THE DETERMINANTS OF THE DISPOSITION OF PRODUCT LIABILITY CLAIMS AND COMPENSATION FOR BODILY INJURY

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THE frequency and severity of products liability lawsuits have become a matter of increasing importance and concern to the public at large and to American business in particular. The number of product liability cases filed each year escalated dramatically in the 1970s both in absolute terms and as a fraction of all civil cases.[1] The economic incentives for safety created by these product liability claims no longer are a minor concern but are now a fundamental influence on the economic environment of the firm. In recent years many larger firms have established corporate product safety offices to integrate these product safety concerns into the design and manufacture of safer products.[2]

Many aspects of the legal environment have changed over the past two decades. There have been major changes in the concept of product defect, especially as it relates to design and warning defects. The classes of available defenses based on plaintiff's misuse and assumption of risk have been narrowed. And the evidentiary burdens placed on individual plaintiffs, especially on proof of causation, have been reduced.[3] One particu-

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[1] The products liability fraction of civil filings in U.S. District Court rose from .015 in 1974 to .043 in 1982, and the absolute number of product liability cases filed in U.S. District Court rose from 1,579 to 8,994 over that period. See Reports of the Proceedings of the Judicial Conference of the United States, Annual Report of the Director of the Administrative Office of the United States Courts (1975 and 1982). State appellate cases show a similar upward trend. A Lexis search, using (Strict or Product) W/4 Liability and Date, yielded the following number of cases: 1970: 206; 1971: 223; 1972: 237; 1973: 278; 1974: 308; 1975: 381; 1976: 416; 1977: 463.

[2] See George Eads & Peter Reuter, Designing Safer Products: Corporate Response to Product Liability Law and Regulation (Report R-3022-ICJ, Rand Inst. Civ. Just. 1983).

[3] For a history of these legal developments, see Richard A. Epstein, Modern Products Liability Law: A Legal Revolution (1980).

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larly important development that will be analyzed in detail here is the general acceptance of the strict liability doctrine in such cases. By facilitating the task of making a successful claim against the firm, strict liability principles should increase the incentive of those injured by products to file product liability claims. Whether the strict liability doctrine has such an empirical effect has never been the subject of a formal empirical test.

The plaintiff's prospect of a favorable verdict or settlement is not his sole source of concern in making the decision whether to sue. The level of compensation provided is also of fundamental concern since it influences the expected award from suit. The level of expected compensation is also critical from the defendant's point of view because it constitutes a primary determinant of the level of safety incentives that are imposed on the firm. Finally, the issue has its obvious social component if product liability settlements and court awards are to provide appropriate levels of compensation to facilitate efficient accident avoidance.

Most fundamentally, decisions to drop, settle, or litigate product liability claims provide more general insights into litigation behavior. This area of research has long been of fundamental concern in the law and economics literature, as the economic framework for analyzing these decisions has evolved into a generally accepted approach in which all models share several principal features in common.[4] The claimant will drop a claim if the net gain of continuing (the expected value of the court award less litigation costs) is negative. The value of this net expected gain will determine the claimant's reservation price for an out-of-court settlement. Similarly, the company's maximum offer to the claimant will equal its expected losses of going to court (expected court award plus associated litigation costs). Factors that raise the company's maximum offer amount and lower the claimant's minimum settlement level increase the settlement rate and will boost the probability of an out-of-court settlement if there is not an increase in strategic bargaining. In many situations one would expect the firm to have greater bargaining power. Greater financial resources will make the firm more likely than the plaintiff to be risk neutral in assessing the value of future uncertain rewards. If the bargaining power of the two parties is equal, the expected out-of-court settlement

[4] Several key papers in this area are William M. Landes, An Economic Analysis of the Courts, 14 J. Law & Econ. 61 (1971); Richard A. Posner, An Economic Approach to Legal Procedure and Judicial Administration, 2 J. Legal Stud. 399 (1973); John P. Gould, The Economics of Legal Conflicts, 2 J. Legal Stud. 279 (1973); and Patricia Munch Danzon & Lee A. Lillard, Settlement Out of Court: The Disposition of Medical Malpractice Claims, 12 J. Legal Stud. 345 (1983).

level will be governed by the average of the company's maximum offer and of the claimant's reservation settlement amount.

Recently, there has been considerable concern with the influence of the selection of cases at particular stages of the litigation process. In particular, what additional predictions can be made utilizing, for example, the fact that anticipation of likely court verdicts will affect the mix of cases that proceed to trial? Such concerns are not new, and it is generally accepted that shifts in applicable legal doctrine will alter the mix of cases that are settled or that go to trial. Shifts in legal rules that give the plaintiff an advantage, for example, will lead defendants to be willing to pay more to settle cases in which the plaintiff's case is relatively weak.

What is more controversial is how the selection of cases affects the average mix of cases that are settled or litigated. In the situation of symmetric payoffs to the parties (expected court verdict the same for both parties and identical litigation costs), Priest and Klein[5] hypothesize that the proportion of defendant and plaintiff victories will each approach 50 percent for cases that go to a court verdict. Factors such as the influence of strict liability criteria will not affect observed plaintiff success rates because the advantages that strict liability confer on the plaintiff will already have been taken into account by the defendants, who will increase their willingness to settle the case out of court.

This basic model is modified by Priest and by Priest and Klein to cover situations involving asymmetric payoffs. Many of the conclusions generated by variants of the basic model parallel those reached in the critical alternative formulation by Wittman.[6] The product liability data explored here will not fully resolve the controversy because of the similarity in many of the results between the Wittman model and a Priest and Klein model (as modified), but the data will be instructive in ascertaining whether the "principal empirical heuristic" of a fifty-fifty split on court decisions is borne out.[7]

To explore these issues I will use a sample of over 10,000 closed product liability claims, which is discussed in Section I. The first issue to be addressed is how the key economic and legal variables affect the disposition of product liability claims—which claims are dropped, which are settled, and which go to verdict. These issues are the focus of Section II.

[5] See George L. Priest & Benjamin Klein, The Selection of Disputes for Litigation, 13 J. Legal Stud. 1 (1984); and George L. Priest, Reexamining the Selection Hypothesis: Learning from Wittman's Mistakes, 14 J. Legal Stud. 215 (1985).

