The English Rule for Allocating Legal Costs: Evidence Confronts Theory

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1. INTRODUCTION

Among the methods for allocating legal costs between plaintiffs and defendants are the American rule, whereby each party bears his or her costs, and the English rule, whereby the losing party bears the costs of both parties. An extensive theoretical literature has analyzed how the allocation of legal costs may affect the litigation process,[1] but as Cooter, Marks, and Mnookin (246) observe, the inherent difficulties in cross-jurisdictional comparisons and the lack of experimentation with alternative rules within jurisdictions have limited the opportunities for empirical research. In this article we seek to redress the consequential lack of knowledge about cost-allocation rules by offering the first within-jurisdiction test of the effects of the American and English rules on the litigation process.[2]

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1. The following works are most relevant: Mause; Landes; Posner (Chapter 21); Cooter, Marks, and Mnookin; Shavell; Bebchuk (1984); Png; Braeutigam, Owen, and Panzar; Katz (1987); and Hause. Cooter and Rubinfeld (1076–78) summarize aspects of this literature.

2. Fournier and Zuehlke include in their empirical analysis of U.S. civil cases a dummy variable to account for differences in the rules for allocating legal costs across 21 categories of claims. The dummy variable for fee shifting was applied to three categories: Jones Act cases, copyright disputes, and diversity of citizenship cases filed in Alaska. The problem with this approach is that the estimated effects may be due to differences in the type of disputes rather than to fee shifting.

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The opportunity for our inquiry arises from the State of Florida's adoption of a mandatory fee-shifting rule during the period July 1980–September 1985 in an effort to restrain the growth in medical malpractice litigation.[3] We have obtained data from two sources on over 10,000 medical malpractice claims filed before, during, and after the period in which the rule was in effect. Using these data we assess the English rule's effects on (i) plaintiff decisions to drop claims, (ii) the decisions of the parties to settle their claims out of court, and (iii) defendants' expenditures on legal counsel.

We begin in Section 2 by identifying several hypotheses concerning the effects of fee shifting on the character of claims filed and the behavior of the parties at later stages of the litigation process. Mause, Shavell, and others have argued, for example, that fee shifting will encourage parties to litigate their claims because of the tendency of those with relatively optimistic beliefs to anticipate that their legal costs will be shifted to the other party. But in testing this hypothesis, one must recognize that the observed frequency of settlements under the English rule will depend as well on the character of claims reaching the settle-versus-litigate stage.

Consistent with this point, our empirical analysis in Section 3 attempts to distinguish between *behavioral* and *selection* effects. We use a bivariate probit with selection technique to estimate jointly two claim-disposition equations, one for plaintiff decisions to drop their claims and the other for whether the parties settle or litigate the remaining claims. The results concerning claim disposition are then used in the analysis of how the English rule affects defense expenditures. In several respects, our empirical findings underscore the importance of changes in the character of claims that reach the settle-versus-litigate stage. These changes are relevant in evaluating claim resolution under the English rule, but also raise more fundamental issues about the effect of fee shifting on the overall efficiency of the tort process, including deterrence. Our concluding remarks in Section 4 emphasize the policy implications that follow from this view.

2. THEORETICAL CONSIDERATIONS

Figure 1 depicting the litigation process is useful in motivating our analysis.[4] At the filing stage, the prospect of being held liable for all legal costs will force plaintiffs to more carefully assess the likelihood that they will prevail if the case is litigated. Thus, the English rule is expected to encourage potential plaintiffs who are likely to prevail to proceed with their claims. Despite the frequency of plaintiff decisions to drop claims without payment, the drop

3. Florida Statutes Annotated, Volume 21A, Section 768.56, effective July 1, 1980; repealed effective October 1, 1985.

4. The stylized view in Figure 1 does not capture the opportunity for multiple rounds of settlement negotiations and ignores the fact that plaintiffs sometimes drop their claims late in the process.

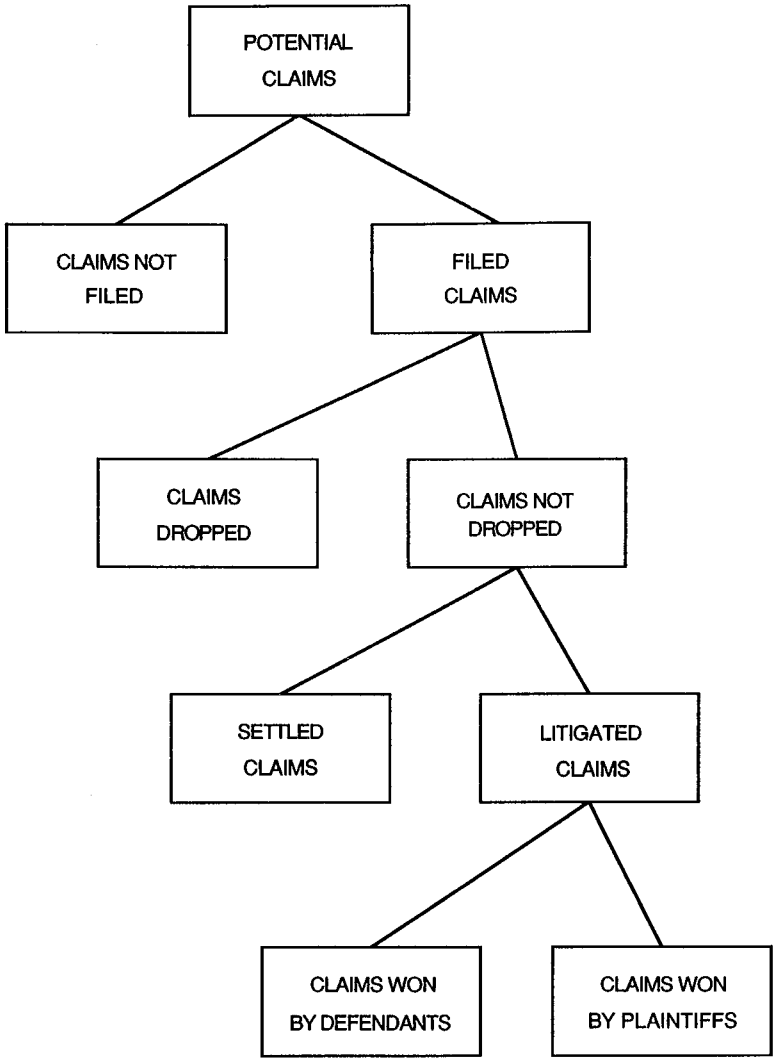

Figure 1. The litigation process.

stage has not received much attention in the literature, except by Png.[5] In contrast, several analyses of cost-allocation rules focus on the settle-versus-

5. Consistent with Png, it is not appropriate to view dropped cases as a subset of settled cases (with a zero recovery). Paid settlements result from negotiation and bargaining between the parties, whereas dropped claims usually follow from a unilateral decision by the plaintiff. Empirical research has addressed the effects of legal changes on the decision to drop claims, although not in the context of the English rule. See Danzon, Danzon and Lillard, Viscusi (1986, 1988), Hughes, and Hughes and Snyder.

litigate decision and the tendency of parties to incur greater costs at trial when the English rule applies. Recent works by Bowles and Hause have unified these considerations; both argue that parties often will settle claims to avoid costly litigation under the English rule.[6] Hause also argues that the prospect of greater litigation costs is likely to discourage some potential plaintiffs from filing claims. These refinements are particularly important for empirical analysis because they indicate that reforms such as the English rule, in addition to affecting litigant behavior, will change the set of claims that is observed at each stage.

To identify more precisely the principal hypotheses from the theoretical literature, we introduce a minimum of notation and focus on a simple case. The parties are risk neutral and expect that, if the plaintiff prevails at trial, the defendant's liability will equal A. The parties may differ, however, in their beliefs as to the likelihood that the plaintiff will prevail. The plaintiff believes this probability is p; the defendant believes it is q. The cost of filing a case is zero, but if the case is litigated the plaintiff will incur costs equal to X and the defendant will incur costs equal to Y. Thus, under the English rule, the plaintiff expects to pay all legal costs with probability $1 - p$, and the defendant expects to bear these costs with probability q.[7]

The plaintiff's expected gain from litigation (the ask), the defendant's expected cost of litigation (the offer), and the probability of settlement (which depends on the difference between the offer and ask, i.e., the settlement gap) under the American and English rules are as follows.

The American Rule:

$$\text{Plaintiff's expected gain} = pA - X, \tag{1}$$

$$\text{Defendant's expected cost} = qA + Y, \tag{2}$$

$$\Pr[\text{Settle}] = \Pr[(q - p)A + (X + Y) > 0]. \tag{3}$$

The English rule:

$$\text{Plaintiff's expected gain} = pA - (1 - p)(X + Y), \tag{4}$$

$$\text{Defendant's expected cost} = qA + q(X + Y), \tag{5}$$

$$\Pr[\text{Settle}] = \Pr[(q - p)A + (q - p)(X + Y) + (X + Y) > 0]. \tag{6}$$

6. Priest and Klein present the seminal work on the selection of litigated claims.

7. This framework is derived from standard litigation models (e.g., Landes, Posner, and Priest).

2.1. Filing Decisions

The cost-allocation rule does not influence a plaintiff's decision to file a claim in some circumstances. For example, if $p = .5$ and the parties spend the same amount should the case go to trial ($X = Y$), the plaintiff's expected gain is the same under both rules [cf. Equations (1) and (4)]. However, for cases in which p is greater than .5, the plaintiff's expected gain under the English rule will rise relative to her gain under the American rule.[8] Conversely, the plaintiff's expected gain under the English rule will fall relative to the American rule when p is less than .5.

