REPEATED INTERACTION, DEEP POCKETS, AND LITIGATION SPENDING

WAYNE EASTMAN

Graduate School of Management
Rutgers University
92 New Street
Newark, NJ 07102
Tel: (973) 353-1001
Fax: (973) 353-1273

and

P.V. VISWANATH

Lubin School of Business
Pace University
1, Pace Plaza
Pleasantville, NY 10057
Tel: (212) 346-1817
Fax: (212) 346-1573
E-mail: pviswanath@pace.edu

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Abstract

Decisions on litigation spending can be viewed as constituting an iterated nonzero sum game, and thus as conducive to cooperation aimed at reducing spending. At the same time, though, litigants may engage in aggressive spending for various reasons, including a belief that they can outsmart the other party. This article uses a litigation simulation to consider how litigation spending is affected by whether or not the parties engage in repeated interaction and whether or not the defendant is a corporation or an invidividual. We discuss the implications of the results for discovery policy, the admissibility of evidence of insurance, and the issue of whether lawyers tend to increase or moderate litigation spending levels.

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I. INTRODUCTION

Litigants deciding how much money to spend may reason as follows: "If we both restrain our spending, we will both do reasonably well. I will do even better, though, if I spend a higher amount and my opponent does not. If we both spend a higher amount, though, both of us will wind up worse off than if we both exercised restraint." Assuming a one-time, dichotomous decision as to how much to spend in which no settlement and no enforceable agreement between the litigants is possible, they are facing a simple Prisoner's Dilemma, in which the dominant choice for both is to spend a higher amount rather than to show restraint.[1]

In practice, litigation spending typically takes place incrementally rather than all at once, and often is not possible to conceal from the other side. Given these realities, litigants anticipating retaliation from the other side for high spending may choose to refrain from such spending, like World War I soldiers who created informal truces by not firing across the trenches.[2] Because litigants in an iterated Prisoner's Dilemma or similar game have the opportunity to cooperate tacitly, one can reasonably conjecture that even legal actions that are not settled will have spending levels lower than if the parties were unable to interact.

The case that communication will reduce litigation spending in tried cases below what it would be in the absence of communication is not clear cut, though. One can offer

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2 Axelrod, supra note 11, at 73-87 (1984).

a variety of reasons that suggest that actual levels of litigation spending might be as high or even higher than a model assuming self-interested, non-communicating litigants would predict. Litigants may be competitive or vindictive. In addition, litigants may spend heavily because a fairness-based preference for an even division of gains is neither as readily determinable nor as attractive in litigation as in some other bargaining contexts. Further, heavy spending by litigants may result from an egocentric tendency by litigants to believe they have the ability to outsmart the other side. Finally, there are strategic incentives to make threats to litigate to the hilt, incentives that may be especially strong for deep-pocket defendants, and to incur litigation costs as a means of signalling commitment to these threats.[3]

A central aim of this paper is to evaluate whether and how psychological processes, notably those associated with repeated interactions, affect litigation spending. Based on experiments, some psychologists and behavioral economists have suggested that people in practice are relatively cooperative and concerned with fairness, unlike the self-interested agents of neoclassical theory.[4] But do these results hold in a litigation

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[3] For an analysis of these incentives that argues that defendants have a greater incentive than plaintiffs to commit to a high level of litigation spending aside from wealth effects, see Wayne Eastman, The Effect of Asymmetric Incentives on Litigation Strategies (unpublished manuscript on file with the author). Also, a party might spend even more than is predicted in a situation with no communication because it wishes to disclose favorable information about its case in order to move the other side's reservation price. The divergence of interest between litigants and lawyers billing by the hour might also lead to spending levels for tried cases above and beyond what would be generated under a model of self-interested, noncommunicating litigants. Additionally, tried cases might in practice be more expensive than a model based on calculations for a single trial would predict because litigants are trying to influence the outcome in other cases. See xxx.

[4] Thaler, Jolls, etc.

context? The question is one that has policy significance for structuring discovery and other aspects of litigation. It also has significance for litigants interested in the size of the settlement range, which depends upon expected future litigation costs.[5] We will first analyze how much self-interested parties who are unable to interact would spend on litigation, and then turn to considering how repeated interactions, egocentric bias, and the presence of a deep-pocket defendant are likely to affect spending. We will then describe the results of a litigation simulation that tested the effects of interaction and having a corporate defendant on spending.

II. SPENDING BY LITIGANTS IN THE ONE-SHOT CASE

In order to provide a baseline for considering the factors that contribute to litigation spending, we will first describe the levels of spending that would be expected of litigants who are self-interested, rational (i.e., logically coherent in their choices), and unable to communicate, under varying assumptions about the relationship between litigation spending and litigation outcomes. First, assume that the expected outcome of an action is purely determined by the ratio of the parties' litigation spending.[6] So, for example, a party that spends three times as much as its opponent will have a 3/4 chance-- the ratio of its spending to the parties' total spending--of prevailing as to liability.

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[5] Cite Landes, Posner, Gould.

[6] More precisely, the plaintiff's probability of winning is equal to the ratio of the plaintiff's spending to total spending. In the special case in which both parties spend nothing, it is assumed that both parties have a one half chance to win the case.

Damages are assumed to be a constant figure.[7] Plaintiff's and defendant's spending

decisions are made simultaneously without communication. Given these conditions, it

can be shown that each litigant will spend 1/4 of the total stakes on litigation spending,

and together the players will spend half the stakes.[8]

The simple model of litigation spending just presented can be modified by making

the probable damages, as well as the probable outcome, a function of the ratio of a party's

spending to total spending. In this second model, the actual damages are a variable

proportion of a maximum figure instead of being fixed. If actual damages, themselves,

are equal to the product of the probability of winning and the maximum figure (for

example, the expected recovery of a plaintiff who matches the defendant in litigation

costs in a case with a maximum of y in damages would be 0.5 chance of winning times

$0.5y$, or $0.25y$), both sides should, once again, spend 1/4 of the stakes, with total spending

equal to half the maximum stakes. However, keeping in mind that, in this symmetric

situation, both parties will spend an equal amount in equilibrium, combined litigant

spending as a proportion of the actual damages paid to a winning plaintiff in equilibrium

is 100%! This latter result is true as long as the actual damages are proportional to the

probability of winning. In general, however, neither this result nor the result that total

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[7] This model is counterfactual in two respects that to some degree neutralize one another. First, it is reasonable to assume that liability determinations are affected by factors other than litigation spending by the parties (such as the underlying merits of the case). Second, it is reasonable to assume that damage determinations are affected by relative litigation inputs. But holding damages fixed regardless of relative litigation inputs, while counterfactual in itself, means that final outcomes in the model are not solely determined by litigation spending.

[8] Formal proof provided in Appendix A.

spending is 50% of the maximum damages is robust to variation in the way in which the stakes are affected by relative litigant spending.[9]

III. PSYCHOLOGICAL DETERMINANTS OF LITIGATION SPENDING

A. Repeated Interaction

Gilson and Mnookin (1994) asked the central question of this paper: "[D]oes the fact that the same parties play each other on multiple occasions over the course of a single lawsuit provide an opportunity for cooperation that is not present to the players in a one-round game?"[10] Gilson and Mnookin concluded on theoretical grounds that the answer seemed to be no, based on the fact that there is a finite ending to litigation and that it is difficult to determine whether the other litigant has in fact cooperated or defected. These two factors, though, do not establish the conclusion that litigants will fail to increase cooperation with repeated interactions. If litigants do not in practice employ the process of backwards induction that justifies defection in an iterated Dilemma with a known finite number of trials,[11] the fact that litigation has an end point may not affect cooperation levels. Second, the ambiguity of cooperation and defection in litigation associated with

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[9] For example, if actual damages are equal to the product of half the probability of winning and the maximum damages, total litigant spending in equilibrium will equal 25% of the maximum damages.

[10] Ronald J. Gilson & Robert H. Mnookin, Disputing Through Agents: Cooperation and Conflict between Lawyers in Negotiation, 94 Columbia Law Review 509, 520 (1994). The paper analyzed the effects of having lawyers rather than litigants make litigation decisions.

[11] cites

the multiplicity of choices available to litigants might actually enhance rather than diminish cooperation.**12**

Based on general analysis of the one-shot and iterated Prisoner's Dilemmas and kindred games, one can contend, contrary to the position taken by Gilson and Mnookin, that repeated interactions should improve the prospects for cooperation between litigants in a single lawsuit. Such a position has also been taken in the literature, for example by Setear, who has argued for reforms aimed at breaking up discovery requests so as to allow norms of reciprocity and restraint to develop between litigants.**13** But this position, like the opposing position that multiple interactions are unlikely to enhance cooperation in a lawsuit, is not one that can be established on a priori grounds; the issue calls for empirical inquiry.

Allowing for the possibility that the litigation frame will produce different results, empirical studies of the single-round and iterated Prisoner's Dilemma provide a useful baseline for predicting the effects of repeated interactions by litigators. In their studies of University of Michigan students, Rapoport and Chammah found substantial levels of cooperation in iterated Dilemmas, averaging around 50%. In their 300-round trials (subjects were not informed of the number of trials in advance), the overall pattern was

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12 In the standard Dilemma, one who cooperates while the other defects receives an unambiguous "sucker's payoff." If a major reason for defection is the fear of being a sucker, defection may be less in a context in which the penalty for unilateral cooperation is by no means as clear as in the standard Dilemma. On the other side, given ambiguity it will be difficult for parties to establish clear norms of reciprocity as readily as in the standard Dilemma.

