to factors other than private information, such as psychological reasons, other strategic effects, or lawyer/client agency problems.

An appealing feature of settlement escrows is that they are simple to implement. The clerk of the court where the litigation is pending could easily act as the escrow agent, although a private party could do so as well upon agreement by the parties. The costs of the escrow services would be minimal. And because it would be entirely within the parties' discretion whether to submit reasonable offers,

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We thank Ian Ayres, Kathryn Spier, Lars Stole, and seminar participants at the University of Chicago and Stanford University for helpful comments.

there is no danger that a form of alternative dispute resolution will be forced on the parties without their consent.¹ The only potentially significant indirect cost from settlement escrows is an increase in the number of lawsuits filed solely to extract a settlement offer. However, we do not think that this effect is likely to be large. It thus appears feasible to establish an experiment with settlement escrows in an actual litigation setting.

This article is structured as follows. Part I considers the reasons why cases do not settle, or why they do not settle more quickly than they do, and discusses how settlement escrows can facilitate settlement in each context. Part II provides a game-theoretic model of a settlement escrow in order to further demonstrate how this device can reduce delay and promote settlement in the presence of asymmetric information. In the model, the use of an escrow device results in a higher level of settlement than would occur in the absence of the escrow, and thus saves transactions costs for the parties. In addition, the expected settlement is as close or closer to the true value of the claim than in the absence of a settlement escrow. Part III discusses some subtle issues and potential problems with the implementation of settlement escrows. Part IV briefly suggests some potential applications of the model outside the context of civil litigation and Part V addresses the relationships among arbitration, mediation, and settlement escrows.

I. SOURCES OF DELAY AND IMPASSE IN PRETRIAL BARGAINING AND THE ROLE OF SETTLEMENT ESCROWS

Litigation involves large costs from delayed settlement because of resources devoted to discovery, attorneys' fees, and the costs associated with uncertainty. Although most cases settle before trial, many do not settle early, and some do not settle at all. There is a

¹For criticism of court-annexed arbitration and other alternative dispute resolution procedures that may be forced on parties against their will, see L. Bernstein, *Understanding the Limits of Court-Connected ADR: A Critique of Federal Court-Annexed Arbitration Programs*, 141 *University of Pennsylvania Law Review* 2249 (1993); S. Shavell, *Alternative Dispute Resolution: An Economic Analysis*, ___ *Journal of Legal Studies* ___ (1994).

large literature in economics² and psychology,³ and a less formal proscriptive literature⁴ which documents and explains aspects of delay in bargaining. In this section, we discuss five broad explanations for delay and impasse in pre-trial bargaining: differences in information between litigants, optimism, behavioral reasons, noninformation-based strategic reasons, and lawyer/client agency problems. The model we develop in Part II formalizes only the asymmetric information explanation, but we argue informally in this section that settlement escrows can effectively counteract certain other causes of delay documented below.

There are a number of reasons for impasse in pretrial bargaining that we do not explore. Lawsuits may not settle because of one or both party's desire for his "day in court," or third-party effects, such as the effect on litigation by other parties against the defendant, or the defendant's interest in maintaining a reputation for toughness in order to deter future litigation. It seems less likely that settlement escrows will have an impact on settlement in these settings.

A. Asymmetric Information

We begin with information-based explanations. In much civil litigation, litigants have private information which is useful for assessing the outcome at trial. Consider a typical tort claim. The plaintiff may have better information about the extent of damages because the effect of the injury may be difficult for another party to

²For earlier studies applying game theory to settlement bargaining, see L. Bebchuk, *Litigation and Settlement under Imperfect Information*, 15 *Rand Journal of Economics* 404 (1984); B. Nalebuff, *Credible Pretrial Negotiation*, 18 *Rand Journal of Economics* 198 (1987); J. Ordover and A. Rubinstein, *On Bargaining, Settling, and Litigation: A Problem in Multistage Games with Imperfect Information*, New York University, C.V. Starr Center for Applied Economics, Economic Research Report 83-07 (1983); I. P'ng, *Strategic Behavior in Suit, Settlement, and Trial*, 14 *Bell Journal of Economics* 539 (1983); J. Reinganum and L. Wilde, *Settlement, Litigation and the Allocation of Litigation Costs*, 17 *Rand Journal of Economics* 557 (1986); K. Spier, *The Dynamics of Pretrial Negotiation*, 59 *Review of Economic Studies* 93 (1992).

³See, e.g., M. Neale and M. Bazerman, *Cognition and Rationality in Negotiation* (1991); H. Raiffa, *The Art and Science of Negotiation* (1982).

⁴See, e.g., J. Freund, *Smart Negotiating* (1992); R. Fisher and W. Ury, *Getting to Yes* (1981).

observe. A defendant may have better information about liability because he knows his level of care.

Asymmetric information leads to costly delay in pretrial bargaining because of the effect an offer has on the other party's beliefs about the offeror's private information. Neither party may be willing to make a reasonable offer in the early stages of pretrial litigation because such an offer will lead to the inference that the offeror's case is weak. The recipient will adjust his beliefs and reservation values accordingly. Alternatively, if the private information is about the costs of a trial, the party making the first offer may communicate that he is anxious to settle the case. Consistent with these effects, attorneys report that they often resist being the first to propose a settlement out of fear of signaling weakness in their case.⁵

Although many asymmetric information bargaining models lead to delay, it is useful to point out why the common value nature of litigation bargaining may lead to greater delay than other forms of bargaining, thereby making settlement escrows especially attractive in this setting. Litigation bargaining involves common values because private information about the outcome of litigation affects the other party's reservation price for settlement.⁶ In other words, the plaintiff's claim is an asset which both parties value similarly.⁷ If a plaintiff reveals a willingness to settle for a small amount it reveals that the lawsuit is not valuable for the plaintiff, which makes it less valuable to the defendant to make the case go away. This is in contrast to private value bargaining, where the private information may, for example, be a worker's alternative wage. In this case, revealing

⁵See, e.g., Libel ADR, 10 *Alternatives* 51 (1992); W. Brazil, A Close Look at Three Court-Sponsored ADR Programs: Why They Exist, How They Operate, What They Deliver, and Whether they Threaten Important Values, 1990 *University of Chicago Legal Forum* 303, 333-34.

⁶For a model of bargaining with common values, see D. Vincent, *Bargaining with Common Values*, 48 *Journal of Economic Theory* 47 (1989). Spier, *supra* note 2 analyzes a dynamic model of litigation bargaining with common values.

⁷The values need not be exactly equal. Often they will not be equal because of private information about litigation costs, risk preferences, and other relevant factors. So long as there is a common value element, so that one party's reservation price will be affected by the other party's private information, our argument is valid.

the private information does not affect the worker's value to the employer and therefore does not affect the employer's reservation value. In such a setting revealing information is unlikely to be as damaging and delay less severe than in common value bargaining.⁸

The beneficial effects of settlement escrows can be derived in a simple model such as the one we develop in section 2. In this section we informally describe how and why the model works. Assume that the plaintiff has private information about the outcome of litigation. A plaintiff who knows that his case is weak will be willing to settle for a relatively small amount. Suppose that there is an equilibrium where a plaintiff with a weak case makes an early reasonable settlement offer that the defendant accepts. If the defendant rejects the offer, he can make a counteroffer which takes into account the information about the plaintiff's case that the defendant infers from the initial offer. In addition, if the plaintiff with a weak case deviates by not making a reasonable offer, the defendant will infer that the plaintiff's case is strong, and may make a high offer in response. These two effects combine to limit the plaintiff's willingness to make a reasonable offer and make it unlikely that there will be an equilibrium with early settlement.

In contrast, consider what happens in a settlement escrow. Again assume there is an equilibrium where a plaintiff with a weak case submits a reasonable demand and the defendant submits an offer that will settle with a weak plaintiff. If the defendant deviates and does not submit such an offer, he does not learn that the plaintiff has a weak case and cannot use this information to make a low counteroffer. The defendant can only infer that the plaintiff has a weak case if both parties submit offers which cross in the settlement escrow. However, the defendant cannot now use this in-

⁸A second feature of litigation bargaining which can increase delay relative to some other settings is that delay may not work as an effective signal of private information. In a labor strike, private information may be about firm profitability. It has been argued that it is more costly for a profitable employer to endure a strike than an unprofitable one, since it is giving up more each day the strike continues. Thus, an unprofitable employer may be able to signal this through its willingness to endure a strike. In litigation, it is unclear how the costs of delay vary with private information, so more difficult for delay to act as a signal. In some cases, this can lead to longer delays for all parties.

formation to his advantage because the case has already settled. Thus, the secrecy of the settlement escrow reduces the ability of parties to use the information revealed by reasonable offers, thereby increasing the incentives of parties to make such offers. The result is an increase in settlement or a reduction in delay.

There is a second related beneficial effect of settlement escrows. We need to complicate the story to show how it works. Assume that, in addition to the plaintiff having private information about damages, the defendant has private information about the likelihood of liability. The outcome of litigation depends on each side's private information. If there is settlement prior to litigation, it will be the parties with private information that their cases are weak, i.e., plaintiffs with low damages and defendants with high probability of liability. Assume that, in the absence of a settlement escrow, there is an equilibrium where a low-damage plaintiff makes a settlement demand that a high-liability defendant accepts. Not only does a high-liability defendant infer that the plaintiff has low damages, so does a low-liability defendant, for whom the offer was not intended to lead to settlement. The adverse inference effect operates on the low-liability defendant, allowing him to respond with a low offer.

Now consider the settlement escrow game. The low-liability defendant does not expect to settle in the escrow and therefore learns nothing about plaintiff's information when there is no settlement. This reduces the adverse inference from a reasonable offer and may increase the likelihood of settlement relative to bargaining in the absence of a settlement escrow. In section II.E we develop a numerical example of a two-sided private information which illustrates this.

