

# MERCATUS POLICY SERIES

POLICY COMMENT No. 16

## USING NEUROECONOMICS EXPERIMENTS TO STUDY TORT REFORM

KEVIN MCCABE

*Professor of Law and Economics,  
George Mason University*

LAURA INGLIS

*Doctoral Candidate,  
Oxford University*

NOVEMBER 2007

MERCATUS CENTER  
GEORGE MASON UNIVERSITY

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### About Kevin McCabe, author

Kevin McCabe is a professor of economics and law at George Mason University. He also holds appointments at George Mason University's Center for the Study of Neuroeconomics (CSN), the Mercatus Center, and the Krasnow Institute for Advanced Study. He has written or co-written more than 70 articles on market design, industrial organization, game theory, monetary theory, behavioral economics, and experimental economics and has been co-principal investigator on many National Science Foundation (NSF) grants, including a recent NSF study on "Brain Function and Economic Decision Making." He is an editorial board member for the Journal of Experimental Economics and has served as a United States Agency for International Development (USAID) consultant in helping to establish an MBA program at the Warsaw School of Economics in Poland.

Dr. McCabe is a distinguished research fellow for the International Foundation for Research in Experimental Economics (IFREE) and is a research fellow for the Gruter Institute for Law and Behavioral Research. He has been a fellow in the Center for Political Economy at Washington University; a faculty affiliate member of the Center for Research in Learning, Perception, and Cognition at the University of Minnesota; and a faculty affiliate member of the Cognition and Neuroimaging Laboratories at the University of Arizona.

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### About Laura Inglis, author

Laura Inglis is a research scientist specializing in tort reform issues at the Center for the Study of Neuroeconomics at George Mason University. She holds a bachelor's degree in economics from George Mason University and a master's degree in economic history from the University of Oxford (graduation pending). She is currently pursuing a PhD in economic history at the University of Oxford.

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### About Frederic Sautet, editor

Frederic Sautet is a senior research fellow at the Mercatus Center at George Mason University and a member of the graduate faculty at George Mason University. Prior to joining Mercatus, Frederic was a senior economist at the New Zealand Commerce Commission and a senior analyst at the New Zealand Treasury where he focused on economic transformation, entrepreneurship, utility development, and tax policy. Frederic holds a doctorate in economics from the Université de Paris Dauphine and did the course work for his doctorate at the Institut des Etudes Politiques in Paris. He also studied at New York University as a post-doc. Frederic's current work focuses on entrepreneurship, institutions, and social change.

## USING NEUROECONOMICS EXPERIMENTS TO STUDY TORT REFORM

KEVIN MCCABE AND LAURA INGLIS

### EXECUTIVE SUMMARY

This paper provides an overview of the tort process and introduces a scientific approach for evaluating tort reform proposals. In this paper, we describe an experiment that models the tort process and attempts to identify factors that promote pre-trial settlements. Results of the experiment indicate that promoting pre-trial settlements would benefit both plaintiffs and defendants, because money spent on costly litigation could be used to compensate tort victims and that speedy resolutions would give injured parties quicker access to the funds they need.

Our results also indicate that:

- Increasing the amount of information about the case available to both parties in a lawsuit increases the likelihood of settlement.
- Increasing the cost of taking a case to trial increases the likelihood of settlement.
- Attorneys who do *not* bear the cost of going to court are less likely to settle than those who do. However, when non-cost-bearing attorneys do settle, they secure larger amounts due to aggressive bargaining. On balance, however, plaintiffs are worse off when attorneys do not bear the costs of going to court. The variability of contingent-fee contracts may undermine the intended effects of other tort reforms.
- Cost-shifting provisions, such as the English Rule and California Rule 998, do not have a significant effect on settlement rates.

Experimental results also found that litigant subjects often went to court when they would have been better off accepting settlement offers. In 46% of the cases that went to court in our experiments, both parties had received settlement offers that would have made them better off than the expected court outcome. This suggests that, as litigants made concessions, they became more emotionally committed to their current positions and less willing to concede. Reforms that promote settlements and help overcome such emotional barriers could greatly benefit defendants, plaintiffs, and the tort system.

# USING NEUROECONOMICS EXPERIMENTS TO STUDY TORT REFORM

## I Why Tort Reform?

DURING THE LAST three decades, the costs associated with the U.S. tort system have grown dramatically. Since 1980, the annual cost of tort claims filed in the United States has risen from \$42.7 billion to more than \$260.8 billion (controlling for inflation)—an increase of more than 610%.<sup>1</sup> These increasing costs have generated widespread concern about unfairness, waste of resources, and congestion within the legal system, and calls for tort reform are growing more insistent. A 2005 survey conducted by McLaughlin and Associates reports that 69% of Florida voters favored “significant legal and tort reform” that would include decreasing lawyers’ fees and reducing the number of lawsuits filed in Florida.<sup>2</sup> In light of such strong voter sentiment, it is not surprising that many politicians see tort reform as a legislative priority. However, it is difficult to reach consensus as to which reform proposals would be beneficial. It is the aim of this study to bridge the gap between creative suggestions and real-world results.

### A. What Is a Tort?

ESSENTIALLY, A TORT is any civil wrong that is not a violation of contract. It involves the breach of some legal duty toward another person. For a tort to be recognized in court, it is necessary to demonstrate that an

injury occurred, that the defendant’s action caused the injury, and that the defendant failed in his duty to take due precautions. Remedy is usually sought in the form of damages—monetary payments to the injured party to compensate for the wrong suffered.<sup>3</sup>

### B. How Does Tort Reform Promote Justice?

THE FUNDAMENTAL PURPOSE of the tort system is to compensate injured parties for their losses while ensuring that the parties responsible for injuries bear the consequences of their actions. A costly tort system that is slow to resolve disputes is especially harmful to injured parties, since money that could be used to compensate tort victims is spent instead on costly litigation.<sup>4</sup> Indeed, as the system presently functions, injured plaintiffs who need money may have to wait months or even years for their claims to be resolved. Tort reforms designed to promote pre-trial settlement and relieve congestion in the system would mitigate such injustices. If cases could be induced to settle quickly, more money could flow toward compensation and injured parties could gain quicker access to the funds they need.

### C. The Tort Process

BEFORE ANY INJURY occurs, the potential injurer decides on a course of behavior, including a level of care to

1. Tillinghast Report, “2006 Update on U.S. Tort Cost Trends,” Towers Perrin, 2006, p. 5. [http://www.towersperrin.com/tp/getwebcachedoc?webc=TILL/USA/2006/200611/Tort\\_2006\\_FINAL.pdf](http://www.towersperrin.com/tp/getwebcachedoc?webc=TILL/USA/2006/200611/Tort_2006_FINAL.pdf); For further information about empirical data on the tort system, see Eric Helland, Jonathan Klick, and Alexander Tabarok, “Data Watch: Tort-uring the Data,” *Journal of Economic Perspectives* 19 (2005): 207-20.  
2. Jim McLaughlin, “Florida Statewide Tort Reform Study,” McLaughlin and Associates, January 2005. <http://www.legalreforminthenews.com/Reports/2005%20FL%20Tort%20Reform%20Survey.pdf>. This study involved 500 voters and has a 4.4% margin of error at 95% confidence.  
3. *Black’s Law Dictionary*, 8th Edition, (St. Paul, MN: West Publishing Co., 2004), 1526, 416.  
4. Tillinghast Report, “U.S. Tort Costs: 2002 Update,” Towers Perrin, 2002, p. 17. [http://www.massmed.org/Content/ContentGroups/SectionsTopics/AdvocacyandPolicy/ProfessionalLiability/3741proflibility\\_tortcosts.pdf](http://www.massmed.org/Content/ContentGroups/SectionsTopics/AdvocacyandPolicy/ProfessionalLiability/3741proflibility_tortcosts.pdf). Only 46% of annual tort cost goes into compensating victims. The other 54% is lost to administration and attorneys’ fees.

exercise towards others. A motorist, for example, decides whether to drive the speed limit and use her headlights. The potential victim may also decide on a level of care; a cyclist, for example, chooses whether to wear helmet and reflectors before riding his bicycle. Such behavioral decisions on the part of both parties affect the likelihood of injury. When an injury occurs, the victim must choose whether or not to file a claim. If he does file, the parties enter pre-trial negotiation, the stage in which they attempt to negotiate a settlement. If a negotiated settlement is not reached, the case proceeds to trial.

However, this paper evaluates reform proposals that focus on the period of pre-trial negotiation, with the goal of increasing settlement rates. Specifically, we consider the effects of liberalizing discovery provisions, increasing court costs, changing contingency-fee arrangements, and implementing cost-shifting rules. The period of pre-trial negotiation is particularly significant, since the vast majority of tort cases filed in the United States settle before trial.

## E. Goals of Tort Reform

THE GOALS OF tort reform are manifold and may, at times, seem contradictory. Such goals include:

- Increasing settlement rates to reduce the costs of litigation.
- Promoting timely resolution of disputes.
- Preventing wasteful and frivolous lawsuits.
- Relieving congestion in the courts.
- Increasing general efficiency of the tort system.

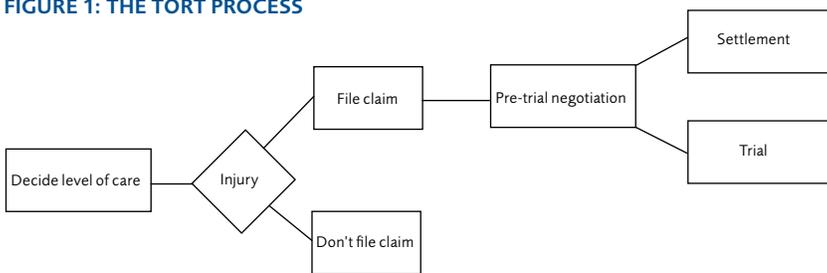
However, with little evidence to guide our thinking, it is difficult to determine which reform proposals will further these goals, and which will make matters worse. We use the tools of economic science to create a controlled laboratory experiment with which to evaluate proposed changes to the tort system.