The literature has emphasized, therefore, that the English rule will encourage filings of low award claims provided p is sufficiently high. For these claims, plaintiffs do not expect to bear the legal costs and, as p approaches unity, plaintiffs will ignore legal costs and will file all positive award claims. Provided plaintiffs' expectations in regards to p are not biased, these factors lead to the following hypothesis: The set of cases filed under the English rule (i) will be of higher merit—meaning plaintiffs have a greater chance of meeting their burden of proof, and (ii) will include more cases in which the potential award is low.

A related benefit is that the English rule discourages nuisance suits (i.e., claims that have a negative expected award for the plaintiff should the case go to trial).[9] As analyzed by Bebchuk (1988), the plaintiff's implied threat under the American rule case may be credible, especially when the plaintiff's cost of litigating the case is small relative to the defendant's. Under the English rule, the nuisance suit strategy is less credible since a defendant who recognizes that a claim lacks merit has a valuable counterclaim given his costs are likely to be shifted if the case goes to trial.[10]

The English rule is likely to have other effects on the distribution of cases filed if defendants outspend plaintiffs in litigation. When Y exceeds X, the plaintiff's expected legal costs under the English rule, $(1 - p)(X + Y)$, will rise relative to those under the American rule, X.[11] In this circumstance, plaintiffs will apply a stricter standard when filing cases.

8. The plaintiff's expected gross recovery is the same under either rule, but when p is less than .5, her expected costs under the English rule, $(1 - p)(X + Y)$, are higher than her expected costs, X, under the American rule.

9. The assumptions that plaintiffs only file claims when the expected gain if the case goes to trial is positive and drop their claims if information obtained in the course of the litigation indicates that the expected gain is negative need not hold, as plaintiffs may rationally pursue negative award claims because defendants may settle to avoid the costs of litigation.

10. Katz (1990) concludes that the English rule does not deter nuisance suits, but obtains this result by assuming (i) that the defendant has no private knowledge that would allow him to distinguish between nuisance suits and other suits, and (ii) that there is no opportunity for the defendant to obtain such information through the discovery process.

11. The courts limit fee awards to a reasonable level, constraining the ability of parties to use threats to incur large legal costs for strategic purposes.

2.2 Settlement Decisions

When the parties share the same beliefs about the plaintiff's prospects at trial, the difference between the defendant's offer and the plaintiff's ask equals the costs of going to trial, $X + Y$; and when the parties are relatively pessimistic and q exceeds p, the settlement gap is even greater. But for the cases in which the parties are relatively optimistic (i.e., p exceeds q), the settlement gap may be negative. Thus, according to the so-called "optimism model," p exceeding q is the necessary condition for litigation. For a given degree of optimism, litigation becomes more likely when the potential award is large relative to the litigation costs.

Comparing (3) and (6), the probabilities of settlement under the American and English rules will differ when the necessary condition for litigation is met. Under the English rule, the probability of settlement depends on an additional term, $(q - p)(X + Y)$, which reduces the settlement gap, given $q - p$ is negative. Fee shifting is similar in effect to an increase in the potential award insofar as optimistic parties anticipate shifting their fees to the other party.[12] Thus, according to the optimism model, the English rule encourages litigation.[13]

2.3. The Effects of Greater Expenditures at Trial

Braeutigam, Owen, and Panzar; Katz (1987); and Hause demonstrate that under the English rule expenditures at trial will tend to rise for two reasons. First, the difference between what the plaintiff gains if successful and what she loses if not is $A + X + Y$ under the English rule, as compared to just A under the American rule. Since the stakes are higher, the parties will tend to spend more to influence the case outcome (see Landes). Second, each party

12. While we have implicitly assumed that the plaintiff and defendant are unitary parties, fee shifting may exacerbate one particular agency problem. As is well known, the interests of insured defendants and their insurers may diverge when deciding whether to accept a settlement offer. The problem is most likely to arise when a settlement could be made at a dollar amount that approaches the maximum amount covered by the insurer. In this circumstance, the added potential liability from litigation will fall primarily on the insured defendant. The possibility that the costs of litigation will be shifted under the English rule may strengthen the insurer's incentive to litigate.

13. While recognizing that the question of how fee shifting affects settlement rates cannot be answered on theoretical grounds alone, several researchers expect that the effect of the English rule in increasing the effective award will dominate other considerations, such as risk aversion. See, for example, Shavell (65–6) and Katz (1987:158). The exceptions to this view include Bowles and Hause, who emphasize that, by encouraging expenditures at trial, the English rule makes litigation less attractive. Cooter, Marks, and Mnookin, who offer an alternative to the optimism model that focuses on strategic behavior, predict that the English rule will encourage settlements.

expects the other to bear the legal costs with some probability, which lowers the private marginal costs of additional expenditures. For each additional dollar the plaintiff spends at trial, her expected costs rise only by $1 - p$. Similarly, the defendant only takes into account q of each dollar spent on litigation. Katz, using reasonable parameters for his model, estimates that the English rule on average could lead to a doubling of expenditures at trial.[14]

The prospect of greater expenditures at trial is likely to have systematic effects on plaintiff decisions to file and proceed with their claims under the English rule. Indeed, several hypotheses concerning claim selection follow. First, as indicated by (4), the plaintiff's potential liability for legal costs increases when *either* party spends more on legal resources. Figure 2, which identifies the relevant boundaries for plaintiff decisions to file claims when the likelihood of success at trial equals .5, is useful in evaluating the potential effects of the higher expenditures. The decision is framed in terms of the minimum award-to-plaintiff cost ratio, A/X, that will induce filing given the defendant-to-plaintiff cost ratio, Y/X. Under the American rule, plaintiffs consider only their own costs and will file cases in quadrants I and II. Under the English rule the amount the defendant would spend at trial is relevant: As Y/X increases, the claim must offer a higher payoff to induce filing, and vice versa. Thus, under the English rule plaintiffs file claims in quadrants I and III.

Because of its effect on legal costs, adoption of English rule will not only add claims in quadrant III and eliminate claims in quadrant II, it also will change the values of the set of potential claims. In terms of Figure 2, the coordinates A/X and Y/X, which determine the location of individual claims, depend on the applicable rule. As a result, while the English rule would encourage the filing of a claim whose value under the American rule is defined by point G^A, an equal percentage increase in expenditures by both parties under the English rule may change its value to G^E, making the filing unattractive under both rules. Similarly, while it appears that under both the American and English rules a plaintiff would file a claim with value F^A, an increase in the defendant's expenditures could reduce its value to F^E and

14. This discussion ignores several complicating factors. Even restricting the analysis to the choice of Nash equilibria (where each party, aware of the other's expenditure, is satisfied with his or her expenditures), the question arises, how does the defendant's expenditure affect the marginal productivity of expenditures by the plaintiff? For some probability functions, higher expenditures by one party may reduce the marginal productivity of the other's expenditures. Such a change may offset the other factors (higher stakes and lower marginal costs) that encourage increases in expenditures for the party so affected. Braeutigam, Owen, and Panzar, however, prove under relatively mild restrictions that total expenditures ($X + Y$) will rise. More complicated strategies may be considered, but we are not aware of any analyses that yield alternative conclusions concerning the effect of fee shifting on total litigation costs.

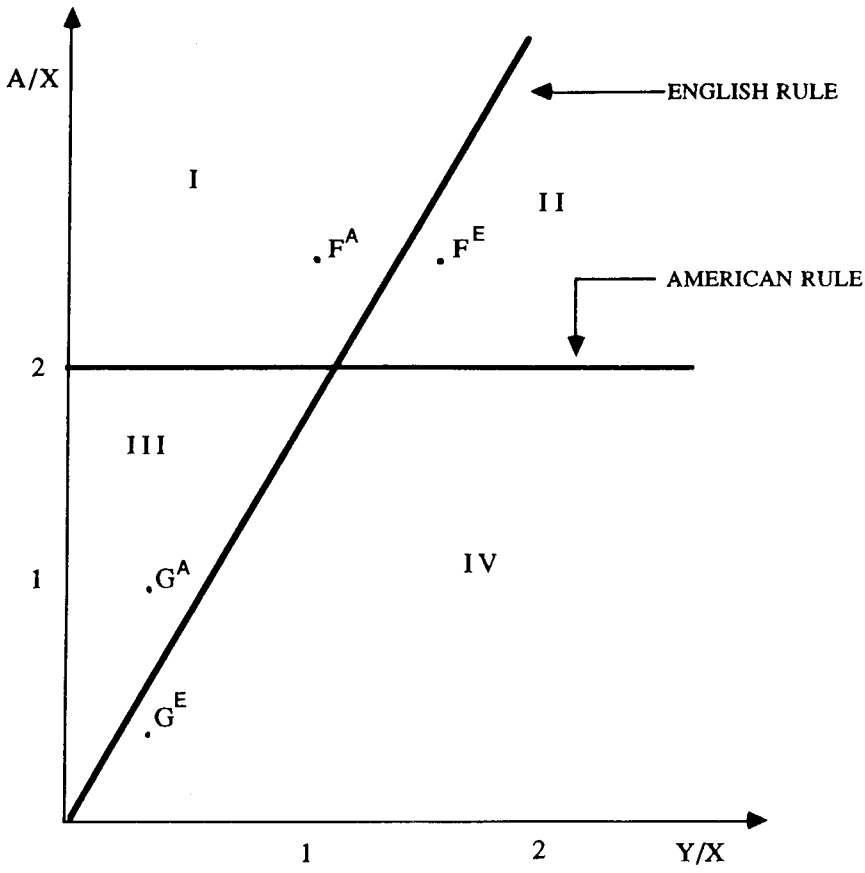

Figure 2. Filing decisions under the American and English rules. (Plaintiffs file claims above the relevant boundary.)

deter its filing under the English rule.[15] Thus, the English rule will also discourage filings of claims where one or both parties would incur substantially greater costs at trial.

