

Biased Judgments of Fairness in Bargaining

By LINDA BABCOCK, GEORGE LOEWENSTEIN, SAMUEL ISSACHAROFF,
AND COLIN CAMERER*

When court trials (or arbitration) are the mechanisms for resolving bargaining impasses, the costs and risks associated with third-party intervention should motivate settlement (Henry Farber and Harry Katz, 1979). However, empirical evidence suggests that impasses and inefficient settlements are common in the legal system and in contract negotiations. For example, one study of asbestos suits found that only 37 cents of every dollar spent by both sides end up in the plaintiffs' hands (James Kakalik et al., 1983).

One important model of bargaining developed in the law and economics literature views impasse as a consequence of disputants' uncertainty about the judge, jury, or fact finder.¹ George Priest and Benjamin Klein (1984) argue that potential litigants are unable to estimate precisely the decision of a judge or jury if a case goes to trial. If both sides construct unbiased point estimates of the value of going to trial, as Priest and Klein assume, then half of the time plaintiffs will anticipate a higher judgment than defendants. A case will fail to be settled before trial when the plaintiff's estimate of the judge's verdict exceeds the

defendant's by enough to offset the incentive for settlement that is produced by risk aversion and trial costs.

In this paper we propose an explanation for impasse that also rests on disputants' misestimation of judicial decisions but that differs from Priest and Klein's in one crucial respect. Drawing upon psychological research documenting systematic biases in individual judgments of fairness, we conjecture that predictions of judicial decisions will be systematically biased in a self-serving manner. Even when parties have the same information, they will come to different conclusions about what a fair settlement would be and base their predictions of judicial behavior on their own views of what is fair. As a result, we argue, expectations of an adjudicated settlement are likely to be biased in a manner that increases the likelihood of an impasse. Whereas Priest and Klein would argue that the parties are drawing randomly from the same distribution of judicial preferences, we believe they are, in effect, drawing from different distributions.

The fact that people interpret information in a self-serving manner means that, contrary to a fundamental derivation of Bayesian theory (Bruno de Finetti, 1964), giving two parties more information may cause their expectations to diverge. Priest and Klein's perspective implies that additional information would make impasses less likely, whereas ours predicts that additional information will often increase the probability of impasse.

There is considerable evidence from the psychology literature of a self-serving bias in judgments of fairness. When married couples estimate the fraction of various household tasks they are responsible for, their estimates typically sum to more than 100 percent (Michael Ross and Fiore Sicoly, 1982). Spectators viewing a football game believe that their team commits fewer infractions than do supporters of the opposing side (Albert H. Hastorf and Hadley Cantril, 1954). When

* Babcock: H. John Heinz III School of Public Policy and Management, Carnegie Mellon University, Pittsburgh, PA 15213; Loewenstein: School of Social and Decision Sciences, Carnegie Mellon University, Pittsburgh, PA 15213; Issacharoff: School of Law, University of Texas, Austin, TX 78705; Camerer: Graduate School of Business, University of Chicago, Chicago, IL, 60637. We are grateful for the comments of Jodi Gillis, Henry Hu, Douglas Laycock, Stewart Schwab, Charles Silver, Ruth Silverman, and the participants in the John M. Olin Conference on Dispute Settlement; we also thank Arlene Simon and Saul Straussman for research assistance. Loewenstein acknowledges the support of the Russell Sage Foundation; Issacharoff acknowledges the support of the Dean's Roundtable of the University of Texas School of Law and the Shell Oil Foundation; Camerer acknowledges the support of the National Science Foundation (grant no. SES-9023531).

¹ A survey of this literature is contained in Robert D. Cooter and Daniel L. Rubinfeld (1989).

people work different amounts of time at a joint task, those who work more generally believe that they should earn more, while those who work less believe that both parties should be paid equally (David Messick and Keith Sentis, 1979).

Findings consistent with a self-serving bias have also been observed in bargaining experiments. Subjects in studies by Alvin E. Roth and Keith J. Murnighan (1982) bargained over how to distribute 100 lottery tickets. If one player won the lottery, she received \$20; if the other won, she received \$5. There are two obvious ways to split the tickets: 50 tickets to each (equal chance of winning) or 20 tickets to the \$20-prize player and 80 tickets to the \$5-prize player (equal expected dollar value). When neither player knew who had which prize amount, subjects generally agreed to divide the tickets about equally, and only 12 percent of pairs failed to reach an agreement, ending up with no payoff. However, when both parties knew both prize amounts, the \$20-prize player was likely to hold out for half of the tickets, while the \$5-prize player demanded 80 tickets to equalize expected values. In this condition 22 percent of the pairs failed to reach agreement.