[6] Donald Wittman, Is the Selection of Cases for Trial Biased? 14 J. Legal Stud. 185 (1985).

[7] See Priest, *supra* note 5, at 218–19.

In Section III, I address the determinants of the compensation for bodily injury loss in out-of-court settlements and jury verdicts. The conclusions that emerge from this analysis are summarized in Section IV.

I. The Sample and the Variables

The data to be used in this study are drawn from the Insurance Services Office (ISO) Product Liability Closed Claim Survey.[8] This insurance industry group obtained very extensive data from twenty-three insurance companies on product liability claims closed between the latter half of 1976 and mid-1977. Although not a random sample of all claims (including those not covered by insurance), the sample was broadly representative and included claims from all fifty states.

The ISO survey took place after the modern product liability doctrines had been established in the courts, but it precedes the closing of many of the mass tort cases, such as asbestos, DES, Dalkon shield, and Agent Orange. There is reason to believe that litigation in mass torts will not assume the same pattern as it does in individual cases. Once a basic pattern of liability is established, as has happened in the asbestos cases, the other cases should start to fall into line, so that the variation in the settlement levels should be expected to shrink. But even after this caveat is noted, the broad scope of the ISO sample contains many different kinds of product liability claims.

Although some distinctions proved desirable (for example, nonfatal and fatal cases were quite different), there was no evidence of such widely varying behavior as to make examination of the entire sample uninstructive. For the most part, features common to all accident categories determined behavior. The size of the financial loss greatly influenced payment levels, and these financial losses, coupled with the particular legal criteria, largely determined other aspects of behavior. Even for the class of claims that might be thought to be most distinctive—cases of cancer that occur with a substantial lag after exposure to the product hazard—there was no evidence of divergent behavior. As a result, the analysis pools these cases with the more acute ailments except in the case of the bodily injury payment results, where there were significant differences.

Since my major concern is with health-related issues, the focus of the analysis will be on the portion of the sample that suffered some bodily injury loss. In all, 10,784 claims were examined. This tally of claims pertains to each injured party-defendant combination. A single injury

[8] For an overview of the data, see the Insurance Services Office, Product Liability Closed Claims Survey (1977), which is a survey volume of the data generated by this extensive study by the New York ISO office.

associated with several products would, as a consequence, be reflected in multiple claims.

The time period covered by the survey is after the upsurge in product liability lawsuits in the 1970s, as the number of such cases filed in U.S. District Courts tripled from 1974 to 1977.[9] The growth in product liability cases continued, but at a slower rate after that point. Changes in the level of compensation over time also do not appear to have diminished the pertinence of the ISO data. The level of compensation for claims included in the survey is of the same general magnitude as that reflected in a more recent, small-scale survey of product liability claims involving large losses.[10] The advantage of the ISO data is that it represents by far the largest and the most extensive survey of product liability claims. Table 1 summarizes the sample characteristics.

The subsequent empirical analysis will address the properties of the entire sample as well as the subsample of roughly four-fifths of the claims that were settled out of court and the relatively small group of about 4 percent of all claims that proceeded to a court verdict. The average bodily injury loss (BILOSS) was almost $14,000, but what is more striking is its wide variation. The standard deviation of BILOSS is almost ten times the mean loss level.

The bodily injury payments (BIPAY) exhibit a similar pattern, but the level of BIPAY is about three-fourths the BILOSS level. Since the BILOSS variable reflects only the reported monetary damages associated with accidents, there is overall no net compensation for pain and suffering. Some claims receive no payment whatsoever, so this relationship may be unrepresentative of how cases receiving compensation are treated. In addition, some individuals are covered by medical insurance, thus reducing the size of their net accident loss.

The cases that proceed to verdict are not simply more severe accidents. They differ in character as well. They tend to involve a disproportionate share of accidents that occur on the job (JOB) or that involve a fatality (DEATH dummy variable, or d.v., which takes on a value of one if the accident was fatal and a value of zero otherwise).

Several other variables pertain to the disposition of the case—whether the claim was dropped (DROP d.v.), settled out of court (SETTLE d.v.),

[9] See the 1975 and 1978 issues of Reports of the Proceedings of the Judicial Conference of the United States, *supra* note 1.

[10] For a comparison of the ISO data with 1979 data from the Alliance of American Insurers, Highlights of Large-Loss Product Liability Claims (1980), which involved a much smaller sample of large loss claims only, see W. Kip Viscusi, Alternative Approaches to Valuing the Health Impacts of Accidents: Liability Law and Prospective Evaluations, 46 Law & Contemp. Prob. 49, 64 (1983).

TABLE 1

SAMPLE CHARACTERISTICS (Means and Standard Deviations)

	Full Sample	Settle Subsample	Verdict Subsample
BILOSS ($)	13,723.00	13,483.66	46,157.06
	(119,925.48)	(128,582.96)	(154,677.77)
BIPAY ($)	9,995.01	11,707.22	24,782.03
	(72,042.79)	(79,380.92)	(88,945.48)
DROP	.191	.0	.0
	(.393)	(.0)	(.0)
SETTLE	.768	1.0	.0
	(.422)	(.0)	(.0)
WIN	.015	.0	.366
	(.121)	(.0)	(.482)
AGE	35.415	35.531	35.616
	(15.673)	(15.765)	(15.452)
MALE	.517	.507	.614
	(.500)	(.500)	(.487)
JOB	.134	.118	.262
	(.341)	(.323)	(.440)
REG	.156	.166	.202
	(.363)	(.372)	(.402)
DEATH	.037)	.032	.129
	(.189)	(.177)	(.335)
COLLATERAL	.197	.174	.333
	(.398)	(.379)	(.472)
LAG	1.544	1.594	3.881
	(1.934)	(1.992)	(2.256)
ABSOLUTE	.018	.019	.012
	(.120)	(.131)	(.068)
STRICT	.299	.302	.321
	(.429)	(.447)	(.396)
NEGLECT	.350	.341	.321
	(.442)	(.459)	(.376)
WARRANTY	.322	.335	.303
	(.434)	(.459)	(.373)
STATE	.057	.056	.051
	(.231)	(.231)	(.219)
N	10,784	8,286	435

NOTE.—Standard deviations are in parentheses.

or won by the plaintiff in a court verdict (WIN d.v.). The sample averaged thirty-five years in age and consisted of an almost equal number of men and women.