## F. The Relationship between Law and Economics

BEFORE ATTEMPTING TO apply the tools of economic science to legal reform, however, it is important to consider the relationship between economics and the law.<sup>6</sup>

For most of the transactions of daily life, market prices help people calculate the costs and benefits associated with their actions. At the supermarket, *the price* requires

FIGURE 1: THE TORT PROCESS



## D. Tort Reform Proposals

SOME TORT REFORM proposals concentrate on preventing injuries. These proposals focus on constructing liability rules that offer incentives for both parties to act carefully. Under a strict liability rule, for instance, the injurer is always liable, regardless of whether or not he exercised care; under a negligence rule, the injurer is only liable if he failed to exercise sufficient care. Variations on these rules include the contributory negligence rule, which precludes a victim from recovering damages if he was also at fault, and the comparative negligence rule, which reduces the victim's recovery in proportion to his level of fault. In the United States, liability rules vary by state and kind of tort. George Priest describes a series of reform efforts since 1960 that have focused on this early stage of the tort process.<sup>5</sup> Other reform proposals, such as caps on punitive and non-economic damages, focus on the trial portion of the tort process.

5. George Priest, "The Invention of Enterprise Liability: A Critical History of the Intellectual Foundations of Modern Tort Law," *Journal of Legal Studies* 14 (1985): 461–527.

6. Richard Posner, *Economic Analysis of Law*, 7th Edition, (New York: Aspen Publishers, 2007).

a shopper to give up \$2 in exchange for a loaf of bread. In the workplace, *prices* dictate the wages an employee will gain in exchange for labor.

Most of the time, the law complements the market by enforcing property rights and contracts so that people can undertake economic activity without constant fear expropriation. Because of the law, shoppers can buy bread at the supermarket without fear that the supermarket will repossess the bread the moment they walk out the door. Likewise, the law allows employees to work with confidence that they will be paid.

Sometimes, though, decisions must be made without prices to reveal the associated costs and benefits. In these situations, the law acts as a substitute for the market by creating an alternative structure of costs and benefits. Because there is no enforceable contract between plaintiff and defendant in a tort case, there are no prices to establish the costs and benefits of their interaction. Thus the law assumes that role, both to resolve the particular dispute in question and to provide guidance for similar situations in the future.

Consider, for example, the case of a speeding motorist who injures a cyclist riding at night without reflectors. The accident is not governed by any previous agreement between the two parties; they are probably strangers. While the market has not provided for any restitution, it is not socially optimal for reckless motorists to injure cyclists with impunity. The law, substituting for the market, establishes and enforces the costs and benefits necessary to resolve the situation. Assume the liability rule in force is one of comparative negligence. The court decides that the motorist is 70% at fault for speeding, but the cyclist is 30% at fault for not using reflectors. The court determines that the cyclist has suffered injuries valued at \$100. However, because the cyclist was 30% at fault, damages are reduced to \$70. Hence, the law not only provides restitution in this particular case, but also sends a powerful signal to other motorists and cyclists about the economic consequences of such behavior. As we consider an economic basis for tort reform, this sample tort case illustrates how the law creates a structure of costs and benefits in the absence of market prices.

This paper describes how we use the tools of economic science to evaluate tort reform proposals. Chapter 2 introduces a scientific approach to policy analysis; chapter 3 provides an overview of previous bargaining experiments relevant to tort reform research; chapter 4 describes an experiment to study pre-trial negotiation;

chapter 5 evaluates specific reform proposals in light of our laboratory findings; and chapter 6 concludes.

## 2

## A Scientific Approach to Policy Analysis

AS PUBLIC DISSATISFACTION with the tort system increases, tort reform proposals are multiplying rapidly. Practicing lawyers, practitioners who have the intimate knowledge of the system and its problems, have advanced many proposed reforms. However, as honorable as their intentions may be, lawyers also have a vested interest in the system. We use the tools of economic science to evaluate reform proposals in an effort to find a neutral mechanism that tests potential policy changes and separates the helpful proposals from those that are less likely to succeed.

### A. The Scientific Method: Replication and Control

Generations of scientists have used the scientific method to evaluate theories and test solutions. Its essential principles are replication and control; no theory evaluated with the scientific method may be accepted on the basis of logic alone, but only after rigorous and repeated testing in a controlled environment. This approach works well—not because scientists are unbiased, but because the requirements of evidence and repetition help control the effects of bias. This approach is used successfully in engineering and business, and it proves helpful in other fields where contested theories can be evaluated based on replicable evidence.

If studies based on replicable evidence could be used to analyze legal incentives, it follows that legal institutions and future policy changes may become more effective.

The scientific approach aids policy makers in seeing beyond their biases, thus prompting debate. We all look at the world differently. If someone else fails to see what I see when evaluating a situation, it can be tempting to ignore them. Such attitudes stifle debate. The ability to appeal to replicable experiments makes it easier to get over this initial hurdle. Moreover, because the environment is controlled, the scientific approach allows researchers to study the effects of a policy change in isolation, before undertaking the effort and cost to mount a field test or pilot program.

We now consider five different ways of applying the scientific method to policy analysis that contribute to our understanding of pre-trial negotiation.

also easier to replicate an experiment if the behavior in question is persistent and readily observed.

In order to replicate a real-world decision scenario, subjects in experiments must feel the same preferences as real-world decision makers. To achieve this aim, researchers frequently use cash incentives to induce the desired preferences in subjects. Simply put, researchers pay the subjects based on their decisions in the game. Assuming that subjects prefer more money to less, everything else being equal, researchers can create the desired incentive structures by associating particular outcomes with higher payments.<sup>7</sup>

### C. Behavioral Economics: The Psychological Approach

ECONOMISTS HAVE THEORIZED for decades about the determinants of human choices. To test the descriptive value of these theories, researchers must understand how people incorporate information about the world into decision-making processes. Cognitive psychology provides helpful insights into the relationship between information processing and action.

The psychological approach has demonstrated that people do not always make decisions in the way that many economists predict. For instance, standard economic theory assumes that different presentations of a choice problem will yield the same outcome. However, real life often violates this assumption. Psychological experiments have demonstrated that framing, the way in which a problem is presented, can have a powerful effect on decision outcomes.

Psychological research has also shown that people tend to weight losses more heavily than gains when making decisions. In other words, they care more about avoiding negative outcomes than realizing positive outcomes.<sup>8</sup>

The experiment described below displays both results. Subjects were presented with a hypothetical scenario and asked to choose between two disease prevention programs. The percentage of subjects favoring each program is shown in brackets.

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### B. Experimental Economics: The Microeconomic Systems Approach

THE MOST STRAIGHTFORWARD method of applying the scientific method to policy analysis is through economics experiments, which attempt to re-create the essential characteristics of real-world decision-making scenarios in a controlled environment. A typical experiment involves human subjects interacting anonymously over a computer network, and aims to discover how changing the rules of the game may affect subjects' choices.

Fundamentally, every economics experiment examines how *environments* and *institutions* interact to produce outcomes. In the language of experimental economics, the environment is the set of background conditions under which the experiment occurs, including subject goals and costs—which influence behavior in the experiment. The institution is understood as the rules of the game, which determine the actions that a subject may take and the results of those actions.

The goal of an experiment is to study how institutional changes will change people's behavior. To study the effects of institutional change in a controlled way, we hold all environmental factors constant and make changes to the rules of the game, a process that allows us to observe the pure effect of the rule change.

The quality of an experiment depends on our ability to replicate our results. An experiment can be more easily replicated if we control the environment effectively, minimizing the contribution of extraneous factors. It is

7. Vernon Smith, "Experimental Economics: Induced Value Theory," *The American Economic Review* 66 (1976): 274–79. One concern about using money to induce preferences is that this may require subjects to think differently about their induced preferences compared to their natural preferences. However with careful application this method works extremely well in practice.

8. Amos Tversky and Daniel Kahneman, "Rational Choice and the Framing of Decisions," in *Rational Choice: The Contrast Between Economics and Psychology*, Robin Hogarth and Melvin Redder, eds. (Chicago: University of Chicago Press, 1987), 71.

Imagine that the United States is preparing for the outbreak of an unusual Asian disease, which is expected to kill 600 people. Two alternative programs to combat the disease have been proposed. Assume that the exact scientific estimates of the consequences of the programs are as follows:

If Program A is adopted, 200 people will be saved. [72%]

If Program B is adopted, there is 1/3 probability that 600 people will be saved, and 2/3 probability that no people will be saved. [28%]<sup>9</sup>

Another group of subjects faced the identical scenario, but the choices were presented differently:

If Program C is adopted, 400 people will die. [22%]

If Program D is adopted, there is 1/3 probability that nobody will die, and 2/3 probability that 600 people will die. [78%]<sup>10</sup>

The two choice problems are conceptually identical. Under Programs A and C, 400 people die, while under Programs B and D there is a one-third probability of no deaths and a two-thirds probability of 600 deaths. The only difference is that the first choice was presented in terms of lives saved and the second in terms of lives lost. Notice, however, the dramatic way in which subject choices differed between the two presentations. When the problem was presented in terms of gain (lives saved), more preferred the secure option. When the problem was presented in terms of loss, more subjects were willing to take a chance to avoid the negative outcome. This illustrates both the power of framing and the human propensity to weight losses more heavily than gains, findings confirmed by many other studies.<sup>11</sup>

The results of these experiments provide insight into the pre-trial negotiation phase of the tort process. If people are indeed more concerned about avoiding losses than realizing gains, it may be that plaintiffs—who face the possibility of gain from a tort claim—will be more willing to accept settlement offers than defendants, who face the possibility of loss.