13 The Barrister and the Bomb: The Dynamics of Cooperation, Nuclear Deterrence, and Discovery Abuse, John K. Setear, 69 Boston Univ. Law Review 569, 622, 628-29 (1989).

for initial levels of cooperation averaging just under 50% to decline to around 40% in the sixteenth through thirtieth trials, which was in turn followed by an increase in cooperation, with subjects cooperating by the one hundred fiftieth to three hundredth trials at somewhat above the 50% level on the average.[14] Because they studied differences in levels of cooperation among different types of Dilemmas and different populations rather than differences between the one-shot and iterated Dilemma, Rapoport and Chammah's work does not itself provide a baseline for comparing the two situations in the litigation context. But other studies of the one-shot Dilemma suggest that cooperation tends to be substantially lower there, averaging around 25%.[15]

Additional evidence on cooperation in iterated Dilemmas comes from Axelrod's study of the relative effectiveness of different strategies in computerized multi-round Prisoner's Dilemma tournaments.[16] The most successful strategy was the simple Tit-for-Tat, which followed an approach of cooperating on the first turn, and then doing whatever its opponent had done on its last turn. In general, "nice" strategies that began with cooperation and did not try to gain an edge through unprovoked defection did better than more aggressive strategies.

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[14] Anatol Rapoport & Albert M. Chammah, Prisoner's Dilemma (1965). Levels of cooperation varied according to the particular payoffs of the Dilemma, whether subjects were shown the Dilemma matrix (cooperation was substantially higher when the the matrix was shown), and sex (male-male pairs showed substantially higher levels of cooperation than female-female pairs).

[15] Check and cite sources mentioned in McAdams, Harv. L. Rev. 1995.

[16] Axelrod, supra note 1.

In rational choice theory, there is a dispute as to whether iteration should make a difference to self-interested, hyperrational players.[17] But experimentally, differences in cooperation levels between the one-round and the iterated Dilemmas are well established. One plausible reason for such an effect is the development of norms of reciprocity. Rapoport and Chammah found a very strong tendency, increasing over time, for subjects to match the other's choices;[18] assuming matching will take place, cooperation is indicated.

Another potential reason for cooperation in a repeated interaction situation in which litigants are aware of the other's actions is fairness concerns. In bargaining games, experimental evidence suggests that subjects often behave in a way that shows a concern for fairness, and arguably a concern for the welfare of other subjects.[19] For example, students assigned a dominant role in ultimatum bargaining games often offer an even split of gains from bargaining rather than an unequal division in their favor.[20] Results

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[17] For an argument that such players will always defect, see Jordan Howard Sobel, Utility Maximizers in Iterated Prisoner's Dilemmas, 15 Dialogue 38 (1976).

[18] Rapoport and Chammah, supra note 14, at 198-99.

[19] Daniel Kahneman, Jack L. Knetsch & Richard Thaler, Fairness and the Assumptions of Economics, 59 J. Bus. xxx (1986).

[20] Hoffman and Spitzer, xxx. Hoffman and Spitzer studied an ultimatum game in which the controlling player proposed a division of $14. The other player could accept the division or reject it, in which case neither player got anything. With two players solely concerned with their own payoffs, the controlling player would offer, and the other player would accept, an extremely one-sided division in favor of the controlling player, such as $13.99 to $.01. In fact, controlling players often offered an equal division, and noncontrolling players often rejected unequal proposals. xxx Robert Forsythe, Joel L. Horowitz, N. E. Savin & Martin Sefton, Fairness in Simple Bargaining Experiments, Games & Econ. Behav. 1992; Jack Ochs & Alvin E. Roth, An Experimental Study of Sequential Bargaining, 79 Am. Econ. Rev. 355 (1989); Werner Guth & Reinhard Tietz,

showing a concern for fairness have been obtained in experimental settings other than litigation simulations. A litigation framing, as opposed to a division-of-gains framing, may lead to aggressive behavior, or at least to self-interested behavior that overrides fairness concerns. Further, a fairness or cooperation effect that holds spending down may be attenuated in the litigation context because in litigation (or in an experiment that simulates litigation effectively), the equal division of gains solution to a bargaining game is not readily available. Parties do not simply match expenditures by the other side, assured that each litigation dollar makes an equal contribution to winning. Rather, the parties attempt to spend strategically, and in doing so are likely to hope they (or their lawyer) can outsmart the other side, and to fear being outsmarted.

B. Egocentric Bias

A substantial body of research evidence suggests that people tend to overrate their own contributions and skills relative to those of others.[21] Such a bias in evaluation, assuming that it exists in the context of litigation, is likely to drive up spending. The basic reason for restraining spending is that the other side will match one's spending, leaving both sides worse off than if they had kept spending down. But if both sides believe they have the ability to outsmart the other, both have an incentive to spend to gain advantage, since they believe the other side will not be able to retaliate effectively.

Ultimatium Bargaining Behavior: A Survey and Comparison of Experimental Results, 11 J. Econ. Psych. 417 (1990).

[21] George Loewenstein, Samuel Issacharoff, Colin Camerer & Linda Babcock, Self-serving Assessments of Fairness and Pretrial Bargaining, 22 J. Legal. Stud. 135 (1993). Michael Ross & Fiore Sicoly, Egocentric Biases in Availability and Attribution, in Judgment under Uncertainty: Heuristics and Biases (Daniel Kahneman, Paul Slovic & Amos Tversky eds. 1982).

Exactly how much of an incentive for spending is provided by a belief in one's superior skills is indeterminate, without more specification of the underlying relationship between litigation inputs and outcomes. Given the plausible assumption that outsmarting the other side is likely to have more effect if both sides have invested substantially in their litigation strategies than if both sides have made minimal investments, substantial spending can become a rational strategy for egocentrics in a situation involving repeated interactions.[22]   Since some degree of egocentric bias is likely in the litigation context,[23] spending may well be higher in litigation than in bargaining-game settings that offer no opportunity for spending cleverly.

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[22] For instance, suppose that both egocentrics believe that their own litigation spending has an input value of three times the dollars spent in winning the case, while the other side's has a value equal only only to dollars spent. Further suppose that both egocentrics believe that the contribution of relative litigation inputs to litigation success is a function of the size of such inputs in relation to the stakes, such that a sum of litigation inputs equal to or greater than one-half of the stakes results in an action competely determined by relative litigation inputs, a sum equal to one-quarter of the stakes results in an action half determined by litigation inputs and half determined by the underlying merits, and so on down to an action in which there is no spending and the underlying merits prevail. Here, iteration will not prevent the egocentrics from spending; both have an incentive to spend one eighth of the stakes. The same levels of spending are predicted for these egocentrics in the one-shot case; in general, more highly egocentric parties will be less affected by iteration than non-egocentric ones. (This result can be readily seen in the extreme case in which both parties believe that the other's litigation spending has no effect on the outcome; then, the iterated case collapses into the one-shot case.) In contrast, non-egocentric parties will spend nothing in the iterated case and one-quarter each in the one-shot case. (Notice the higher spending by non-egocentrics in the one-shot case. Egocentricity does not invariably enhance spending, but it does foster spending in the iterated context, which is the one prevailing in actual litigation.)

[23] See Loewenstein et al, supra note xx, for confirmation of this point.

C. Deep Pockets

Litigation with a deep pocket party or parties might be more costly than similar litigation with no deep pockets involved for a number of reasons, including a propensity of juries to award higher damages against deep pocket defendants, a tendency of deep pocket parties to be repeat players with an interest in establishing a reputation for firmness, and a greater ability of deep pocket parties to carry out a strategy of spending designed to establish a credible commitment to high future levels of spending. Further, there is no shortage of anecdotal accounts of high spending by deep-pocket parties in cases such as the Justice Department's antitrust suit against IBM.

Having a sense of how the presence of a deep pocket party affects litigation spending is useful to litigants in estimating how much the other side is likely to spend. Information on the effects of deep pockets on spending would also be useful to policymakers concerned about issues of equity or efficiency associated with high litigation spending. From both litigants' and policymakers' perspectives, empirical evidence, as opposed to anecdotal impressions, on whether and how much deep pockets make a difference in litigation behavior is worth obtaining.

IV. THE LITIGATION EXERCISE

Our sample consisted of 118 MBA students in four required classes at Rutgers University.[24] Each student was randomly assigned to litigate an imaginary case as either

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24 Two were introductory law classes, while the other two were introductory finance classes.

plaintiff or defendant with another student in the class.**25**   The case involved a car accident with stipulated damges of $100,000; the litigants were given a brief written description of the facts and the parties' contentions as to liability.**26**

The strategy in the exercise involved deciding how much money to spend on litigating the action. Litigants were given the option of spending on any or all of seven categories, including legal research, dicovery requests, and trial preparation,**27** and were told that their probability of winning the action was equal to the ratio of their effective litigation spending to that of the other side.**28** Effective litigation spending, the

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25 This was done through giving students the plaintiff's or defendant's information, which contained an identifying number. (The papers with the information and numbers were initially thoroughly shuffled, so students sitting next to each other or arriving in class together would not be designated to litigate together, except by chance.) Students then went to the seats designated for their numbers and litigated the case.

26 See Appendix A for the information presented to the students.

27 The categories were as follows: complaint (for defendants, a reply); discovery requests; responses to discovery requests; hiring a detective; legal research; trial preparation; and trial. Litigants were told that they did not have to spend on all of these items but were also told (in order to get them to think about the task as like litigation and as calling for intelligent judgment) that they should avoid the possibility that their case could be dismissed for being legally insufficient in making their decisions about what to spend on.

28 Litigants did not receive (or lose) money. The literature on the effect of monetary rewards suggests xxx. Related to our design, this means xxx.