Although our model is extremely stylized, we believe the insights extend to more complex and realistic models and are sufficiently intuitive that it is reasonable to conclude that they are important in actual litigation settings. The key argument is that settlement escrows can mitigate the adverse inference effect, although they cannot eliminate it. To see this, think about what happens if one side, say the plaintiff, makes a reasonable offer into the settlement escrow, while the defendant does not. Assume that the defendant either makes no offer, or makes an offer so low that the defendant does not expect to settle, independent of the size of the plaintiff's damages. Consider the inferences in the next stage. The defendant

learns nothing about plaintiff, despite the fact that the plaintiff demanded very little. Since the offers do not cross, the escrow agent remains silent and does not reveal the offers. The defendant reasons, "I made an offer which no plaintiff will accept, no matter how strong or weak his case. Therefore, I cannot learn anything about the strength of the plaintiff's case from the fact that the plaintiff did not make an offer which crossed mine." Since the negative inferences from making a reasonable offer are less likely to occur, the parties are more willing to make reasonable offers.

The settlement escrow does not eliminate the negative inference problem completely. In our model, the defendant who makes a reasonable offer into the settlement escrow expects to settle via the escrow with plaintiffs who submit low demands, i.e., those who know that they are likely to do poorly at trial. When the agent fails to report a settlement to the defendant, the defendant will reason in the following way: "I made an offer which I expected would result in settlement with low-damage plaintiffs. Since there is no settlement, it must be that I am facing a high-damage plaintiff." This inference benefits a plaintiff in subsequent negotiations and reduces the incentive to make a reasonable offer in the first place.

In other words, refusing to make a reasonable offer leads to beneficial inferences with those who expect to settle via the escrow but has no effect on those who do not expect to settle. Since it has no effect on the beliefs of those who do not expect to settle, the negative inference problem is reduced, and parties are more willing to make reasonable offers into a settlement escrow than to make reasonable offers directly to the opposing party. It is an empirical question whether or not, in practice, settlement escrows can mitigate the negative inference problem sufficiently to result in significant reductions in delay. A cost-benefit calculation makes settlement escrows attractive, however, because, as we explain below, it is difficult to come up with an explanation of how settlement escrows can reduce settlement. In addition, we will argue that the costs of implementing a settlement escrow are very small. Thus, it seems worthwhile to experiment to see if they indeed do reduce delay significantly.

Settlement escrows seemingly resemble the game analyzed by Chatterjee and Samuelson⁹ and proved to be efficient by Myerson and Satterthwaite.¹⁰ The result of the latter paper is that a single chance to make sealed-bid offers where settlement occurs if and only if the offers cross is an efficient mechanism in certain private value bargaining settings.¹¹ The result is fundamentally different from ours. We are interested in the effects of adding a settlement escrow to the existing bargaining game, not replacing the bargaining game with a different mechanism. In our approach, there is neither commitment to delay ordinary negotiations pending the outcome of the escrow process, nor commitment to avoid further bargaining if the parties fail to settle in the settlement escrow. We argue that independent of the bargaining game that exists, adding a settlement escrow is likely to improve settlement and unlikely to have any significant costs. Given that it is very difficult to imagine how to force parties to commit to a particular bargaining mechanism, this distinction is essential for appreciating the normative implications of the paper.

B. Optimism

A second leading explanation for why cases don't settle, despite the substantial costs that can be saved by settling, is that one or both the parties is unduly optimistic about his chances in the litigation.¹²

⁹K. Chatterjee and W. Samuelson, Bargaining Under Incomplete Information, 31 *Operations Research* 835 (1983).

¹⁰R. Myerson and M. Satterthwaite, Efficient Mechanisms for Bilateral Trading, 29 *Journal of Economic Theory* 265 (1983).

¹¹Given that pretrial bargaining is probably best-modeled as a common value game, the Myerson-Satterthwaite result does not apply. For mechanism design approaches to pretrial bargaining, see K. Spier, *Efficient Mechanisms for Pretrial Bargaining*, in *Three Essays on Dispute Resolution and Incomplete Contracts*, Ph.D. dissertation, MIT (1989) and D. Spulber, *Contingent Damages and Settlement Bargaining*, unpublished manuscript, Northwestern University, (1990).

¹²See J. Gould, The Economics of Legal Conflicts, 2 *Journal of Legal Studies* 279 (1973); W. Landes, An Economic Analysis of the Courts, 14 *Journal of Law and Economics* 61 (1971); W. Landes, Sequential versus Unitary Trials: An Economic Analysis, 22 *Journal of Legal Studies* 99 (1993); G. Miller, *Settlement of Litigation: A Critical Retrospective*, unpublished

The distinction between optimism and asymmetric information is that if a litigant credibly reveals his opinion about the outcome of litigation, this does not affect his rival's belief about the outcome. Let us say that initially the plaintiff expects that he will get \$200,000 at trial while the defendant expects that he will only have to pay \$150,000. Now let us say there is some way for the plaintiff to convince the defendant of his belief. If the defendant still believes that he will only have to pay \$150,000, then there is a difference in opinion, not a difference in information.

If each party's opinion about the outcome of litigation is common knowledge, and symmetric information bargaining is efficient, the parties will fail to settle out of court only if the plaintiff's expectation of trial outcome exceeds the defendant's by the sum of each party's litigation costs. Thus, there is no settlement only if one or both parties are sufficiently optimistic. If there is randomness in the process by which parties assess a case, then this condition of excessive optimism is always possible. It is these cases which fail to settle under the optimism hypothesis.

There may be reasons to believe that parties tend toward unjustifiable optimism aside from the pure statistical probability based on the difficulties of appraising the value of a case. Lawyers may have an incentive to overstate the value of a case to a client in order to scuttle settlement and increase fees. In addition, recent research has shown that, in simulated litigation settings, people tend to interpret ambiguous information in a favorable light.¹³

In a model where there are differences of opinion, not differences in information, and each party's opinion is known to the other, settlement escrows do not facilitate settlement. In such a

manuscript, University of Chicago (1993); George Priest, Reexamining the Selection Hypothesis, ¹⁴ *Journal of Legal Studies* 215 (1985); R. Posner, An Economic Approach to Legal Procedure and Judicial Administration, ² *Journal of Legal Studies* 399 (1973); G. Priest and B. Klein, The Selection of Disputes for Litigation, ¹³ *Journal of Legal Studies* 1 (1984); M. Ramseyer and M. Nakazato, The Rational Litigant: Settlement Amounts and Verdict Rates in Japan, ¹⁸ *Journal of Legal Studies* 263 (1989).

¹³L. Babcock, G. Loewenstein, S. Isaacharoff, and C. Camerer, Biased Judgments of Fairness in Bargaining, unpublished manuscript, Carnegie-Mellon University (1992).

model, all suits which can be settled are settled, so there is nothing a settlement escrow can do.

However, it seems very unlikely that a litigant's *opinion* will be observable by an adversary.¹⁴ In a Bayesian setting, if one litigant's expectation about the outcome at trial has no impact on the other litigant's expectation, the different beliefs must derive from how common information is processed or different prior beliefs. It is difficult to imagine how a party's prior or idiosyncratic information processing can be directly revealed to others.

Thus, if litigants have different opinions, it is likely that the opinions themselves will be private information. In this case, the optimism model is quite similar to the asymmetric information model. Parties will try to signal that they are very optimistic as a way to extract good settlements, just like parties try to signal private information that they have a strong case.¹⁵ The inference a defendant draws when a plaintiff signals a belief that he has a strong case is that the plaintiff will only settle for a large amount. This may lead to a higher counteroffer from the defendant. In this environment, settlement escrows can be an effective device for reducing delay. The difference is that bargaining becomes a private value rather than a common value game—one party's information has no direct effect on the other party's valuations of settlement or trial. The costs of revealing an opinion that your case is weak is not as large as revealing information that your case is weak because the latter bolsters your rival's view of how he does at trial while the former does not. This may reduce the value of a settlement escrow relative to the common value setting that we model.

C. Behavioral Explanations for Delay

There is a large experimental literature on bargaining.¹⁶ In many settings bargaining outcomes and strategies do not coincide with the

¹⁴In fact, in order for the bargaining to be efficient, the opinions probably need to be common knowledge which is even more unlikely.

¹⁵See, e.g., R. Cooter and S. Marks with R. Mnookin, *Bargaining in the Shadow of the Law: A Testable Model of Strategic Behavior*, 11 *Journal of Legal Studies* 225 (1982).

¹⁶M. Neale and M. Bazerman, *supra* note 6, surveys this literature extensively.

game-theoretic models underlying the experiments. In this section we explore some of the findings from this literature which apply to litigation bargaining, and discuss the effect a settlement escrow might have in such settings.

One experimental result which is also echoed by practitioners is that the first offer placed on the table may set the agenda for future discussions.¹⁷ “[A]n initial offer can anchor subsequent moves by both sides. The other side often anchors a negotiation by its early demands. Once negotiators respond to these demands with suggested adjustments, this act gives credibility to that anchor.”¹⁸ A practitioner discussing the tradeoff between making the first offer or not, states that the conventional wisdom is to let one’s opponent make the first offer but sometimes he advises a client to make the first offer because, “your bid sends a message to your counterpart: if he wants to play ball, here’s the ballpark where the action will occur.”¹⁹

The secrecy of settlement escrow offers may help reduce delay if neither party wants to make the first offer, or if the first offer is an attempt to anchor further bargaining. A litigant willing to settle for a reasonable amount may choose to avoid making a reasonable offer for fear of anchoring the bargaining around a point which is unfavorable to him. The only way an offer into the settlement escrow can affect subsequent negotiations is through the learning which occurs from the failure to settle in the escrow.