In a bargaining environment, framing influences the likelihood of resolution. If both parties view their own concessions as losses, bargaining is likely to fail because both parties will focus on avoiding concessions. This suggests that mediation might be a powerful tool in promoting the resolution of tort claims. If mediators can help both parties to see pre-trial settlement as a gain, it is likely that fewer cases will proceed to trial.

## D. Neuroeconomics: The Biological Approach

TO UNDERSTAND ECONOMIC behavior, it is also important to study how the human brain processes information, motivating people to action and directing them toward better decisions.

The human brain weighs approximately three pounds and operates on roughly ten watts of power per hour, yet it has produced the Theory of Relativity, Beethoven's 5th Symphony, and the Mona Lisa. Though the brain is amazing and powerful, it is limited in many ways. For example, humans see clearly in only 2% of the visual field. Thus the brain must reconstruct what a person sees by relying on short-term memory. Moreover, because humans often become conscious of decisions only after they make them, the brain frequently ignores information that might prevent it from making bad decisions. As Stephen Pinker explains, the brain is simply not a blank slate equipped to solve all problems with equal success.<sup>12</sup> Research indicates that the brain is highly specialized regarding what functions it does well, and it cost-minimizes in an attempt to use the least amount of calories and “neural real estate” when making decisions.

The brain sends and receives information through its immediate environment: the body. Knowledge of the world is filtered through the senses, and the ability to act in the world depends on what the muscles can manipulate. These constraints determine how brains form mental pictures of the self and of others in the world. Furthermore, human bodies are never in equilibrium. Humans are constantly getting hungry, aging, and facing potential danger from the external world. Such physical factors press humans to take action and may produce conflict as to what action should be taken.

9. Tversky and Kahneman, *Rational Choice*, 76.

10. Tversky and Kahneman, *Rational Choice*, 76.

11. For citations, see Tversky and Kahneman, *Rational Choice*, 91-94.

12. Stephen Pinker, *The Blank Slate: The Modern Denial of Human Nature* (New York: Penguin Books, 2002), viii-ix.

Neuroeconomics is a collaboration between cognitive neuroscientists and economists who use the framework of microeconomic systems to understand how the human brain makes economic decisions. This discipline has generated several important findings about preferences and

responds with rejection. This is just one example of how an understanding of the brain can help us evaluate the likely outcomes of reform proposals.

## E. Economic Systems Design: The Engineering Approach

ENGINEERS HAVE SUCCESSFULLY applied the scientific method to many practical problems. First they model the problem as a physical system then break the system into progressively smaller parts that can be designed, built, and tested in parallel. If a particular component is not clearly understood, it can be designed and tested in isolation. This approach requires frequent system “builds” and tests.

Sometimes engineers experience spectacular failures when using the scientific method to solve real-world problems. If a bridge collapses due to faulty design, for example, the failure is often due to excess reductionism. If the system model assumes away some important aspect the real world, the model’s predictions are likely to be wrong. Moreover, if the model tests the different parts of a system in isolation, there is no guarantee that they will work properly when re-assembled.

Economists who use the engineering approach to test institutions face yet another problem: People are not parts. When economists change incentives and constraints, people change their behavior. Failing to anticipate this can—and does—cause institutional failure.

Economic systems design applies the methods of engineering to economic problems, using laboratories as test beds for institutional change. Several principles of institutional design have been gleaned from this approach. First, good institutions should take into account the decentralized nature of human knowledge and induce people to act on the basis of their particular knowledge. Second, institutions should be simple and easy to use. Third, any institutional change will bring about unintended side effects that may outweigh the benefits the change was meant to produce.

For example, during the last three decades, many states have imposed caps on non-economic damages in medical malpractice tort cases. It was expected that this measure would reduce insurance premiums and keep plaintiff recoveries proportional to injuries sustained. A recent empirical study indicates that juries have responded to these caps by awarding larger economic damages that are

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decision making. For example, researchers now know that the dopamine system in the brain encodes potential rewards and that a neural system in the striatum is used to monitor and adjust decisions in order to increase success at achieving a target reward. Thus all decision making is a process of learning what to choose. Researchers have also learned that money—as well as social acceptance and social status—is encoded as a reward (as much so as food, drugs, etc.), which indicates that brains are capable of encoding many things as rewards and treating them as worthy of goal-directed action. But this means that humans can be motivated by many different rewards simultaneously, which may lead to cognitive conflict.

Cognitive social neuroscience is particularly important to neuroeconomics because it provides a framework within which to model how the brain solves the problem of social interaction. Just as the brain is not a “blank slate,” neither does it function in isolation. No brain is an island. Human beings constantly share mental states, because they have similar brains designed to simulate one another’s mental activity. For example, mirror neurons allow people to learn complex motor activity by watching another person, while neurons that process language simulate what another person is saying and permit anticipation of what they will say next.

In regard to tort law, neuronal systems allow humans to share emotions and intentions—to feel what others feel and guess what they think. Thus, when a settlement negotiator feels disgust upon receiving an unfair offer, it is because his brain has reconstructed the thoughts and strategy of his negotiating partner. He recognizes the unfair offer as an attempt to take advantage of him and

not covered by the caps. The study reports that caps on non-economic damages have had no significant effect on plaintiff recoveries.<sup>13</sup>

This story illustrates the value of testing institutional changes in the lab before enacting them in the real world. Not only can laboratory testing save a great deal of time and money; it also enables researchers to discern the effects of institutional changes and to correct mistakes before devoting resources to real-world legal reforms that might not benefit society.

## F. Field Experiments

THE ULTIMATE GOAL of economic science is to produce information that informs real-world policy decisions. However, implementing experimental results directly from the laboratory can be problematic. Every experiment is necessarily a simplification of the real world, and there is no guarantee that behavior observed in the laboratory will persist outside it. One way to confirm the robustness of experimental results is to run a field experiment, a limited real-world trial of a proposed policy change.<sup>14</sup>

Field experiments serve as valuable complements to experimental studies, and they often take the form of pilot programs. Suppose, for example, that a policy change is enacted in a particular area (perhaps five counties in a given state) but not in another similar area (five other counties in the same state). Researchers can then compare results from the two areas to determine the effects of the policy change. Ideally, the counties in the test group and the control group would be randomly determined—controlling for demographics and mean income—to avoid selection biases.

Controlled field experiments have been implemented successfully in many areas of research, but not yet in tort reform. Experiments have been used in educational settings to evaluate school voucher programs and test theories of optimal class size.<sup>15</sup> In medicine, a recent clinical

trial indicated that early treatment of HIV-infected infants increases their life expectancy.<sup>16</sup>

## 3 Bargaining Experiments

WE NOW CONSIDER several bargaining experiments which have generated insights applicable to tort reform. The results of these experiments have guided the design of our tort reform experiments.

Bargaining is a process of agreeing on terms of trade. In its simplest form, a buyer values a good at some amount greater than what it costs a seller to produce it. In this case, both parties would benefit from trade, because they both give up something they value less to gain something they value more. Economists call the difference between the buyer's valuation of the good and the seller's cost to produce it the "surplus" of a potential trade. Both parties will be better off if they can agree on a price somewhere between the buyer's valuation and the seller's cost, which will result in a sharing of the surplus.

However, since the buyer prefers a low price and the seller prefers a high price, they face a basic dilemma. Both want a larger share of the surplus. How aggressively should they bargain, given that bargaining failure will result in loss of the surplus for both? Bargaining experiments help us to understand the conditions that produce different bargaining strategies and results.

### A. The Ultimatum and Dictator Games

THE FIRST BARGAINING experiment we consider is the "ultimatum game."<sup>17</sup> Two participants, designated first mover and second mover, are given a sum of money to divide between them. The first mover proposes a split and the second mover decides whether to accept or reject it. If the proposal is accepted, the participants keep their

13. Catherine M. Sharkey, "Unintended Consequences of Medical Malpractice Damage Caps," *NYU Law Review* 80 (2005): 429, 469.

14. Glenn W. Harrison and John A. List, "Field Experiments," *Journal of Economic Literature* 42 (2004): 1009–55. Harrison and List provide a useful introduction to field experiments.

15. Joshua Angrist, "Randomized Trials and Quasi-Experiments in Education Research," *NBER Reporter Summer*, 2003, <http://www.nber.org/reporter/summer03/angrist.html>.

16. National Institutes of Health, "Treating HIV-Infected Infants Early Helps Them Live Longer," *NIH News*, July 25, 2007, <http://www.nih.gov/news/pr/jul2007/niid-25.htm>.

17. Werner Guth, Rolf Schmittberger, and Bernd Schwarze, "An Experimental Analysis of Ultimatum Bargaining," *Journal of Economic Behavior and Organization* 3 (1982) 367–88.

respective shares of the money. However, if the offer is rejected, both parties walk away with nothing.

Economists have tried to predict what kind of splits will result from the ultimatum game. They have reasoned that if the second mover is walking down a sidewalk and sees

economic theory predicts that the ultimatum game will produce lots of (\$9, \$1) splits and few rejections.

The actual results of ultimatum experiments are quite different. Equal or near-equal splits are by far the most common outcomes. The probability of rejection increases as proposals become less equal. Indeed, the predicted (\$9, \$1) split is unlikely to occur at all. This experiment has been replicated many times with similar findings. Figure 2 shows the results of a typical ultimatum bargaining experiment.<sup>18</sup>

In half of the cases shown in Figure 2, the first mover proposed a 50/50 split and the second mover accepted it. In the remaining cases, the first mover proposed a somewhat unequal split and the second mover sometimes rejected it—even though such an outcome left both parties with nothing.