Though there is value in doing an experiment such as ours with money in order to simulate reality more closely, we offer a cautionary note. In real litigation, defendants are faced with the loss of money, not with a monetary reward. There is reason to believe that people view preventing a loss very differently from achieving a gain; Kahneman and Tversky's results indicate that risk preference prevails for loss prevention, while risk aversion prevails for gain seeking. In an experiment, ethical constraints require that money be given to rather than taken away from subjects, which makes an actual

instructions explained, could be equal to actual dollars spent, but could also be higher or lower than actual spending; litigants were told that the effectiveness of their spending would be determined based on an outside evaluation that had been conducted of effective litigation strategy. This feature allowed litigants to believe that they could outsmart (or be outsmarted by) the other litigant in making spending decisions.[29] As we have discussed, litigants (and their attorneys) are likely to believe that spending can be carried out in a shrewd or a less shrewd fashion. In order to test the hypothesis that repeated interactions lead to reduced spending in the litigation context, as opposed to an abstracted iterated Dilemma context, we included the "effective litigation spending" feature in order to simulate the incentives associated with an egocentric belief by litigants that they can outsmart the other side.[30]

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defendant's situation, as well as that of a losing plaintiff, difficult to simulate. Obviously, research designs can and should try to compensate for this problem (for example, by giving the defendant money at the start), but there is no manner in which ethically acceptable experimentation can truly simulate the actual incentives in litigation. We endorse the use of monetary simulations and believe that it would be of interest to replicate our simulation using money, but also believe that a litigation simulation without money has value, both because the literature suggests that xxx and because of the difficulty in creating money experiments that realistically evoke litigation incentives.

[29] Two additional features were included to enhance attention to the possibility of making strategic choices. The instructions stated that a litigant (either plaintiff or defendant) receiving a discovery request was required to reply by spending twice as much as the other side had spent on the request. This feature was intended to allow the parties to realize the possibility of impositional discovery, in which one could force the other to incur discovery costs. Additionally, both sides were told that they could hire a detctive to investigate the other side. They were also told that the other side was not aware of that option (and that the other side might or might not have other options of which the subject was unaware).

[30] The research design also included the factors stressed by Gilson and Mnookin as reasons to expect that cooperation will not develop between litigants in a single lawsuit. The signals given were ambiguous as to cooperation versus versus defection, given the continuous range of spending choices available and the lack of mention of

In two of the classes, students decided how much to spend sequentially, on an iterated, interactive basis. In these classes, the plaintiff began by writing a category of spending and a dollar amount (or passing), then giving the information to the defendant.[31]   The defendant responded with a category and an amount (or passed); then the plaintiff responded, and so on until three consecutive passes ended the litigation.[32] In the other two classes, the litigation took place on a one-shot rather than sequential basis.[33] The one-shot litigants were given the same information as in the iterated groups

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suggested "medium," "low," or "high" levels of spending. Also, the litigation had an end point; though theoretically respondents could prolong the spending indefinitely, none in practice litigated for more than xx turns.

[31] Plaintiffs and defendants were instructed not to talk.

[32] Litigants were told they could spend on the categories in any order and return to a category as many times as they wished. The only mandatory spending in response to the other litigant was in the area of discovery. Litigants were not given an opportunity to settle the case; the rationale for deviating from litigation reality in this case relates to the focus of the experiment on finding out about spending, particularly the effects of iterated interaction, in tried cases. As previously noted, since costs in tried cases form a baseline against which parties negotiate at earlier stages, developing information on such costs is relevant to both litigants and policymakers.

[33] Our rationale for having the classes as a whole do one exercise or the other was concern that running both exercises simultaneously in a single class could create confusion, result in pressure on the iterated pairs to wind up their litigating early so as to match the one-shot pairs, and possibly allow savvy participants to suspect or realize the experimental manipulation taking place. The two law classes did the iterative exercise, while the two finance classes did the one-shot exercise. (There was a slight overlap in enrollment between the classes; students who had participated in the earlier, iterative groups have been excluded from our one-shot results.) To avoid a possible framing effect, one can make a case for having the iterative and one-shot groups mixed by class subject, though, as noted, both subjects were required classes drawing from the same student pool, so a selection bias between the law and finance students was not a problem. In practice, the procedure we employed allowed for the number of iterative and one-shot pairs to be as close to equal--allowing for division by class--as possible. As to a possible framing effect: The students in the law classes arguably might have been more inclined to

about effective litigation spending and categories of spending,[34] but made their decisions on spending all at once, without any opportunity to interact with the other litigants.[35]

In both the iterated and the one-shot groups, half the litigating pairs were told that the defendant in the case was an individual, the driver of the car that struck the plaintiff.[36] The other half of the pairs received information that the defendant was the corporation employing the driver.[37] Otherwise, the information about the case received by the pairs with individual and corporate defendants was identical. Our interest here was in testing the anecdotally supported hypothesis that the presence of a corporate or "deep pockets" defendant in a case leads to more aggressive litigation spending. A secondary

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believe that they could or should use knowledge of legal strategy to outsmart the other side than the student in the finance classes. If such a framing effect existed, it would be expected to make spending by the iterative group, which consisted of the law classes, larger than otherwise would be the case relative to spending by the one-shot group. In fact, as will be discussed, spending by the iterative group was substantially lower than spending by the one-shot group; if the hypothesized framing effect existed, that would mean that the difference made by iteration in reducing litigation spending was greater than the results of this exercise indicate.

[34] Because of the lack of interaction, the requirement to spend twice as much on responses to discovery as the requester had spent was omitted in the one-shot context.

[35] Each litigant in the one-shot group had an assigned defendant or plaintiff seated next to them, in an effort to make the one-shot and interactive situations comparable in other respects.

[36] Nothing was said about insurance; as in actual litigation, in which jurors are not generally told about whether the defendant has insurance, see Rule 26(b)(2), Federal Rules of Civil Procedure, Rule 411, Federal Rules of Evidence, the litigants in the exercise were free to draw their own conclusions or to ignore the issue.

[37] This group was informed that the driver was also a co-defendant but that he was incapable of satisfying the judgment. The defendant's name was "Domina's Pizza," a name similar to a large corporation in the pizza business with extensive operations in New Jersey.

interest was in seeing whether the presence of a deep pocket defendant increased spending by both parties, or only by defendants.[38]

V. RESULTS

Table 1 shows the relative levels of spending for the one-shot and iterated groups. A major focus of interest is on whether, and how much, repeated interaction leads to spending restraint. To the extent the iterated and one-shot Prisoner's Dilemma experiments are applicable in the litigation context, one would expect lower spending in the litigation simulation in which the parties interact. But given that there are factors in litigation that may well inhibit spending restraint, such as the potential for outsmarting the other side, and the ambiguity of cooperation and defection, the expectation from the general iterated Dilemma model is called into question.

Table 1: Spending Comparisons between different subgroups (In thousands)

Individual Defendant	Corporate Defendant	Plaintiff	Defendant	Day	Night	Total
Iterated						
5.35	15.92	13.55	8.73	13.61	10.13	11.14
	$p = 0.0200$		$p = 0.0957$		$p = 0.2719$	
n = 28	n = 34	n = 31	n = 31	n = 18	n = 44	n = 62

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[38] Because the amount of damages at stake was fixed at $100,000 in both the deep pocket and non-deep pocket frames, one of the possible reasons--high potential damages--for high spending in actual "deep pocket" litigation does not exist in the simulation. Neither party faced the budget constraints that face a non-deep pocket in actual litigation. Thus, spending disparities in favor of a deep pocket litigant that may well occur in actual litigation are not necessarily likely to occur in the simulation.

One-shot						
22.45	37.83	28.06	32.22	29.08	30.73	30.14
	p = 0.0379		p = 0.2954		p = 0.4287	p = 0.00*
n = 28	n = 28	n = 28	n = 28	n = 20	n = 36	n = 56
Total						
13.90	25.82	20.44	19.88	21.57	19.40	
	p = 0.0108		p = 0.1356		p = 0.3374	
n = 56	n = 62	n = 59	n = 59	n = 38	n = 80	

All p-values (except as explained below) refer to the probability of a chance occurrence under the null hypothesis of no difference in mean expenditures between the two subgroups identified immediately above on the previous line.
* p-value refers to the probability of a chance occurrence under the null hypothesis of no difference in mean expenditures between iterated and one-shot groups.

With average spending levels in the iterated group ($11,140) well under half the average levels in the one-shot group ($30,140), there is a substantial and statistically significant difference [at the 5% level] between the groups. Repeated interactions greatly reduced litigation spending from the level that prevailed in the one-shot situation. Table 1 shows that that effect applied to both plaintiffs and defendants (the differences are statistically significant for both subgroups at the 5% level of significance).

Although respondents in the iterated scenario spent much less, they did not follow a pattern of simply matching expenses. An unequal amount was spent in all but one of the 31 iterated pairs (see Figures 1 and 2). An inspection of spending by pass also shows that the respondents rarely matched spending levels. This can be seen in Figure 3, where the ratio of defendant's expenditures in reaction to plaintiff's expenditures is plotted pass by pass, for all litigant pairs. Note that there is no clustering around a horizontal line at unity, which would occur if defendants were matching plaintiff expenditures. The lack of such a patter suggests the research design was successful in that regard in simulating actual litigation, in which exactly matching the other side's level of spending is an implausible strategy, both because of lack of information about the other side's spending and because litigants aim to spend effectively rather than simply to spend. Thus, the

results showing much lower levels of spending in the iterated situation reflect a psychological process of reciprocal interaction more complex, and likely more reflective of what takes place in actual litigation, than a simple matching effect.

Table 2 compares spending for pairs in which the defendant was an individual versus spending for pairs in which the defendant was a corporation. With hyperrational litigants, there is no clear expectation that spending would be higher in the deep pocket situation.[39] In practice, based on anecdotal evidence from litigated cases and the expectation that commitments to higher levels of spending would be more effective for deep-pocket defendants, there is reason to expect higher spending by the respondent taking the role of the deep-pocket defendant.[40] Further, to the extent both plaintiff and defendant in a case with a deep-pocket defendant believe that higher spending is more effective, both sides' spending may increase.