Reactive devaluation, which is “the tendency for disputants to devalue each other’s concessions simply because it is the adversary who offered the concession”²⁰ can increase delays in bargaining. In a common value asymmetric information bargaining environment, such as the one describe in section A, it is rational for parties to devalue concessions because they signal information about the value of the suit. However, there are also psychological reasons why reactive devaluation may occur.²¹ If a party does not interpret a concession

¹⁷See, H. Raiffa, *supra* note 6, at 128 and M. Neale and M. Bazerman, *supra* note 6, at 48.

¹⁸M. Neale and M. Bazerman, *supra* note 6, at 50.

¹⁹James Freund, *supra* note 7, at 114.

²⁰M. Neale and M. Bazerman, *supra* note 3, at 75.

²¹*Id.* at 75-77.

by an adversary as a willingness to compromise, but merely a small step towards reasonableness, the incentive to makes such a concession is diminished. The party making a concession cannot expect reciprocation. This can lead to delays in reaching a settlement, but should not have as great an impact in a settlement escrow. An adversary only learns about a “concession” in the escrow if there is agreement.

Some evidence that aggressive first offers are in the interest of the parties is found in Herbert Kritzer’s study of negotiation and bargaining in ordinary civil litigation.²² Kritzer found that high initial demands (relative to stakes) by plaintiffs and low initial offers (relative to stakes) by defendants were correlated to success for the relevant side.²³ Kritzer measured the stakes of a case by asking the attorney what an appropriate outcome would be from the client’s viewpoint.²⁴ Although these results are not unambiguous, it does appear that more aggressive initial offers tended to correlate with better success on the merits in Kritzer’s study. A settlement escrow may facilitate settlement in this respect because the parties are free to make aggressive offers outside of the escrow while making more realistic offers within the escrow, with the knowledge that the offer into the escrow will not be revealed to the other unless the offers cross.

D. Other Strategic Reasons for Delay

In section A, we showed why a litigant may not wish to signal private information because of its effect on subsequent bargaining. In this section, we explore other strategic reasons why a litigant may not wish to signal private information. In all the settings we discuss, signaling a weak case through a reasonable offer induces an adversary to change what he does in some way which hurts the offeror. The effects described here are complementary to the arguments in section A, so they are likely to exacerbate delay and inefficiencies predicted from the formal model alone.

²²H. Kritzer, *Let’s Make a Deal: Understanding the Negotiation Process in Ordinary Litigation* (1991).

²³*Id.* at 54.

²⁴*Id.* at 47. When that evaluation changed during a case, the highest evaluation was used.

A defendant may not make a reasonable offer because it may increase the resources the plaintiff devotes to discovery. By signaling a high likelihood of liability, the defendant suggests that the plaintiff should not give up in discovery until he has uncovered sufficient evidence to make a strong case. Clearly, a defendant does not want to send such a signal because compliance with discovery is costly. Also, there is always some chance that the plaintiff will miss something important and the defendant does not want to minimize this chance. The defendant may prefer to wait until after discovery to make a reasonable offer, if he makes one at all.

More generally, signaling a weak case may induce the other party to devote greater effort and more resources to the case. If a defendant signals high damages, he may induce the plaintiff to hire a private investigator, or a more expensive expert witness. The plaintiff's lawyer may put a more skilled associate on the case, or devote more attention to the case himself, rather than delegating the work to associates. Of course, these effects will depend on how the incremental value of these investments are affected by the information, so they could go either way.

It is more difficult to tell a compelling story about the defendant's resources as a function of the plaintiff's signal. Perhaps if a plaintiff signals low damages, the defendant will devote more resources to pursuing summary judgment, although the defendant might also decide to devote fewer resource to the case since it poses less of a threat to the defendant's interests.

The most significant effect of this form may be the impact a defendant's signal of a weak case will have on the drop/continue decision. Once the plaintiff and his attorney hear a reasonable offer, they will either accept the offer or continue the case. There is no longer any chance that the case will be dropped.

All of these strategic effects are additional reasons why a litigant may not make an early reasonable offer and therefore additional reasons why a settlement escrow may be in the mutual interest of the parties.

E. Lawyer/Client Agency Problems

Litigants rely on their lawyers to provide advice about pretrial bargaining as well as all other aspects of legal proceedings. Since it is impossible to observe everything a lawyer does and it is impossible to

tell with certainty whether advice was correct *ex post*, it will typically be impossible to write a contract with a lawyer which perfectly aligns the lawyer's incentives with the client's wishes. In particular, nonlawyer clients necessarily rely on their attorneys for an evaluation of the value of the case;²⁵ but the attorney if working on an hourly fee will often have an incentive to overstate the strength of a case in order to induce the client to bring the case in the first place, or to continue the litigation rather than settling. If the client relies on the attorney's representation, delay and impasse will result. Although a settlement escrow does not eliminate the incentive of an attorney to misrepresent the case to his client, the client may realize that the settlement escrow offers a special opportunity to settle and he may not delegate the decision to his attorney.

Plaintiffs' attorneys are often paid with a contingency fee. This may give the attorney an incentive to settle rather than litigate since the attorney bears the costs associated with proceeding to trial and only gets a fraction of the benefits. However, the plaintiff may be unwilling to settle early given that he does not bear the cost of his attorney's efforts. It is possible that the attorney can convince the plaintiff that the settlement escrow provides a unique opportunity to settle the case. The plaintiff may be more willing to go along. This would tend to increase the frequency of settlement in contingency fee cases, albeit at the expense of a somewhat lower recovery for the plaintiff.

II. THE MODEL

We now develop a formal model which shows how settlement escrows facilitate early settlement. The specification of the model is the simplest one we could solve which rigorously demonstrates the practical benefits of settlement escrows.

Consistent with the extensive literature on pretrial bargaining, we assume that the private information is nonverifiable, so there is no way for a party to reveal its information directly; there are no documents, affidavits, or physical evidence that can reveal the private information. Despite its ubiquity in the literature, it is an assumption

²⁵See G. Miller, Some Agency Problems in Settlement, 16 *Journal of Legal Studies* 189 (1987).

that requires some further justification. If the private information affects the outcome of a trial, and a trial is a basically a mapping from evidence to an outcome, it must be possible to present the private information as evidence at trial.

Why then can the parties not credibly reveal the information to adversaries prior to trial? There are several potential answers. First, the sanctions associated with perjury, falsifying or withholding evidence may be sufficiently great to make credible claims which are not credible in the absence of these sanctions.

Second, although it may be possible to reveal the information, it may not be in an informed party's interest to reveal it. In simple models of verifiable information, this will not be the case. A well-known inductive argument implies that because the party with the most favorable information of those expected to be silent will reveal it, there is complete unraveling and all information will be revealed.²⁶

However, this result will not hold if, for example, the defendant is not sure whether the plaintiff is informed. In this case, silence means either bad information or no information. Since it is impossible to make a verifiable claim of ignorance, private information may remain private. Also, if there is a chance that bad information may not come out at trial or discovery, the informed party may prefer to wait before revealing the information, hoping that the other side will drop the case, make an attractive settlement offer, or fail the find the damaging evidence through discovery. If any of these are the case, then the asymmetric information model is appropriate.

Even if there is no voluntary exchange of information, there is a great deal of information exchanged through discovery. It is not unreasonable to assume that once discovery is completed, informa-

²⁶The unraveling result is due to S. Grossman, *The Informational Role of Warranties and Private Disclosure about Product Quality*, 24 *Journal of Law and Economics* 461 (1981) and S. Grossman and O. Hart, *Disclosure Laws and Takeover Bids*, 35 *Journal of Finance* 323 (1980). For applications to legal settings, see S. Shavell, *Sharing of Information Prior to Settlement or Litigation*, 20 *Rand Journal of Economics* 183 (1989); S. Shavell, *Acquisition and Disclosure of Information Prior to Economic Exchange*, unpublished manuscript, Harvard University Law School (1991); D. Baird, R. Gertner, and R. Picker, *Game Theory and the Law*, forthcoming (1994).

tion is pretty much symmetric. Thus, one would expect many cases to settle prior to trial, but after discovery. This appears to be consistent with the evidence. This neither means that settlement escrows are not useful nor that the nonverifiable information model is inappropriate. We typically model trials as the institution which leads to information revelation. A more appropriate model may be one where discovery is the institution where private information is revealed. If this is the preferred model, one can simply relabel the trial stage of the model as the discovery stage. Then the implication of the model is that settlement escrows move settlement from post-discovery to pre-discovery.

A. Setup of the Model

The model's structure is simple. There are two players: a plaintiff and a defendant. The plaintiff has private information about damages, denoted by X . The defendant believes that X is uniformly distributed on $[X_L, X_H]$. We assume that each side knows that the defendant will be found liable with certainty, so X is also the expected judgment.

The game without a settlement escrow proceeds as follows: in the first period, the plaintiff can make a settlement demand to the defendant. If the defendant rejects the demand, each side incurs litigation costs of k_1 . The game proceeds to the second period where the defendant can make a counteroffer. If the plaintiff rejects, each party incurs litigation costs of k_2 and litigation occurs. The game ends after either an offer is accepted or litigation results in a final judgment. The structure of the game and the defendant's prior beliefs are common knowledge.

The game with a settlement escrow is identical except each party can make a settlement offer to the escrow agent prior to any bargaining; we simply tack the settlement escrow onto the beginning of the game. We assume there are no costs incurred between the settlement escrow and the first round offer.

This specification is as simple as possible to demonstrate the efficacy of settlement escrows. We need at least two stages of bargaining in order for a reasonable first round offer to be rejected and followed by a counteroffer which reflects the inferences from the first offer. One-sided asymmetric information simplifies the analysis

greatly. The cost of this simplification is that one of the benefits of settlement escrows is lost. We rectify this by analyzing a numerical example of a two-sided asymmetric information version of the model in section E.