The success of a claim may also hinge on whether the product violated Occupational Safety and Health Administration (OSHA) regulations or Consumer Product Safety Commission (CPSC) regulations. If either set of regulations was violated, the regulation dummy variable (REG) assumed a value of one. The law gives an advantage to plaintiffs who can show that the manufacturer did not adhere to legal standards. The plaintiff can introduce the violation as evidence of failure to adhere to the required negligence or strict liability standards, although firms may be able to show a good reason for violating the rule.[11] Still, on balance, the pressure of such regulatory violations generally gives plaintiffs a substantial advantage.

The final variables to be considered are the role of collateral private insurance payments (COLLATERAL d.v.) and the time in years between the date of the injury occurrence and the date the claim was closed (LAG). As one might expect, this time lag was greater for cases that went to a court verdict, which had a four-year lag as compared with the year-and-a-half lag overall.

Many of the variables to be investigated pertain to the legal criteria applied in product liability cases. The theories of liability that arose in each case could be one of four possibilities: strict liability (STRICT), negligence (NEGLECT), absolute liability (ABSOLUTE), or breach of warranty (WARRANTY). Each of these variables was coded using the appropriate 0-1 dummy variable. Absolute liability principles were involved in very few claims—only 2 percent—and the emphasis on the other three principles was divided fairly evenly.

Strict liability became generally accepted in the past two decades because of a belief that existing theories of liability were not adequate.[12] The oft-stated rationale for imposing liability without fault is that manufacturers could assume the risk better and spread the cost over all consumers. A similar argument could be made for other changes in the law, such as the broadening of the concept of what constitutes a defect. Increasing the firm's responsibility for accidents would increase the incentive for manufacturers to supply safe products in a world of costly litigation, and establishing a more lenient test would overcome some of the difficulties in proving negligence. The principal criterion under strict liability is the existence of a product defect coupled with unreasonable danger. Some states do, however, permit comparative negligence defenses even in strict liability cases. To the extent that strict liability principles increase the chance of a plaintiff's victory, one should observe a positive incremental effect of this variable on the prospects of a product liability claim.

Although widely accepted, the principle of strict liability has not been

[11] For further discussion of status violations, see W. Page Keeton *et al.*, Prosser and Keeton on the Law of Torts 220–33 (5th ed. 1984).

[12] Keeton, *supra* note 11, at 692–94; and American Law Institute, Restatement (Second) of Torts §§ 402A and B (1965). Also see Richard A. Epstein, *supra* note 3, for discussion of the evolution and foundations of modern product liability law; and Steven Shavell, Strict Liability vs. Negligence, 9 J. Legal Stud. 1 (1980), for a theoretical analysis.

adopted universally. Four states (Massachusetts, North Carolina, Virginia, and Wyoming) have not yet officially adopted strict liability rules. To capture any possible effects correlated with these state differences, the variable STATE takes on a value of one if the state where the accident occurred has not adopted a form of strict liability and a value of zero otherwise.

The second liability criterion—absolute liability—permits no defenses that can be used to defeat liability.[13] Because most jurisdictions allow some weakened version of the usual defenses (for example, contributory negligence), this liability theory in all likelihood will continue to play a minor role.

The third principle, that of negligence, pertains when the manufacturer knew or should have known of the defect in the product that created the risk. To prove liability on the basis of negligence the defendant is "required to exercise the care of a reasonable person under the circumstances."[14] The combination of these tests makes it usually more difficult for a plaintiff to recover than under strict liability, where the plaintiff need only show a causal relationship between a product defect and his injuries.

The final liability principle is breach of express or implied warranty that the product is generally fit for normal use.[15] The implied warranty results simply from the sale of the product, and a specific intent to establish a safety-related guarantee is not a requirement. These provisions are in some respects similar to strict liability in that the manufacturer does not have to be at fault. In addition, contributory negligence is not a defense to a claim of breach of warranty.

II. The Disposition of Product Liability Claims

Figure 1 sketches the stages in the disposition of product liability claims. Of the over 10,000 claims filed, fewer than one-fifth are dropped. Most claims proceed either to settlement or to a verdict. Of the claims not dropped, 95 percent lead to an out-of-court settlement either before or during the trial. A high out-of-court settlement rate would be expected if litigation costs are high, as they often are in product liability cases. Overall, about three-fourths of all product liability claims filed ultimately lead to an out-of-court settlement. A very small fraction of total claims—about

[13] American Law Institute, Restatement (Second) of Torts § 402A.

[14] Keeton, *supra* note 11, at 684. For a discussion of the economic implications of negligence and strict liability, see Shavell, *supra* note 12; and A. Mitchell Polinsky, An Introduction to Law and Economics (1983).

[15] U.C.C. 2-314.

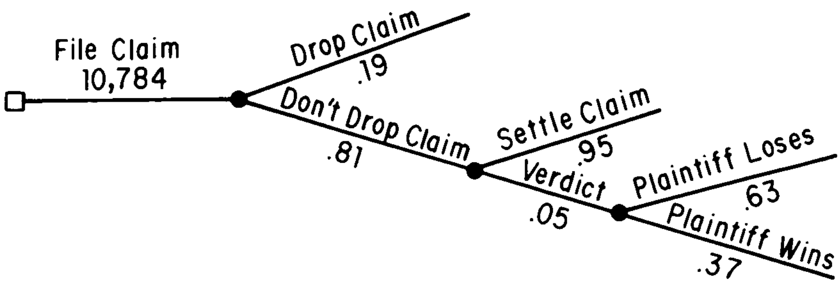

FIGURE 1.—The disposition of product liability claims

4 percent—eventually go to a jury for verdict, and, of this group, the plaintiff wins over one-third of the cases.