Finally, in a recent paper (Loewenstein et al., 1993), we ran an experiment (on which the current study is based) in which two subjects were assigned the role of plaintiff and defendant in a legal dispute. The two parties read the same case materials and were informed that an actual judge had also read the materials and decided an award for the plaintiff. Subjects then recorded what they believed was a fair award, predicted the judge's award, and tried to negotiate a settlement consisting of a payment from defendant to plaintiff. If the parties failed to settle, legal costs were imposed on both parties, and the decision of the judge determined the value of the actual payment.

The results from this previous research supported the view that self-serving assessments of fairness interfere with settlement. Subjects were extremely biased in their assessments of fairness and predictions of the judge's award, and the bargainers' ability to reach voluntary settlements was negatively correlated with the magnitude of this bias. However, we could not

rule out the possibility that the relationship between settlement and the bias in predicting the judge was not causal. Perhaps an unmeasured factor, such as variation in a character trait of the negotiators, caused the same people who exhibited the self-serving bias to negotiate in a manner that impeded settlement.

The major goal of this paper is to test for a causal link between the self-serving bias and nonsettlement. In the experiment reported below, we manipulate the magnitude of the self-serving bias by informing subjects of their roles at different points before negotiating and then examine the impact on settlement behavior.

1. The Experiment

The experiment we use in this paper uses the same dispute as in our earlier paper—a claim for damages resulting from a motorcycle–automobile accident. The plaintiff (motorcyclist) is suing the defendant (automobile driver) for \$100,000. The two parties were given precisely the same information and knew that the information they were given was identical. Subjects received 27 pages of testimony abstracted from an actual case in Texas.² They were informed that we had given the same materials they saw to a judge in Texas, who had decided how much, if anything, to award to the plaintiff.³

After reading the case materials, but before negotiating, the subjects made two judgments: (i) what they thought was a fair settlement from the vantage point of a neutral third party; (ii) their best guess of the amount that the judge would award. They

² The testimony is available from the authors upon request. The subjects received information concerning witnesses' testimony, police reports, maps, and testimony of the driver (defendant) and motorcyclist (plaintiff).

³ We wanted subjects to know that an independent judge had read exactly the same materials that they were reading and that we had not selected the case based on the judgment awarded, but instead had first selected the case and then solicited a judgment on it. If we had simply chosen the judgment from an actual trial, subjects might have anticipated that we would choose a case with an award amount lying within a particular desired range.

received a bonus of \$1.00 at the end of the session if their prediction of the judge's award was within \$5,000 of the judge's actual award.

The subjects were each paid a fixed fee for participating in the experiment. They were instructed to try to negotiate an "out of court" settlement in the form of a money payment from the defendant to the plaintiff. Before the negotiation, the defendant was given \$10 from which to make this payment. Every \$10,000 from the case was equivalent to \$1 for the subjects. For example, a \$40,000 settlement meant the defendant gave \$4 to the plaintiff and kept \$6.

The parties had 30 minutes in which to negotiate an agreement. If they were unable to settle within this time period, the judge's decision was imposed upon the parties. The judge's actual judgment in the case was \$30,560, which meant that if the parties failed to settle, the defendant paid the plaintiff \$3.06 and kept \$6.94.

The 30-minute negotiation period was divided into six five-minute periods. At the end of each period, the parties submitted bids simultaneously. If the bids overlapped, they settled at the midpoint. If they did not overlap, they were assessed \$5,000 each in lawyer's fees to enter the next round of negotiations. If they were unable to reach a settlement in the sixth period, the judge imposed the settlement, and each party was charged legal fees of \$25,000 (\$2,500).

After the negotiation was over, both subjects recorded their perceptions of how a judge would rate the importance of 16 predetermined arguments in determining the award: eight favoring the plaintiff and eight favoring the defendant. The rating scale ranged from 0 ("no importance") to 10 ("extreme importance"). We collected importance ratings to see whether the subjects' roles affected their perceptions of specific facts in the case.