The basic solution concept we adopt is Perfect Bayesian Equilibrium (PBE). A PBE is a set of actions and beliefs at every decision point for a player. The actions must be optimal given the beliefs and the beliefs must be consistent with Bayes' Rule. Since actions must be optimal at every information set, this equilibrium concept imposes sequential rationality. In some cases, there are multiple equilibria in the final round of bargaining, so we need to use a refinement of PBE. In these cases we adopt the Farrell, Grossman & Perry (FGP) refinement.²⁷ The qualitative results do not depend on our choice of refinement. We focus on pure-strategy equilibria in order to simplify the analysis.

B. Analysis of the Game without a Settlement Escrow

In the one-sided asymmetric information version of the model, the analysis of the game is much simpler if $k_2 > k_1$. Therefore, we proceed with this assumption. In section D, we have a brief discussion of what happens when $k_1 \leq k_2$. We begin by solving the last period of the game. If there is settlement in the first period, it must be the low damage plaintiffs who settle, i.e., there is some X_1 such that all types of plaintiffs with damages less than or equal to X_1 settle. The reason for this is that if it is in some type's interest to settle, it must also be in the interest of any plaintiffs with damages below that type—they can only do worse in the continuation game. Therefore, we only need to solve the second period game for all values of X_1 .

If the defendant offers Z_2 , the plaintiff will accept if his return is greater than by rejecting and litigating, i.e., he will accept if $Z_2 \geq X - k_2$. Thus, all types of plaintiffs with damages less than $X_2 = Z_2 + k_2$ will accept. Given the uniform distribution, the probability of acceptance

²⁷J. Farrell, Communication in Games I: Mechanism Design Without a Mediator, MIT Working paper (1983); S. Grossman and M. Perry, Perfect Sequential Equilibrium, 39 *Journal of Economic Theory* 97 (1986).

is $(X_2 - X_I)/(X_H - X_I)$. The plaintiff will choose Z_2 to minimize his expected litigation costs,

$$\frac{(X_2 - X_I)Z_2 + (X_H - X_2)[k_2 + \frac{1}{2}(X_2 + X_H)]}{X_H - X_I} \quad (1)$$

Substituting for X_2 with $Z_2 + k_2$ and differentiating, gives the first-order condition

$$Z_2 = X_I + k_2 \quad (2)$$

which implies

$$X_2 = X_I + 2k_2 \quad (3)$$

Substituting into (1), the expected cost to the defendant is

$$V_D = \frac{1}{2}(X_H + X_I) + k_2 - \frac{2k_2^2}{X_H - X_I} \quad (4)$$

This solution is interior if $X_H - X_I \geq 2k_2$. If this is not the case, the defendant offers $X_H - k_2$ and every type of plaintiff accepts.

We can now fold the analysis back into the first period where the plaintiff can make an offer. Assume that there is an equilibrium where the plaintiff offers Z_I if $X \leq X_I$ and makes no offer if $X > X_I$. There are three types of incentive constraints that must hold for this to be an equilibrium: a plaintiff with damages X_I or less must prefer offering Z_I to deviating; a plaintiff with damages greater than X_I must prefer making no offer to offering Z_I ; and the defendant must prefer accepting the offer to rejecting it. The first two constraints will be satisfied if a plaintiff with damages X_I is indifferent between offering Z_I and making no offer.

In the analysis that follows, we must keep track of what the defendant infers from an offer. In the proposed equilibrium, if the defendant receives a demand of Z_I , he will infer that the plaintiff

has damages uniformly distributed on $[X_L, X_I]$, and if he receives no offer, the defendant will infer that the plaintiff has damages uniformly distributed on $[X_I, X_H]$.

We need to consider three cases separately: (1) $X_L + 2k_2 < X_I < X_H$; (2) $X_I \leq X_L + 2k_2$; and (3) $X_I = X_H$.

Case 1: $X_L + 2k_2 < X_I < X_H$. A plaintiff with damages X_I must be indifferent between demanding Z_I and making no demand and waiting for an offer from the defendant. If the plaintiff demands Z_I , he receives Z_I . If he does not demand Z_I , the defendant will infer that the plaintiff has damages between X_I and X_H . The defendant will respond with an offer of $\min\{X_I + k_2, X_H - k_2\}$. When the second argument is the minimum, it turns out that the equilibrium that survives refinement is for all types of plaintiffs to settle in the first, which shifts us to Case 3. Therefore, we focus here on the case where the defendant responds with $X_I + k_2$. The deviating plaintiff will also incur costs of k_I , for a net return of $X_I + k_2 - k_I$. Thus, a necessary condition for equilibrium is

$$Z_I = X_I + k_2 - k_I \quad (5)$$

Now we consider the defendant's strategy. If he receives a demand of Z_I , he infers that the plaintiff is between X_L and X_I . If the defendant accepts, he pays Z_I . If he rejects, the counteroffer that minimizes his expected payments is $X_L + k_2$. The defendant's expected cost in the final round is $\frac{1}{2}(X_L + X_I) + k_2 - 2k_2^2 / (X_I - X_L)$. In addition he will have to pay k_I in litigation costs. Therefore, the defendant will accept the offer of Z_I if

$$Z_I \leq k_I + \frac{1}{2}(X_L + X_I) + k_2 - \frac{2k_2^2}{X_I - X_L} \quad (6)$$

Simple algebraic manipulation shows that constraints (5) and (6) are mutually inconsistent if $k_2 > k_I$, which we have assumed. Thus, there can be no settlement in the first round where $X_I > X_L + 2k_2$.

Case 2: $X_I \leq X_L + 2k_2$. In this case, if the defendant rejects the plaintiff's offer, his counteroffer will be a corner solution. A necessary condition for the plaintiff with damages X_I to make the demand Z_I remains (5). If the defendant rejects the offer Z_I , he will counter with an offer of $X_I - k_2$ that any type of plaintiff who made the original offer will accept. The cost to the defendant from rejecting is $X_I + k_1 - k_2$, so the defendant will accept only if

$$Z_I \leq X_I + k_1 - k_2 \quad (7)$$

Constraints (5) and (7) are mutually inconsistent if $k_2 > k_1$, so there can be no settlement in the first round satisfying the conditions of either Case 1 or Case 2. The only possible settlement in the first round is complete settlement, i.e., we are in Case 3 and $X_I = X_H$.

Case 3: $X_I = X_H$: A necessary condition for there to be an equilibrium where all types of plaintiffs settle is that the highest damage plaintiff does as well by making the offer Z_I as he would if he litigates. The latter strategy yields $X_H - k_1 - k_2$, so equilibrium requires

$$Z_I \geq X_H - k_1 - k_2 \quad (8)$$

If the defendant accepts, he pays Z_I . If the defendant rejects, his beliefs are the prior since all plaintiff types offer Z_I . The defendant will counter with an offer of $X_L + k_2$ and he expects to pay $k_1 + 1/2(X_L + X_H) + k_2 - 2k_2^2 / (X_H - X_L)$, so the incentive constraint is

$$Z_I \leq k_1 + 1/2(X_L + X_H) + k_2 - \frac{2k_2^2}{X_H - X_L} \quad (9)$$

Combining inequalities (8) and (9) yields

$$X_H - X_L \leq 2(k_1 + k_2) + 2\sqrt{k_1(k_1 + 2k_2)} \quad (10)$$

which is a necessary condition for equilibrium. In fact, it is also a sufficient condition, because there is no way the defendant will ever offer more than $X_H - k_2$ in the final round of bargaining, so a plaintiff with damages X_H will never get more than $X_H - k_1 - k_2$ by deviating from a pooling offer. Thus, there is an equilibrium where all types of plaintiff settle in the first round if (10) holds. This condition indicates that early settlement occurs if uncertainty ($X_H - X_L$) is small or if litigation costs are high. The plaintiff's equilibrium demand is

$$Z_1 = k_1 + \frac{1}{2}(X_L + X_H) + k_2 - \frac{2k_2^2}{X_H - X_L} \quad (11)$$

We have now fully characterized the solution of the game without a settlement escrow: If (10) does not hold, the equilibrium of the game is for the plaintiff to make no demand in the first period; the defendant offers $Z_2 = X_L + k_2$ in the final round of bargaining; if $X \leq X_L + 2k_2$, the plaintiff accepts, otherwise the parties litigate. If (10) holds, in the first round of bargaining the plaintiff demands $\frac{1}{2}(X_L + X_H) + k_1 + k_2 - 2k_2^2 / (X_H - X_L)$ and the defendant accepts.

C. The Solution to the Game With a Settlement Escrow

In this section, we analyze the bargaining game with a settlement escrow. The game is identical to the one without the settlement escrow except a settlement escrow is attached at the beginning of period 1. This captures the idea that the settlement escrow has no effect on the form of bargaining outside of the escrow. In the settlement escrow, each party submits a settlement offer to an officer of the court. If the plaintiff's demand is less than or equal to the defendant's offer, the court imposes settlement at the average of the two offers. If the plaintiff's demand exceeds the defendant's offer, the officer of the court announces only that there has been no settlement; he does not reveal either party's offer. Parties are free to submit no offer, or equivalently the plaintiff can demand an astronomical sum and the defendant can offer zero. The officer of the court still only reports a failure to settle, so these strategies are equivalent.

Again we focus on pure-strategy equilibria. Assume that in equilibrium the defendant submits an offer Z_o into the settlement escrow. Given this, we can reduce the plaintiff's strategy to a choice between submitting Z_o or submitting nothing. If the plaintiff submits an offer less than Z_o , settlement occurs as often as if he submits Z_o , but the plaintiff receives less. Any offer greater than Z_o is equivalent to no offer. Thus, there are only two possible choices for the plaintiff.