While the theoretical literature has not emphasized plaintiff decisions to drop claims, the expected increases in litigation costs are important to plaintiff decisions to continue with their claims beyond the early phases of preparing for litigation. In fact, given the relatively small costs of initiating a claim, cost-allocation rules may have a greater impact at the drop stage than at the filing stage. Not surprisingly, when fee-shifting rules apply, the law does not

15. Hause (167–8) makes a similar argument in terms of the minimum level of p that induces the plaintiff to file a claim.

grant plaintiffs who advance beyond the early phases of the litigation process (serving defendants, discovery, obtaining expert witnesses) the unrestricted right to unilaterally dismiss their cases and be relieved of their potential liability.[16] Rather, plaintiffs who drop their claims are liable for costs if at that point a determination can be made that the defendant had prevailed.[17]

Plaintiffs must decide, therefore, during early phases of the litigation whether to proceed. Rather than continue, a plaintiff may decide to abandon the case either before liability for legal costs is established or to curtail further liability. As a result, the English rule will encourage plaintiffs to drop their claims when (i) the claim appears weak, (ii) they receive credible signals from the defendant that the chances of settlement are remote, and (iii) when both parties are likely to incur large costs at trial.

For claims that are not dropped, the prospect of higher litigation costs under the English rule also affects the settle-versus-litigate decision. The intuition for the arguments posed by Bowles and Hause is that the tendency to incur greater costs under the English rule makes litigation a more negative sum game and thereby widens the settlement gap.[18] As revealed by (6), for every additional dollar of expenditures at trial, the settlement gap will increase by $1 - p + q$, which measures the extent to which the parties internalize the additional costs.[19]

16. If plaintiffs had the option to dismiss their claims late in the litigation process (e.g., immediately before empanelling a jury), and thereby be relieved of potential liability, then plaintiffs could extract positive settlements from the threat to proceed to that point. Regarding the application of fee shifting in Florida, a court ruled that "[a]fter the defendants were served, and responded with motions and discovery, plaintiffs became exposed to liability [for the defendant's legal expenses] pursuant to 786.56, Florida Statutes (1983)." *Diaz* v. *Public Health Trust of Dade City,* 492 So.2d 1082, 1085 (1986).

17. Thus, defendant motions for fee awards are granted following plaintiffs' voluntary dismissals only when the defendants are judged to be "prevailing parties." Regarding this requirement, "a merits determination is not a prerequisite to an award of attorney's fees" [*State of Florida, Department of Health and Rehabilitation Services* v. *Hall,* 409 So.2d 193, 195 (1982)], but defendants can only be judged to be prevailing parties if there is "some end or finality to the litigation on the merits" [*Simmons* v. *Schimmel,* 476 So.2d 1342, 1345 (1985)]. Legal definitions of the term "prevailing party" emphasize whether at the end of the suit the plaintiff has successfully maintained her claim. If the court grants a defendant's motion to dismiss with prejudice, this requirement is clearly met [*Metropolitan Dade County* v. *Evans,* 474 So.2d 392 (1985).]

18. Bowles, who provides a graphical analysis of the settlement range, observes that when the parties share the same beliefs about the plaintiff's prospects, the settlement gap increases by the full amount of the additional litigation expenditures under the English rule (179–80). Hause models the incentives to spend resources and illustrates their potential effects on settlement prospects in a specific case.

19. The plaintiff anticipates bearing these costs with probability $1 - p$ and the defendant does so with probability q. The settlement gap, therefore, widens by the amount $1 - p + q$, which is less than 1 when p exceeds q. When alternatives to the optimism model are considered and the parties have the same beliefs (Cooter, Marks, and Mnookin), the settlement gap is increased by the full increment in expected litigation expenses.

Allowing for changes in the expenditures at trial, the difference in the settlement gap under the English rule versus the American rule is as follows:

$$\text{Difference in settlement gap} = (q - p)(X + Y) + (1 - p + q)(X' + Y'), \quad (7)$$

where X' and Y' identify the additional resources the plaintiff and defendant would spend if the case were litigated under the English rule. Given that $q - p$ is negative, the first term—the "optimism effect"—decreases the chances for settlement. The second term, capturing the effects of the higher expenditures on the willingness of the parties to accept a settlement, however, encourages settlements. Thus, the prospect of greater trial costs due to fee shifting will mitigate the tendency of optimistic parties to litigate their claims under the English rule.

Example. $A = \$10$ million, $p = .7$, $q = .5$, and under the American rule each party would spend \$1 million at trial. The plaintiff will accept \$6 million and the defendant will offer \$6 million, meaning the settlement gap is exactly zero. With expenditures fixed, the gap becomes negative under the English rule: The plaintiff's ask increases to \$6.4 million, but the defendant's offer is constant at \$6 million. Thus, the optimism effect associated with the higher effective award encourages litigation. But, if the parties are expected to increase their expenditures at trial to \$1.5 million, then the settlement gap is positive. The plaintiff will accept \$6.1 million and the defendant is willing to offer \$6.5 million.[20]

Since cases in which expenditures are expected to increase substantially are more likely to be settled, it also follows that the subset of cases actually litigated will tend to be those in which the English rule has a weaker-than-average effect on litigation expenditures.

Importantly, the strength of the expenditure effect on settlement decisions depends on the increment in expenditures *at trial.* Mause suggests that, in addition to increasing the use of legal resources at trial, fee shifting encourages expenditures in early stages of the litigation. These expenditures are not avoided by settlement, and may serve to encourage litigation since optimistic parties may anticipate their recovery through a fee award after a verdict is rendered.

20. The greater litigation expenditures could alter the parties' expectations about the outcome of litigation. The example, however, assumes that symmetric increases in expenditures leave the expectations unchanged.

2.4. Summary of Hypotheses

Three hypotheses concerning settlement decisions and litigation costs emerge from this analysis.

(a) The English rule will encourage litigation by optimistic parties who anticipate their fees will be shifted.

(b) The English rule will encourage greater expenditures on legal resources.

(c) The prospect of greater trial costs due to fee shifting will mitigate the tendency of optimistic parties to litigate their claims under the English rule.

The analysis also shows that the English rule will influence the set of claims reaching the settle-versus-litigate stage and the selection of claims that go to trial. These selection effects are due in part to changes in the set of claims filed and differences in plaintiffs' criteria for proceeding past the drop stage. The relevant hypotheses are as follows.

(d) The cases filed under the English rule will be of higher merit and will include more low-award claims.

(e) Under the English rule plaintiffs may be deterred from filing otherwise attractive claims when defendants are expected to outspend plaintiffs at trial and when fee shifting encourages greater expenditures at trial.

(f) If, because of the low cost of filing, plaintiffs file claims of unknown merit, then the English rule will encourage plaintiffs to drop their claims when information received subsequently indicates that (i) the claim is weak, (ii) settlement is unlikely, and (iii) trial costs will be large.

Clearly, in testing the behavioral hypotheses concerning settlement behavior (i.e., the optimism effect [point (a)] versus the expenditure effect [point (c)]), it is necessary to account for the different set of claims proceeding to the settle-versus-litigate stage. In a similar vein, since the set of cases actually litigated will tend to be those in which the English rule has a weaker-than-average effect on litigation expenditures, empirical tests of the effects of fee shifting on litigation costs [point (b)] that do not correct for selection will tend to indicate a smaller effect than would be true for randomly selected claims.

3. EMPIRICAL ANALYSIS

The State of Florida's adoption of a mandatory fee-shifting rule for medical malpractice litigation for the period June 1980–September 1985 provides an opportunity for a test of the effects of the English and American rules. Consistent with the insights from the theoretical literature, the Florida Medical Association (FMA) argued that fee shifting would discourage the

pursuit of low-merit claims.[21] Claim frequency, however, appeared to have increased following passage of the fee-shifting rule.[22] From the FMA's point of view, the law produced other undesirable results because (i) some courts ruled that nonprevailing physicians had to pay the value of the plaintiff lawyer's contingent fee contract rather than an amount based on the actual services rendered,[23] and (ii) a provision relieving insolvent parties of the obligation to pay the winner's legal fees rarely benefited defendants.[24] Indeed, some practitioners argued that the rule was evolving into one-way fee shifting in favor of plaintiffs.[25] Following a series of expensive cases lost by physicians and hospitals, the legislature—with the FMA's support—repealed the fee-shifting rule in 1985.

In the balance of this section, we analyze how the fee-shifting rule affected claim disposition and expenditures by defendants on legal counsel. First, we describe the data and explain how the regression methods we use account for selection effects. We then report empirical results concerning claim disposition and defense expenditures. At the end of the section, we interpret the full set of findings. This discussion emphasizes that the prospect of higher legal costs under the English rule is important in explaining the claim-disposition results.

21. The FMA may have anticipated also that since physicians tend to win a high proportion of litigated claims, the rule would place a greater burden on plaintiffs. Physicians and their insurers tend to be cautious in pretrial settlement, which may reflect either concerns about the defendant physician's reputation or the insurer's interest in establishing a reputation for success at trial. As a result, the claims going to trial tend to be ones which physicians feel confident of winning.

22. With the benefit of hindsight, it appears that the claim-frequency evidence may have been misinterpreted: Annual flings increased modestly during the years the English rule was in effect, but rose sharply after repeal in 1985, as suggested by the following DOI data on closed claims: 1975—969; 1976—1183; 1977—1351; 1978—1459; 1979—1476; 1980—1610; 1981—2040; 1982—2637; 1983—2520; 1984—2723; 1985—1948; 1986—2451; 1987—4898. Note that the totals for the later years are biased downward because many cases filed recently are not yet closed.

23. This issue, however, was resolved in *Florida Medical Center, Inc., et al.* v. *Von Stetina,* 436 So.2d 1022 (1983). The court ruled that a prevailing plaintiff was not entitled to a fee award equal to the payment due to plaintiff's counsel based on the contingent fee contract.