Nineteen pairs of graduate students from the Heinz School at Carnegie Mellon University, 60 pairs of law students from the University of Texas, and 15 pairs of students from the Wharton School at the University of Pennsylvania participated in the experiment. In each group, subjects were randomly assigned to one of the two experimental conditions and to

one of the two roles. The major manipulation was the order of events in the experiments. In condition A, subjects were given their roles and then read the case materials, predicted the judge's award, assessed fairness, and negotiated. In condition B, subjects read the materials, predicted the judge's award, and assessed fairness before being given their roles. They were then given their roles just before negotiating. Our expectation was that self-serving interpretations of fairness would be more extreme, and thus settlement rates would be lower, in condition A, in which subjects knew their roles when they read the case materials and assessed fairness.

Self-serving interpretations are likely to occur at the point when information about roles is assimilated. It is easier to process information in a biased way than it is to change an unbiased estimate once it has been made. Thus, knowing one's role while reading the information should generate a biased evaluation. In condition B, there is no possibility of self-serving bias when fairness measures were taken, since subjects in that condition did not know their roles at that point in the experiment. Because of the diminished possibility of self-serving bias in condition B, we predicted a lower rate of disagreement.

II. Results

The experimental manipulation affected the time it took to reach a settlement and the likelihood of settlement. Table 1 summarizes the results. As predicted, those who did not know their roles when reading the materials, predicting the judge's award, or assessing fairness (condition B) were more likely to settle. Ninety-four percent of the pairs in condition B settled, but only 72 percent of those who knew their roles initially (condition A) settled—a significant difference. Stated differently, there were four times as many disagreements when bargainers knew their roles initially than when they did not know their roles. Bargaining pairs in condition A settled in an average of 3.75 periods, while pairs in condition B took an average of 2.51 periods, also a statistically significant

TABLE 1—SETTLEMENT RATES AND VALUES BY CONDITION

Condition	Settlement rate	Average number of periods to settle	Mean settlement
A: knew roles ($n = 47$)	0.72 (0.07)	3.75 (0.28)	\$29,970 (\$2,676)
B: did not know roles ($n = 47$)	0.94 (0.03)	2.51 (0.21)	\$36,762 (\$2,207)
Test for differences between conditions:	$\chi^2 = 7.53$ ($p < 0.01$)	$t = 3.53$ ($p < 0.01$)	$t = -1.98$ ($p < 0.06$)

Note: Standard errors are in parentheses

TABLE 2—ALTERNATIVE MEASURES OF THE SELF-SERVING BIAS BY CONDITION

Condition	DIFF FAIR	DIFF JUDGE	SELFSERVE
A: knew roles ($n = 47$)	\$19,756 (\$3,366)	\$18,555 (\$3,787)	25.8 (2.9)
B: did not know roles ($n = 47$)	-\$6,275 (\$3,613)	-\$6,936 (\$4,179)	7.1 (3.3)
Test for differences between conditions:	$t = 5.27$ ($p < 0.01$)	$t = 4.52$ ($p < 0.01$)	$t = 4.24$ ($p < 0.01$)

Note: Standard errors are in parentheses

difference.⁴ The mean settlement was slightly higher in condition B.

Table 2 presents three measures of self-serving bias by condition. The first measure, DIFF FAIR is the difference between the plaintiff's and the defendant's assessment of a fair settlement. DIFF JUDGE is the difference between the plaintiff's and defendant's assessment of the judge's award.⁵ Both measures in condition A are significantly different from zero, indicating a self-serving bias when the subjects knew their roles. In condition B,

⁴ This actually underrepresents the difference between the two conditions because nonsettlers are coded as settling in period 6 (because they are censored at six periods).

⁵ Predictions of the judge and assessments of fairness were highly correlated: 0.75 for plaintiffs and 0.81 for defendants. Defendants displayed a small degree of pessimism, anticipating that the judge would award slightly more than what they believed was fair; plaintiffs did not anticipate a difference in either direction.

neither measure is significantly different from zero.⁶

The last measure of the self-serving bias, SELFSERVE, is equal to $(I_P^P - I_D^P) + (I_D^D - I_P^D)$, where I_D^P , for example, is the plaintiff's importance rating of arguments favoring the defendant. The first two terms measure the extent to which plaintiffs rate arguments favoring themselves as more important than arguments favoring defendants. The last two terms measure the extent to which defendants rate arguments favoring themselves as more important than arguments favoring plaintiffs. Therefore, the sum of the two measures captures the pair-specific self-serving bias in the importance rating of arguments. SELFSERVE

⁶ It would be surprising to observe a significant bias for DIFF JUDGE or DIFF FAIR in condition B since subjects did not know their roles at the time they assessed fairness and predicted the judge's award.