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[39] Since damages are fixed and it is unclear whether threat strategies are available to hyperrational litigants. Given the simulation instructions, it would not be irrational to spend more in the deep pocket situation, since one might conjecture that the evaluation of effective litigation spending would be affected by the presence of a deep pocket defendant. On the other hand, spending more is not clearly indicated.

[40] However, if higher spending results from the expectation that the plaintiff will be unable to compete, then we would not expect higher spending under the deep-pocket condition in the simulation, since plaintiffs were able to equal the deep pocket defendant's spending painlessly.
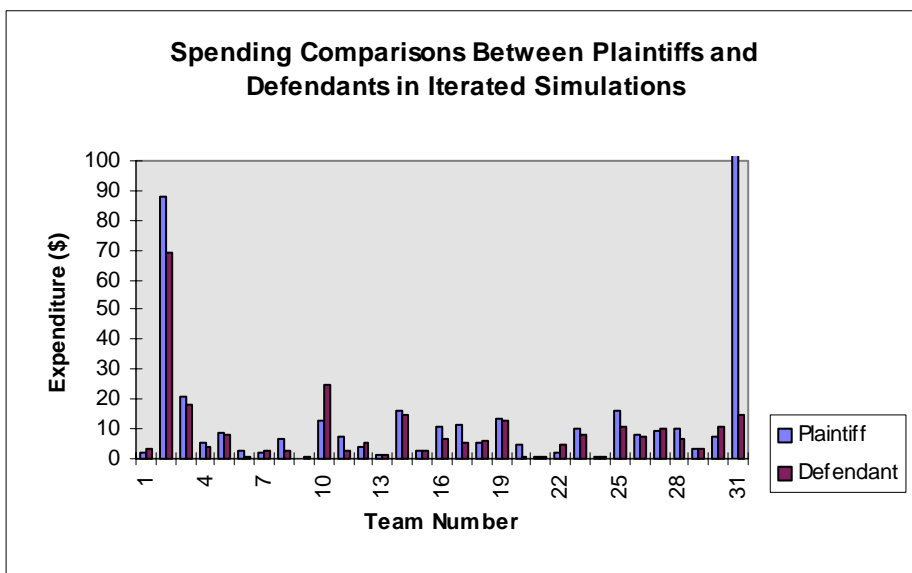
Figure 1: Aggregate Spending of Plaintiffs and Defendants in Iterated Simulations
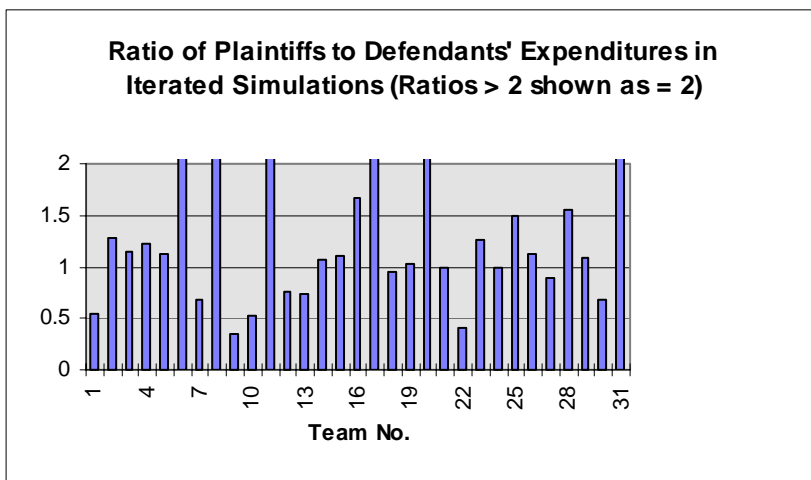
Figure 2: Plaintiff and Defendant Expenditures in Iterated Simulations Compared
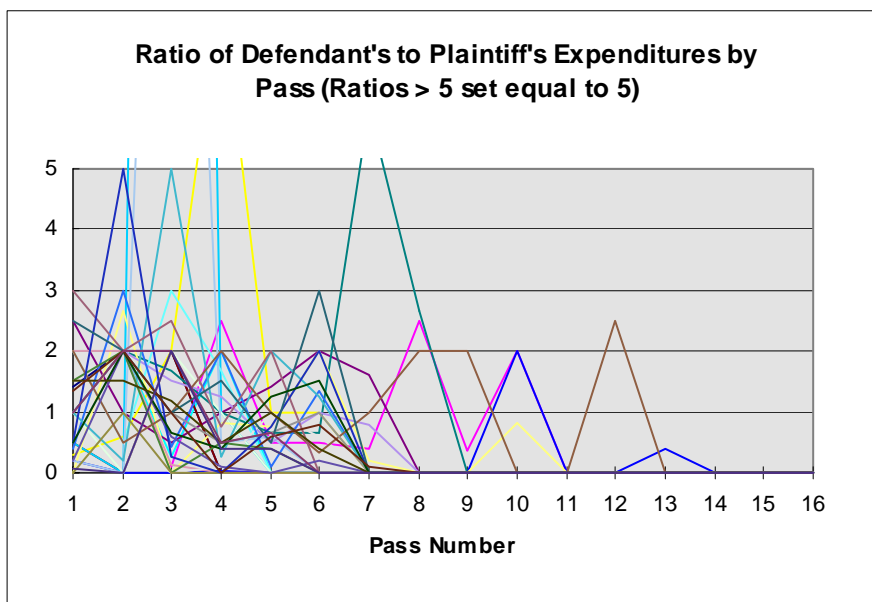
Figure 3: Defendant reactions to Plaintiff Expenditures, Pass by Pass.

Table 2: Spending Comparisons Between "Corporate" and "Individual Defendants" cases (In thousands)

		Sample Size	Mean spending	Probability of occurring by chance under null of no difference in means
Combined				
Plaintiffs	Corporate	31	26.26	
	Individual	28	13.99	0.0288
Defendants	Corporate	31	25.37	
	Individual	28	13.81	0.0809
Non-iterated				
Plaintiffs	Corporate	14	33.85	
	Individual	14	22.26	0.0816
Defendants	Corporate	14	41.81	
	Individual	14	22.63	0.1098
Iterated				
Plaintiffs	Corporate	17	20.01	
	Individual	14	5.71	0.0632
Defendants	Corporate	17	11.82	
	Individual	14	4.98	0.0673

Overall, respondents in the deep pocket situation spent substantially more (an average of $25,820) than respondents in the non-deep pocket situation (an average of $13,900), a substantial and statistically significant difference. The spending increase associated with the deep pocket framing was mainly notable for plaintiffs ($26,260 versus $13,990 for the non-deep pocket case, significantly different at the 5% level). However, the average expenditure was larger for deep-pocket plaintiffs as well ($25,370 versus $13810, although the difference is not statistically significant).[41]

The spending of the respondents as a whole and in different groups can be compared to the prediction of rational choice theory that respondents in a one-shot litigation in which the outcome is purely a function of relative spending will each spend 1/4 of the stakes.[42] Given the $100,000 stakes in the simulation, that translates into spending $25,000. The respondents in the one-shot group spent an average of $30,140, which is relatively close to and statistically not different from $25,000.[43] But the one-

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[41] In addition to reflecting a judgment by the litigants that higher spending was more effective in the deep pocket case, this result may reflect the operations of a fairness effect, with plaintiffs attempting to ensure that they were not outdone by the corporate deep pocket. Such an effect might also operate in actual litigation, but given the lack of a budget constraint on plaintiffs in our simulation, caution is indicated in attempting to extrapolate from this aspect of the results.

[42] Because all groups, including the one-shot group, were told that the outcome was dependent on an evaluation of the effectiveness of spending, not simply on dollars spent, the simulation did not test the rational choice prediction. But as discussed in the text, the simulation did allow consideration of how far different groups varied from the prediction.

[43] As discussed, litigants in the iterated group spent much less than $25,000 on the average [this applied even to iterated group litigants in the deep pocket condition-- assuming this is true]. Though this result is not predicted by rational choice theory, it is not incompatible with it, either; the more natural explanation for the iterated group result,

shot group is in turn composed of the deep pocket group, which spent an average of $37,830, and the non-deep pocket group, which spent an average of $22,450. The strength of the deep pocket effect makes it more difficult to assert that the spending of the one-shot group is comparable to the rational choice expectation. Nevertheless, the fact that the levels of spending in the one-shot scenario are not far removed from the rational choice expectation suggests that rational choice theory predictions may have at least some value as predictors of spending in certain one-shot experimental situations. If spending in these situations in turn has a predictable relationship to spending in more realistic iterative situations, a rational choice prediction can be related to expected litigation spending.

VI. IMPLICATIONS OF THE ITERATION EFFECT AND OTHER RESULTS

The study and its findings are conseqential in the following respects, which we will consider in turn: 1) the substantial effects of iteration and deep pockets on spending, generalized to actual litigation, have policy significance and also significance for litigants; 2) the simulation results can be related to studies of spending by litigants on attorneys, such as that conducted by the Civil Litigation Research Project; and 3) the results suggest a possible way to relate rational choice theory to expected litigation spending.

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as previously discussed, is a psychological one stressing incentives for reciprocity and restraint associated with repeated interaction.

The literature contains recommendations for fostering interaction among litigants.[44] The strong effect of repeated interaction in reducing--more than halving--litigation spending in our study provides empirical support for such recommendations, support that has more face validity than that provided by studies of iterated games in an abstract, non-litigation context. In regard to specific policy implications, the iteration effect supports tailoring discovery so as to provide for sequential and reciprocated action by litigants, as previously proposed in the literature.[45] It also suggests the potential value of having parties disclose their spending to the other side on a regular basis. Mechanisms for credible disclosure, the iteration effect indicates, are in the collective interest of both parties in holding spending down.[46]

The deep pocket effect shown in the study means that respondents tend to act as though there is more at stake when a defendant is identified as a large corporation than when it is identified as an individual. An intriguing feature of that result is that, given the background facts of the simulation involved an auto accident, it is extremely likely in practice that the individual defendant would be represented by a deep pocket insurance

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[44] Setear, supra note xx. Further, Gilson and Mnookin, supra note xx, though they argue that repeated interactions among litigants themselves will not create cooperation, do see such an effect developing with litigants' attorneys.