If some types of plaintiffs prefer submitting Z_o to making no offer into the escrow, it will include the types with the lowest damages. Thus, if there is any settlement in the escrow, we can assume that plaintiffs with damages from X_L to some X_o settle via the escrow for Z_o .

Again we need to split the analysis into separate cases. We must distinguish between situations where there is no settlement in the first post-escrow round of bargaining from situations where all types settle in the first post-escrow round. If

$$X_o \leq X_H - 2(k_1 + k_2) - 2\sqrt{k_1(k_1 + 2k_2)} \quad (I_2)$$

we are in Case 1 and there is no settlement in the first post-escrow round. If (I₂) does not hold and $X_o < X_{HF}$ we are in Case 2 and all remaining types of plaintiff settle in the first post-escrow round. Case 3 is where $X_o = X_{HF}$.

We begin with Case 1. A plaintiff with damages X_o must be indifferent between submitting Z_o into the settlement escrow and making no offer. If he submits Z_o , he receives Z_o . If he makes no offer into the settlement escrow, then the defendant, who has submitted Z_o , infers that Plaintiff's damages are above X_o . The continuation game is equivalent to the game without a settlement escrow except that the defendant believes damages are uniformly distributed on $[X_o, X_H]$ rather than $[X_L, X_H]$. Using our analysis of the game without a settlement escrow, the plaintiff will not make an offer in the first round and the defendant will offer $X_o + k_2$ in the final round of bargaining which the plaintiff will accept if X

$\leq X_o + 2k_2$. Thus, the return to X_o from submitting no offer is $X_o - k_1 + k_2$. Indifference implies that

$$Z_o = X_o - k_1 + k_2 \quad (I3)$$

Equilibrium requires that the defendant does as well by submitting Z_o as he does by making no offer.²⁸ If the defendant submits Z_o , with probability $(X_o - X_L)/(X_H - X_L)$, the plaintiff submits Z_o , so the defendant pays Z_o ; with probability $(X_o + 2k_2 - X_o)/(X_H - X_L) = 2k_2/(X_H - X_L)$, the plaintiff accepts the defendant's final round offer of $X_o + k_1 + k_2$, so the defendant pays $X_o + k_1 + k_2$; and with probability $(X_H - X_o - 2k_2)/(X_H - X_L)$, litigation results, so the defendant expects to pay $k_1 + k_2 + 1/2(X_o + 2k_2 + X_H) = k_1 + 2k_2 + 1/2(X_o + X_H)$. Thus the defendant's expected payments are

$$\frac{(X_o - X_L)(X_o - k_1 + k_2) + 2k_2(X_o + k_1 + k_2) + (X_H - X_o - 2k_2)[k_1 + 2k_2 + 1/2(X_o + X_H)]}{X_H - X_L} \quad (I4)$$

If the defendant deviates and does not submit an offer into the settlement escrow, the officer of the court will announce that there was no settlement. Since the plaintiff's offer remains secret, the defendant does not learn whether or not the plaintiff submitted Z_o . The defendant cannot subsequently take advantage of a low-damage plaintiff's willingness to settle because he does not learn that the plaintiff submitted Z_o . The defendant cannot treat a plaintiff who submitted an offer into the escrow differently from one who did not. This is the key distinguishing feature of a settlement escrow in the model.

The equilibrium of the continuation game if the defendant deviates turns out to be equivalent to the game without a settlement escrow. Although this may seem obvious, we must be careful because the continuation game is not identical to the game without a set-

²⁸The defendant always prefers submitting Z_o to any amount greater than Z_o , and any offer less than Z_o is equivalent to no offer.

tlement escrow. The reason for this is that the plaintiff's knowledge about the defendant's beliefs may be different from what they are in the game without a settlement escrow. In the game without a settlement escrow the plaintiff knows that the defendant believes that damages are uniformly distributed on $[X_L, X_H]$. In the settlement escrow game, if the defendant does not submit an offer in the escrow, a plaintiff with damages greater than X_o did not expect to settle in the escrow. When no settlement occurs such a plaintiff mistakenly believes that the defendant played his equilibrium strategy. Therefore this plaintiff thinks that the defendant believes that damages are distributed uniformly on $[X_o, X_H]$. In fact, since the defendant did not submit an offer, he learns nothing about the plaintiff's type and actually believes that damages are distributed uniformly on $[X_L, X_H]$. In contrast a plaintiff with damages between X_L and X_o expected to settle in the escrow; when this does not occur, the plaintiff learns that the defendant deviated and that defendant learned nothing, so plaintiff knows that defendant must believe that damages are distributed uniformly on $[X_L, X_H]$.

Despite the complicated belief structure that results from a deviation by the defendant in the settlement escrow, it is easy to solve the continuation game. In the first round, a plaintiff with damages above X_o believes that there has been no deviation and therefore continues to play his equilibrium strategy and does not make a settlement offer. A plaintiff with damages between X_L and X_o is participating in a game where the defendant believes that damages are uniformly distributed on $[X_L, X_H]$ and the plaintiff knows these are the defendant's beliefs. Thus, the exact same argument we used to show that there is no equilibrium with settlement in the first round of the game without a settlement escrow implies that there is no settlement here.²⁹ Thus, in the final round of bargaining, the defendant believes that damages are distributed uniformly on $[X_L, X_H]$. Following the analysis of the game without a settlement escrow, the optimal offer is $X_L + k_2$ which the plaintiff accepts if X

²⁹The condition that defines Case 1 implies that (τ_0) does not hold, so there can be no settlement in the first round of post-escrow bargaining.

$\leq X_L + 2k_2$. The expected payments by the defendant if he deviates in the settlement escrow are therefore

$$\frac{2k_2(k_1 + X_L + k_2) + (X_H - X_L - 2k_2)[k_1 + 2k_2 + \frac{1}{2}(X_L + X_H)]}{X_H - X_L} \quad (15)$$

The defendant's incentive constraint is that (14) is less than (15) which simplifies to

$$(X_o - X_L)(X_o - X_L - 4k_1) \leq 0. \quad (16)$$

Thus, there can be an equilibrium with settlement in the escrow if $X_o \leq X_L + 4k_1$.

In fact, there are many equilibria in the settlement escrow game. This should be no surprise given the simultaneity of the offers into the settlement. For example, if the defendant does not submit an offer into the escrow, the plaintiff can get no benefit from submitting an offer. Therefore not submitting an offer is a best-response for each party if the other party does not submit an offer. Similarly there can be an equilibrium where X_o is anywhere between X_L and $X_L + 4k_1$, so long as the condition for Case 1, given by (12), also holds.

We now consider Case 2, defined by (12) not holding and $X_o < X_H$. We show there cannot be any settlement in the escrow in this case. If (12) does not hold, then the continuation equilibrium is for the plaintiff to offer

$$Z_1 = k_1 + \frac{1}{2}(X_o + X_H) + k_2 - \frac{2k_2^2}{X_H - X_o} \quad (17)$$

independent of damages and the defendant will accept. A plaintiff with damages X_o will be indifferent between submitting Z_o and deviating only if Z_o equals Z_1 as given by (17).

If the defendant submits Z_o , then this is his expected payment. If he deviates by not submitting anything into the settlement es-

crow, rejecting all first period offers, and making a counteroffer of $X_L + k_2$, his expected payments are

$$k_1 + \frac{1}{2}(X_L + X_H) + k_2 - \frac{2k_2^2}{X_H - X_L} \quad (18)$$

which is less than Z_o since $X_o > X_L$.

Case 3 where $X_o = X_H$ can occur under the same conditions where the equilibrium in the game without the settlement escrow leads to all types settling in the first round. In the settlement escrow game, the settlement can either occur in the escrow or in the first post-escrow round. Since no costs are incurred between the escrow and the first post-escrow round, there is no economic difference between the two.

This allows us to complete the characterization of equilibria in the game with a settlement escrow. If (10) holds then all types settle prior to incurring any litigation costs. The settlement can either be through the escrow or Plaintiff's offer. Let us denote

$$K \equiv 2(k_1 + k_2) + 2\sqrt{k_1(k_1 + 2k_2)}. \quad (19)$$

If $X_H - X_L \geq K + 4k_1$ then there are equilibria in the settlement escrow with X_o anywhere between X_L and $X_L + 4k_1$. If $K \leq X_H - X_L < K + 4k_1$, then there are equilibria in the settlement escrow with X_o anywhere between X_L and $X_H - K$ and if $X_H - X_L < K$ all parties settle prior to incurring any litigation costs.

D. Comparing the Two Regimes

In this section we compare the equilibria between the models with and without settlement escrows. Introduction of a settlement escrow into the model reduces litigation costs or, at worst, has no effect. If the game without an escrow leads to all types settling without litigation costs, the same outcome occurs with the settlement escrow. If, on the other hand, all types do not settle in the game without a settlement escrow, the equilibrium without the settlement escrow results in no settlement in the first round and a

probability $2k_2/(X_H - X_L)$ of settlement in the final round. Every equilibrium of the game with the settlement escrow leads to no settlement in the first post-escrow round and a probability $2k_2/(X_H - X_L)$ of settlement in the final round. Thus, any positive probability of settlement in the escrow reduces litigation costs.

The savings can be substantial. They are $8k_1(k_1 + k_2)/(X_H - X_L)$ in the equilibrium which maximizes settlement in the escrow. To make this more concrete, we look at a numerical example. Let $X_L = 500$, $X_H = 1500$, $k_1 = 80$, $k_2 = 100$. The equilibrium of the game without the settlement escrow is for the defendant to offer 600 in the final round, which is accepted with probability 0.2. Each side incurs expected litigation costs of $80 + .8(100) = 160$. In the game with a settlement escrow, the equilibrium with the least litigation is for the defendant and plaintiffs with damages below 820 to submit 840 into the settlement escrow. In the final round of bargaining, the defendant offers 920 if he did not settle in the escrow. The offer is accepted by plaintiff if damages are less than 1020. Each side incurs expected litigation costs of $.32(0) + .2(80) + .48(180) = 102.4$ for a 36 percent savings in litigation costs over the game without a settlement escrow.