TABLE 3—SETTLEMENT RATES BY MAGNITUDE OF THE SELF-SERVING BIAS

Bias	Settlement rate	Number of pairs
DIFF FAIR < -20,000	1.00	14
-20,000 ≤ DIFF FAIR ≤ 20,000	0.87	52
20,000 < DIFF FAIR	0.68	28
DIFF JUDGE < -20,000	1.00	17
-20,000 ≤ DIFF JUDGE ≤ 20,000	0.90	49
20,000 < DIFF JUDGE	0.61	28
SELF SERVE < 9	0.97	33
9 ≤ SELF SERVE ≤ 32	0.86	28
SELF SERVE > 32	0.67	33

is significantly greater in condition A than in condition B, indicating a stronger self-serving bias in condition A.

Table 3 presents the relationship between the measures of the self-serving bias and the probability of settlement. As the differences between the parties' assessments of either the fair settlement or of the judge increase, the probability of settling decreases. Similarly, as the difference between the parties' assessments of the importance of arguments favoring themselves increases, the probability of settling decreases.

For those who failed to settle, the mean value of the self-serving bias was \$24,656 as measured by differences in perceived fair settlement points and \$31,875 in terms of predictions of the judge. However, for those who did settle, the magnitude of the bias was only \$3,066 for assessments of fairness and \$463 for predictions of the judge. The differences between settlers and nonsettlers in the magnitudes of the biases are all significantly different from zero. SELF SERVE is also significantly higher for nonsettlers.

The analysis of the probability of settling is given in Table 4. These results parallel closely those presented above. When the bargainers reach different assessments of fairness and of the judge, they are less likely to achieve voluntary settlements. When the variable DIFF JUDGE is one standard deviation above its mean, the predicted probability of settling decreases by 26 percentage points (it changes from 0.89 to 0.63). When DIFF FAIR is one standard deviation above its mean, the predicted probability of settling decreases by 9

TABLE 4—PROBABILITY OF SETTLEMENT. PROBIT RESULTS

	(1)	(2)	(3)
Constant	0.5930 (3.04)	0.9115 (3.38)	1.1288 (3.90)
Did not know roles	0.9304 (2.69)	0.5921 (1.52)	0.4967 (1.27)
DIFF FAIR		-0.0141 (-1.88)	
DIFF JUDGE			-0.0288 (-3.01)
-Log likelihood	38.2	37.0	33.5
p value	0.0046	0.0028	0.0000

Note: Numbers in parentheses are *t* statistics (*N* = 94). The value of the log likelihood when all coefficients are set to zero is -42.9.

percentage points (it changes from 0.86 to 0.77). Notice that the experimental manipulation variable (DID NOT KNOW ROLES) becomes insignificant after DIFF FAIR or DIFF JUDGE is added to the equation. This is consistent with our view that the experimental manipulation influences fairness perceptions, which in turn influence the likelihood of settlement.

The findings from this experiment underscore the importance of the self-serving bias as a cause of impasse. There was a strong tendency toward self-serving judgments of fairness and predictions of the judge's award when subjects knew their roles. Furthermore, the magnitude of the bias was a significant predictor of nonsettlement.

III. Conclusions

Experimentation is now commonplace in economics; however, our focus on the role that fairness plays in bargaining led us to depart from the types of experiments typically conducted by economists. In most economics experiments, great pains are taken to remove any context. For example, in most market experiments, economic variables are given nonevocative single-letter labels so as to reduce nonpecuniary sources of utility and to prevent subjects from mindlessly conforming to established patterns of behavior. Similarly, in previous experimental studies of bargaining, adjudicators have been simulated by random

devices such as the drawing of a numbered bingo ball (see e.g., Linda B. Stanley and Don L. Coursey, 1990).

In our study we broke with this tradition and presented subjects with a detailed rich natural context. We did this because the self-serving bias which is our central focus is likely to be more prominent and to play a more significant role in disputes with multiple arguments on both sides. Like most disputes in the real world, the existence of multiple arguments, pro and con, for each side introduces the possibility of self-serving bias by allowing subjects to focus on, or weight, differentially arguments favoring themselves over the other party. We believe that self-serving biases are likely to be less pronounced in experiments using an abstracted dispute and in experiments where uncertainty comes only from chance devices.