[45] Setear, supra note xx. We assume for present purposes that lowering litigation spending through repeated interaction is desirable policy. Because of the relationship of expected future costs to settlement, that is not self-evident; there is conflicting evidence as to whether higher expected costs foster settlement. George Loewenstein et al, supra note xx, 22 Journal of Legal Studies 135, 150-51.

[46] Without some type of outside institutional support, such credible disclosure is not likely to develop, given the incentive each individual litigant has to compete with and withhold information from other litigants. Thus, court rules or other outside intervention may be indicated.

company. Nevertheless, the respondents behaved very differently when the defendant was identified as a deep pocket, rather than that simply being open to conjecture.

Taking the respondents as proxies for juries, the study results provide a basis for upholding the current policy against the admissibility of evidence as to liability insurance.[47] Taking respondents as proxies for litigants, the size of the deep pocket effect--increasing spending by nearly 70%--supplements anecdotal evidence relating to high spending in certain cases, and provides reason for concern as to whether a framing effect might be contributing to suboptimally high levels of spending in cases involving deep pockets.[48]

The literature contains arguments as to the likely effect of having agents control the conduct of litigation.[49] The results of our study can be used to provide perspective on the issue of whether and how much the presence of attorney-agents affects spending; this can be be done through comparing our results to field research, such as the Civil

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[47] Federal Rules of Evidence, Rule 411.

[48] However, since that there might be additional legal issues (such as whether the driver had engaged in deliberate misconduct that would negate the principal's vicarious liability) in the deep pocket scenario, it cannot be concluded that the respondents' tendency to spend substantially more in that scenario was irrational. Similarly, in actual litigation a deep pocket effect may well reflect such calculations, as well as a framing effect. In the study, plaintiffs slightly outspent defendants in the deep pocket case. This might well be an artifact of the lack of a budget constraint and the operation of a fairness effect; on the other hand, it suggests a possibility, worth further testing, that the presence of a deep pocket defendant makes plaintiffs as well as defendants more aggressive.

[49] Gilson and Mnookin, supra note x.

Litigation Research Project (CLRP), which relied on attorney responses to relate the level of spending on attorneys in tried and settled civil actions to the stakes in those actions.[50]

In the CLRP, lawyers were asked how much the stakes in their cases were. Stakes were defined as the amount that the client would be willing to take (or pay) to settle the case. Stakes estimated by plaintiffs' attorneys averaged about 120% of recoveries. The CLRP study showed a positive and significant relationship between stakes (or recoveries) and attorneys' fees.[51] For tried cases, the median ratio of stakes to fees for plaintiffs was 2.7, while for settled cases, the median ratio was 3.0.[52] For defendants, the ratio was xxx [I assume this info is in the UCLA article--did I give you a copy of a few pages of that?--I copied them but am not sure where they are...]

In our study, there were fixed damages of $100,000 and winning chances determined by the ratio of effective spending. In that case, the stakes as defined here are $100,000, but expected recovery assuming equally effective spending is $50,000, and the amount even an optimistic plaintiff would hold out for would certainly be less than $100,000. Assuming a post-trial recovery of $50,000 and plaintiffs' estimated stakes (in CLRP terms) of 120% of that figure or $60,000, and then dividing that figure by 2.7, yields predicted plaintiffs' attorney's fees, based on the CLRP data, of around $21,500. In fact, the simulation plaintiffs in the iterated pairs (the ones more comparable to actual

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[50] David M. Trubek et al, The Costs of Ordinary Litigation, 31 U.C.L.A. L. Rev. 71 (1983).

[51] For small cases ($10,000 and under), the positive relationship between stakes or recovery and spending was absent.

[52] These results are consistent with the fact that most plaintiffs' attorneys are paid by contingency fee, typically ranging from 25% to 40% of any recovery.

cases) spent an average total of $xxxx. For defendants, xxx [CLRP and simulation]. Thus, spending in this study was substantially less than attorneys' fees in the CLRP study. Though the possibility that the simulation underpredicts what actual litigants would want to spend cannot be ruled out, a plausible interpretation of the difference between the simulation and the CLRP results is that legal fees for litigation include a substantial "toll," perhaps as much as 50% of the fee, that attorneys collect from litigants. In policy terms, there may well be good reasons for attorneys being able to charge fees in excess of what their clients want to spend on litigation, just as there may well be such reasons for other providers of services.[53] But at a minimum, the results of the present study, when juxtaposed against actual litigation spending figures, cast some doubt upon a claim that attorney-agents exert a moderating influence on spending.

An additional area in which the results of the present study are of interest is in comparing the predicted levels of spending by self-interested parties in the one-shot, no communication situation first to simulation results in the one-shot situation; second, to simulation results in the interated situation; and finally, to the simulation and to actual litigation spending levels. In the present study, the average amount spent by respondents in the one-shot situation was relatively close to the rational choice prediction.[54] In the iterated situation, spending was less than half of that level, a result that has a suggestive parallel with the Prisoner's Dilemma research showing average levels of cooperation in

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[53] Obviously, clients would prefer to pay lawyers, or other providers of services, nothing, all else equal; at the same time, though, the fact that lawyers provide a necessary service for litigants in a restricted market raises warning flags.

[54] Although, as previously discussed, the substantial deep pocket framing effect makes this less of a predictive success for rational choice theory than it might otherwise appear.

the iterated Dilemma about twice as high as in the one-shot Dilemma.[55] Whether the

relatively close fit between the rational choice prediction and one-shot spending would

hold in other cases, including other cases in which the predicted spending is greater than

or less than 1/4 of the stakes, is worth testing through other simulations, as is the

magnitude of the iteration effect.

Because of the uncertainty as to the functional relationship between litigation

spending and outcome that prevails in actual litigation, there is no readily available

predictive baseline from rational choice theory.[56] But given that the iteration effect is

roughly counterbalanced by the enhanced level of spending shown in comparing the

results of the present study with CLRP spending figures, the possibility exists--and

warrants further testing--that a one-shot rational choice prediction may in practice

approximate actual levels of litigation spending.[57]

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[55] See notes 14 and 15.

[56] In that regard, there is an intriguing, though hardly determinative,
correspondence between the 25% of the stakes prediction for spending in the one-shot
case in this study and the standard levels of contingency fees for plaintiffs' attorneys.
Since recoveries are apt to be only a fraction of stakes as defined here, standard
contingency fees ranging from 25% to 50% of recovery would appear roughly consistent
with the one-shot rational choice prediction for spending.

[57] The prediction is roughly accurate if the reduction in spending associated with
the iteration effect is equal to the increase in spending associated with litigants being
willing to pay a higher amount for lawyers' services than they strategically want to pay.
That is, we are suggesting that there are two intervening phenomena--the iteration effect
and the economic interaction between lawyers and clients--that may more or less
counterbalance the other, resulting in actual spending approximating the one-shot rational
choice prediction.

VII. CONCLUSION

The litigation simulation that we have presented allows for the evaluation of how spending levels are affected by repeated interactions, the presence of a deep pocket defendant, and, more broadly, by the interaction of self-interested calculation and psychological processes. The literature on litigation spending is equivocal on whether parties repeatedly interacting in a single lawsuit will cooperate by developing norms of restraint. Our central finding is that repeated interaction does indeed substantially reduce spending--by more than half in our sample--which lends support to rules designed to promote reciprocity rather than one-shot discovery, as well as to proposals requiring the regular disclosure of litigation spending.

Our results also suggest that there is a substantial deep pocket framing effect on spending. Spending increased by around 70% when the defendant was identified as a corporation rather than an individual, a result that lends support to existing rules limiting evidence of insurance coverage and to concerns about socially unproductive spending in some cases involving deep pockets.

Overall, litigants in the iterated simulation spent substantially less than the prediction for self-interested parties unable to communicate and make enforceable agreements. On the other hand, litigants in the one-shot case spent an amount relatively close to the rational choice prediction. Taken together and in conjunction with the CLRP field study of litigation spending, these results suggest that both rational choice predictions and the study of psychological processes such as interaction effects have potential in understanding people's actions in simulations and in actual litigation.

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Appendix A: Proof that each litigant will spend 25% of the amount at stake

in a one-shot game

We use the following notation:

α	probability that plaintiff wins
e_d	defendant's expenses
e_p	plaintiff's expenses
D	defendant's cashflows
P	plaintiff's cashflows
S	stake

Model I: Assume that the stake, S, is constant.

$E(D) = -\alpha S - e_d$
$E(P) = \alpha S - e_p$

If both plaintiff and defendant are risk neutral, and adopt a Nash strategy, then they would choose e_p and e_d to minimize E(P) and E(D) respectively.

Differentiating E(P) and E(D) with respect to e_p and e_d respectively, we find that, at the optima e_p^* and e_d^* respectively, $\dfrac{\partial \alpha}{\partial e_p} + \dfrac{\partial \alpha}{\partial e_d} = 0$.

Define $\dfrac{\partial \alpha}{\partial e_p} = \dfrac{\partial \alpha}{\partial e_d} + g(e_p, e_d)$

From the first order condition for the defendant's problem, we know $\dfrac{\partial \alpha}{\partial e_d} = -\dfrac{1}{S}$.

Substituting into the definition for g(.,.), we find that $S/2 = 1/g(e_p, e_d)$.