The reason why settlement escrows increases early settlement can be seen by comparing defendant's strategy across models. Note that the plaintiff's incentive constraint in the first period of the game without a settlement escrow, given by (5), is the same as his incentive constraint in the escrow, given by (13). In either case, the plaintiff either gets Z_1 (Z_0 in settlement escrow game) or waits for the optimal counteroffer of $X_1 + 2k_2$ ($X_0 + 2k_2$) in the final round after incurring litigation costs of k_1 . However, the defendant's decision differs dramatically across the two regimes. In the first period of bargaining in the game without a settlement escrow, if the defendant rejects the plaintiff's offer, he knows plaintiff has low damages and can respond with a low counteroffer that plaintiff will accept. With $k_1 < k_2$, any offer that is sufficiently low that the defendant will accept it, the plaintiff is unwilling to make. In contrast, in the settlement escrow, if the defendant rejects the plaintiff's offer by not submitting Z_0 into the escrow, he does not learn that plaintiff has low damages and therefore cannot make different offers to a low-

damage and high-damage plaintiff. The settlement escrow limits the negative inferences that result from a reasonable offer, thereby making a low-damage plaintiff more willing to make an offer which leads to early settlement.

If $k_1 \geq k_2$, then there is some settlement in the first round of bargaining in the game without a settlement escrow. Introduction of a settlement escrow creates significant complications because the equilibrium necessarily involves mixed strategies off the equilibrium path. There can be equilibria with settlement in the escrow, but the benefits are typically smaller than if $k_1 < k_2$. The equilibrium has the same basic features as in the model we have analyzed: if there is settlement in the escrow, the continuation equilibrium looks just like the game without the settlement escrow, only with X_o replacing X_L as the minimum of the distribution of damages. If there is no settlement via the escrow in equilibrium, there are no benefits from introducing the settlement escrow, but there are no costs either.

It is worth pointing out that settlement escrows are not effective because they add an extra round of bargaining into an artificially constrained model. In fact, if the settlement escrow replaced the first round of bargaining, it would be even more effective. Since there are no costs incurred between the escrow and the first post-escrow round, it adds nothing to the ability of parties to signal or screen.

A necessary condition for wanting to adopt settlement escrows is that they reduce expected litigation cost. However, this is not sufficient. It is also important to compare the expected outcomes for each type. A regime which simply increases settlement will not be attractive if the settlement amounts do not reflect the underlying merits of the case. For example, a legal rule which says that the plaintiff always loses can do wonders for promoting settlement, but is obviously a very bad rule. The settlement escrow generally leads to expected payoffs that are more in line with the underlying merits of the case than are the outcomes without the settlement escrow. A settlement escrow increases settlement, the terms of which depend on the expected outcome in litigation, the size of litigation costs, and the bargaining power in pretrial negotiations. By saving litigation costs, expected payments typically move closer to the underlying expected outcome in litigation.

Table 1 contains a comparison of outcomes across three different scenarios: the game without a settlement escrow, the game with a settlement escrow where the equilibrium is $X_o = X_L + 2k_r$, and the game with a settlement escrow where the equilibrium is $X_o = X_L + 4k_r$. We focus on these two equilibria because the first is the one which leads to the greatest reduction in litigation costs and is the equilibrium that the plaintiff likes best, while the second equilibrium is the one that the defendant likes best.

We compare the expected payments by the defendant, the recovery by the plaintiff averaged over all damage types and the average over all plaintiff types of the absolute value of the plaintiff's net recovery and what he should receive, X . This last measure prevents us from liking a regime which gives the plaintiff $\bar{X} \equiv \frac{1}{2}(X_L + X_H)$ on average but which is not sensitive to the plaintiff's actual damages X .

The table indicates that the plaintiff does better with the settlement escrow and his net recovery is closer to \bar{X} . The defendant does equally well with the settlement escrow if $X_o = X_L + 4k_r$ and better if $X_o = X_L + 2k_r$. In the latter case, his payments are also closer to \bar{X} . Finally, we see that the average absolute deviation from X is the same in the game without the settlement escrow and settlement escrow equilibrium with $X_o = X_L + 4k_r$ and it is lower if $X_o = X_L + 2k_r$. The settlement escrow game always does weakly better in this statistic than the game without a settlement escrow. Thus, we see that the settlement escrow not only lowers litigation costs, but also leads to outcomes that are typically closer to the underlying merits.

F. A Numerical Example with Two-Sided Asymmetric Information

We now assume that the defendant also has private information about the outcome of litigation. Specifically, he has better information about the likelihood of liability. The reason for analyzing a two-sided private information version of the model is that it allows us to introduce and analyze an additional benefit of settlement escrows. In the one-sided private information model, the settlement escrow increases the likelihood of settlement because it permits the plaintiff to make a reasonable offer which the defendant does not

learn about unless it settles the case in the escrow. In the two-sided private information case, a low-damage plaintiff may wish to make an offer that only a high-liability defendant will accept. In the game without a settlement offer, a plaintiff who makes such an offer must realize that he not only reveals information to the high-liability defendant, for whom the offer is intended, but also all other types of defendants. These types of defendants can now bargain knowing that the plaintiff has low damages. Furthermore, if the plaintiff does not make the equilibrium offer, all types of defendant will believe that the plaintiff does not have low damages. This makes it very unlikely that there will be early settlement absent a settlement escrow.

By contrast, in a settlement escrow, low-liability defendants do not make a reasonable offer into the escrow, and they therefore will not learn anything about the plaintiff. A low-damage plaintiff will have less incentive to avoid making a reasonable demand designed for a high-liability defendant because he can make it without revealing low damages to the low-liability defendants.

Because the game gets very complicated when we introduce two-sided asymmetric information, we will focus on a numerical example. The structure of the model is identical to the one-sided case with one addition: the defendant can be one of three types: w_L , w_M , w_H where the defendant's type is the probability that he will be found liable. Thus, if a defendant with liability w litigates against a plaintiff with damages X , the expected award is wX . The defendant knows the realization of w , while the plaintiff believes that each of the three possibilities is equally likely. The structure of the bargaining games are the same as before: the plaintiff makes a demand; if it is rejected, litigation costs of k_1 are incurred by both sides; then the defendant makes a counteroffer; if it is rejected, there is litigation and both sides incur litigation costs of k_2 . Again, we focus on pure-strategy equilibria.

Let $X_H=1500$, $X_L=500$, $w_H=1$, $w_M=0.9$, $w_L=0.7$, $k_1=80$, and $k_2=60$. The plaintiff's prior is that each type is equally likely. We begin with the game without a settlement escrow. It is easy to show that there can be no settlement in the first round of bargaining. In order to do this, we must solve the game in the final round. We assume that the defendant believes that damages are distributed uniformly on $[X_r, 1500]$, and that these beliefs are common knowledge. In a

separating equilibrium, the defendant w_H will make the offer that minimizes his litigation costs given that the offer reveals his type. This offer is $w_H X_I + k_2$. A defendant with liability w_M will make the highest offer that it can which defendant w_H does not want to mimic. The plaintiff is indifferent between accepting and rejecting an offer of Z_{2M} given that the plaintiff believes the offer is from defendant w_M if damages are $X_{2M} = w_M Z_{2M} - k_2$. The values of X_{2M} and Z_{2M} which make defendant w_H indifferent between playing his equilibrium strategy and mimicking defendant w_M are given by

$$X_{2M} = [1200 + 9X_I - (288000 + 2400X_I + X_I^2)^{1/2}] / 8$$

$$Z_{2M} = 3[2000 + 27X_I - (288000 + 2400X_I + X_I^2)^{1/2}] / 80.$$

The formulas for X_{2L} and Z_{2L} are quite complicated, so we omit them.

For some parameter values there will also be a pooling or a partial pooling equilibrium where two or more types of defendants make the same offer. However, we chose parameter values such that this does not occur, thereby eliminating the need to make difficult refinement arguments.

Assume that in the first period a plaintiff with damages between X_L and X_I makes an offer Z_I that defendant w_H accepts in equilibrium. The plaintiff X_I must be indifferent between offering Z_I and not making such an offer. Plaintiff X_I must do at least as well with defendants w_M and w_L by not making the offer. If plaintiff X_I does not make the offer, defendant w_H will respond with an offer of $X_I + 60$. Incorporating first period litigation costs, plaintiff X_I receives $X_I - 20$. Thus, a necessary condition is $Z_I \geq X_I - 20$. If defendant w_H accepts the offer he pays Z_I ; if he rejects the offer, plaintiff X_I believes that the defendant is either w_M or w_L . Therefore, plaintiff X_I will accept a counteroffer of $.9X_I - 60$ next period, for a total cost of $.9X_I + 20$. Thus, a necessary condition for defendant w_H to accept Z_I is $Z_I \leq .9X_I + 20$. The two necessary

conditions are inconsistent if $X_i > 400$, which must be the case since $X_L = 500$.

This illustrates an important difference between the one-sided and two-sided asymmetric information case. In the latter setting, if the plaintiff makes an offer that is designed for a high-liability defendant, the defendant has the option to reject the offer, use the information that the plaintiff has low damages *and make the plaintiff believe that the defendant is not the high-liability type*. This last italicized effect is not present in the one-sided asymmetric information model and makes it even more difficult for there to be settlement in the first round.

The equilibrium in the game without the settlement escrow has no settlement in the first round. In the second round, defendant w_H offers 560 which the plaintiff accepts if X is between 500 and 620, defendant w_M offers 432.94 which the plaintiff accepts if X is between 500 and 547.71, and defendant w_L offers 305.34 which the plaintiff accepts if X is between 500 and 521.91.