This distribution of offers does not change when the stakes of the game increase. One study compared experiments in which participants had to divide \$10 with others in which they had to divide \$100; the normalized offer distributions were similar in both cases.<sup>19</sup> Another experiment, run in Indonesia, found that equal and near-equal splits dominated, even when the amount of money in question was equal to three months' expenditures for the participants.<sup>20</sup>

Why do equal splits prevail in the ultimatum game? One possibility is that the (\$9, \$1) prediction does not take into account how second movers will react to 'unfair' offers. Alternatively, first movers may feel compelled to be 'nice' to second movers.

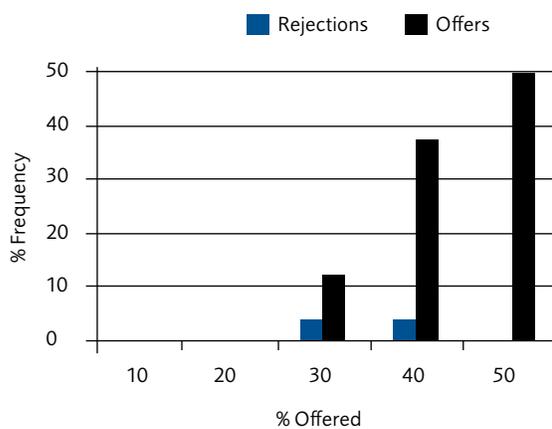
Economists constructed another experiment called the dictator game to explore the reasons for the equal splits in the ultimatum game.<sup>21</sup> In the dictator game the first mover is given an amount of money. He can choose to keep it all or to give some to the second mover. The second mover no longer has the opportunity to reject the split. In one version of the dictator game, the second mover knows the identity of the first mover. In the other version, the first mover is anonymous. Figure 3 summarizes the results from both versions.

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a dollar bill, she will pick it up. This indicates that the second mover prefers having \$1 to having nothing and is willing to exert a little energy to make this happen.

Assume now that the participants have been asked to divide \$10, and every second mover prefers having \$1 to having nothing. The first mover knows this and reasons that he does not have to give the second mover more than \$1 to have his proposal accepted. Since the second mover is better off with \$1 than with nothing, standard

FIGURE 2: RESULTS OF THE ULTIMATUM GAME



18. A comprehensive review of ultimatum bargaining experiments can be found in a working paper by J. Neil Bearden, "Ultimatum Bargaining Experiments: The State of the Art," (Working paper, SSRN, 2001) <http://ssrn.com/abstract=626183>.

19. Elizabeth Hoffman, Kevin McCabe, and Vernon Smith, "On Expectations and the Monetary Stakes in Ultimatum Games," *International Journal of Game Theory* 25, (1996): 299.

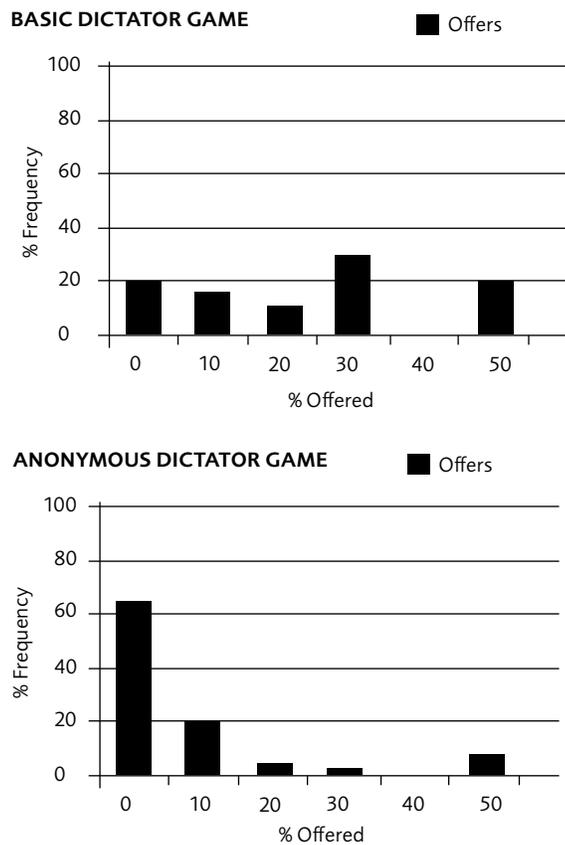
20. Lisa A. Cameron, "Raising the Stakes in the Ultimatum Game: Experimental Evidence from Indonesia," *Economic Inquiry* 37, (1999): 58.

21. Elizabeth Hoffman, Kevin McCabe, and Vernon Smith, "Social Distance and Other-Regarding Behavior in Dictator Games," *The American Economic Review* 86, (1996), 653–60.

First movers in the dictator game were far less likely to propose equal splits than were their counterparts in the ultimatum game. Even when second movers knew the identity of the first movers, 21% of first movers chose to keep all the money. When first movers made their decisions anonymously, 64% chose to keep all the money.

The results of the dictator game indicate that the first movers who proposed equal splits in the ultimatum game were not simply trying to be nice. Rather, they were trying to buy the acceptance of the second movers. In the basic dictator game, where acceptance of second movers no longer mattered, equal splits were much less likely to occur. However, the dramatic difference between the basic and anonymous versions of the dictator game does suggest that social pressure can be a significant factor in bargaining.

**FIGURE 3: DICTATOR GAMES**



## B. Emotions and Unfair Offers

A RECENT NEUROECONOMICS study monitoring the brain activity of second movers in ultimatum games noted an increase of activity in the insular cortex, the region of the brain associated with emotions, when second movers received unequal offers.<sup>22</sup> This activity is interpreted as an emotional response of disgust and is thought to cause an unconscious propensity to reject the offer. In addition to increased insular activity, the study also found increased activity in the dorsolateral prefrontal cortex, an area of the brain known to be important in controlling cognitive conflict. These findings suggest that receiving an unequal offer is not like seeing a dollar on the street. Instead, the brain accounts for the fact that another person made the offer—a person who stands to gain from the offer’s inequality. This triggers an emotional reaction that may lead the recipient to reject the unfair offer.

Why do humans react emotionally to unfair offers? One explanation is that we have evolved to do so. But how could leaving money on the table or not taking advantage of a trading surplus improve one’s ability to survive? The answer lies in the importance of reciprocal advantage in personal exchange. If someone always gives in to unfair offers, others will take advantage of him; sometimes, therefore, it is better to reject an unfair offer to send a signal to other potential trading partners. This suggests that perceptions of fairness play an important role in moderating how strong an emotional reaction a second mover will have to unequal offers. What influences these perceptions?

## C. Property Rights

ONE IMPORTANT VARIABLE that seems to affect perceptions of fairness is whether the second mover believes that the first mover has somehow earned his advantageous position. In the instructions for a typical ultimatum bargaining experiment, the problem is framed in the following way: “You and another person have been provisionally allocated \$10. . . .” Given such wording it is easy to understand how second movers might perceive both participants as having equal rights to the surplus.

In another variation of the ultimatum game, experimenters introduced property rights by making participants compete for the right to be first mover. Figure 4 shows

22. Alan G. Sanfey, James K. Rilling, Jessica A. Aronson, Leigh E. Nystrom, Jonathan D. Cohen, “The Neural Basis of Economic Decision Making in the Ultimatum Game,” *Science* 300, (2003): 1755.

the results of the ultimatum with induced property rights. Offers are far less equal than in the basic ultimatum game. Notice, however, that the shift toward less favorable offers does not result in higher rejection rates. This suggests that when first movers have “earned” their advantageous position, second movers are far less likely to perceive unequal offers as “unfair.”<sup>23</sup>

Another study sought to introduce property rights into the dictator game, but in a slightly different way. Here first movers earned the money in question by correctly answering questions on a quiz. They then had to choose whether to give anything to the second movers, who had had no opportunity to earn any money.

**FIGURE 4: ULTIMATUM GAME WITH PROPERTY RIGHTS**

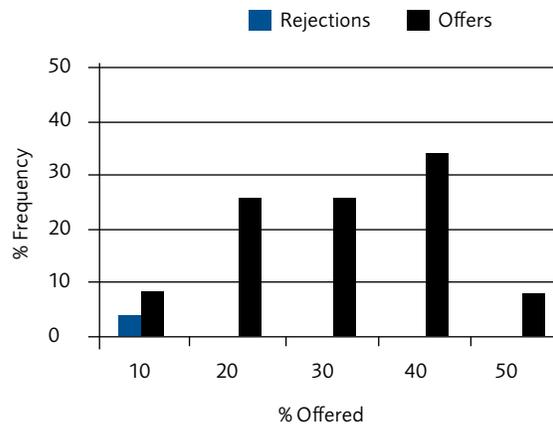
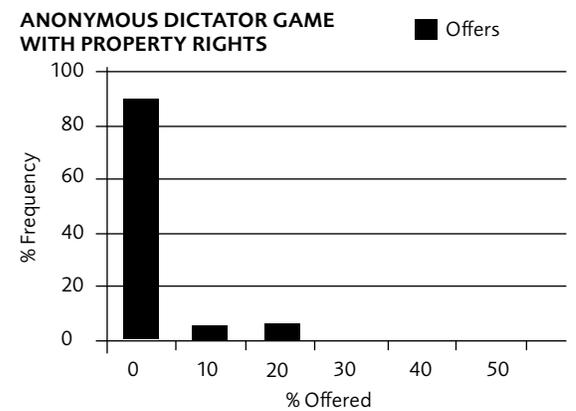
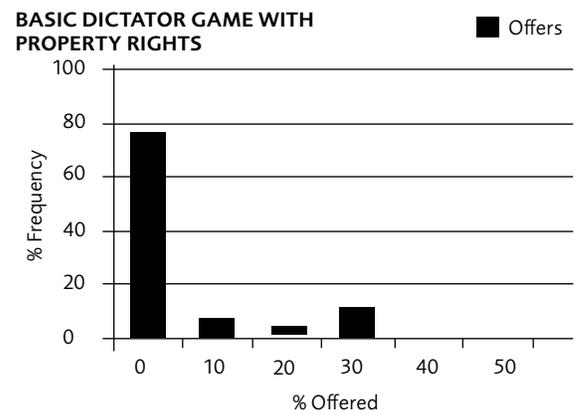


Figure 5 shows the effects of property rights on both versions of the dictator game. First movers were much less likely to give anything to the second movers when they were dealing with earned wealth than in the original dictator game (compare Figure 3 and Figure 5). When anonymity was combined with property rights, first movers gave virtually nothing to second movers.<sup>24</sup>

#### D. Sequential Bargaining

THE ULTIMATUM GAME can be extended over time through a sequential bargaining experiment. In a sequential bargaining experiment, there is some surplus to be divided between two subjects. The subjects negotiate

**FIGURE 5: DICTATOR GAMES WITH PROPERTY RIGHTS**



how to split the surplus by making offers and counteroffers. Since this process could go on forever, there is usually a time limit or a cap placed on the number of offers that can be sent. An agreement is reached if either party accepts the other’s offer before the limit is reached.