The 37 percent success rate for plaintiffs is a substantial departure from the basic Priest and Klein selection model, which predicts that the selection of cases for litigation will lead to a 50 percent success rate for those cases that go to a court verdict. The empirical results here do not, however, imply that the selectivity process is not economically sound. As Priest and Klein emphasize, if there are differential payoffs to the parties, then one would expect a departure from the 50 percent rate.[16] The direction of this divergence is correctly predicted if one modifies the model. Companies have a larger stake in the outcome of any particular case than do the claimants, which, within this model, leads to a predicted success rate of over 50 percent for companies. This prediction is consistent with the 63 percent success rate observed for companies in the sample.[17]

It is instructive to compare this experience with that in Danzon and Lillard's analysis of medical malpractice suits.[18] In all, 43 percent of medical malpractice claims are dropped, which is over double the amount for product liability. Of those not dropped, 88 percent lead to an out-of-court settlement for medical malpractice claims. Although the reliance on out-of-court settlements is great, it is even greater for product liability cases, where 95 percent of all claims not dropped are settled out of court. The success rate of plaintiffs in product liability verdicts is 37 percent, which exceeds the 28 percent success rate in medical malpractice cases.

In each instance, there are substantial departures from the expected 50

[16] See, especially, the discussion in Priest & Klein, *supra* note 5, at 25, 40.

[17] An alternative explanation for such a phenomenon is that a different case selection model, such as that of Wittman, *supra* note 6, is applicable.

[18] Supporting data for medical malpractice claims are presented in Danzon & Lillard, *supra* note 4.

percent plaintiff success rate hypothesized in the basic Priest and Klein analysis. This divergence from the 50 percent success rate is even more disturbing for the Priest and Klein theory than is the analogous divergence in the products liability situation because doctors are not confronted with multiple suits for a single case as are firms for which an established product defect could impose severe costs.

Compared with medical malpractice claims, there appears to be a substantially greater chance for making a successful claim for product liability. This difference may stem from the greater ability an injured party has to identify a product defect, which can be monitored much more closely both before and after the accident than can a physician's practices. In a medical malpractice situation, for example, the patient's condition before treatment cannot be readily monitored on a retrospective basis, whereas for product defects influencing an entire product line it is possible to ascertain the nature of any systematic defects even if the specific product item that was used is no longer available. Moreover, the nature of the doctor's actions, other than his general mode of treatment, is often difficult to observe. Did the patient die because the doctor failed to exercise proper care or because the patient was in ill health? In the case of product risks we are less concerned with the degree of care exercised by the manufacturer but instead can focus on whether the result of these actions—the product—is defective. The substantive law also makes it easier for a physician to argue that he acted in good faith than it does for a manufacturer.

The chance nodes in Figure 1 sketch the overall approach to be taken in the analysis. I will analyze each chance fork separately, conditional on the claim reaching that stage. For example, I will analyze the probability that a claim is settled, given that it was not dropped, and I will ascertain the determinants of bodily injury payments for all cases that went to a jury verdict. The focus here is different from the approach taken by Danzon and Lillard.[19] Their research used a structural model of the litigation process to address issues such as what outcome a particular claim would receive if it went to court. Their analysis involved the use of a complex statistical model with many unobservable components and several strong assumptions. The substantive focus of my analysis is quite different since I will be analyzing the determinants of outcomes at each stage of disposition rather than the underlying litigation model that influences this behavior.

At the final stage in the claims process, the judge and jury determine the rewards from the litigation process. It is convenient to assume that partic-

[19] *Id.*

ipants are risk neutral—an assumption that is more likely to hold for defendants than for injured individuals. For risk-neutral participants the expected payoff for the plaintiff will be the expected bodily injury payment less legal fees and court costs, and for the defendant the expected loss is the expected bodily injury payment plus associated litigation costs. In the presence of risk aversion the value of these expected payoffs is reduced by an associated risk premium.

The anticipated rewards in turn influence the incentives to settle out of court. Factors that raise the expected court award will increase the plaintiff's reservation settlement level and increase the maximum offer amount from the defendant. As the stakes involved increase, it can be shown that under some special conditions the incentive to litigate rises or, alternatively, that the incentive to settle out of court declines.[20] Whether there is such an influence for products liability claims will be assessed below. The effect of other causal factors on the incentives to settle out of court will hinge on their relative effect on the plaintiff's reservation settlement level and on the defendant's maximum offer amount. The bargaining power of the two parties may also be affected.

The first empirical issue to be addressed is the factors that affect the probability that a claim is dropped. The nature of the relationship governing the DROP decision may differ, depending on whether the accident victim is still alive. As a result, this analysis and the one below will consider the full sample as well as the subsamples of fatal cases and nonfatal cases. The classes of influences considered include the magnitude of the financial loss (BILOSS), whether the accident occurred on the job, and legal principles raised by the claim.

Table 2 reports the logit estimates for the DROP probability equation. Unlike a standard regression analysis, the logit estimation procedure takes into account the constrained nature of the DROP variable (DROP = 0 or 1) in estimating the probability that a case is dropped. Claims for injuries involving substantial monetary loss (BILOSS) are less likely to be dropped because the potential for a substantial award increases the incentive to pursue the claim. The likelihood of winning a claim may also be greater when there is a tangible financial loss involved. Perhaps in part because of the smaller variation in BILOSS for the fatality subsample and because of the smaller sample size, BILOSS does not have a statistically significant effect for this group.

[20] For a discussion of this result, which depends on special assumptions about the error terms, see Danzon & Lillard, *supra* note 4, at 352, and also the model of Posner, *supra* note 4, who generates a similar result based on the assumption that the parties disagree only on the probability of winning. Wittman, *supra* note 6, also makes a similar prediction.