We now show that there are equilibria in the settlement escrow game where parties settle via the escrow. In particular there is an equilibrium where defendant w_H submits 730 into the settlement as does the plaintiff if his damages are between 500 and 750. There is no settlement in the first round of bargaining after the settlement escrow. In the final round of bargaining defendant w_H offers 810 which the plaintiff accepts if X is between 750 and 870, defendant w_M offers 510 which the plaintiff accepts if X is between 500 and 633.33, and defendant w_L offers 316.6 which the plaintiff accepts if X is between 500 and 538.

The plaintiff with damages 750 is indifferent between submitting 730 into the settlement escrow and waiting for 810 in the second round after incurring litigation costs of 80. Note that the plaintiff's decision with respect to the settlement escrow has no effect on what happens with defendant's of type w_M and w_L . Since they do not submit an offer into the settlement escrow they will not be able to infer anything about the plaintiff's type. If defendant w_H plays his equilibrium strategy, his expected payments are $.25(730) + .12(80+810) + .63(140+1185) = 1124.05$. If he deviates by not submitting 730 into the escrow, the best he can do is mimic defendant w_M

which leads to expected payments of $.1333(80+510) + .8667(140+1066.67) = 1124.44$. This is greater than the 1124.05 that defendant w_H pays in equilibrium. Defendant w_M prefers his equilibrium strategy to mimicking defendant w_H . The latter yields expected payment of $.25(730) + .75(140+1012.5) = 1046.88$ which is more than $.1333(80+510) + .8667(140+960) = 1032$ which defendant w_M expects to pay in equilibrium. Note an benefit of the settlement escrow is that it relaxes the incentive constraint of defendant w_H not wishing to mimic defendant w_M in the final round. This increases the probability that defendants w_M and w_L settle.

The final thing to check is that there will be no settlement in the first round of bargaining after the settlement escrow has occurred. By the same argument made for the game without the settlement escrow, settlement in the first round is difficult since the plaintiff who does not make a demand is thought to have higher damages thereby getting a high counteroffer and the defendant has the option to reject thereby being thought of as a lower liability type. However, there is one slight complication. Consider a plaintiff with damages slightly greater than 750 who did not submit an offer into the escrow. If he makes a demand that is designed for defendant w_H , the defendant can reject and be thought of as a lower liability type. However, it does not immediately follow that there is much to be gained by defendant w_H if defendant w_M prefers to make an offer that attracts the low damage plaintiffs that would have already settled with w_H in the escrow. Nonetheless, one can show that there is an equilibrium that satisfies our refinement where there is no settlement in the first post-escrow round.

This example has demonstrated that the negative inferences associated with reasonable offers is greater when there is two-sided asymmetric information than when there is only one-sided asymmetric information. This makes early settlement especially difficult. A settlement escrow mitigates, but does not eliminate the negative inference problem, by preventing a party who does not submit a reasonable offer into the escrow from learning about the other party's offer. This reduces the costs of making reasonable offers and increases the likelihood of settlement.

III. SOME IMPLEMENTATION ISSUES

In this section we explore some of the complications associated with implementing a settlement escrow regime.

A. Timing and Revisions of Escrow Offers

From a theoretical viewpoint, the most interesting implementation issue may be how often offers into the settlement escrow can be revised. If the litigants do not learn new information in the pretrial stages, the answer is easy. There should be a single opportunity to make escrow offers and if the offers do not cross, there is no opportunity to try again.³⁰ One way to think about this is to assume, to the contrary, that there is an opportunity for each side to revise its offer, should there be no settlement in the first escrow. Now, the incentives to make a reasonable offer in the first settlement escrow are much weaker. A litigant may reason that it can make an aggressive offer in the first escrow, in the hopes that it may be settle anyway, and only make a reasonable offer in the second round. This implies that it is unlikely that there can be an equilibrium where there is significant settlement in the first escrow game. Although the negative inference problem is weaker, the same forces which lead to little settlement in the early stages of ordinary pretrial bargaining may also lead to little settlement in the early settlement escrow.

Nonetheless, a benefit to multiple settlement escrows can arise if information is revealed through pretrial proceedings. Information transfer will occur in discovery as parties learn about their adversaries' private information through depositions and private documents. It may be valuable to allow parties who fail at an initial settlement escrow to try again after discovery. The cost of allowing the second settlement escrow is that it reduces the likelihood that the parties will settle in the first settlement escrow.

There is no way to establish the optimal number or timing of settlement escrows theoretically. It depends on the degree of asymmetric information, the costs of different stages of pretrial litigation,

³⁰This is somewhat analogous to the value of a commitment to not renegotiate a contract or to have a second round auction after an initial auction fails to generate a high price.

and the amount of learning which takes place at these various stages. An obvious point is that settlement escrow points should be set prior to stages which involve large costs and they should be separated by periods of information acquisition. Natural points would be shortly after filing of the case, just prior to discovery, and just prior to the trial.

B. Form of Offers

Many negotiated settlements involve more than just a transfer of money in exchange for dropping a lawsuit. Examples include agreements to not share information with third parties, alteration of future practices, public admission of liability, or future corrective action.³¹ If settlement escrows are restricted to a simple monetary transaction, they may fail to promote settlement, simply because the efficient agreement would include other clauses.

There are a number of factors that mitigate this problem. First, many cases present pure issues of damages. The problem of form of offers does not arise in such settings. Second, one might get the escrow agent, perhaps after consultation with the parties to choose the form of a settlement agreement which can include supplemental clauses. The offers will then be for settlement including these additional conditions, with the price adjusted accordingly. Another similar approach would be for there to be a menu of settlement agreements, each with different subsidiary conditions. The parties could then make offers for each of the possible forms of settlement agreement. They could rank the different agreements as well. The agent would then choose the highest ranking agreement in which the offers cross.

Another mitigating factor is that the parties could always negotiate the non-monetary clauses separately. In the absence of transactions costs, asymmetric information over the value of the clauses themselves, wealth effects, and differences in enforcement costs between contractual and court-mandated agreements, the Coase Theorem implies that the parties should just adjust the cash settle-

³¹Nonetheless, Kritzer, *supra* note 22, at 22, 43 demonstrates that in a large percentage of ordinary civil litigation, the stakes are monetary. Settlement negotiations usually involve only monetary terms (87% of tort claims and 58% of civil rights/discrimination cases).

ment to account for the different assignment of property rights associated with additional clauses. They will then contract for the efficient clauses. We suspect that these negotiations would have significant transactions costs, but the point that the parties may be able to negotiate the addenda to the basic agreement separately may nonetheless have some importance.

Another potential complication for settlement escrows is the presence of more than two litigants. Although we have not thought through the details carefully, there is no reason why a settlement escrow cannot be extended to include multiple defendants or plaintiffs. One needs to think carefully about sharing rules and whether or not partial settlements are allowed. Free-rider problems will undoubtedly be present, but they will be part of any other pretrial bargaining as well.

C. Legal Barriers

There would appear to be few, if any, legal obstacles to the implementation of a settlement escrow by private agreement. Arbitration agreements are strongly favored in federal courts,³² and states generally follow the same policy.³³ Although a settlement escrow may not fall within the technical definition of an arbitration, since the escrow agent is nothing more than a ministerial figure who stands ready to receive and review settlement offers, the nature and purposes of settlement escrows are sufficiently close to traditional arbitration as to make it all but inconceivable that a private settlement escrow would not be respected in court. If judicial con-

³²See, e.g., *Gilmer v. Interstate/Johnson Lane Corp.*, 113 S.Ct. 1647 (1991) (upholding arbitrability under private agreement of disputes under the Age Discrimination in Employment Act, despite inequality of bargaining power between the parties and strong federal policy to protect older workers). The policy favoring arbitration is commonly grounded in the Federal Arbitration Act, see *Moses H. Cone Memorial Hospital v. Mercury Construction Corp.*, 460 U.S. 1, 24 (1983).

³³See L. Bernstein, *Understanding the Limits of Court-Connected ADR: A Critique of Federal Court-Annexed Arbitration Programs*, 141 *University of Pennsylvania Law Review* 2249, 2271 (1993).

firmation of a private settlement escrow agreement is required, that should be readily forthcoming as well.³⁴

As we will discuss below, however, it may well be desirable for the settlement escrow to be previously established under court auspices, in order to prevent the adverse inferences that one party may draw from the suggestion of the other party that the two agree to establish a settlement escrow by private contract.³⁵ There would not appear to be significant problems with the establishment by a court of a settlement escrow under court auspices. The authority of federal district courts to institute such a program appears beyond question. Such a program would undoubtedly fall within the inherent power of the federal district courts to manage their own dockets³⁶ and to craft local rules governing litigation before particular courts.³⁷ If any doubt remained on this score, it should be dissipated by the overwhelming support which Congress has expressed toward enhanced use of alternative dispute resolution.³⁸

The plaintiff's offer into the settlement escrow could be constructed to include a conditional request to dismiss the claim with prejudice, where the condition are crossing offers and payment of the average of the offers to the plaintiff. This eliminates any possibility that the parties will not be bound by their offers.

³⁴See L. Bernstein, *Understanding the Limits of Court-Connected ADR: A Critique of Federal Court-Annexed Arbitration Programs*, 141 *University of Pennsylvania Law Review* 2249, 2273 (1993).

³⁵See text accompanying note 39, *infra*.

³⁶See, e.g., *Lockhart v. Patel*, 115 F.R.D. 44, 47 (E.D. Ky. 1987). ("exigencies of modern dockets demand the adoption of novel and imaginative means [such as] . . . compulsory arbitration, summary jury trials, imposing reasonable limits on trial time, or, as here, the relatively innocuous device of requiring a settlement conference [to be] attended by the clients as well as the attorneys.")