Assume that the odds of the plaintiff winning are equal to the ratio of his expenditures to that of the defendant. Then, $\alpha = \dfrac{e_p}{e_p + e_d}$.

Then, $\dfrac{\partial \alpha}{\partial e_p} = \dfrac{1}{e_p + e_d} - \dfrac{e_p}{(e_p + e_d)^2} = \dfrac{e_d}{e_p + e_d}$, and $\dfrac{\partial \alpha}{\partial e_d} = -\dfrac{e_p}{(e_p + e_d)^2}$.

Hence $\dfrac{\partial \alpha}{\partial e_p} - \dfrac{\partial \alpha}{\partial e_d} = \dfrac{1}{e_p + e_d}$. Hence, $e_p + e_d = \dfrac{S}{2}$. By symmetry, $e_p = e_d$, which gives us $e_d = e_p = S/4$.

Alternatively, differentiating E(P) with respect to e_p, we get:

$$\frac{\partial E(P)}{\partial e_p} = \frac{S}{e_p + e_d} - \frac{Se_p}{(e_p + e_d)^2} - 1 = 0.$$

Differentiating E(D) with respect to e_d, we get:

$$\frac{\partial E(D)}{\partial e_d} = \frac{Se_p}{(e_p + e_d)^2} - 1 = 0.$$

Solving simultaneously, we find $e_d = e_p = S/4$.

Appendix B: Sheet given out to participants to record legal expenditures

Plaintiff		Defendant	
Action	Amount	Action	Amount

Appendix C: Information Given to Defendants in Iterated Subsample for the

Individual Defendant Case.

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           Litigation Simulation--Defendant's Information

                       Snodgrass v. Whipple
     You are the defendant in a lawsuit that you will be trying
with a classmate, who will act as the plaintiff.  Your object is
to pay out as little in total as possible.  Your total payout
consists of the damages, which are $100,000 if you lose the case,
plus the amount you pay out in litigation spending.*

     Read the following description of the case and your options
for litigation spending, along with the directions for how to
conduct the litigation with the defendant.  Make sure you
understand the format and the directions, then begin litigating.
Good luck!


                              Facts
     Plaintiff Snodgrass was struck by defendant Whipple's car.
The parties to the action have stipulated that as the result of
the accident Snodgrass suffered damages of $100,000.  Snodgrass
claims that while she was walking across the street in the
crosswalk, a speeding Whipple ran through a red light and hit
her.  Whipple claims that the light was in his favor, that he was
not speeding, and that Snodgrass darted out  into the street in
such a way that he had no chance to avoid her.


                         General Directions
     Your total payout as the defendant is determined as follows.
First, the plaintiff's chance of winning the action is determined
by the ratio of the plaintiff's effective litigation inputs to
the total effective litigation inputs by both sides.  Your total
payout equals that ratio, times 100,000, plus your litigation
spending.

     Effective litigation inputs are not necessarily the same as
litigation spending.  As is shown in the case below, you have a
variety of options for litigating the case, for each of which you
may spend any amount you choose.  Often, how much you spend will
correspond to the value of that option as an effective litigation
input, but not in all cases.  An option for which you spend $x
might have a value of $2x, or an option you spend $y on might
have a value of $.5y.  The input values, in the cases in which
they are different from spending, have been determined by an
outside evaluation that has been conducted of effective
litigation strategy.

     The way you and the other party litigate the action works as
follows:  Plaintiff goes first and chooses an option and an
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amount to spend, or alternatively chooses not to spend anything. Defendant goes next, either choosing an option and an amount or deciding not to spend. (If you don't want to spend anything on a given turn, write "pass" on the paper you have been given.) Plaintiff goes next, and then defendant goes, and then plaintiff, and so on until the litigation ends, which happens when there are three consecutive passes. (You may spend on a given option, such as legal research, as many times as you want and you need not follow the options in any particular order, or choose any particular option. You should, however, elect enough options so that your case is not subject to dismissal as legally insufficient.)

You may not talk with the other party. Fill out your litigation spending decisions on the sheet of paper you have been given, indicating what you are spending on and how much you are spending, and pass it on to the other party. When there are three consecutive passes, ending the litigation, the sheet of paper should be kept until I ask for it.

Options for Potential Litigation Spending

For plaintiff	For defendant
Complaint	Reply
Discovery Requests	Discovery Requests
Responses to discovery requests (if you have made a discovery request, the plaintiff <u>must</u> in its response spend twice as much as what you have in making the request)	Responses to discovery requests (if the plaintiff has made a discovery request, you <u>must</u> in your response spend twice what the plaintiff has in making the request)
Legal research	Legal research
Trial preparation	Trial preparation
Trying the case	Trying the case
? (the plaintiff may or may not have another option or options that you are unaware of)	Hiring a plaintiff to investigate Snodgrass (the plaintiff does not now you have this option unless you choose to spend on it)

* Sorry--because of university budget cuts, $100,000 is not available! No cash awards will be made from this simulation. Just try to have as low a total payout as you can.

Appendix D: Information Given to Plaintiff in Iterated Subsample for the Individual Defendant Case.

```
         Litigation Simulation--Plaintiff's Information


                   Snodgrass v. Whipple
     You are the plaintiff in a lawsuit that you will be trying
with a classmate, who will act as the defendant.  Your object is
to collect as large a total recovery as possible.  Your total
payout consists of the damages, which are $100,000 if you win the
case, minus the amount you pay out in litigation spending.*


     Read the following description of the case and your options
for litigation spending, along with the directions for how to
conduct the litigation with the defendant.  Make sure you
understand the format and the directions, then begin litigating.
Good luck!


                          Facts
     Plaintiff Snodgrass was struck by defendant Whipple's car.
The parties to the action have stipulated that as the result of
the accident Snodgrass suffered damages of $100,000.  Snodgrass
claims that while she was walking across the street in the
crosswalk, a speeding Whipple ran through a red light and hit
her.  Whipple claims that the light was in his favor, that he was
not speeding, and that Snodgrass darted out  into the street in
such a way that he had no chance to avoid her.


                     General Directions
     Your total recovery is determined as follows.  First, your
chance of winning the action is determined by the ratio of your
effective litigation inputs to the total effective litigation
inputs of both sides.  Total recovery simply equals that ratio,
times 100,000, minus your litigation spending.


     Effective litigation inputs are not necessarily the same as
litigation spending.  As is shown in the case below, you have a
variety of options for litigating the case, for each of which you
may spend any amount you choose.  Often, how much you spend will
correspond to the value of that option as an effective litigation
input, but not in all cases.  An option for which you spend $x
might have a value of $2x, or an option you spend $y on might
have a value of $.5y.  (The input values, in the cases in which
they are different from spending, have been determined by an
outside evaluation that has been conducted of effective
litigation strategy.)


     The way you and the other party litigate the action works as
follows:  Plaintiff goes first and chooses an option and an
amount to spend, or alternatively chooses not to spend anything.
Defendant goes next, either choosing an option and an amount or
deciding not to spend.  (If you don't want to spend anything on a
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given turn, write "pass" on the paper you have been given.)
Plaintiff goes next, and then defendant goes, and then plaintiff,
and so on until the litigation ends, which happens when there are
three consecutive passes. (You may spend on a given option, such
as legal research, as many times as you want and you need not
follow the options in any particular order, or choose any
particular option. You should, however, elect enough options so
that your case is not subject to dismissal as legally
insufficient.)

You may not talk with the other party. Fill out your
litigation spending decisions on the sheet of paper you have been
given, indicating what you are spending on and how much you are
spending, and pass it on to the other party. When there are
three consecutive passes, ending the litigation, the sheet of
paper should be kept until I ask for it.

Options for Potential Litigation Spending

For plaintiff	For defendant
Complaint	Reply
Discovery Requests	Discovery Requests
Responses to discovery requests (if you have made a discovery request, the plaintiff <u>must</u> in its response spend twice as much as what you have in making the request)	Responses to discovery requests (if the plaintiff has made a discovery request, you <u>must</u> in your response spend twice what the plaintiff has in making the request)
Legal research	Legal research
Trial preparation	Trial preparation
Trying the case	Trying the case
Hiring a plaintiff to investigate Snodgrass (the plaintiff does not now you have this option unless you choose to spend on it)	? (the plaintiff may or may not have another option or options that you are unaware of)

* Sorry--because of university budget cuts, $100,000 is not
available! No cash awards will be made from this simulation.
Just try to have as high a total recovery as you can.

Appendix E: Information Given to Defendant in Iterated Subsample for the Deep Pockets Case.

```
           Litigation Simulation--Defendant's Information

                      Snodgrass v. Domina's Pizza
        You are the defendant in a lawsuit that you will be trying
   with a classmate, who will act as the plaintiff.  Your object is
   to pay out as little in total as possible.  Your total payout
   consists of the damages, which are $100,000 if you lose the case,
   plus the amount you pay out in litigation spending.*


        Read the following description of the case and your options
   for litigation spending, along with the directions for how to
   conduct the litigation with the defendant.  Make sure you
   understand the format and the directions, then begin litigating.
   Good luck!


                               Facts
        Plaintiff Snodgrass was struck by defendant Domina Pizza's
   delivery van, driven by co-defendant Whipple.  The parties to the
   action have stipulated that as the result of the accident
   Snodgrass suffered damages of $100,000 and further stipulated
   that Whipple is without assets to satisfy the judgment.
   Snodgrass claims that while she was walking across the street in
   the crosswalk, a speeding Whipple ran through a red light and hit
   her.  Whipple claims that the light was in his favor, that he was
   not speeding, and that Snodgrass darted out  into the street in
   such a way that he had no chance to avoid her.


                         General Directions
        Your total payout as the defendant is determined as follows.
   First, the plaintiff's chance of winning the action is determined
   by the ratio of the plaintiff's effective litigation inputs to
   the total effective litigation inputs by both sides.  Your total
   payout equals that ratio, times 100,000, plus your litigation
   spending.