24. The statute also provided that a defendant who made a settlement offer was not liable for the portion of the plaintiff's fees accruing subsequently in the event the rejected offer exceeded the final judgment. Other provisions required that plaintiffs' counsel notify clients in writing of their potential liability and guidelines for allocating fees when multiple parties were involved.

25. According to Mr. John Thrasher, General Counsel for the FMA, nonprevailing plaintiffs often claimed they were insolvent. The legislative staff analysis of the repeal also indicated that the rule operated unfairly in this regard. (Staff Analysis of HB 1352, Committee on Health Care & Insurance, Florida House of Representatives, Doc. No. PCB85-02/BS, June 4, 1985.) But whether the rule was evolving into one-way fee shifting is not clear. It would be expected that plaintiffs who could qualify for the exemption would be more willing to litigate their claims than those who would be held fully liable, leading to bias in the set of litigated claims.

3.1. DATA

Our data consist of closed claims against either physicians or hospitals.[26] Approximately 22 percent of the observations are Florida claims collected by the National Association of Insurance Commissioners (NAIC), which compiled detailed information on claim characteristics, such as the severity and location of the injury, the legal fees of defendants, and claim disposition.[27] All of these claims were closed during the period 1975–1978, and so were governed by the American rule. The balance of the data are from claim reports filed by insurers with the Florida Department of Insurance (DOI). Since October 1, 1985, as required by statute, insurers have provided to the DOI claim records that include the same information and level of detail as the NAIC records. While the English rule was repealed for claims filed after October 1, 1985—the date the DOI reporting requirements went into effect—about two of every three claims closed during the period for which we have DOI data, October 1985–June 1988, were governed by the English rule.

After combining the NAIC and DOI records, we devised an algorithm to classify claims according to their disposition, producing a usable sample of 10,325 observations, of which 57.7 percent were English rule cases.[28] (Since the data consist of claims closed during a particular year, there is no overlap in the two sources.) We supplemented the data set by defining dummy variables for various medical malpractice reforms enacted (and in some cases

26. When a claim names both a physician and a hospital as a defendant, the reporting process generates individual case records. Hence, the unit of observation in the data is the individual defendant.

27. The NAIC collected data on over 72,000 malpractice claims nationwide as part of their 1980 study.

28. The NAIC and the DOI reports indicate whether the claim was dropped and, for settled claims, the stage of litigation at which the parties reached a settlement as well as amounts paid to the plaintiff. The reports also identify claims resolved by the court through jury verdicts, directed verdicts, etc. We used these variables to classify claims as either dropped, settled, or litigated. Three points regarding the classifications deserve mention. First, we excluded from the sample a small number of arbitrated claims. Second, claims resolved through court proceedings (e.g., summary judgment, directed verdict, and judgment notwithstanding) were classified as litigated along with jury verdicts. Insofar as litigants were prepared to continue and had failed to settle their disputes, this categorization is consistent with the underlying model when the plaintiff's ask exceeds the defendant's offer. Also, from a legal point of view, these outcomes reflect a finding on the merits. Third, in comparing the disposition variable with other information, we discovered certain inconsistencies. For example, some claims classified as having been dropped by the plaintiff showed a payment by the defendant to the plaintiff. The algorithm reclassified these claims as having been settled. But when problems could not be resolved, the observations were excluded from the sample. Claims classified by the NAIC and DOI as ending in "other court proceedings" proved problematic since this category includes both claims dismissed by the courts and claims voluntarily dropped by plaintiffs. Unless other information (e.g., an indication of a payment to plaintiff) was available to indicate the nature of the disposition, these claims were excluded from the sample.

Table 1. Sample Means

Number of Observations	All Claims 10,325	Dropped Claims 5187	Settled Claims 4155	Litigated Claims 983
Legal reforms				
English rule	.577	.570	.564	.670
Contingent fee limit	.046	.054	.047	.002
Review panels	.117	.128	.102	.123
Statute of limitations	.872	.892	.848	.871
Ad damnum pleading	.876	.984	.854	.873
Reform package 1[a]	.827	.835	.811	.854
Reform package 2[b]	.154	.189	.140	.025
Injury severity				
No injury/legal issue only	.065	.094	.030	.069
Insignificant temporary	.096	.116	.081	.063
Minor temporary	.244	.245	.254	.194
Major temporary	.103	.094	.119	.086
Minor permanent	.106	.094	.119	.127
Significant permanent	.096	.090	.099	.113
Major permanent	.140	.032	.042	.068
Grave permanent	.030	.021	.037	.043
Death	.219	.215	.219	.235
Defendant type				
General practioner	.065	.094	.030	.069
Physician/no surgery	.123	.136	.085	.142
Physician/minor surgery	.085	.085	.067	.083
General surgeon	.058	.049	.067	.066
Surgical specialties	.237	.220	.246	.291
Anesthesiologist	.029	.029	.029	.028
Osteopath	.021	.019	.023	.023
Hospital	.364	.389	.352	.282
Other				
Defense expenditures (1980 dollars)	6394	1768	9390	18,184
Hospital injury	.825	.838	.808	.826
Office injury	.134	.122	.150	.127
Other injury	.042	.040	.042	.047
Plaintiff life expectancy	27.54	26.52	27.85	31.64
NAIC	.212	.220	.219	.146

[a]Reform package 1 combines modification of the collateral source rule, provision for periodic payment of damage awards, judicial review of damage awards, and the locality rule.

[b]Reform package 2 combines limits in punitive damages, itemization of the jury award, and mandatory pretrial settlement conferences.

repealed) during the 1975–1988 period.[29] In addition to the English rule, other reforms include limits on attorneys' contingent fees, pretrial review panels, shortening of the statute of limitations, changes in the collateral source rule, and prohibitions on *ad damnum* pleadings. Since some reforms were enacted simultaneously, we defined two composite variables to account

29. The date of injury or, where relevant, the date of filing was compared to the effective date of the reform to determine if the legal rule applied.

for their effects.[30] Both data sources identify the dollar amount paid to defense counsel for each claim. Table 1 shows the means of all the variables used in the empirical analysis.

The combined data allow us to identify the separate effects of most legal reforms on claim disposition and defense costs. Most importantly, we could not identify the effects of the English rule with just the DOI data.[31] We are aware, however, that differences in the two sources of data could influence our findings. One type of selection bias may arise because dropped claims usually are resolved more quickly than settled claims, which in turn take less time than litigated claims. Since claim frequency increased during the 1970s, the earlier NAIC sample of closed claims—all governed by the American rule—is likely to include a disproportionately high number of dropped claims and a disproportionately low number of litigated claims.[32] Note as well that the English rule did not apply to claims filed after October 1, 1985, the beginning date of the DOI sample. With no new English rule claims filed thereafter, the subset of English rule claims in the later sample of closed claims is likely to contain a disproportionately high fraction of claims that take longer to resolve (i.e., litigated cases), and a low proportion of dropped claims. These potential biases, therefore, work in the same direction: The English rule would tend to be associated with a smaller fraction of claims dropped and a higher fraction of litigated claims. Our results concerning the English rule's effect on claim disposition, however, point in the opposite direction.[33]

3.2. Methodological Considerations

The theoretical interest in the effects of fee shifting on the decisions of the parties to settle or litigate naturally focuses attention on the set of claims not

30. One combines modification of the collateral source rule, periodic payment of damages, judicial review of the reasonableness of an award, and the locality rule. The second combines limitations on punitive damages, itemization of the jury award, and requiring a mandatory pretrial settlement conference.

31. The repeal of the English rule coincided with the adoption of reform package 2 (see note 30). Adding the NAIC data yields American rule observations not governed by this set of reforms.

32. The differences in the average length of time to disposition would not bias the sample if the number of claims filed and the length of time to each disposition were in a steady state, as closed claims from any period would yield a random draw from the population of claims filed.

33. Related issues include whether our findings could be influenced by (i) differences in the time periods from which we draw observations, and (ii) the potential for intertemporal forum shopping—either rushes to file or delays in filing claims to take advantage of rule changes. We include in our regressions a dummy variable, NAIC, for whether the claims are from the earlier period to account for the first factor. We do not attempt to correct for the effects of forum shopping. In this regard, we note that while the anticipated repeal of the English rule could cause forum shopping, the date of repeal was also the effective date of the introduction of other reforms whose effects on plaintiff incentives vary, reducing the likelihood of systematic effects.

dropped. Testing the relevant hypotheses, however, requires isolating changes in litigant behavior from the effects produced by a different selection of claims that reach the settle-versus-litigate stage. To the extent these differences are reflected in observable claim characteristics, this does not pose an econometric issue. But, as the discussion in Section 2 emphasizes, plaintiffs' decisions to proceed with claims under alternative cost-allocation rules are likely to depend on unobservable claim characteristics including claim merit, the potential award, and expected legal costs. In medical malpractice litigation, where the proportion of dropped claims is high, selection effects involving these considerations are likely to be important.

The econometric issue is similar in spirit to the sample selection problems examined by Heckman and Lee. The methods they developed to correct for selection, however, apply only when the model of interest can be estimated using ordinary least squares (OLS).[34] As our model involves binary dependent variables for discrete outcomes, we use a bivariate probit regression with selection technique developed by van de Ven and van Praag as a nonlinear analog to the earlier methods.[35] This method estimates simultaneously a Drop equation (for whether plaintiffs drop their claims) using the full sample of filed claims and a Settle equation (for the settle-versus-litigate decision) using the subsample of claims not dropped. Since the estimation restricts the value of the error term in the Settle equation to account for the effects of sample selection, the estimated coefficients in the Settle equation isolate changes in litigant behavior.