³⁷See, e.g., *White v. New Hampshire Department of Employment Security*, 455 U.S. 445, 454 (1982).

³⁸See, e.g., *Civil Justice Reform Act of 1990*, Pub L. No. 101-650, 104 Stat. 5089 (codified as amended at 28 U.S.C. §§ 471-482 (Supp. III 1991) (directing each federal district court to consider the possibility of utilizing court-annexed alternative dispute resolution programs).

D. Voluntary or Mandatory Implementation

We now address the question of whether settlement escrows should be court-initiated or whether parties should voluntarily opt in or out of a settlement escrow. This will help us answer the following related question: if settlement escrows are so good, why don't we see them already in contractual agreements? It is important to remember that a mandatory settlement escrow is not coercive in any way; if the parties are required to submit offers at all (and they need not be), the plaintiff is free to ask for an astronomical settlement and the defendant is free to offer nothing.

One reason for mandatory settlement escrows is that the negotiations between parties over whether or not to use a settlement escrow, may themselves signal information. The result may be inefficient underuse of settlement escrows. Settlement escrows are likely to be most valuable to parties who have relatively weak cases because, as the model demonstrates, they are more likely to settle through the escrow. If a party suggests a settlement escrow, his adversary may infer that the offeror's case is weak. Therefore, often, neither party will suggest a settlement escrow, despite the fact that each would be better off if the settlement escrow was forced upon them.

This adverse selection problem clearly exists if the parties do not have an opportunity to negotiate their dispute resolution procedures prior to learning relevant private information. In the traditional tort context, where there is no *ex ante* contracting and parties may obtain their private information at the time of the tort, the signaling aspect of voluntary settlement escrows may be severe and court-mandated escrows may be justified.

In settings where parties contract before any relevant private information is known, it is difficult to see why, if settlement escrows are efficient, the parties do not contract for them. We will offer three possible explanations, none of which is completely convincing. First, bringing up dispute resolution procedures when negotiating a contract may be a signal, not of the value of the ultimate claim, but of the likelihood that a claim will arise through breach of contract.³⁹ Second, lawyers negotiate and draft contracts and it may not be in

³⁹The failure to sign pre-nuptial agreements is an example of this type of argument. See K. Spier, *Incomplete Contracts and Signaling*, 23 *Rand Journal of Economics*, (1992) for a formal model of these issues.

their interest to propose efficient dispute resolution procedures, if they stand to gain from expensive ones. Of course, this relies on the ignorance of the contracting parties. Third, the parties may not know about or understand the advantages of settlement escrows.

We conclude that given the large potential gains and small likelihood of harm from settlement escrows, coupled with the potential advantages of court-supplied settlement escrows, that they should be instituted by the courts. Escrows could be established as a default rule, so that if parties wish to not give themselves the option of a settlement escrow as part of a contractual agreement on dispute resolution, they should be free to do so.

IV. APPLICATIONS BEYOND LITIGATION

We have focused on the use of settlement escrows in litigation. There is no reason that they cannot also be useful in other forms of disputes. Settlement escrows are likely to be especially valuable in civil litigation because of the common value component of the bargaining, the prevalence of disputes which can be resolved with a purely monetary transfer, and, in the case of tort litigation, the inability of the parties to contract for their own dispute resolution procedure prior to obtaining private information.

Labor disputes may be ill-suited for settlement escrows, given the complex, multidimensional format of collective bargaining contracts. A settlement escrow might be useful once the bargaining comes down to one or two remaining points of disagreement.

Perhaps a better application outside of litigation would be in bargaining over the purchase and sale of property. In many instances, the parties need to agree on little other than a price. Despite their potential value, we may not see settlement escrows in this context for the same reason we won't see in the tort setting: it may be difficult for parties to contract prior to realization of private information. In particular, once a potential buyer finds out about the property, he may have already realized his private information and the adverse selection will be present.

V. RELATION TO ARBITRATION AND MEDIATION

Settlement escrows have some features in common but also differ in important ways from other existing alternative dispute reso-

lution mechanisms. Binding arbitration is a *substitute* for the trial and perhaps other parts of the litigation process. Litigation is a structured process by which disputants gather information and present their cases to an impartial decision-maker. The idea behind most binding arbitration procedures is to replace the existing rules of this process with more efficient ones.

By contrast, a settlement escrow is not a substitute for the standard litigation process, but a *supplement* to it. Although there is a binding element to a settlement escrow, either party has the ability to opt out of the process by making offers which will not lead to settlement or by making no offers at all. Perhaps the easiest way to see the very different nature of settlement escrows and binding arbitration is to note that one could include settlement escrows as a part of a binding arbitration regime.

Mediation and nonbinding arbitration are much closer in spirit to settlement escrows but there are important differences as well. The traditional role of nonbinding arbitration is to facilitate settlement by giving the parties an unbiased view of the quality of their respective cases. Settlement escrows are not motivated by giving a party better information about the case. In some ways, the opposite is true. The benefit of settlement escrows derive from their ability to shield information transfer.

Mediation is also a nonbinding process. The traditional view is that mediation is a process which facilitates settlement by assisting in the creation and implementation of a bargaining process which reduces conflict and helps the parties determine the form settlement should take.⁴⁰ Nonetheless, there are elements of mediation that we believe can be interpreted as attempts to achieve similar benefits as settlement escrows. One of the ways that mediators operate is to shuttle back and forth between disputants who are not communicating directly. The mediator elicits information from the parties and provides some of the information to the other side. He acts as a filter of the information, not necessarily reporting exactly what the parties said, but some subset or his interpretation of what

⁴⁰For a detailed study of mediator behavior, see D. Kolb, *The Mediators* (1983). J. Brown and I. Ayres, *Economic Rationales for Mediation*, 80 *Virginia Law Review* 323 (1994) analyze how mediators may add value by revealing information to disputants that is communicated to them selectively.

the parties meant. It is conceivable that this procedure may make parties more willing to reveal private information to the mediator, knowing that the mediator will not report it all to the other side, thereby potentially avoiding some of the negative inference problem. A complete argument would have to include why the disputants report honestly and what the mediator's incentives are. As far as we know, this has not been done. Nonetheless, in an abstract sense, the process may be analogous to settlement escrows.

CONCLUSION

Our conclusion from this analysis is that settlement escrows may provide an inexpensive way to facilitate early dispute settlement. A more certain conclusion could be reached by extending our research to experiments in a laboratory designed to verify that the potential gains from settlement escrows exist in simulated litigation settings with realistic parameters. This paper has focused on the benefits and some of the implementation problems associated with settlement escrows. In addition to reducing litigation costs, settlement escrows lead to settlements which tend to emulate the expected outcome in litigation. Furthermore, we have argued that the direct costs of implementing settlement escrows are very small.

There are two possible types of indirect costs from settlement escrows. First, by promoting settlement, it is possible that more lawsuits will be filed and, in particular, the incidence of lawsuits which are filed solely to extract a positive settlement may increase. It is far from clear, however, that settlement escrows will significantly increase the return from filing a frivolous lawsuit. The most likely effect from a large increase in the number of frivolous suits is that defendants will not make offers in a settlement escrow which occurs shortly after the lawsuit is filed. This in turn will eliminate the incremental return from filing the frivolous suit. The equilibrium in such a game may nonetheless involve some increase in frivolous lawsuits if there is a way for a plaintiff with a frivolous suit to sometimes pool with legitimate plaintiffs in a settlement escrow. The best way to deal with this may be to make sure that there is the opportunity to employ a settlement escrow at a stage in the pretrial process where the plaintiff would necessarily have incurred significant costs.

It is also possible that settlement escrows may reduce the problem of frivolous suits. They may allow a defendant to settle a frivolous suit more cheaply; an offer to a plaintiff with a frivolous suit in the early stages of standard bargaining may signal high litigation costs, allowing the plaintiff to extract more. A settlement escrow may reduce this problem.

The second possible indirect cost is the possibility that the option to participate in a settlement escrow changes the subsequent bargaining process in a way which reduces settlement by so much that it overcomes the benefits from settlement in the escrow. Although there are games where giving parties an option which they can turn down may reduce welfare, this does not occur in our model. We cannot think of any argument of how this can occur in settlement escrows, more generally. Overall, we find neither of these potential costs to be significant enough to overcome the potential benefits from experimenting with settlement escrows in litigation.

TABLE I: COMPARISON OF Equilibrium Outcomes

	NO SETTLEMENT ESCROW	SETTLEMENT ESCROW $X_0 = X_L + 4k_1$	SETTLEMENT ESCROW $X_0 = X_L + 2k_1$
EXPECTED PAYMENTS BY DEFENDANT	$\bar{X} + k_1 + k_2 - \frac{2k_2^2}{X_H - X_L}$	$\bar{X} + k_1 + k_2 - \frac{2k_2^2}{X_H - X_L}$	$\bar{X} + k_1 + k_2 - \frac{2(k_1^2 + k_2^2)}{X_H - X_L}$
PLAINTIFF'S NET RECOVERY	$\bar{X} - k_1 - k_2 + \frac{2k_2^2}{X_H - X_L}$	$\bar{X} - k_1 - k_2 + \frac{2(2k_1 + k_2)^2}{X_H - X_L}$	$\bar{X} - k_1 - k_2 + \frac{2(k_1 + k_2)^2}{X_H - X_L}$
EXPECTED ABSOLUTE DEVIATION FROM MERITS	$k_1 + k_2 - \frac{k_2^2 + 2k_1k_2 - k_1^2}{X_H - X_L}$	$k_1 + k_2 - \frac{k_2^2 + 2k_1k_2 - k_1^2}{X_H - X_L}$	$k_1 + k_2 - \frac{(k_1 + k_2)^2}{X_H - X_L}$

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