        Effective litigation inputs are not necessarily the same as
   litigation spending.  As is shown in the case below, you have a
   variety of options for litigating the case, for each of which you
   may spend any amount you choose.  Often, how much you spend will
   correspond to the value of that option as an effective litigation
   input, but not in all cases.  An option for which you spend $x
   might have a value of $2x, or an option you spend $y on might
   have a value of $.5y.  The input values, in the cases in which
   they are different from spending, have been determined by an
   outside evaluation that has been conducted of effective
   litigation strategy.


        The way you and the other party litigate the action works as
   follows:  Plaintiff goes first and chooses an option and an
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amount to spend, or alternatively chooses not to spend anything.
Defendant goes next, either choosing an option and an amount or
deciding not to spend. (If you don't want to spend anything on a
given turn, write "pass" on the paper you have been given.)
Plaintiff goes next, and then defendant goes, and then plaintiff,
and so on until the litigation ends, which happens when there are
three consecutive passes. (You may spend on a given option, such
as legal research, as many times as you want and you need not
follow the options in any particular order, or choose any
particular option. You should, however, elect enough options so
that your case is not subject to dismissal as legally
insufficient.)

You may not talk with the other party. Fill out your
litigation spending decisions on the sheet of paper you have been
given, indicating what you are spending on and how much you are
spending, and pass it on to the other party. When there are
three consecutive passes, ending the litigation, the sheet of
paper should be kept until I ask for it.

Options for Potential Litigation Spending

For plaintiff   For defendant

Complaint   Reply

Discovery Requests   Discovery Requests

Responses to discovery   Responses to discovery
requests (if you have made a   requests (if the plaintiff
discovery request, the   has made a discovery
plaintiff must in its   request, you must in your
response spend twice as much   response spend twice what
as what you have in making   the plaintiff has in making
the request)   the request)

Legal research   Legal research

Trial preparation   Trial preparation

Trying the case   Trying the case

? (the plaintiff may or may   Hiring a plaintiff to
not have another option or   investigate Snodgrass (the
options that you are unaware   plaintiff does not now you
of)   have this option unless you
                                    choose to spend on it)

* Sorry--because of university budget cuts, $100,000 is not
available! No cash awards will be made from this simulation.
Just try to have as low a total payout as you can.

Appendix F: Information Given to Plaintiff in Iterated Subsample for the Deep Pockets Case.

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        Litigation Simulation--Plaintiff's Information

                 Snodgrass v. Domina' Pizza
     You are the plaintiff in a lawsuit that you will be trying
with a classmate, who will act as the defendant.  Your object is
to collect as large a total recovery as possible.  Your total
payout consists of the damages, which are $100,000 if you win the
case, minus the amount you pay out in litigation spending.*


     Read the following description of the case and your options
for litigation spending, along with the directions for how to
conduct the litigation with the defendant.  Make sure you
understand the format and the directions, then begin litigating.
Good luck!


                            Facts
     Plaintiff Snodgrass was struck by defendant Domina's Pizza
delivery van, driven by co-defendant Whipple.  The parties to the
action have stipulated that as the result of the accident
Snodgrass suffered damages of $100,000 and further stipulated
that Whipple is without assets to satisfy the judgment.
Snodgrass claims that while she was walking across the street in
the crosswalk, a speeding Whipple ran through a red light and hit
her.  Whipple claims that the light was in his favor, that he was
not speeding, and that Snodgrass darted out  into the street in
such a way that he had no chance to avoid her.


                      General Directions
     Your total recovery is determined as follows.  First, your
chance of winning the action is determined by the ratio of your
effective litigation inputs to the total effective litigation
inputs of both sides.  Total recovery simply equals that ratio,
times 100,000, minus your litigation spending.


     Effective litigation inputs are not necessarily the same as
litigation spending.  As is shown in the case below, you have a
variety of options for litigating the case, for each of which you
may spend any amount you choose.  Often, how much you spend will
correspond to the value of that option as an effective litigation
input, but not in all cases.  An option for which you spend $x
might have a value of $2x, or an option you spend $y on might
have a value of $.5y.  (The input values, in the cases in which
they are different from spending, have been determined by an
outside evaluation that has been conducted of effective
litigation strategy.)


     The way you and the other party litigate the action works as
follows:  Plaintiff goes first and chooses an option and an
amount to spend, or alternatively chooses not to spend anything.
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Defendant goes next, either choosing an option and an amount or deciding not to spend. (If you don't want to spend anything on a given turn, write "pass" on the paper you have been given.) Plaintiff goes next, and then defendant goes, and then plaintiff, and so on until the litigation ends, which happens when there are three consecutive passes. (You may spend on a given option, such as legal research, as many times as you want and you need not follow the options in any particular order, or choose any particular option. You should, however, elect enough options so that your case is not subject to dismissal as legally insufficient.)

　　　You may not talk with the other party. Fill out your litigation spending decisions on the sheet of paper you have been given, indicating what you are spending on and how much you are spending, and pass it on to the other party. When there are three consecutive passes, ending the litigation, the sheet of paper should be kept until I ask for it.

Options for Potential Litigation Spending

For plaintiff	For defendant
Complaint	Reply
Discovery Requests	Discovery Requests
Responses to discovery requests (if you have made a discovery request, the plaintiff <u>must</u> in its response <u>spend</u> twice as much as what you have in making the request)	Responses to discovery requests (if the plaintiff has made a discovery request, you <u>must</u> in your response spend twice what the plaintiff has in making the request)
Legal research	Legal research
Trial preparation	Trial preparation
Trying the case	Trying the case
Hiring a plaintiff to investigate Snodgrass (the plaintiff does not now you have this option unless you choose to spend on it)	? (the plaintiff may or may not have another option or options that you are unaware of)

* Sorry--because of university budget cuts, $100,000 is not available! No cash awards will be made from this simulation. Just try to have as high a total recovery as you can.

Appendix G: Information Given to Defendant in One-Shot Subsample for the Individual Defendant Case.

Litigation Simulation--Defendant's Information

Snodgrass v. Whipple

You are the defendant in a lawsuit that you will be trying with a classmate, who will act as the plaintiff. Your object is to pay out <u>as little</u> in total as possible. Your total payout consists of the damages, which are $100,000 if you lose the case, <u>plus</u> the amount you pay out in litigation spending.*

Read the following description of the case and your options for litigation spending, along with the directions for how to conduct the litigation. Make sure you understand the format and the directions, then begin litigating. Good luck!

Facts

Plaintiff Snodgrass was struck by defendant Whipple's car. The parties to the action have stipulated that as the result of the accident Snodgrass suffered damages of $100,000. Snodgrass claims that while she was walking across the street in the crosswalk, a speeding Whipple ran through a red light and hit her. Whipple claims that the light was in his favor, that he was not speeding, and that Snodgrass darted out into the street in such a way that he had no chance to avoid her.

General Directions

Your total payout as the defendant is determined as follows. First, the plaintiff's chance of winning the action is determined by the ratio of the plaintiff's effective litigation inputs to the total effective litigation inputs by both sides. Your total payout equals that ratio, times 100,000, <u>plus</u> your litigation spending.

Effective litigation <u>inputs</u> are not necessarily the same as litigation <u>spending</u>. As is shown in the case below, you have a variety of <u>options</u> for litigating the case, for each of which you may spend any amount you choose. Often, how much you spend will correspond to the value of that option as an effective litigation input, but not in all cases. An option for which you spend $x might have a value of $2x, or an option you spend $y on might have a value of $.5y. The input values, in the cases in which they are different from spending, have been determined by an outside evaluation that has been conducted of effective litigation strategy.

The way you litigate the action works as follows: After considering the information given above and studying the list of options below, decide how much you want to spend on each option. Write down on the sheet of paper given to you, each spending option, in the order in which you want to spend it, and the

amount you want to spend on it. Keep that information secret
from the plaintiff, who will be doing the same thing. You may
spend as much or as little as you want, remembering that your
objective is to minimize the total amount you will have to pay
out, taking litigation spending into account. You should,
however, elect enough options so that your case is not subject to
dismissal as legally insufficient. Turn the paper over and wait
until I ask for it.

Options for Potential Litigation Spending

For plaintiff	For defendant
Complaint	Reply
Discovery Requests	Discovery Requests
Responses to discovery requests	Responses to discovery requests
Legal research	Legal research
Trial preparation	Trial preparation
Trying the case	Trying the case
? (the defendant may or may not have another option or options that you are unaware of)	Hiring a detective to investigate Snodgrass (the plaintiff does not know you have this option)

* Sorry--because of university budget cuts, $100,000 is not
available! No cash awards will be made from this simulation.
Just try to have as low a total payout as you can.

Appendix H: Information Given to Plaintiff in One-Shot Subsample for the Individual Defendant Case.

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         Litigation Simulation--Plaintiff's Information

                    Snodgrass v. Whipple

     You are the plaintiff in a lawsuit that you will be trying
with a classmate, who will act as the defendant.  Your object is
to collect as large a total recovery as possible.  Your total
payout consists of the damages, which are $100,000 if you win the
case, minus the amount you pay out in litigation spending.*

     Read the following description of the case and your options
for litigation spending, along with the directions for how to
conduct the litigation.  Make sure you understand the format and
the directions, then begin litigating.  Good luck!

                            Facts
     Plaintiff Snodgrass was struck by defendant Whipple's car.
The parties to the action have stipulated that as the result of
the accident Snodgrass suffered damages of $100,000.  Snodgrass
claims that while she was walking across the street in the
crosswalk, a speeding Whipple ran through a red light and hit
her.  Whipple claims that the light was in his favor, that he was
not speeding, and that Snodgrass darted out  into the street in
such a way that he had no chance to avoid her.