TABLE 2

Maximum Likelihood Estimates of the DROP Claim Probability Equation

Independent Variables	Coefficients: Full Sample	Coefficients: Nonfatal Subsample	Coefficients: Fatal Subsample
Intercept	−1.591	−1.586	−1.557
	(.490)	(.050)	(.351)
BILOSS × 10^{-5}	−.211	−.787	−.073
	(.058)	(.193)	(.071)
JOB	.291	.319	.420
	(.074)	(.078)	(.302)
REG	−.600	−.559	−1.552
	(.078)	(.079)	(.495)
COLLATERAL	.457	.474	.348
	(.062)	(.064)	(.293)
ABSOLUTE	−.085	−.060	−.636
	(.231)	(.233)	(1.832)
STRICT	.027	.012	.334
	(.069)	(.070)	(.395)
NEGLECT	.272	.286	−.161
	(.065)	(.066)	(.422)
STATE	.062	.024	.862
	(.105)	(.108)	(.546)
−2 log likelihood	10,346.6	9,941.78	372.4
N	10,784	10,383	401

Note.—Asymptotic standard errors are in parentheses.

The context of the injury plays a fundamental role in influencing the decision to drop a claim. Job-related claims are more likely to be dropped (.05 probability greater) since in many instances product liability remedies are less appropriate than are workers' compensation. Moreover, if only the employer is responsible for the injury, then only the workers' compensation remedy is available. Subrogation rules are also involved because, when the plaintiff recovers from both workers' compensation and a products liability suit, the employer gets reimbursed from the tort recovery.

Particularly influential is the role of the REG variable, which has a statistically significant negative effect in all cases. Accidents involving products that violate CPSC or OSHA standards are more likely to lead to a successful claim because such a violation provides evidence of a product defect. If there is evidence of a regulatory violation, the DROP probability is reduced by more than half, from .19 to .08.

The presence of COLLATERAL insurance payments significantly boosts the likelihood of dropping the case except in the subsample of fatal cases, where the coefficient is insignificant. These collateral payments should lower the DROP probability to the extent that they indicate that a claim is valid. On the other hand, collateral payments may also work to raise the DROP probability when a single plaintiff joins multiple defendants in a single suit. In this context the DROP probability may simply reflect the plaintiff's decision to dismiss a marginal defendant from the case. The positive effect observed suggests that the latter influence is dominant.

At this stage of disposition, the legal principles at stake do not seem to play a pivotal role. Dummy variables for three of the four principles have been included, as has a variable for whether the state recognizes strict liability actions. Of these variables only negligence has a significant effect, and this influence is positive. Overall, the probability that a negligence-based claim will be dropped is .05 higher than for the average products liability claim. Since the plaintiff must show fault in negligence-based cases, this criterion will be less favorable to the plaintiff ultimately winning the case than will be strict liability. One would expect more claimants to drop such cases once they learned that the firm was going to contest the claim and that their prospects for ultimately winning were not great.

For the cases of the sample that do not drop their claims, the two possible options are settling the claim out of court (possibly after the trial has begun) or proceeding to a court verdict. Most claims lead to out-of-court settlements, but the determinants of whether a claim is settled out of court, given that it was not dropped, are somewhat different from those for dropping the claim.

Table 3 reports the logit equations for whether the claim is settled out of court (SETTLE), where the mean value of SETTLE is .95. Using the litigation models of Posner, Danzon and Lillard, or Wittman, one would expect that an increase in the size of the stakes should reduce the likelihood of an out-of-court settlement.[21] The BILOSS coefficients are consistently negative and statistically significant for the full sample results, confirming the effect predicted theoretically.

The predicted directions for the other variables depend on their relative effect on the maximum settlement offer and on the reservation settlement level. If both parties expect similar court awards, any factors that boost the expected court award will raise both the maximum settlement offer and the reservation settlement level by an identical amount. For completely symmetric rewards, there will be no net influence on the SETTLE probability. If, however, the effect of any adverse judgment against the producer extends beyond the particular case to future lawsuits or to con-

[21] See Posner, *supra* note 4; and Danzon & Lillard, *supra* note 4.

TABLE 3

MAXIMUM LIKELIHOOD ESTIMATES OF THE SETTLE CLAIM PROBABILITY EQUATION

INDEPENDENT VARIABLES	COEFFICIENTS		
	Full Sample	Nonfatal Subsample	Fatal Subsample
Intercept	3.153	3.256	1.117
	(.094)	(.100)	(.343)
BILOSS × 10^{-5}	−.057	−.025	−.032
	(.020)	(.030)	(.037)
JOB	−.714	−.591	−.899
	(.126)	(.140)	(.337)
REG	−.110	−.208	1.017
	(.126)	(.131)	(.452)
COLLATERAL	−.633	−.676	−.029
	(.115)	(.123)	(.329)
STRICT	.108	.119	.656
	(.128)	(.138)	(.401)
NEGLECT	.207	.144	1.421
	(.128)	(.135)	(.455)
ABSOLUTE	.742	.551	1.525
	(.512)	(.514)	(1.953)
STATE	.035	.077	−.657
	(.226)	(.242)	(.721)
−2 log likelihood	3,352.0	3,014.9	275.2
N	8,721	8,398	323

NOTE.—Asymptotic standard errors are in parentheses.

sumers' attitudes toward the firm's product, thus affecting future sales, there will be a differential effect. In consequence, variables raising the expected award will increase the likelihood of settlement to the extent of the asymmetry. The nature of the case selection process is also relevant, but the predicted effect is not clear cut.[22]

The presence of some significant legal variable influences in the SETTLE equations is consistent with the asymmetric rewards hypothesis, as is the direction of the effects. Job-related claims are less likely to meet with a successful verdict because of the questionable applicability of product liability remedies. Workers' compensation remedies may be more appropriate than a product liability suit against a third party manufacturer. Claimants will be more willing to settle, but the net effect will be negative if the stakes to the firm are greater. The negative JOB variable reduces the SETTLE probability by about .05. The overall influence of

[22] The case selection effects depend both on the level of the legal standard applied for a successful claim and on the parties' expectations of the merits of the case relative to that standard.

job-related claims is much greater, however, since many of the weakest claims were eliminated at the DROP stage.

For analogous reasons, REG should have a positive effect on SETTLE. The only statistically significant REG coefficient is the positive term in the fatal subsample equation, which accords with the theoretical predictions. The other two REG coefficients are negative but not statistically significant (at the .05 level).