Consistent with Section 2, the underlying model of claim disposition depends on the plaintiff's expected gain (the ask) and the defendant's expected cost (the offer), which may be written as

$$\text{Ask} = a'Z + e_1, \tag{8}$$

$$\text{Offer} = d'Z + e_2, \tag{9}$$

where Z is a vector of claim characteristics, a' and d' are coefficient vectors, and the e_1 and e_2 are error terms. The plaintiff drops the claim when the ask

34. When the sample used for estimation is not a random sample of the underlying population, OLS will produce biased results (e.g., as in the case of estimating the effect of union membership on wages when the decision to join a union is nonrandom). Heckman and Lee developed two-stage procedures for correcting these biases. A selection equation is estimated using logit or probit to predict whether the individual joins a union. A summary statistic indicating the likelihood that an individual joins the union is derived from the estimated coefficients. This so-called inverse Mills' ratio is added to the OLS wage equation to correct for selection. Such methods are not appropriate, however, when the second equation has a binary dependent variable. The addition of the Mills' ratio term makes the error term nonnormal, which biases estimation of binary dependent variable models such as probit.

35. We have previously applied the technique to medical malpractice data (Hughes, Hughes and Snyder) and to criminal antitrust cases (Snyder).

is below zero (or some critical value). Alternatively, when the ask is positive, the claim is not dropped. While we do not observe the plaintiff's ask directly, we do observe the plaintiff's decision.

If the claim is not dropped, the disposition depends on the relative size of the ask and the offer. The settlement gap referred to in Section 2 may be written as

$$\text{Gap} = (d' - a')\mathrm{Z} + e_2 - e_1 = b'\mathrm{Z} + e^*, \tag{10}$$

where b' and e^* are defined in the obvious manner. Again, we do not observe the settlement gap directly, but whether the claim is settled or litigated. Note that these outcomes are observed only if claims are not dropped, which from (8) implies that $e_1 > -a'\mathrm{Z}$. The bivariate probit with selection procedure places this restriction on the value of e_1 in the Settle equation, and thereby conditions the coefficients on the nonrandom selection of claims. In contrast, coefficients obtained from separate estimation of the Settle equation (i.e., without reference to the Drop equation) are not conditional in the statistical sense of the term because they place no limit on the value of e_1.

The bivariate probit with selection procedure has an additional advantage for our purposes. When we examine the effect of the English rule on defense expenditures in Section 3.4, we correct those linear equations using Heckman's procedure by including selection criteria derived from the bivariate probit regressions. A comparison between the corrected and uncorrected defense expenditure regressions allows us to infer that the English rule encourages settlements when litigation is likely to be particularly expensive.

3.3. Bivariate Probit Regression Analysis of Claim Disposition

We report in Table 2 the bivariate probit with selection regression estimates of the Drop equation (using the entire sample of 10,325 claims) and the Settle equation (using the subset of 5138 claims selected for either settlement or litigation).[36] The dependent variable in the Drop equation equals 1 if the claim is not dropped and 0 if dropped. The estimated coefficient on the English rule variable in this equation is negative and statistically significant at the 1 percent level (t-statistic = -6.55), indicating that claims governed by the rule are more likely to be dropped without payment. (The reform variables equal 1 if the reform was in effect and 0 otherwise.)

The dependent variable in the Settle equation equals 1 if the claim is litigated and 0 if settled. The estimated English rule coefficient in this

36. The estimates were calculated using LIMDEP by Prof. William Greene of New York University.

Table 2. Bivariate Probit Regression Analysis of Claim Disposition

Equation	Drop Equation	Settle
Indepedent Variables (Standard Errors)	Dependent Variable 1 = Not Dropped 0 = Dropped	Dependent Variable 1 = Litigated 0 = Settled
Constant	1.058***	0.176
	(0.121)	(0.141)
Legal reforms		
English rule	−0.262***	0.137***
	(0.040)	(0.042)
Contingent fee limit	−0.035	−0.209**
	(0.071)	(0.101)
Review panels	0.516***	−0.012
	(0.075)	(0.071)
Statute of limitations	−1.063***	0.390
	(0.255)	(0.241)
Ad damnum pleading	0.105	−0.156
	(0.238)	(0.224)
Reform package 1	−0.157*	−0.055
	(0.083)	(0.100)
Reform package 2	−0.479***	−0.158***
	(0.050)	(0.061)
Injury severity[a]		
Insignificant temporary	0.365***	−0.541***
	(0.067)	(0.073)
Minor temporary	0.593***	−0.726***
	(0.059)	(0.064)
Major temporary	0.715***	−0.832***
	(0.065)	(0.070)
Minor permanent	0.659***	−0.769***
	(0.066)	(0.070)
Significant permanent	0.600***	−0.693***
	(0.067)	(0.071)
Major permanent	0.732***	−0.753***
	(0.083)	(0.086)
Grave permanent	0.868***	−0.926***
	(0.090)	(0.093)
Death	0.590***	−0.697***
	(0.060)	(0.064)
Defendant type[b]		
Physician/no surgery	−0.329***	0.397***
	(0.056)	(0.058)
Physician/minor surgery	−0.188***	0.198***
	(0.061)	(0.063)
General surgeon	0.012	0.016
	(0.070)	(0.070)
Surgical specialties	−0.098	0.130**
	(0.052)	(0.053)
Anesthesiology	−0.126	0.121
	(0.089)	(0.090)
Osteopath	−0.051	0.054
	(0.097)	(0.099)
Hospital	−0.116**	0.119**
	(0.051)	(0.053)

(*continued*)

Table 2. (*Continued*)

Equation	Drop Equation		Settle
Indepedent Variables (Standard Errors)	Dependent Variable 1 = Not Dropped 0 = Dropped		Dependent Variable 1 = Litigated 0 = Settled
Other claim characteristics[c]			
Hospital injury	−0.149***		0.202***
	(0.040)		(0.041)
Other injury	−0.030		0.127*
	(0.069)		(0.071)
Plaintiff's life expectancy	−0.658E-3		3.056E-3**
	(1.417E-3)		(1.500E-3)
Plaintiff's life expectancy squared	0.025E-3		−0.053E-3**
	(0.022E-3)		(0.023E-3)
NAIC	−1.200***		0.262**
	(0.091)		(0.111)
ρ		−0.997***	
		(0.004)	
χ^2 statistic (d.f.)		965.8***	
		(55)	
McFadden's R^2		.050	
Number of observations	10,325		5138

[a]The omitted category of injury severity is no injury/legal issue only.
[b]The omitted category of defendant type is general practitioner.
[c]The omitted category of injury location is physician office injury.
*Statistically significant at the 10% level.
**Statistically significant at the 5% level.
***Statistically significant at the 1% level.

equation is positive and also significant at the 1 percent level (t-statistic = 3.30). This is direct evidence, correcting for differences in the set of claims not dropped, that the settlement gap narrows when the fee-shifting rule applies. This result, which isolates the effect of the fee-shifting rule on litigant behavior, indicates that the "optimism effect" from fee shifting outweighs the "expenditure effect."

Taking account of the estimated effects of the English rule from the Drop and Settle equations, the large increase in the probability of a claim being dropped makes it possible that both settlement and litigation are less likely. Therefore, in interpreting the results, it is useful to calculate the estimated probabilities of the three possible outcomes under the American and English rules. We evaluate these joint probabilities for a typical claim (with mean values of the other independent variables).[37] As reported in Table 3, when the English rule applies, (i) the probability that the plaintiff drops the claim

37. The probabilities are estimated for the case when the reform applies (the reform variable equals 1) and for the case when it does not apply (the reform variable equals 0), holding constant the other independent variables.

Table 3. Estimated Probabilities of Claim Dispositions

Reform Variables (0: Reform Not in Effect) (1: Reform in Effect)		Drop	Settle	Litigate
English rule	= 0	0.435	0.458	0.107
	= 1	0.539	0.404	0.057
Contingent fee	= 0	0.496	0.423	0.081
	= 1	0.482	0.500	0.018
Review panel	= 0	0.519	0.427	0.054
	= 1	0.320	0.423	0.257
Statute of limitation	= 0	0.173	0.559	0.268
	= 1	0.548	0.403	0.049
Reform package 1	= 0	0.446	0.443	0.111
	= 1	0.508	0.421	0.071
Reform package 2	= 0	0.466	0.434	0.100
	= 1	0.653	0.345	0.002
Baseline		0.495	0.427	0.078

Note: The probabilities are derived for claims with average characteristics using the regression results reported in Table 2. The estimates for the English rule and reform package 2 are calculated using statistically significant coefficients in the Drop and Settle equations. The estimates for review panel, statute of limitation, and reform package 1 are calculated using a significant coefficient in the Drop equation. The estimates for contingent fee limits are calculated using a statistically significant coefficient in the Settle equation. The baseline case is evaluated at the means of all independent variables.

increases from 43.5 percent to 53.9 percent; (ii) the probability of settlement decreases from 45.8 percent to 40.4 percent; and (iii) the probability of litigation decreases from 10.7 percent to 5.7 percent.[38] Of note, these joint probabilities are derived from the two bivariate probit equations and, therefore, incorporate both the effects of the different selection of claims proceeding past the drop stage and the behavioral changes favoring litigation.

3.3.1. Conditional Probabilities of Settlement and Litigation. Given that much of the theoretical literature focuses on the settle-versus-litigate decision, it is interesting to examine whether the results support the prediction that the English rule will increase litigation relative to settlement. To do this, we can calculate conditional probabilities of settlement and litigation, given that a claim is not dropped, from Table 3.[39] Figure 3, which shows the expected disposition of two sets of 1000 typical claims, one set resolved under the American rule and the other under the English rule, is helpful in evaluating the results. Focusing only on the subset of claims not dropped, the probability of litigation is 18.9 percent (107 out of 565) under the American rule. Of the smaller subset of claims not dropped under the English rule,

38. As the English rule coefficients generating these changes in the Drop and Settle equations are statistically significant at the 1 percent level or higher, the changes in the estimated probabilities are also statistically significant.