A key feature in our experiments was that all information was shared. Subjects read the same materials and knew that they were doing so; they also knew that both parties were following the same procedure in terms of the sequence of the experiment. Under these conditions, the fact that their estimates of the judge were systematically different points to an important insight regarding information-processing. Information is usually assumed to facilitate settlement because it should cause the parties' expectations to converge. As Richard Posner (1986 p. 525) writes,

a full exchange of information . . . is likely to facilitate settlement by enabling each party to form a more accurate, and generally therefore a more convergent, estimate of the likely outcome of the case.

The rules of discovery and information-sharing that prevail in the legal system are premised on the notion that providing common information will lead to a convergence of expectations about the adjudicated outcome of a case. The assumption of convergence also seems to underlie the often-expressed view that labor impasses could be avoided if firms were willing to "open the books" to the union.

Contrary to this view, our results support the notion that common information does not nec-

essarily lead to a convergence of viewpoints and, therefore, does not necessarily promote settlement. Thus, the sharing of information in disputes, despite increasing the amount of information common to both parties, may cause expectations or perceptions of fairness to diverge rather than converge.

Most analyses of bargaining attribute non-settlement to strategic behavior. It is generally assumed that parties fail to realize potential gains to trade due to their strategic attempts to maximize their own payoffs. Our results suggest a somewhat different, although not mutually exclusive, account of nonsettlement. Perhaps disputants are not trying to maximize their expected outcome, but only trying to achieve a fair outcome. However, what each side views as fair tends to be biased by self-interest, reducing the prospects for settlement.

REFERENCES

- Cooter, Robert D. and Rubinfeld, Daniel L. "Economic Analysis of Legal Disputes and Their Resolution." *Journal of Economic Literature*, September 1989, 27(3), pp. 1067-97.
- de Finetti, Bruno. "Foresight: Its Logical Laws, Its Subjective Sources," in H. E. Kyburg, Jr. and H. Smokler, eds., *Studies in subjective probability* (translation of "La Prevision: Ses Lois Logiques, Ses Sources Subjectives, 1937). New York: Wiley, 1964, pp. 93-158.
- Farber, Henry and Katz, Harry. "Arbitration and the Incentive to Bargain." *Industrial and Labor Relations Review*, October 1979, 33(1), pp. 55-63.
- Hastorf, Albert H. and Cantril, Hadley. "They Saw a Game: A Case Study." *Journal of Abnormal and Social Psychology*, January 1954, 49(1), pp. 129-34.
- Kakalik, James; Ebener, Patricia; Felstiner, William and Shanley, Michael. *Costs of asbestos litigation*. Santa Monica, CA: Rand, Institute for Civil Justice, 1983.
- Loewenstein, George; Issacharoff, Samuel; Camerer, Colin and Babcock, Linda. "Self-Serving Assessments of Fairness and Pre-trial Bargaining." *Journal of Legal Studies*, January 1993, 22(1), pp. 135-59.

- Messick, David and Sentis, Keith.** "Fairness and Preference." *Journal of Experimental Social Psychology*, July 1979, 15(4), pp. 418-34.
- Posner, Richard.** *Economic analysis of law*, 3rd Ed. Boston, MA: Little, Brown, 1986.
- Priest, George and Klein, Benjamin.** "The Selection of Disputes for Litigation." *Journal of Legal Studies*, January 1984, 13(1), pp. 1-55.
- Ross, Michael and Sicoly, Fiore.** "Egocentric Biases in Availability and Attribution," in Daniel Kahneman, Paul Slovic, and Amos Tversky, eds., *Judgment under uncertainty: Heuristics and biases*. Cambridge: Cambridge University Press, 1982, pp. 179-89.
- Roth, Alvin E. and Murnighan, Keith J.** "The Role of Information in Bargaining: An Experimental Study." *Econometrica*, September 1982, 50(5), pp. 1123-42.
- Stanley, Linda R. and Coursey, Don L.** "Empirical Evidence on the Selection Hypothesis and the Decision to Litigate or Settle." *Journal of Legal Studies*, January 1990, 19(1), pp. 145-63.