                       General Directions
     Your total recovery is determined as follows.  First, your
chance of winning the action is determined by the ratio of your
effective litigation inputs to the total effective litigation
inputs of both sides.  Total recovery simply equals that ratio,
times 100,000, minus your litigation spending.

     Effective litigation inputs are not necessarily the same as
litigation spending.  As is shown in the case below, you have a
variety of options for litigating the case, for each of which you
may spend any amount you choose.  Often, how much you spend will
correspond to the value of that option as an effective litigation
input, but not in all cases.  An option for which you spend $x
might have a value of $2x, or an option you spend $y on might
have a value of $.5y.  (The input values, in the cases in which
they are different from spending, have been determined by an
outside evaluation that has been conducted of effective
litigation strategy.)

     The way you litigate the action works as follows:  After
considering the information given above and studying the list of
options below, decide how much you want to spend on each option.
Write down on the sheet of paper given to you, each spending
option, in the order in which you want to spend it, and the
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amount you want to spend on it. Keep that information secret from the defendant, who will be doing the same thing. You may spend as much or as little as you want, remembering that your objective is to maximize the total recovery you will receive, taking litigation spending into account. You should, however, elect enough options so that your case is not subject to dismissal as legally insufficient. Turn the paper over and wait until I ask for it.

Options for Potential Litigation Spending

For plaintiff	For defendant
Complaint	Reply
Discovery Requests	Discovery Requests
Responses to discovery requests	Responses to discovery requests
Legal research	Legal research
Trial preparation	Trial preparation
Trying the case	Trying the case
Hiring a detective to investigate Whipple (the defendant does not know you have this option)	? (the plaintiff may or may not have another option or options that you are unaware of)

* Sorry--because of university budget cuts, $100,000 is not available! No cash awards will be made from this simulation. Just try to have as high a total recovery as you can.

Appendix I: Information Given to Defendant in One-Shot Subsample for the Deep Pockets case.

Litigation Simulation--Defendant's Information

Snodgrass v. Domina's Pizza

You are the defendant in a lawsuit that you will be trying with a classmate, who will act as the plaintiff. Your object is to pay out as little in total as possible. Your total payout consists of the damages, which are $100,000 if you lose the case, plus the amount you pay out in litigation spending.*

Read the following description of the case and your options for litigation spending, along with the directions for how to conduct the litigation. Make sure you understand the format and the directions, then begin litigating. Good luck!

Facts

Plaintiff Snodgrass was struck by defendant Domina's Pizza delivery van, driven by co-defendant Whipple. The parties to the action have stipulated that as the result of the accident Snodgrass suffered damages of $100,000 and further stipulated that Whipple is without assets to satisfy the judgment. Snodgrass claims that while she was walking across the street in the crosswalk, a speeding Whipple ran through a red light and hit her. Whipple claims that the light was in his favor, that he was not speeding, and that Snodgrass darted out into the street in such a way that he had no chance to avoid her.

General Directions

Your total payout as the defendant is determined as follows. First, the plaintiff's chance of winning the action is determined by the ratio of the plaintiff's effective litigation inputs to the total effective litigation inputs by both sides. Your total payout equals that ratio, times 100,000, plus your litigation spending.

Effective litigation inputs are not necessarily the same as litigation spending. As is shown in the case below, you have a variety of options for litigating the case, for each of which you may spend any amount you choose. Often, how much you spend will correspond to the value of that option as an effective litigation input, but not in all cases. An option for which you spend $x might have a value of $2x, or an option you spend $y on might have a value of $.5y. The input values, in the cases in which they are different from spending, have been determined by an outside evaluation that has been conducted of effective litigation strategy.

The way you litigate the action works as follows: After considering the information given above and studying the list of options below, decide how much you want to spend on each option.

Write down on the sheet of paper given to you, each spending option, in the order in which you want to spend it, and the amount you want to spend on it. Keep that information secret from the plaintiff, who will be doing the same thing. You may spend as much or as little as you want, remembering that your objective is to minimize the total amount you will have to pay out, taking litigation spending into account. You should, however, elect enough options so that your case is not subject to dismissal as legally insufficient. Turn the paper over and wait until I ask for it.

Options for Potential Litigation Spending

For plaintiff	For defendant
Complaint	Reply
Discovery Requests	Discovery Requests
Responses to discovery requests	Responses to discovery requests
Legal research	Legal research
Trial preparation	Trial preparation
Trying the case	Trying the case
? (the defendant may or may not have another option or options that you are unaware of)	Hiring a detective to investigate Snodgrass (the plaintiff does not know you have this option)

* Sorry--because of university budget cuts, $100,000 is not available! No cash awards will be made from this simulation. Just try to have as low a total payout as you can.

Appendix J: Information Given to Plaintiff in One-Shot Subsample for the Deep Pockets Case.

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         Litigation Simulation--Plaintiff's Information

                   Snodgrass v. Domina's Pizza
          You are the plaintiff in a lawsuit that you will be
     trying with a classmate, who will act as the defendant.
     Your object is to collect as large a total recovery as
     possible.  Your total payout consists of the damages, which
     are $100,000 if you win the case, minus the amount you pay
     out in litigation spending.*


          Read the following description of the case and your
     options for litigation spending, along with the directions
     for how to conduct the litigation.  Make sure you understand
     the format and the directions, then begin litigating.  Good
     luck!


                             Facts
          Plaintiff Snodgrass was struck by defendant Domina's
     Pizza delivery van, driven by co-defendant Whipple.  The
     parties to the action have stipulated that as the result of
     the accident Snodgrass suffered damages of $100,000 and
     further stipulated that Whipple is without assets to satisfy
     the judgment.  Snodgrass claims that while she was walking
     across the street in the crosswalk, a speeding Whipple ran
     through a red light and hit her.  Whipple claims that the
     light was in his favor, that he was not speeding, and that
     Snodgrass darted out  into the street in such a way that he
     had no chance to avoid her.


                        General Directions
          Your total recovery is determined as follows.  First,
     your chance of winning the action is determined by the ratio
     of your effective litigation inputs to the total effective
     litigation inputs of both sides.  Total recovery simply
     equals that ratio, times 100,000, minus your litigation
     spending.


          Effective litigation inputs are not necessarily the
     same as litigation spending.  As is shown in the case below,
     you have a variety of options for litigating the case, for
     each of which you may spend any amount you choose.  Often,
     how much you spend will correspond to the value of that
     option as an effective litigation input, but not in all
     cases.  An option for which you spend $x might have a value
     of $2x, or an option you spend $y on might have a value of
     $.5y.  (The input values, in the cases in which they are
     different from spending, have been determined by an outside
     evaluation that has been conducted of effective litigation
     strategy.)
```

The way you litigate the action works as follows:
After considering the information given above and studying
the list of options below, decide how much you want to spend
on each option. Write down on the sheet of paper given to
you, each spending option, in the order in which you want to
spend it, and the amount you want to spend on it. Keep that
information secret from the defendant, who will be doing the
same thing. You may spend as much or as little as you want,
remembering that your objective is to maximize the total
recovery you will receive, taking litigation spending into
account. You should, however, elect enough options so that
your case is not subject to dismissal as legally
insufficient. Turn the paper over and wait until I ask for
it.

Options for Potential Litigation Spending

For plaintiff	For defendant
Complaint	Reply
Discovery Requests	Discovery Requests
Responses to discovery requests	Responses to discovery requests
Legal research	Legal research
Trial preparation	Trial preparation
Trying the case	Trying the case
Hiring a detective to investigate Whipple (the defendant does not know you have this option)	? (the plaintiff may or may not have another option or options that you are unaware of)

* Sorry--because of university budget cuts, $100,000 is
not available! No cash awards will be made from this
simulation. Just try to have as high a total recovery as
you can.

Table 1: Spending Comparisons between different subgroups (In thousands)
Excluding Team 21 for the iterated (Wayne's) subgroup, night, deep pockets (corporate)

Individual Defendant	Corporate Defendant	Plaintiff	Defendant	Day	Night	Total
Iterated						
5.35	12.54	9.83	8.52	13.61	7.28	9.18
	p = 0.0246		p = 0.0707		p = 0.0567	
n = 28	n = 32	n = 30	n = 30	n = 18	n = 42	n = 62
One-shot						
22.45	37.83	28.06	32.22	29.08	30.73	30.14
	p = 0.0379		p = 0.2954		p = 0.4287	p = 0.00*
n = 28	n = 28	n = 28	n = 28	n = 20	n = 36	n = 56
Total						
13.90	24.34	18.63	19.97	21.75	18.10	
	p =0.0176		p = 0.3603		p = 0.2467	
n = 56	n = 60	n = 58	n = 58	n = 38	n = 78	

All p-values (except as explained below) refer to the probability of a chance occurrence under the null hypothesis of no difference in mean expenditures between the two subgroups identified immediately above on the previous line.
* p-value refers to the probability of a chance occurrence under the null hypothesis of no difference in mean expenditures between iterated and one-shot groups.

Table 2: Spending Comparisons Between "Corporate" and "Individual Defendants" cases (In thousands) Excluding Team 21 for the iterated (Wayne's) subgroup, night, deep pockets (corporate)

		Sample Size	Mean spending	Probability of occurring by chance under null of no difference in means
Combined				
Plaintiffs	Corporate	30	22.97	
	Individual	28	13.99	0.0481
Defendants	Corporate	30	25.71	
	Individual	28	13.81	0.0782
Non-iterated				
Plaintiffs	Corporate	14	33.85	
	Individual	14	22.26	0.0816
Defendants	Corporate	14	41.81	
	Individual	14	22.63	0.1098
Iterated				
Plaintiffs	Corporate	16	13.45	
	Individual	14	5.71	0.0908
Defendants	Corporate	16	11.63	

	Individual	14	4.98	0.0791