39. For example, the conditional probability of settlement, Pr[Settle|Not Dropped], equals Pr[Settle, Not Dropped]/Pr[Not Dropped], where Pr[Not Dropped] = 1 − Pr [Drop].

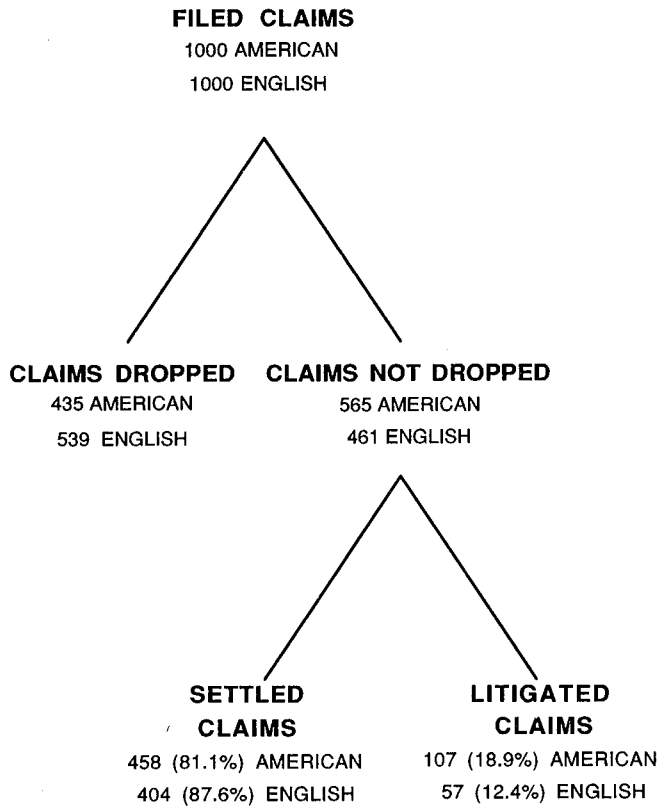

Figure 3. Predicted disposition of claims under the American and English rules.

the probability of litigation is 12.4 percent (57 of 461). Thus, the conditional probability of litigation falls under the English rule.

With the bivariate probit with selection methodology, we can interpret this result as follows: The relative decrease in litigated cases under the English rule is due to the effects of the reform on *claim selection*. This follows from the fact that the English rule coefficient in the bivariate probit Settle equation is positive, which indicates that, correcting for differences in the selection of claims reaching this stage, fee shifting encourages litigation. As we elaborate below, it appears that under the English rule plaintiffs are more likely to proceed with claims that are likely to be settled. These selection effects more than offset the behavioral inducement to litigate under the English rule.

The bivariate probit regressions also allow us to decompose the behavior and selection effects. If the cost-allocation rule had no effect on behavior at

the settle-versus-litigate stage, then the conditional probability of litigation for a typical claim would fall by a greater amount under the English rule, from 18.9 percent to 2.8 percent.[40] This decrease of 16.1 percent due to selection effects is offset by an estimated increase of 9.6 percent due to behavioral effects, producing the net decrease of 6.5 percent in the conditional probability of litigation. (The estimated joint probabilities can be decomposed as well: For a typical claim, the probability of litigation falls from 10.7 percent to 5.7 percent. This decline of 5 percent reflects a decrease of 9.4 percent due to selection effects and an increase of 4.4 percent due to behavioral effects.)

It follows that the lower conditional probability of litigation under the English rule is actually consistent with the hypothesis that the English rule narrows the settlement gap. Indeed, the positive and significant Settle equation coefficient reveals a greater disposition toward litigation. But what emerges from the empirical analysis is that, when applied in Florida, fee shifting had a substantial effect on the selection of claims dropped and that this selection favored settlement of the remaining claims.

3.3.2. Effects of Other Variables on Claim Disposition. Consistent with prior research, the probability estimates in Table 3 indicate that contingent fee limits, shortening the statute of limitation, and the two reform packages reduce the probability of litigation. However, as indicated by the settle equation coefficients reported in Table 2, only contingent fee limits and reform package 2 did so by encouraging the parties to settle their claims. For the other reforms, the reduction in litigation rates is due primarily to an increase in the likelihood of claims being dropped. The estimates in Table 3 also indicate that pretrial review panels reduce the likelihood of a claim being dropped, which might reflect a more careful selection of claims by plaintiffs' lawyers. While the panels might encourage a convergence of beliefs, the lack of a positive effect on settlements could be due to a shifting of some of the costs that normally are incurred at trial to earlier stages, which reduces the marginal costs of going to trial.

While the data do not permit a systematic evaluation of the possible effects of asymmetric stakes on the selection of claims going to trial, the results concerning defendant type suggest questions in this regard. For example, claims against hospital defendants (versus the omitted category of general-practitioner physicians) are more likely to be dropped. And, according to the Settle equation coefficient, the parties to such claims are more disposed toward litigation. This pattern might reflect a concern on the part of hospital defendants that a reputation for settling claims would affect adversely the disposition of other claims against them. It would be interesting to

40. These probability estimates are derived by evaluating the bivariate probit regression results with the restriction that the English rule coefficient equals 0 in the Settle equation.

determine whether the litigated outcomes are consistent with Priest and Klein's hypothesis that the asymmetry of stakes would result in a higher success rate at trial for hospitals than for other defendants.

Several other variables significantly affected claim disposition. As expected, the NAIC dummy variable included to account for differences between the two data sources indicates that claims from the earlier period were more likely to be dropped. The injury severity variables indicate that claims involving more serious injuries are less likely to be dropped relative to less serious injuries, which, if injury severity and the potential award are correlated, is consistent with the standard model of litigation.[41]

3.3.3. *Alternative Empirical Approaches to Claim Disposition.* Before turning to the empirical analysis of defense expenditures, we discuss alternative multinomial methods for analyzing claim disposition. To be useful in litigation models, the alternatives should allow for interdependence among the three mutually exclusive outcomes (drop, settle, and litigate). Multinomial logit (MNL), for example, fails this test as it assumes independence between the three dispositions. In the discrete choice models where MNL is used, this assumption fails when two or more of the alternatives are too similar to others in the subset.[42] To remedy the "independence of irrelevant alternatives" assumption, McFadden developed from random utility models the nested logit estimator, which subsequently has been used to estimate discrete choice models having tree structures analogous to Figure 1.

Applied here, the first step in the nested logit procedure is to estimate the Settle equation using the subset of claims not dropped. Estimated coefficients from this univariate logit regression are used to form an "inclusive value," which is then included as a regressor in the Drop equation. The Drop equation is estimated, therefore, as a decision to drop versus two interdependent outcomes (settle or litigate). The procedure, however, does not permit the error terms in the Drop and Settle equations to be correlated and, therefore, does not allow interdependence between the two equations.[43]

41. There is, however, no significant relationship between the plaintiff's life expectancy and the probability that a claim is dropped—a surprising result given that the higher damages associated with greater life expectancy should imply a higher potential award. The Settle equation coefficients indicate that litigation is more likely as the plaintiff's life expectancy increases, which may reflect the greater propensity for disagreement between the litigants over the size of the plaintiff's losses resulting from the injury.

42. The classic example of this problem is a commuter's choice between a red bus or a blue bus.

43. In other words, nested logit relaxes the assumption of independence between similar alternatives within "branches" of the tree at the same stage, but does not allow dependence between the unobservable characteristics in the different stages of the decision (McFadden:1425). This assumption conflicts with the standard theoretical model of litigation, which posits that plaintiffs proceed with claims when their asks are above a critical value [see Equation (8)] and that settlement prospects for the claims not dropped depends on the difference between defendants' offers and plaintiffs' asks [see Equation (10)]. Note also that the coefficient on the

Table 4. Nested Logit Regression Analysis of Claim Disposition

Equation	Drop Equation	Settle
Indepedent Variables (Standard Errors)	Dependent Variable 1 = Not Dropped 0 = Dropped	Dependent Variable 1 = Litigated 0 = Settled
Constant	1.361***	0.647*
	(0.507)	(0.378)
Legal reforms		
English rule	−0.417***	−0.254**
	(0.074)	(0.105)
Contingent fee limit	−0.092	−1.777**
	(0.120)	(0.744)
Review panel	0.797***	0.780***
	(0.213)	(0.141)
Statute of limitation	−1.952***	−0.702
	(0.413)	(0.794)
Ad damnum pleading	0.445	−0.639
	(0.351)	(0.745)
Reform package 1	−0.172	−0.143
	(0.140)	(0.366)
Reform package 2	−0.731***	−1.653***
	(0.153)	(0.231)
Injury severity		
Insignificant temporary	0.708***	−0.948***
	(0.176)	(0.215)
Minor temporary	1.081***	−0.970***
	(0.170)	(0.181)
Major temporary	1.263***	−1.128***
	(0.189)	(0.202)
Minor permanent	1.186***	−0.872***
	(0.170)	(0.192)
Significant permanent	1.064***	−0.903***
	(0.174)	(0.196)
Major permanent	1.294***	−0.613***
	(0.167)	(0.221)
Grave permanent	1.534***	−0.876***
	(0.201)	(0.244)
Death	1.067***	−0.868***
	(0.165)	(0.179)
Defendant type		
Physician/no surgery	−0.560***	0.547***
	(0.113)	(0.162)
Physician/minor surgery	−0.300***	0.150
	(0.101)	(0.179)
General surgeon	0.066	0.178
	(0.114)	(0.192)
Surgical specialties	−0.141	0.261*
	(0.088)	(0.147)
Anesthesiology	−0.134	0.173
	(0.141)	(0.253)
Osteopath	−0.037	0.134
	(0.158)	(0.270)
Hospital	−0.167**	0.089
	(0.084)	(0.150)

(*continued*)

Table 4. (*Continued*)

Equation	Drop Equation	Settle
Indepedent Variables (Standard Errors)	Dependent Variable 1 = Not Dropped 0 = Dropped	Dependent Variable 1 = Litigated 0 = Settled
Other claim characteristics		
Hospital injury	−0.277***	0.331***
	(0.075)	(0.118)
Other injury	−0.190	0.306
	(0.120)	(0.204)
Plaintiff's life expectancy	0.110E-2	1.540E-2***
	(0.265E-2)	(0.474E-2)
Plaintiff's life expectancy squared	0.006E-3	−0.204E-3***
	(0.040E-3)	(0.069E-3)
NAIC	−1.812***	−2.091***
	(0.335)	(0.305)
Inclusive value	0.406	
	(0.599)	
χ^2 statistic (d.f.)	616.6***	330.0***
	(28)	(27)
Number of observations	10,325	5138

*Statistically significant at the 10% level.
**Statistically significant at the 5% level.
***Statistically significant at the 1% level.