The presence of COLLATERAL payments reduces the SETTLE probability significantly except for the fatal subsample. As with the DROP results discussed above, this effect is also what one would expect if COLLATERAL payments indicate the presence of multiple lawsuits. The only liability criterion variable that is statistically significant is NEGLECT for the fatal subsample. Negligence-based cases are more likely to be settled out of court. Although these cases tend to be stronger than warranty-based cases, one would have expected the cases based on strict liability criteria to exhibit the strongest influence of this type. It is, however, noteworthy that all the coefficients of STRICT, NEGLECT, and ABSOLUTE are positive, implying that the mean influence of the omitted WARRANTY variable is negative, as expected.[23]

Overall, the significant effects observed are consistent with the asymmetric rewards model. Still, the absence of significant influences in many instances suggests that some variables are consistent with both the symmetric and the asymmetric rewards hypotheses. One possible explanation may be that the data are not sufficiently rich to identify all patterns of influence. In design and warning cases, a determination of product defect has potential ramifications for the entire product line, with evident asymmetries. Yet with ordinary construction defect cases the cost to the firm typically will not extend beyond the immediate case.

The logit equations for the determinants of the probability that the plaintiff wins the verdict are reported in Table 4. The results for court verdicts are limited in part by the much smaller sample size available for estimating the role of the various variables. These difficulties were particularly great for the fatality subsample ($N = 56$) for which reliable estimates could not be obtained; estimates are consequently not reported.

The success rates for cases that go to court will be greatly influenced by the voluntary selection decisions of the parties to go to court. In the basic Priest and Klein model, factors such as strict liability criteria will not affect the outcomes observed because the parties will already have taken these factors into account before going to court, preserving the fifty-fifty

[23] For a discussion of warranty-based claims, see George L. Priest, A Theory of the Consumer Product Warranty, 90 Yale L.J. 1297 (1981).

TABLE 4

MAXIMUM LIKELIHOOD ESTIMATES OF THE WIN VERDICT PROBABILITY EQUATION

INDEPENDENT VARIABLES	COEFFICIENTS	
	Full Sample	Nonfatal Subsample
Intercept	−.641	−.698
	(.221)	(.236)
BILOSS × 10^{-5}	−.025	−.297
	(.074)	(.241)
JOB	−.307	−.255
	(.258)	(.287)
REG	−.222	.196
	(.259)	(.272)
COLLATERAL	−.286	−.234
	(.230)	(.250)
ABSOLUTE	−.840	−.418
	(1.910)	(1.752)
STRICT	.824	.968
	(.295)	(.321)
NEGLECT	.169	.175
	(.317)	(.338)
STATE	−.097	−.285
	(.460)	(.512)
−2 log likelihood	557.5	480.2
N	435	379

NOTE.—Asymptotic standard errors are in parentheses.

split on judgments.[24] In some extensions of the Priest and Klein model that take into account differences in rewards for the two parties, such effects will be observed, as is also the case in the Wittman model.[25]

Overall, most of the estimated coefficients are strongly supportive of the basic Priest and Klein model. All the coefficients fail to pass the usual tests of statistical significance except for the STRICT variable. Claims based on strict liability criteria are much more likely to succeed in court, where the additional chance of success is .20. This substantial differential suggests that, for this class of cases, case selection is not so complete as to eliminate the advantage strict liability cases have, thus lending support to selection frameworks other than the basic Priest and Klein model. These findings suggest that there are often major deviations from the basic case selection model's prediction that changes in the stringency of legal

[24] In effect, in this model the legal standard applied does not alter the fifty-fifty split in court verdicts. See Priest & Klein, *supra* note 5.

[25] *Id.*; and Wittman, *supra* note 6.

criteria will have no differential effect on the observed success rate of litigated cases.

III. Payment Levels for Bodily Injuries

A. *Profile of Compensation Levels*

A fundamental economic issue is whether the amount of compensation serves as an adequate replacement for the injury loss. If the losses were purely financial, the reference point would be whether the payment fully compensated the victim. Full compensation of such losses will be optimal if accident victims are risk averse but the companies are risk neutral and if the cause of the accident is the company's action rather than the injured party's.[26] In this context, full compensation serves an insurance function for the injured party and provides incentives for accident prevention on the part of the product manufacturer. If the consumer plays a contributory role in causing the accident, less than full compensation becomes optimal in order to preserve accident-avoidance incentives.

When accidents also affect individual health, the appropriate compensation level will be greater.[27] How much beyond full replacement of earnings compensation should extend is more problematic to determine. Individual willingness to pay to reduce small risks to life and health is often quite substantial—on the order of $3.5 million per statistical life for workers in average-risk jobs.[28] Such amounts represent the optimal compensation from the standpoint of efficient accident prevention.

They do not, however, represent an efficient level of insurance for the accident victim. The optimal bequest will be much less since the marginal utility that the accident victim derives from a bequest will typically be less than if he had survived. The optimal compensation level consequently involves balancing the competing objectives of efficient accident avoidance and insurance. One cannot therefore pinpoint the optimal compensation amount beyond noting that it will clearly exceed the monetary loss in nonfatal cases with pain and suffering.

To assess the measure of compensation, it is instructive to consider the replacement ratio, that is, the ratio of the bodily injury payment to the bodily injury loss. These unadjusted figures are possibly misleading with

[26] For a review of these and related principles, see Shavell, *supra* note 12; and Viscusi, *supra* note 10.

[27] See Michael Spence, Consumer Misperceptions, Product Failure and Producer Liability, 44 Rev. Econ. Stud. 561 (1977); and W. Kip Viscusi, Risk by Choice: Regulating Health and Safety in the Workplace (1983) and references cited therein.

[28] See Viscusi, *supra* note 27.

respect to the overall degree of earnings replacement because they are not adjusted to account for the time lag between the date of claim and the date of payment. Consequently, they ignore accrued interest, if any is paid. Since the average time lag is only eighteen months, this interest bias should not play a major role.

Table 5 summarizes the replacement ratios for claims leading to positive payment levels. These breakdowns are given by sample group and by bodily injury loss level, where each of these breakdowns will play a key role.