Ingolf Stahl and Ariel Rubenstein have created a well-known theoretical model of sequential bargaining.<sup>25</sup> In the Stahl-Rubenstein model, subjects have a finite number of rounds to split a mutually known surplus that shrinks after each round. A typical sequential bargaining experiment might work in the following way: In round one, two persons, designated first mover and second mover, bargain over how to split \$100. The first mover makes an offer, and the second mover accepts or rejects. If the offer is rejected, bargaining moves to round two where they now have only \$50 to split. In round two the

23. Elizabeth Hoffman, Kevin McCabe, Keith Shachat, and Vernon Smith, “Preferences, Property Rights, and Anonymity in Bargaining Games,” *Games and Economic Behavior* 7, (1994): 370.

24. Todd L. Cherry, Peter Frykblom, and Jason Shogren, “Hardnose the Dictator,” *The American Economic Review* 92(2002): 1219–20.

25. Ariel Rubenstein, “Perfect Equilibrium in a Bargaining Model,” *Econometrica* 50, (1982), 97–109; See also I. Stahl, *Bargaining Theory*, (Stockholm, Sweden: ERI-SSE, 1972).

second mover makes the offer and the first mover accepts or rejects. If the offer is again rejected, bargaining proceeds to a third and final round. Here the amount to be divided falls to \$25 and the first mover makes a final offer. If this offer is rejected, both parties receive nothing.

Sequential bargaining experiments highlight a conflict between conscious reasoning and the emotions that occurs in the brain during the negotiation process. In sequential bargaining, the probability of an agreement depends on both the equality of the proposed split and the amount of negotiation time remaining. Agreement becomes more likely as proposed splits become more equal, because acceptance requires a smaller concession from one's counterpart. On the other hand, agreement becomes less likely if there is little negotiation time remaining, as the parties may not concede quickly enough.

The cognitive part of the brain seeks to increase the probability of agreement, knowing that a bargaining failure will result in a total loss of surplus. Increasing the likelihood of an agreement requires concessions before the negotiation time expires. However, as every concession makes the bargainer feel worse off, the emotions begin to resist. With each concession, subjects become more emotionally committed to their current position and less willing to concede, even if it is in their financial interest to do so. Thus emotions may impede the settlement process.

In one experimental study involving sequential bargaining, second movers were allowed to play the game again, this time as first movers. Players who received unequal offers when they were second movers were then highly likely to make unequal offers as first movers. This finding seems to support the idea that emotional factors influence bargaining.<sup>26</sup>

Another study reports that in sequential bargaining experiments of more than two rounds, first movers tend to offer second movers the full amount available for division if the bargaining progressed to the second round. Such offers are usually accepted.<sup>27</sup> In these cases, conscious reasoning overrules negative emotions to prevent

breakdown in the negotiation process. These studies are relevant to tort reform because the process of pre-trial negotiation resembles a sequential bargaining scenario in important respects. Negotiation involves offers distributed across time, with potential gains diminishing as more resources are devoted to continuing the case.

## E. Previous Experimental Studies of Litigation Reform

WE NOW CONSIDER previous experimental studies explicitly focused on pre-trial negotiation.

Previous research has examined the effects of cost-shifting rules on settlement rates. Don Coursey and Linda Stanley designed a bargaining experiment to compare settlement rates under the American Rule, the English Rule, and Federal Rule 68. Under the American Rule, if pre-trial bargaining fails, both subjects have to pay their own court costs. Under the English Rule, the party that does not prevail in court has to pay the court costs for both sides. Under Federal Rule 68, a plaintiff who declines a settlement offer that would have been better for her than the court's decision has to pay her own legal costs plus those of the defendant. Experimental results indicated that both the English Rule and Rule 68 improved settlement rates over the American Rule. However, Rule 68 was found to redistribute wealth from the plaintiff to the defendant because of its asymmetry. Coursey and Stanley therefore recommended that California Rule 998 be used instead, but they did not test that rule. California Rule 998 removes the asymmetry of Rule 68 by providing that if either party turns down an offer that would have been better than the court's decision, that party must pay the costs of both sides.<sup>28</sup>

In another study, Peter Coughlin and Charles Plott compared settlement rates under the American and English Rules. Like Coursey and Stanley, they report higher settlement rates under the English Rule.<sup>29</sup>

Another study examined the effects of court costs and

26. K. Binmore, A. Shaked, and J. Sutton, "Testing Noncooperative Bargaining Theory: A Preliminary Study," *The American Economic Review* 75, no. 5 (1985): 1179.

27. Janet Neelin, Hugo Sonnenchein, and Matthew Spiegel, "A Further Test of Noncooperative Bargaining Theory: Comment," *The American Economic Review* 78, no. 4 (1988): 829.

28. Don Coursey and Linda Stanley, "Pretrial Bargaining Behavior within the Shadow of the Law: Theory and Experimental Evidence," *International Review of Law and Economics* 8, no. 2 (1988): 175–76.

29. Peter Coughlan and Charles Plott, "An Experimental Analysis of the Structure of Legal Fees: American Rule Versus English Rule," (Social Science Working Paper No. 1025, California Institute of Technology, Division of the Humanities and Social Sciences, 1997, <http://www.hss.caltech.edu/SSPapers/wp1025.pdf>), 35.

information about the probability of prevailing in court on settlement rates. The results indicated that increasing the cost of going to court would *not* improve settlement rates. However, improving parties' information about their likelihood of prevailing in court was found to improve settlement rates.<sup>30</sup>

A fourth experimental study of pre-trial negotiation examined the effects of information on settlement. The purpose of the study was to test an alternative settlement mechanism known as a settlement escrow, which worked as follows: Before pre-trial bargaining began, both parties could submit initial settlement offers to a neutral third party. If the defendant's offer was greater than or equal to the plaintiff's demand, the case settled immediately at the midpoint of the offers. If not, pre-trial bargaining continued as usual. The study reported that the escrow mechanism significantly improved settlement rates. The results also indicated that uncertainty about the level of injury the plaintiff had sustained reduced the likelihood of settlement.<sup>31</sup>

## 4

### A Bargaining Experiment to Study Pre-trial Negotiation

IN THIS STUDY, we focus on pre-trial negotiation because it is rule-based and easily amenable to experimental study. Most American tort claims (some estimates run as high as 90%) already settle before trial, but often only after heavy costs are incurred. If more cases could be induced to settle (or settle sooner), both litigation costs and congestion on court calendars would be reduced. Money that is currently spent on litigation costs could be used to compensate tort victims, and speedy resolution would allow injured parties quicker access to funds that may be instrumental in recovering from injury. The goal of our research, therefore, is to identify factors that promote pre-trial settlement.

Since we focus on pre-trial negotiation, our experiment assumed that a legal claim had already been initiated and

that the plaintiff had hired an attorney to represent him. It then examined the bargaining process as the parties attempted to settle their dispute. Subject were randomly assigned the role of plaintiff attorney or defense attorney; subjects continued in these roles for the duration of the experiment.

### A. The Environment

THE EXPERIMENT INVOLVED multiple cases negotiated under the threat of a court decision. In each case, the maximum award the court could make to the plaintiff was a random value between \$0 and \$10. The credibility of the plaintiff's case was a random value between 0 and 1, with 0 representing a groundless case and 1 the strongest case possible. The minimum court award was calculated by multiplying the maximum award and the credibility of the case, as follows:

$$Min = Max * Credibility$$

The actual court judgment for any given case was a random amount between *Min* and *Max*.

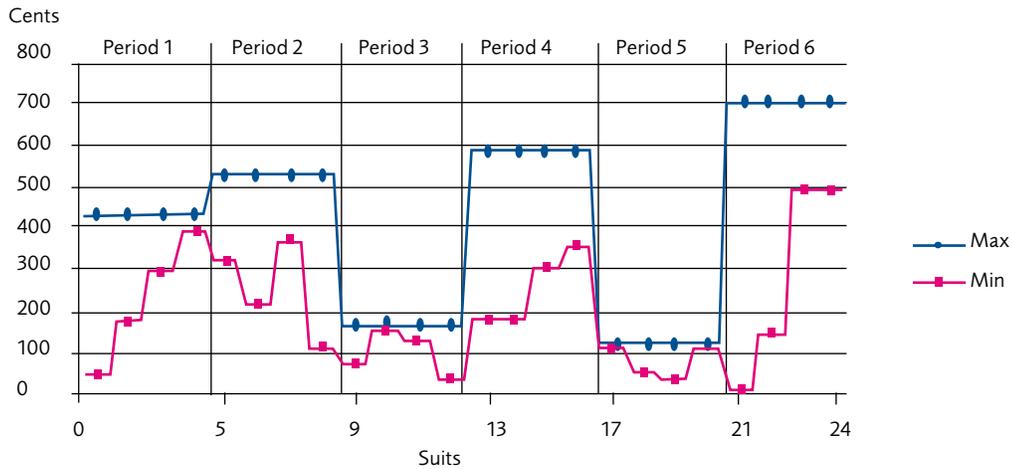
Since all court judgments between *Min* and *Max* were equally likely, the expected court judgment was the average of *Min* and *Max*. If the attorneys knew both *Min* and *Max*, they would have the same expectation for the court's decision. However, if the attorneys didn't know both *Min* and *Max*, they might develop very different expectations for the court's decision.