Table 4 shows nested logit estimates of the Drop and Settle equation. Again, the Drop equation indicates that the English rule increases the likelihood that plaintiffs will drop their claims. Referring to the Settle equation, the results indicate that for those plaintiffs who choose to proceed with their claims, settlement became more likely under the English rule. Since the nested logit Settle equation evaluates the choice between settlement and litigation given the decision not to drop the claim, these results should be compared with those reported in Section 3.1.1, the conditional probabilities derived from the two bivariate probit regressions. The predictions regarding the probability of litigation, given a claim is not dropped, are qualitatively consistent: According to the nested logit results, for a typical claim the conditional probability of litigation falls from 18.5 percent under the American rule to 15.0 percent under the English rule; the bivariate probit regressions estimate that the decrease is from 18.9 percent to 12.4 percent. Consistent with our prior research, we prefer the bivariate probit with selection

inclusive value in the nested logit Drop equation is not analogous to the correlation coefficient, ρ, that is estimated in the bivariate probit with selection model. While ρ measures interdependence between the Drop and Settle equations, the coefficient on the inclusive value measures the independence of alternatives within branches of the decision tree—in this case, between the settle and litigate decision.

technique because it allows us to test for interdependence between the unobserved components of the Drop and Settle equations, and thereby distinguish between behavior and selection effects.

3.4. The Effect of the English Rule on Litigation Costs

We now investigate the effect of fee shifting on defendants' expenditures on legal resources. As discussed in Section 2, because of the higher effective stakes as well as the expectation that plaintiffs will bear these costs with some probability, defendants are expected to commit more legal resources to disputes governed by the English rule. In testing this hypothesis, we must recognize that defense expenditures will tend to be greater for litigated claims than for settled or dropped claims. Including dummy variables for claim disposition along with other independent variables in a regression on defense expenditures, however, may not be appropriate because the dispositions are likely to be endogenous. One method of accounting for sample selection among dispositions is to include in defense expenditure regressions Mills' ratio terms constructed from the bivariate probit regressions.[44] Specifically, two terms—one constructed from the Drop equation and the other from the Settle equation—can be included in a regression using only litigated claims to account for differences in likelihoods that claims would go to trial. (See Maddala:278–83 for a discussion of the approach and Ham for an application to estimating reservation wages.) Mill's ratio terms for the selection of the settled claims may also be included in a regression using that subset of claims.

Table 5 shows five regressions that estimate the relationship between defense expenditures and most of the independent variables used in the analysis of claim dispositions. The regressions in columns 1 and 2 use only the 981 litigated claims. The first is an OLS regression that does not correct for example selection, whereas the second accounts for sample selection by including the Mills' ratio terms (Lambda 1 for selection into the not-dropped category and Lambda 2 for selection into the litigated category). The regressions in columns 3 and 4 use only the 4133 settled claims. Again, the first of these is an OLS regression that does not correct for sample selection, whereas the other does so by including the relevant Mills' ratio terms. For comparison, in column 5 we report an OLS regression that uses the full sample of 10,325 claims and includes dummy variables for settled and litigated claims. (Along

44. Defense expenditures for litigated claims are observed only if the claims are neither dropped nor settled. From (8) and (10), this requirement is equivalent to $e_1 > -a'Z$ and $e^* > -b'Z$. Consistent estimation of the defense expenditure equation for litigated claims requires that the expectation of the error term, given that the claim is neither dropped nor settled, must equal zero. According to Maddala (282, 386), this expectation is equal to $\lambda 1^* M_{12} + \lambda 2^* M_{21}$, where the M_{ij} are derived from the moments of the truncated bivariate normal distribution.

Table 5. Regression Analysis of Defense Expenditures (1980 Dollars)

	Litigated Claims		Settled Claims		All Claims
	OLS (1)	Selection[a] (2)	OLS (3)	Selection[a] (4)	OLS (5)
Constant	191	−5764	9711**	86,775***	845
	(10,340)	(10,665)	(5,060)	(22,815)	(1991)
Legal reforms					
English rule	7894***	13,214***	3461**	7632***	2641***
	(1953)	(2879)	(1459)	(1950)	(654)
Contingent fee limits	5053	7086	−3175	−9804**	−1460
	(16,635)	(18,725)	(2757)	(4514)	(1237)
Review panels	11,803***	6735**	2984	7536***	4134***
	(2272)	(2861)	(2084)	(2406)	(922)
Reform package 1	6543	20,768**	−5375	−296	−3157**
	(9422)	(10,523)	(3436)	(3994)	(1384)
Reform package 2					
Injury severity					
Insignificant temporary	−2370	−17,372*	−6571**	−34,535***	−2139*
	(4051)	(8433)	(3590)	(8866)	(1187)
Minor temporary	−1271**	−22,451**	−4817	−41,252***	−1721*
	(3243)	(10,405)	(3263)	(10,845)	(1040)
Major temporary	947	−23,749*	−2365	−43,653***	−352
	(3765)	(12,165)	(3447)	(12,163)	(1180)
Minor permanent	3840	−19,481*	2286	−36,512***	2105*
	(3481)	(11,094)	(3452)	(11,485)	(1175)
Significant permanent	3517	−17,011*	2076	−33,324***	2313*
	(3574)	(10,167)	(3516)	(10,585)	(1208)
Major permanent	12,727***	−11,479	8105**	−30,167***	6175***
	(4014)	(11,285)	(4027)	(11,491)	(1510)
Grave permanent	41,858***	13,147	11,228***	−34,512***	12,459***
	(4675)	(13,497)	(4136)	(13,529)	(1660)

(*continued*)

Table 5. (*Continued*)

	Litigated Claims		Settled Claims		All Claims
	OLS (1)	Selection[a] (2)	OLS (3)	Selection[a] (4)	OLS (5)
Death	11,178***	−9323	2954	−32,360***	3522***
	(3203)	(9939)	(3299)	(10,495)	(1059)
Defendant type					
Physician/no surgery	−4	12,329*	707	19,168***	−195
	(3228)	(6445)	(2382)	(5739)	(1061)
Physician/minor surgery	−6140*	260	−570	8256**	−975
	(3661)	(4461)	(2494)	(3527)	(1148)
General surgeon	1594	1389	7905***	8606***	3722***
	(3857)	(3793)	(2718)	(2722)	(1290)
Surgical specialties	2495	6097*	−268	5618**	44
	(2920)	(3357)	(2072)	(2660)	(968)
Anesthesiologist	−3194	269	−1454	4204	−974
	(5079)	(5245)	(3598)	(3923)	(1620)
Osteopath	−2208	−573	1456	3747	−123
	(5467)	(5382)	(3912)	(3961)	(1816)
Hospital	−3064	905	−569	4963*	−967
	(3004)	(3367)	(2089)	(2586)	(962)

Other					
Hospital injury	−1885	3910	1079	10,278***	727
	(2334)	(3661)	(1646)	(3098)	(750)
Other injury	−4098	−783	2398	8180**	705
	(4079)	(4456)	(2932)	(3382)	(1321)
Plaintiff's life expectancy	168*	234**	108*	238***	62**
	(100)	(109)	(59)	(73)	(26)
Plaintiff's life expectancy squared	−2.581*	−3.947**	−0.847	−3.165***	−0.412
	(1.439)	(1.615)	(0.922)	(1.170)	(0.413)
NAIC	5533	21,543**	−4930	−2435	−3844**
	(9599)	(10,855)	(3640)	(3993)	(1501)
Settle					7088***
					(503)
Litigate					14,620***
					(836)
Lambda 1		32,748**		69,239***	
		(14,525)		(19,485)	
Lambda 2		−22,562**		−59,441***	
		(13,965)		(15,885)	
F-Statistic (d.f.)	9.77***	9.55***	5.87***	5.99***	31.15***
	(24)	(26)	(24)	(26)	(26)
Adjusted R^2	.177	.185	.030	.028	.071
Number of observations	981	981	4133	4133	10,294

[a]Regression includes Mill's Ratio terms to correct for nonrandom selection of claims into disposition category.
*Statistically significant at the 10% level.
**Statistically significant at the 5% level.
***Statistically significant at the 1% level.

with not accounting for endogeneity, this specification fails to reveal whether the effect of the English rule differs among dropped, settled, and litigated claims.) We note that to correct for selection, we were forced to exclude from the set of independent variables three of the reform variables: statute of limitations, *ad damnum* pleading, and the second reform package.[45]

The first and second regressions on litigated claims indicate that the English rule has a positive and significant effect on defense expenditures. Thus, we find evidence in support of the hypothesis that parties tend to increase their litigation expenditure in the presence of the English rule. Moreover, when we correct for selection, the English rule coefficient increases from $7894 to $13,214 in 1980 dollars, which means that the English rule would have a stronger effect on defense expenditures for randomly selected claims than for the claims actually going to trial. Given the standard errors, the difference in the two estimates is statistically significant. The regression results in columns 3 and 4 indicate a similar relationship between the English rule and defense expenditures in settled claims, although the dollar increase due to fee shifting is not as large. Again, when we correct for selection, the English rule coefficient increases from $3462 to $7632.