For the full sample, on average, there is slight overcompensation of financial losses, as the replacement ratio is 1.05. Most claimants have small losses under $10,000, and for this group the replacement ratio is greatest—7.27. This replacement rate declines quite steadily and drops below a one-for-one replacement formula for losses in excess of $100,000. This pattern of compensation is similar to that for automobile accident victims.[29] For losses over a million dollars, the replacement ratio is only .25. Very similar patterns are displayed by the subsample of cases settled out of court, in large part because this group comprises 98 percent of all successful claims.

For claims leading to a verdict in favor of the claimant, the replacement ratio is higher than the overall rate, particularly for the small-loss group where the ratio is 19.39. Large-loss cases remain undercompensated, however. Taken as a group, the WIN-VERDICT subsample does fare much better than does the SETTLE subsample since its replacement ratio is 1.74 or almost double the settlement replacement rate. The average probability of winning his case for a typical claimant is only .37, so the expected replacement ratio of .64 is below that for out-of-court settlements.[30] This expected replacement ratio declines for the high-loss groups since the replacement ratio is lower, as is the average chance of success of claims over $100,000.

On average, the product liability system more than fully compensates victims with successful claims. Why the degree of overcompensation is greatest for small-loss cases and why large-loss cases are undercompensated is less apparent. Insurance payment limits may be one contributing factor, but other concerns also may enter. The presence of such overcompensation suggests that not all economic losses may have been quantified

[29] See Elisabeth M. Landes, Compensation for Automobile Accident Injuries: Is the Tort System Fair? 11 J. Legal Stud. 253 (1982).

[30] This relationship between the higher replacement ratio and a probability of a successful claim below one is what one would expect. This feature of case selection was developed independently by the author and by Wittman, *supra* note 6, at 186.

TABLE 5

LOSS REPLACEMENT RATES

A. FULL SAMPLE

BILOSS Range ($)	Mean BILOSS	Mean BIPAY	Mean Replacement Ratio	Fraction of Claims in Group
1–10,000	614.41	4,466.74	7.27	.91
10,001–25,000	15,413.27	49,476.58	3.21	.04
25,001–50,000	35,070.90	70,492.51	2.01	.02
50,001–100,000	74,019.33	185,048.33	2.50	.01
100,001–200,000	137,242.33	91,952.36	.67	.01
200,001–500,000	278,837.91	189,609.78	.68	.01
500,001–1,000,000	665,222.79	286,045.80	.43	.00
Over 1,000,000	2,131,437.50	532,859.38	.25	.00
Overall	12,707.00	13,280.70	1.05	1.00

B. SETTLE SUBSAMPLE

BILOSS Range ($)	Mean BILOSS	Mean BIPAY	Mean Replacement Ratio	Fraction of Claims in Group
1–10,000	581.87	4,125.49	7.09	.92
10,001–25,000	15,179.35	46,904.18	3.09	.03
25,001–50,000	34,619.06	67,853.36	1.96	.02
50,001–100,000	74,425.40	192,017.54	2.58	.01
100,001–200,000	138,727.35	83,236.41	.60	.01
200,001–500,000	285,341.18	165,497.89	.58	.01
500,001–1,000,000	667,798.76	287,153.47	.43	.00
Over 1,000,000	2,157,243.50	560,883.33	.26	.00
Overall	12,184.06	12,191.28	1.00	1.00

C. WIN VERDICT SUBSAMPLE

BILOSS Range ($)	Mean BILOSS	Mean BIPAY	Mean Replacement Ratio	Fraction of Claims in Group	Average Success Rate in BILOSS Range
1–10,000	1,432.05	27,767.38	19.39	.67	.37
10,001–25,000	17,213.44	78,493.28	4.56	.16	.41
25,001–50,000	39,677.78	108,320.33	2.73	.06	.38
50,001–100,000	63,447.04	107,225.50	1.69	.04	.43
100,001–200,000	124,872.17	194,800.60	1.56	.03	.33
200,001–500,000	259,189.18	575,400.00	2.22	.03	.21
500,001–1,000,000	602,272.72	265,000.00	.44	.01	.17
Over 1,000,000	2,250,000.000	112,500.00	.05	.01	.33
Overall	38,877.23	67,799.88	1.74	1.01	.37

in the data base.[31] Although information is included on wage loss, medical expenses, and other past and prospective financial outlays, for some respondents these measures do not fully capture the accident's effect. In addition, large-loss claims may appear undercompensated if victims have inflated their demands for compensation.

Contingency fees could lead to this type of bias. Lawyers who take on a case for a fixed percentage of the payment will be willing to take on much weaker cases involving large payments. As a result, the large-loss cases may be more dubious than the smaller loss cases. This pattern is consistent with the empirical evidence in Table 5, for the cases that go to court have a higher ultimate award, if successful, but are coupled with a lower probability of success.[32]

For similar reasons, large losses will be more likely to lead to lawsuits against multiple parties. Since the data reflect only the payments by one individual defendant instead of all defendants as a group, the BIPAY figures may understate the total bodily injury payments received.

B. Regression Models of Payment Levels

The expected level of compensation for an accident victim who has filed a claim can be determined by examining the unconditional payment levels, including claims that received no payment. Table 6 reports these results for the entire sample and for particular health group subsamples. Unlike the litigation decision results where the inclusion of cancer cases made little difference, the BIPAY results revealed potentially important differences in the behavior of the cancer case subsample. The dependent variable used was the natural logarithm of the bodily injury payment since this transformation better captures the nonlinear relationship between BIPAY and variables such as BILOSS.[33] The explanatory variables were the same as before except for the addition of LAG, which is the time between the date of the accident and the date of claim closure. Ideally, claimants should be compensated for the present value of their losses so that LAG should have a positive effect on BIPAY.

[31] Error in the loss variable is believed to be a factor in the patterns displayed by medical malpractice claims as well. See Danzon & Lillard, *supra* note 4, at 359. The associated measurement error in BILOSS may create a downward bias in the slope of the BIPAY-BILOSS relationship.

[32] A selection effect of this type is also hypothesized by Wittman, *supra* note 6.