Every experiment was divided into six periods, each consisting of four cases. At the beginning of each period the defense attorneys and plaintiff attorneys were randomly and anonymously matched. These pairings persisted through the whole period (four cases). This was intended to replicate the real-world situation in which a plaintiff attorney represents four plaintiffs, each of whom asserts a legal claim based on the same harmful action by a defendant. Therefore, *Max* stayed the same for a whole period but *Credibility* varied from case to case. The cases were

30. Linda Stanley and Don Coursey, "Empirical Evidence on the Selection Hypothesis and the Decision to Litigate or Settle," *Journal of Legal Studies* 19, no. 1 (1990): 159–60.

31. Linda Babcock and Claudia Landeo, "Settlement Escrows: An Experimental Study of a Bilateral Bargaining Game," *Journal of Economic Behavior and Organization* 53, (2004): 413.

**FIGURE 6: EXPERIMENTAL SESSION PROFILE**



negotiated in a random sequential order. Figure 6 shows the values of *Min* and *Max* for each period.

## B. The Bargaining Institution

PARTICIPANTS BARGAINED BY sending offers and counteroffers over a computer network. The plaintiff’s attorney initiated the bargaining by paying a cost of \$1; after that both attorneys could send as many offers as they liked. Bargaining lasted for three minutes. A settlement occurred if either side agreed to the other side’s offer before the time ran out. If the parties did not reach a settlement in the allotted time, the case proceeded to trial. Each side incurred court costs, and the computer-acting as the court-made a judgment. After a settlement or court decision, the defense attorney paid the required damages to the plaintiff attorney. In these experiments there was no appeal process.

We sought to give our subjects preferences resembling those of real attorneys through the use of cash incentives. Corporate defense attorneys in the real world are often kept on retainer. Therefore, each subject in the role of defense attorney was given \$75: \$15 at the beginning of the experiment and \$10 at the start of each new period. At the end of the experiment, he got to keep whatever was left of his \$75 endowment, after damage payments and court costs. Plaintiff attorneys in the real world are often paid by contingency fee arrangements. Each subject in the role of plaintiff attorney received 50% of every

settlement or court award, minus his initiation fees and court costs. These payoff structures were intended to create incentives motivating attorneys to act in the interest of their clients.

## 5

### Laboratory Evaluation of Tort Reform Proposals

ONE OF THE great advantages of laboratory experiments is the ability they afford to control and change external variables in a way not possible in the field. In the laboratory we can control the amount of information available to the parties, the cost of taking a case to court, and many other variables. By changing one variable while leaving others intact, we can evaluate the impact of that particular variable on pre-trial settlement rates. In this study, we changed several variables in turn: the amount of information available to the parties, the cost of going to court, whether plaintiff attorneys had to file suit, cost-sharing arrangements on the plaintiff side, and the cost-shifting rules imposed by the court. We studied the effect of each variable on settlement rates.

#### A. Discovery Rules and Settlement Rates

THEORIES OF PRE-TRIAL bargaining predict that increasing the amount of information available to parties during

the negotiation phase will significantly improve settlement rates. The more each party knows about the strength of the other's case, the easier it should be for both parties to reach a settlement agreement.<sup>32</sup>

In our experiment, if the parties failed to reach a settlement within the allotted time, the court rendered a decision drawn at random between *Min* and *Max*. All values between *Min* and *Max* were equally likely to be chosen. The best estimate of the court decision, therefore, was the average of *Min* and *Max*. If the attorneys knew both of these values, they would have the same predicted value for the court decision—the average of *Min* and *Max*.

Sometimes, though, attorneys did not know both *Min* and *Max*. Sometimes the defense attorney only knew *Max*. He was not given the *Credibility* of the plaintiff's case. However, since *Credibility* was a random value between 0 and 1, he could estimate its value at 0.5. Therefore, the defense attorney would estimate *Min* as follows:  
 $Min = 0.5 * Max$ .

Sometimes the plaintiff attorney knew only the *Credibility* of her client's case. She did not know the maximum amount the court might award. However, since *Max* was a random value between \$0 and \$10, she could estimate *Max* at \$5. Therefore, the plaintiff attorney would estimate *Min* this way:  $Min = Credibility * \$5$ .

For example, suppose that for a given case  $Max = \$4$ ,  $Credibility = 0.8$ , and the real value of *Min* was \$3.20. If the attorneys knew *Min* and *Max*, they would both expect the court's decision to be \$3.60, the average of the two values.

However, if the defense attorney only knew that  $Max = \$4$  and that *Credibility* was 0.5 on average, he would estimate *Min* to be \$2. He would therefore expect the court's decision to be \$3, the average of \$2 and \$4.

If the plaintiff attorney only knew that  $Credibility = 0.8$  and that  $Max = \$5$  on average, she would estimate *Min* to be \$4. She would therefore expect the court's decision to be \$4.50, the average of \$4 and \$5.

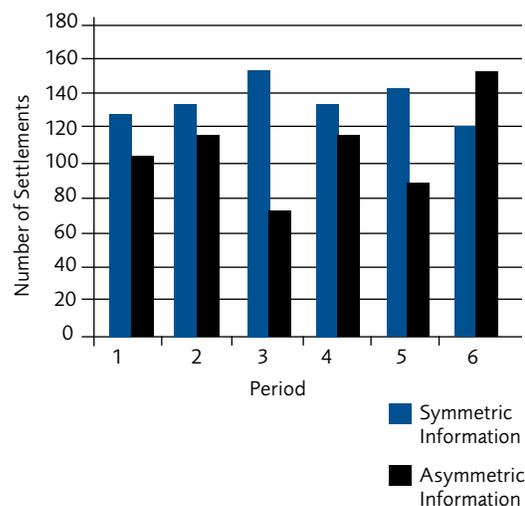
These differences in expectations can powerfully affect the likelihood of settlement. If the plaintiff attorney expects a high judgment from the court but the defense

attorney expects a low judgment, the parties will be much less likely to agree than if their expectations were aligned.

We used the label "symmetric" to designate the experimental condition in which both attorneys were given full information about the values of *Min* and *Max*. Since both parties in this situation had the same information, they should have been able to form similar expectations about the potential court decision. We used the label "asymmetric" to describe the condition in which the defense attorney only knew *Max* and the plaintiff's attorney only knew *Credibility*. Here we would expect to see lower settlement rates.

Figure 7 shows the effect of the information conditions on settlement rates. On the whole, settlement rates were much higher under symmetric information than asymmetric information.

**FIGURE 7: THE EFFECTS OF INFORMATION ON SETTLEMENT RATES**  
**SYMMETRIC VS. ASYMMETRIC INFORMATION**



These results seem to confirm the theory that increasing the amount of information available to parties increases the likelihood of pre-trial settlement. This conclusion fits with the previous experimental studies, which indicate that more information increases settlement rates.

One practical way to increase information during pre-trial negotiation would be to strengthen the provisions

32. William A. Glaser, *Pretrial Discovery and the Adversary System* (New York: Russell Sage Foundation, 1968), 11–12.

relating to discovery in the rules of civil procedure. It is important to recognize, though, that discovery has a strategic as well as informational aspect, and may thus be abused. Discovery demands drive up an opponent's costs and may be used deliberately to delay or halt proceedings. The party requesting discovery does not bear the costs, and so may have an incentive to make excessive demands. Bearing in mind this risk, however, provisions that improve the information available to both parties can be expected to improve pre-trial settlement rates.

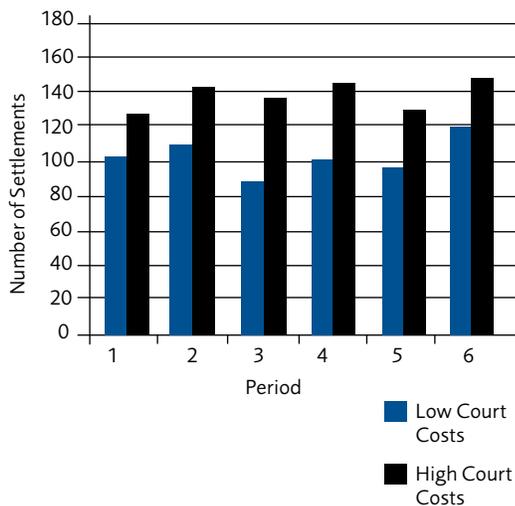
Of course, it is possible that parties will voluntarily share information during negotiation to avoid the costs of going to court. However, a party may not be able to credibly disclose information about his case. For example, a plaintiff may not have time before trial to hire expert witnesses to establish the extent of his losses. Alternatively, a party might choose not to disclose information for strategic reasons. For instance, a plaintiff who suffered below-average losses might hide this fact in order to blend in with other plaintiffs who sustained higher losses. In such cases, mandatory discovery proceedings may greatly increase the likelihood of settlement.<sup>33</sup>

On the whole, our results indicate that judges and regulators should work to improve the information plaintiffs and defendants have about the case, while guarding against strategic abuse of this process. To this end, it may be helpful to outsource the discovery process to independent legal firms, allowing a more inquisitorial process to precede the adversarial process of trial. The effects of such a process could be tested with further experiments.