To put these findings in perspective, Table 6 shows the predicted level of defense expenditures for litigated and settled cases with average characteristics. The figures in the second column are based on the regressions that correct for selection (2 and 4 from Table 4). For litigated claims, the $13,214 increment due to the English rule represents a 108 percent increase, which is consistent with the Katz simulations (1987:167–71). For settled claims, the smaller increment of $7632 represents about a 150 percent increase. The figures reported in column 1 that are not corrected for selection indicate smaller effects, in both absolute and percentage terms, for litigated and settled claims.

For litigated claims, the larger increases that are obtained when we correct for selection support the view that the English rule will deter litigation when the expected increase in expenditures at trial is large. The finding that defense expenditures also increase for settled claims suggests, however, that some of the measured increment is due to expenditures at earlier stages of the litigation (see Mause). As noted above, since pretrial expenditures are not avoided by settlement, the gains from settlement depend only on the increment at trial.[46] Similarly, if a substantial portion of the additional costs

45. The Mills' ratio terms are nonlinear transformations of the full set of independent variables used in the claim-disposition regressions. When the full set of independent variables was included along with these variables, the estimation produced extremely large standard errors, indicating multicollinearity. The reform variables excluded from the regression reported in Table 4 were not significant in other specifications that did not correct for selection.

46. Pretrial expenditures could encourage settlements by reducing the variance in the parties' expectations about the plaintiff's likelihood of prevailing at trial.

Table 6. Predicted Defense Expenditures (1980 Dollars) for Litigated and Settled Claims

	Estimates Not Corrected for Selection[a]	Estimates Corrected for Selection[b]
Litigated claims		
American rule	$12,881	$12,221
English rule	$20,775	$25,435
Percentage change due to English rule	61.3%	108.1%
Settled claims		
American rule	$7428	$5065
English rule	$10,890	$12,697
Percentage change due to English rule	46.6%	150.7%

[a]Based on regressions 1 and 3 in Table 5.
[b]Based on regressions 2 and 4 in Table 5.

due to the English rule are not avoided, even if the claim is settled, then plaintiff decisions to file claims and proceed past the drop stage become more critical.[47]

Of the other reforms included in the regressions, pretrial review panels increase significantly defense expenditures for litigated and settled claims. Since the reviews are another procedural stage, this result is expected. The contingent fee limits variable is not significant in any of the regressions.

3.5. Interpretations and Implications

Our findings reveal a fair amount about the effect of the English rule on the behavior of parties when claims reach the settle-versus-litigate stage. The regression results on defense expenditures indicate that litigation becomes a more negative sum game under the English rule and, according to Equation (7), the added dollars spent at trial increase the settlement gap at a rate of $(1 - p + q)$. The direct and most relevant evidence, however, of the overall effect of the English rule on settlement behavior is the bivariate probit coefficients in the Settle equation. Having corrected for differences in the sample of claims not dropped, the estimated coefficient indicates that the

47. Given we can compare the increase in defense expenditures under the English rule and the estimated reduction in the probability of litigation, we can provide an answer to the question posed by Katz (1987): is the English rule cheaper? We proceed by (i) assuming that defense costs are a good proxy for all litigation costs, and (ii) focusing on the costs of litigation conditional on reaching the settle-versus-litigate stage. The savings from the English rule derive from the lower probability of litigation, 12.4 percent versus 18.9 percent. The costs include the higher costs of both settling and litigating under the English rule (column 2, Table 6). On net, expected defense costs for claims not dropped increase from $6111 to $14,277.

English rule narrows the settlement gap. Provided that the higher legal costs under the English rule reflect greater efforts at trial, the narrowing of the gap could not occur but for relative optimism of the parties. Thus we have indirect evidence that, as emphasized in the theoretical literature, fee shifting acts as an increase in awards and thereby encourages litigation for relatively optimistic parties who are prone to litigate their cases. According to this interpretation, Florida's experience with fee shifting reveals that the prospect of greater expenditures mitigates, but does not offset, the optimism effect.

We should not exclude, however, the possibility that the English rule alters the timing of expenditures during the litigation process. If the increase in expenditures under the English rule occurs before going to trial, then the influences of the greater expenditures and the optimism effect need not be in opposition. We also recognize that the net effect of the English rule on settle-versus-litigate decisions may differ in other settings. In this regard, Florida's provision exempting insolvent parties from potential liability presumably weakened defendants' incentives to spend more at trial. Under alternative rules that more closely approximate pure fee shifting, the increase in litigation expenses might be sufficient to change the net effect on settlement behavior.

Our stronger and, in some respects, more important results concern the selection of claims reaching the settle-versus-litigate stage. Not only does the rule increase the probability that plaintiffs will drop their claims, the estimated probabilities of claim dispositions derived from the Drop and Settle equations indicate that the frequency of settled cases rises relative to litigated cases. This result reflects substantial changes in the set of claims not dropped. While we expected a greater proportion of dropped claims,[48] the relevant question is why the English rule would cause plaintiffs to drop a larger percentage of the claims that would have been litigated (or a smaller percentage of the claims that would have been settled) under the American rule?

One possibility is that while some models of litigation assume that plaintiffs only pursue claims when they expect gains even if the case goes to trial, this discipline may be lacking in practice. Plaintiffs may file cases expecting a settlement, and if litigation becomes likely, then plaintiffs will assess more carefully the costs and benefits of proceeding. If this calculus is more often brought to bear when plaintiffs anticipate that litigation is more likely and, as suggested by the results, litigation requires more resources when fee-shift-

48. As discussed in Section 2, if defendants outspend plaintiffs at trial, fee shifting will tend to lower plaintiffs' asks. When expenditures are equal, plaintiffs' asks will fall as well for cases in which the plaintiff's likelihood of success is less than 50 percent. Finally, even when their likelihood of success is 50 percent and expenditures are equal, plaintiffs will drop more claims if the parties' expenditures at trial are expected to increase.

ing rules apply, then the additional cases dropped under the English rule will include a higher proportion of cases that would have gone to trial. Systematic effects may also follow in medical malpractice litigation since plaintiffs lose at trial more often than they win. Fees will more likely be shifted to plaintiffs, reducing their asks for claims in which the plaintiffs' likelihood of success is low. Accordingly, fewer of the types of claims that tend to generate litigated cases will proceed to the settle-versus-litigate stage.

A more compelling explanation for the lower conditional probability of litigation under the English rule is that the set of claims proceeding to the settle-versus-litigate stage differs in terms of claim merit and the potential award. As discussed in Section 2, the English rule is expected to encourage plaintiffs to file more low-award claims with high probabilities of success, which might encourage settlements. While the higher drop rate under the English rule does not reflect more careful selection at the filing stage, it is consistent with more careful selection of claims later in the litigation process. Given filing costs are very low, it makes sense that plaintiff's counsel will file claims, collect information, and then assess merit. The higher drop rate, therefore, may reflect decisions not to proceed with low-merit claims, which increases the chances of settlement for the claims not dropped. We note in this regard that while the English rule cases account for 58.4 percent of the claims not dropped, they account for 63.5 percent of the claims in the top five injury categories. This statistically significant difference suggests that the claims reaching the settle-versus-litigate stage under the English rule also may differ in other respects not accounted for by the available data on claim characteristics.

4. CONCLUSION

We have found empirical support for one of the primary predictions of the theoretical literature on alternative methods for allocating legal costs: Fee shifting encourages parties to litigate rather than settle their claims. This change in behavior is consistent with the view that optimistic litigants anticipate shifting their fees to their opponent, which reduces the settlement gap. But for the substantial increase in litigation costs under the English rule, the behavioral effect isolated by the bivariate probit methodology probably would be greater.

Our results indicate as well that the change in behavior with respect to settlement decisions represents only one part of the overall influence of the English rule. Indeed, while the adverse effects of the rule on the willingness of parties to settle particular claims should not be ignored, the English rule appears to exert a strong influence on plaintiff incentives to file and proceed with their claims. The evidence from the bivariate probit regression indi-

cates that the English rule increases the probability that claims will be dropped and, moreover, that the different selection favors settlement of the claims that reach the settle-versus-litigate stage. Taking into account the effect of the rule on the plaintiff's decision to proceed and settlement behavior, we find that for claims with average observable characteristics, the probability of litigation under the English rule declines on net, from 18.9 percent to 12.4 percent for the claims not dropped.

Of course, the relevant issues go beyond claim disposition and legal costs to the question of the English rule's effect on the character of claims filed and deterrence (see Png). For this reason, the ultimate welfare implications of our research are not clear. If the higher proportion of dropped claims under the English rule is due to plaintiffs dropping weak claims in lieu of pursuing nuisance strategies, then adoption of the rule improves efficiency by saving legal resources and reducing the potential for erroneous convictions. These in turn would reduce the costs of excessive measures by potential defendants to avoid liability. However, the tendency of the English rule to increase defense expenditures at trial raises the possibility that the implicit threat from the greater expenditures and risk aversion might account for the changes in plaintiff incentives to proceed with claims. If so, then it is likely that some meritorious claims are being abandoned.

The trade-off between greater litigation expenditures and the reduced likelihood of litigation raises related issues. The welfare effects depend on whether the additional expenditures at trial are socially productive (i.e., whether they serve to reduce legal error and thereby improve the reliability and appropriateness of the verdicts obtained). If the greater expenditures serve these purposes, then the English rule should be viewed in a more favorable light.

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