## B. Court Costs

IN OUR EXPERIMENT, if the subject attorneys failed to reach a settlement within the allotted time, the case proceeded to court and both parties had to pay court costs. Theoretical models of pre-trial bargaining predict that as the cost of going to court increases, parties will become more willing to settle before trial. To test this prediction, we ran half our experiments with a court cost of \$0.50 and the other half with a court cost of \$1.50. The court cost remained constant throughout each individual experiment. Figure 8 contrasts the number of settlements under high court costs with the number of settlements under low court costs.

**FIGURE 8: SETTLEMENT RATES AND COURT COSTS  
HIGH COURT COSTS VS. LOW COURT COSTS**



We found that, on average, there were 35% more settlements when court costs were high than when they were low. This finding differs strongly from the Stanley and Coursey study (cited in Section 4.3) which found that increased court costs did *not* improve settlement rates.

Our results suggest that increasing the cost of going to court might be very effective in increasing settlement rates. However, such a scheme might disproportionately affect poor plaintiffs with worthy claims who might feel compelled to accept low settlement offers because they cannot afford to proceed to trial. Contingency fees may mitigate this risk, but many contingency fee contracts apply only to attorneys' fees and not to litigation expenses, which might be significant enough in themselves to prevent a worthy claim from being filed.

## C. Are Frivolous Lawsuits Rational?

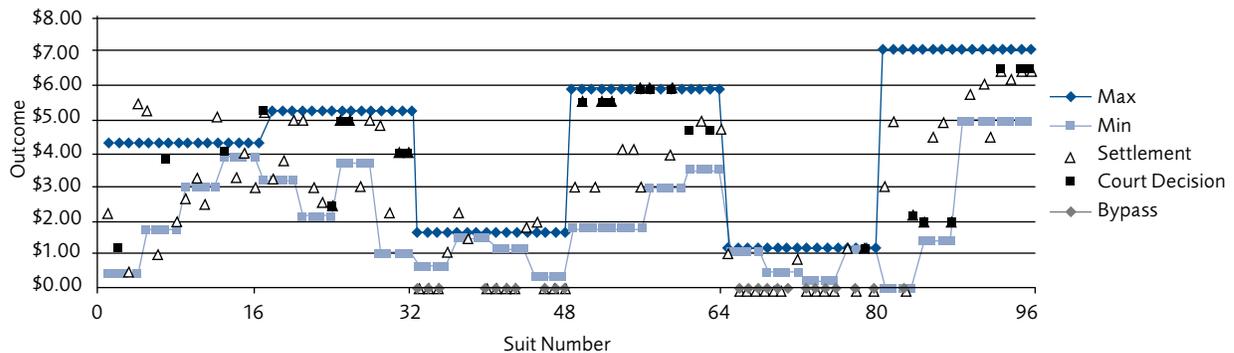
OUR EXPERIMENT ALLOWED the plaintiff's attorney to keep only half of every settlement or court decision she negotiated. (The other half was assumed to go to her client). She was also required to pay a \$1 fee to initiate negotiations for each case. Therefore, the plaintiff's attorney could only expect to make money on a case if half of the expected outcome minus the \$1 initiation fee was greater than zero. Of course, the decision of whether to initiate a suit was also influenced by other factors,

33. Stephen Shavell, *Foundations of Economic Analysis of Law* (Cambridge, MA: Harvard University Press, 2004), 425–27.

such as the plaintiff attorney’s subjective confidence in her own bargaining ability.

In some experiments, we required the plaintiff attorneys to initiate every suit, regardless of whether it served their interest to do so. In other experiments, however, we allowed the plaintiff attorneys to decide whether to initiate each suit. Figure 9 shows the results of a sample experiment in which plaintiffs were permitted to bypass suits.

**FIGURE 9: OUTCOMES WHEN PLAINTIFFS COULD BYPASS SUITS**



Since plaintiffs had to pay \$1 for every suit they initiated and kept only half of every outcome, it would make sense for them to bypass suits in which the maximum court award was less than \$2 (i.e. when the expected net result of the suit was negative). Figure 9 shows that subjects frequently chose not to initiate suits when it did not serve their interest. Subjects acted rationally when deciding whether to initiate a suit, taking cost factors into consideration.

In the real world “frivolous” lawsuits are often dismissed as irrational. However, our experimental results indicate that people do behave rationally when deciding whether to start lawsuits. It may be that real-world lawsuits considered “frivolous” are not actually irrational from the

plaintiff’s perspective. They begin because the cost of starting a suit is negligible.

## D. Cost-Allocation under Contingency Fee Arrangements

THE DETAILS OF contingency fee arrangements between plaintiff attorneys and their clients might also influence the likelihood of pre-trial settlement.<sup>34</sup> F.B. MacKinnon reports that under contingent-fees arrangements,

attorneys and clients may contract to share litigation costs in various ways. For instance, the plaintiff might agree to reimburse her attorney for court costs, or the attorney might cover those costs if the plaintiff has limited resources.<sup>35</sup> These differences in the allocation of costs can affect attorney incentives. Plaintiff attorneys who are not responsible for the cost of going to court might bargain more aggressively before trial. This might mean fewer settlements, but if aggressive bargaining leads to higher payments, the net outcome for plaintiffs is uncertain.

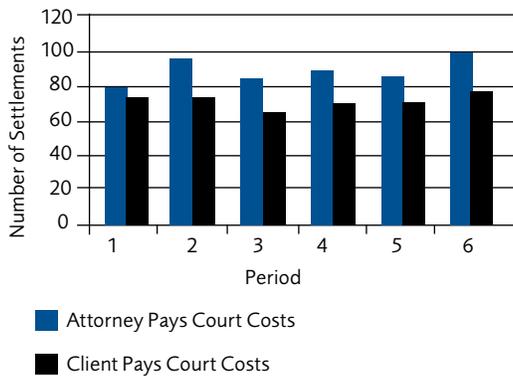
In some of our experiments, plaintiff attorneys had to pay their own court costs. In other experiments, those costs were passed on to their clients, and plaintiff attor-

34. Contingency-fee arrangements usually provide that the plaintiff attorney is paid only if the plaintiff receives damages. For the experiments reported in this section, the plaintiff always received damages. Our study of contingency-fee arrangements does not focus on whether the attorney is paid, but on the allocation of court costs, which can vary according to the terms of the contingency agreement.

35. F.B. MacKinnon, *Contingent Fees for Legal Services* (Chicago: Aldine Publishing Company, 1964), 67.

neys paid nothing for going to court. Figure 10 shows the effect of these contingency fee arrangements on settlement rates.

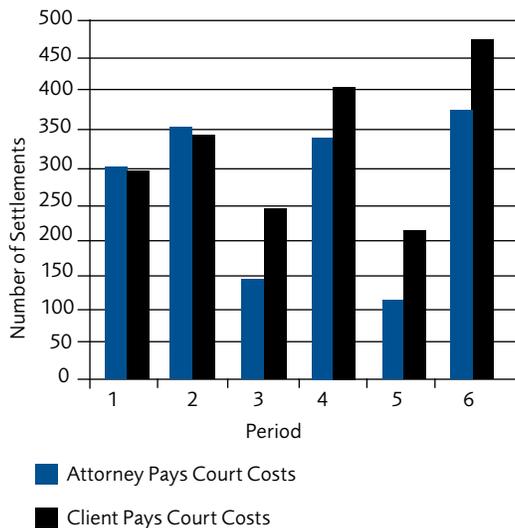
**FIGURE 10: THE EFFECT OF CONTINGENCY FEE ARRANGEMENTS ON SETTLEMENT RATES**



We observed that, in every period, fewer settlements occurred when plaintiff attorneys did not have to pay court costs.

We now consider whether not having to pay court costs led plaintiff attorneys to bargain more aggressively. Figure 11 shows the average settlement size for each period under both contingency fee arrangements.

**FIGURE 11: EFFECTS OF CONTINGENCY FEE ARRANGEMENTS ON SETTLEMENT SIZE**

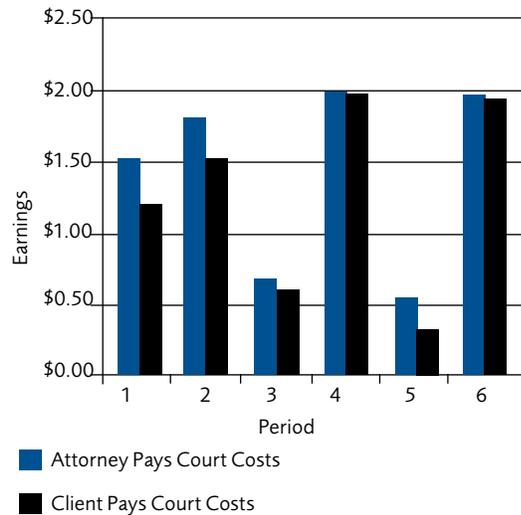


The effect is not present in every period, but there is some indication that not having to pay court costs leads plaintiff attorneys to bargain more aggressively. The

result is fewer settlements, but settlements that do occur tend to be larger.

We now consider the net outcome of these contingency-fee arrangements for clients. Figure 12 shows the average client earnings per suit under both cost-allocation conditions.

**FIGURE 12: NET EFFECTS OF CONTINGENCY-FEE ARRANGEMENTS ON CLIENT EARNINGS**



Our results indicate that the aggressive bargaining that results when attorneys do not have to pay court costs is harmful to clients' interests on balance. More aggressive bargaining leads to fewer, but larger settlements. However, the cost of more trials outweighs the benefit of larger settlements.

The fact that differences in the fee contract between client and attorney can have such a strong impact on settlement rates suggests that parties may be able to offset any institutional change by changing the way they contract with one another. Those who would reform the tort system should bear in mind that contingency fee variation might be used to offset the effects of any reform measures.

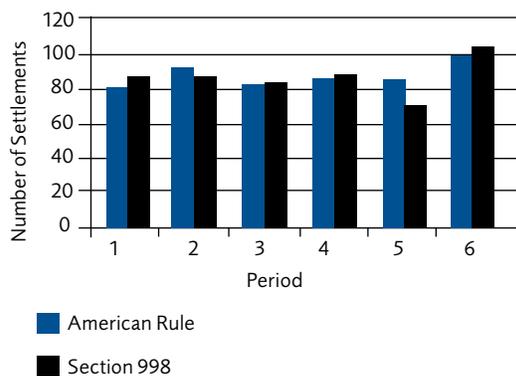
### E. Cost Shifting Rules

WE ALSO COMPARED settlement rates under various cost-shifting rules. In most American jurisdictions, each party in a tort claim is responsible for his own court costs. However, theoretical models suggest that shifting court costs between the parties might increase

pre-trial settlement rates. For example, Section 998 of the California Code of Civil Procedure provides that if either party declines an offer during pre-trial negotiation that would have been better for him than the court's eventual decision, that party must pay the court costs of both sides. This is thought to promote settlement by encouraging both parties to treat settlement offers more seriously.

We tested this rule in the laboratory against the baseline American rule of no cost shifting. By holding all other variables constant, we evaluated the settlement-inducing potential of Section 998. Figure 13 compares settlement rates under the American Rule and Section 998.

**FIGURE 13: COMPARISON OF COST SHIFTING RULES: AMERICAN RULE VS. SECTION 998**

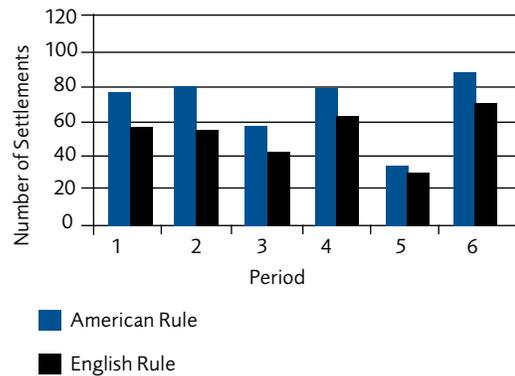


We find that settlements are equally likely under the American Rule and Section 998. Section 998 provides no significant improvement in settlement rates. This result differs from the Coursey and Stanley study which found that Rule 68 (an asymmetric version of Section 998) substantially increased settlement rates. In that study, however, subjects negotiated how to split a sum of money, rather than over how to redistribute wealth from defendant to plaintiff, as in our model.<sup>36</sup> It may be that the property rights implicit in our redistributive experiment undermined any settlement-increasing potential of Rule 68. This is an important possibility to consider, since property rights and redistribution are features of real-world settlement negotiations.

We also tested the English Rule, in which the party who is unsuccessful in court must pay the court costs of both

sides. If the defendant is found liable, he must pay all court costs. If not, the plaintiff must pay the court costs. This is thought to encourage settlement by increasing the risk of going to court.

**FIGURE 14: COMPARISON OF COST SHIFTING RULES: AMERICAN VS. ENGLISH RULE**



We find that the English Rule is actually *less* effective at promoting settlements than the American Rule. Again, this differs from previous studies, which found that the English Rule improved settlement rates. It may be that the English Rule makes parties excessively optimistic about going to court. After all, each one faces the chance of winning in court and avoiding the cost of a court decision all together. Judge Richard Posner considers over-optimism to be a leading cause of settlement failure in tort cases.<sup>37</sup>

## F. Emotions and the Tort System

WE HAVE SEEN from the neuroeconomics literature and ultimatum game results that emotions can have a powerful effect on bargaining, even causing people to leave money on the table if they perceive a deal to be “unfair.” In our experiment, we found that both parties frequently left money on the table by making inefficient decisions to go to court. These bargaining failures may well have resulted from an emotional unwillingness to make concessions.

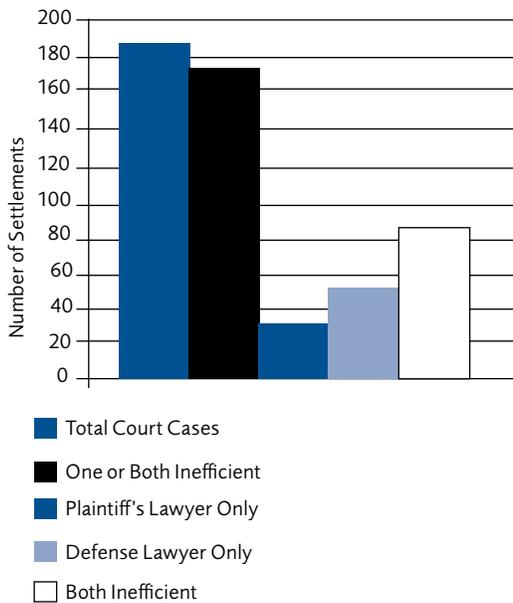
A defense attorney went to court inefficiently if the last settlement offer he received was smaller than the expected court decision plus the court fee. Likewise, a plaintiff

36. Don Coursey and Linda Stanley, “Pretrial Bargaining Behavior within the Shadow of the Law: Theory and Experimental Evidence,” *International Review of Law and Economics* 8, no. 2 (1988): 167.

37. Richard Posner, *Economic Analysis of Law*, 7th Edition, (New York: Aspen Publishers, 2007): 599.

attorney went to court inefficiently if the last settlement offer she received was greater than the expected court outcome minus the court fee. Figure 15 shows the number of cases that went to court even though one or both parties would have been better off accepting the last settlement offer received.

**FIGURE 15: INEFFICIENT USE OF THE COURT SYSTEM**



In 46% of the cases that went to court, both parties had received settlement offers that would have left them better off than the expected court outcome. Yet they failed to accept these offers and suffered the financial consequences. It is worth noting that, contrary to the usual stereotype, defense attorneys rather than plaintiff attorneys most often failed to accept favorable offers.

The results of the sequential bargaining experiments reviewed earlier suggest that bargainers become more emotionally committed to their current positions with every concession they make. The results of our tort experiment point to the same conclusion. Most of the cases that went to court in the experiment were within \$0.50 of settle-

ment when the bargaining time ran out. Figure 16 summarizes how close the parties were to agreement when time expired.

Participants had three minutes to negotiate, yet many narrowly failed to close the agreement. This would explain why so many of the experimental cases that went to court came so close to settling but failed to do so.

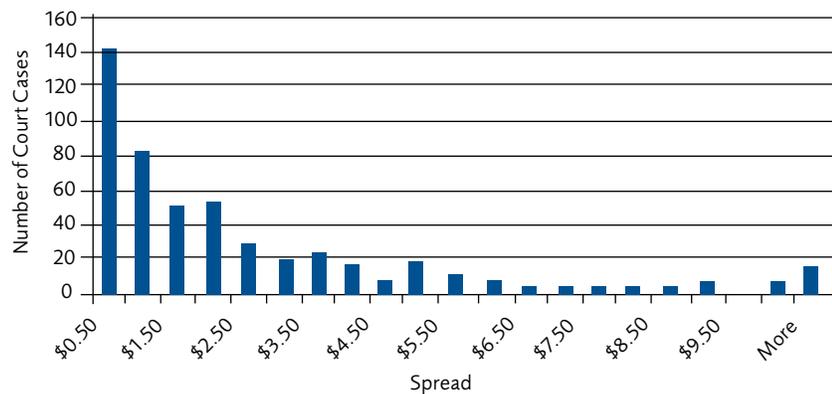
Even cases that do settle may settle slowly because of emotional involvement. This is important in the real world, where costs tend to accumulate throughout the settlement process and not only when the case goes to trial. If, due to emotions, cases settle just prior to trial, resources that could be used to compensate victims are being unnecessarily expended.

## 6 Conclusions

THE COST OF THE U.S. tort system has escalated dramatically in recent decades, generating many calls for reform. The sheer number of tort reform proposals highlights the need for an objective evaluation of policy proposals without the social and financial costs of full-scale, real-world implementation.

The scientific method enables us to test proposed policy changes in the laboratory. Using the principles of replication and control, we minimize the influence of researcher bias and gain objective insight into the probable results of a policy change.

**FIGURE 16: FINAL OFFER SPREADS BEFORE COURT DECISIONS**



In this paper, we reported on a test of tort reform proposals intended to promote pre-trial settlement. We evaluated reforms that would liberalize discovery provisions, increase the costs of going to court, and adopt various cost-shifting rules. Our results indicate that:

- Increasing the amount of information about the case available to both parties in a lawsuit increases the likelihood of settlement.
- Increasing the cost of taking a case to trial increases the likelihood of settlement.
- Attorneys who do not bear the cost of going to court are less likely to settle than those who do. However, when non-cost-bearing attorneys do settle, they secure larger amounts due to aggressive bargaining. On balance, however, plaintiffs are worse off when attorneys do not bear the costs of going to court. The variability of contingent fee contracts may undermine the intended effects of other tort reforms.
- Cost-shifting provisions, such as the English Rule and California Rule 998, do not have a significant effect on settlement rates.

Our experiments also found that litigants often went to court when they would have been better off accepting settlement offers. In 46% of the experimental cases that went to court, both parties had received settlement offers that would have made them better off than the expected court outcome. This suggests that, as litigants made concessions, they became more emotionally committed to their current positions and less willing to make additional concessions. Reforms that promote settlements and help overcome such emotional barriers may greatly benefit both defendants and plaintiffs.



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**MERCATUS CENTER**  
GEORGE MASON UNIVERSITY

3301 North Fairfax Drive, Suite 450  
Arlington, Virginia 22201  
Tel: (703) 993-4930  
Fax: (703) 993-4935