[33] This approach was also used by Danzon & Lillard, *supra* note 4, in their analysis of medical malpractice claims. Since the natural logarithm of zero BIPAY levels is undefined, I treated these cases as receiving a payment of $1.00 so that the associated natural logarithm was zero. Thus one can view the dependent variable as ln(1 + BIPAY).

TABLE 6

FULL MODEL Ln(BIPAY) REGRESSION RESULTS FOR FULL SAMPLE

	COEFFICIENTS			
INDEPENDENT VARIABLES	Full Sample	Nonfatal Subsample	Fatal Subsample	Cancer Subsample
Intercept	−.133	.357	−.481	−6.109
	(.180)	(.185)	(2.928)	(2.488)
Ln(BILOSS)	1.061	.870	.695	2.496
	(.056)	(.060)	(.658)	(.668)
$(\text{Ln(BILOSS)})^2$	−.035	−.016	−.034	−.138
	(.004)	(.004)	(.034)	(.042)
JOB	−.876	−.925	−.746	1.312
	(.099)	(.100)	(.555)	(.781)
REG	.631	−.550	2.166	−.360
	(.082)	(.081)	(.617)	(.771)
COLLATERAL	−.696	−.727	−.285	−.527
	(.081)	(.080)	(.543)	(.653)
LAG	.248	.201	.781	.067
	(.018)	(.018)	(.117)	(.138)
ABSOLUTE	.345	.226	4.141	4.523
	(.251)	(.247)	(2.163)	(1.623)
STRICT	.348	.336	1.481	1.566
	(.080)	(.079)	(.701)	(.738)
NEGLECT	−.140	−.171	1.378	1.900
	(.078)	(.077)	(.701)	(.837)
STATE	−.008	.032	−.940	.189
	(.128)	(.126)	(1.123)	(1.571)
$\bar{R}^2$	.21	.22	.14	.14
N	10,784	10,383	401	214

NOTE.—Standard errors are in parentheses.

If BILOSS only entered the equation through its natural logarithm, the coefficient of this variable would represent the elasticity of bodily injury payments with respect to the loss. This elasticity is not constant and is strongly related to the quadratic form of the BILOSS variable. The quadratic term's coefficient is negative, which implies that the elasticity (the percentage change in BIPAY in response to a one-percentage-point increase in BILOSS) of BIPAY to BILOSS diminishes with the size of the loss.

Overall, the elasticity begins at roughly unity, and it drops substantially thereafter. For the full sample the elasticity evaluated at the mean loss is .39. The cancer case subsample is particularly noteworthy since the initial elasticity is 2.4, so that for very small losses there would be overcompensation for each additional dollar of loss. These elasticities compound the influence of BILOSS on both the chance of receiving compensation and the level of compensation, as do all the results in Table 6.

Since the regression outcomes represent the joint influence of the determinants of product liability case disposition and payment levels for claims closed at different stages, many of the patterns follow those in earlier results. Claimants have poorer expected prospects if they suffered job-related injuries, have received collateral payments, or have filed a negligence-based claim. Factors increasing the expected payoff are violations of OSHA or CPSC regulations, a time lag before the award, and reliance on strict liability principles.

To isolate the influence of the payment levels from the prospects for successful recovery at each stage, Table 7 presents ln(BIPAY) results for the SETTLE subsample. Conditional on settling the case, the elasticity of BIPAY with respect to BILOSS is greater than for the sample overall

TABLE 7

Full Model Ln(BIPAY) Regression Results for SETTLE Subsample

Independent Variables	Coefficients: Full Sample	Nonfatal Subsample	Fatal Subsample	Cancer Subsample
Intercept	.792	1.001	1.146	−5.082
	(.133)	(.134)	(2.812)	(2.471)
Ln(BILOSS)	1.099	1.021	1.181	2.945
	(.041)	(.043)	(.631)	(.649)
$(\text{Ln(BILOSS)})^2$	−.032	−.025	−.052	−.171
	(.003)	(.003)	(.033)	(.041)
JOB	−.081	−.146	.195	1.122
	(.076)	(.076)	(.490)	(.726)
REG	.250	.227	.576	−.891
	(.058)	(.057)	(.521)	(.723)
COLLATERAL	−.009	−.031	.462	−.741
	(.061)	(.060)	(.486)	(.618)
LAG	.074	.070	−.014	−.184
	(.013)	(.013)	(.122)	(.134)
ABSOLUTE	.211	.144	2.416	4.392
	(.167)	(.163)	(1.635)	(1.420)
STRICT	.367	.330	1.898	1.296
	(.056)	(.054)	(.628)	(.699)
NEGLECT	.075	.064	.924	1.460
	(.054)	(.053)	(.612)	(.772)
STATE	.037	.052	−.551	−.085
	(.093)	(.090)	(1.177)	(1.469)
$\bar{R}^2$	.42	.43	.07	.14
N	8,286	8,019	267	173

Note.—Standard errors are in parentheses.

since cases with no payment have been dropped. Evaluated at the sample mean, this elasticity is .49 for the full sample. In all instances, the elasticity of BIPAY with respect to BILOSS begins at 1.0 or above (2.9 in the case of cancer cases). Because of the dependence of the elasticity on the size of the loss, the elasticity at the levels of losses actually observed is substantially less. This lack of a proportional increase in payments as losses rise is not simply a result of the variables other than BILOSS picking up some of the compensation effects. Exclusion of all variables other than the BILOSS terms raises the elasticity to only .54.[34]

Apart from the BILOSS variables, the two most consistently influential variables are REG and STRICT, each of which raises the size of the out-of-court settlements. This pattern of influence accords with the theoretical predictions since violations of safety standards and applicability of strict liability criteria will boost the expected court award, thus increasing the maximum out-of-court settlement amounts offered by the company and the lowest settlement level acceptable to the claimant. The out-of-court settlement will be some weighted average of these values, where the weights depend on the parties' relative bargaining power.

Analogous equations for levels of compensation for claims that go to successful court verdicts are reported in Table 8. Results for cancer and nonfatal subsamples are not reported because the small sample sizes made such estimations unreliable. Unlike the out-of-court settlement results, the quadratic BILOSS term is not statistically significant (at the .05 level). Even when the elasticity of BIPAY with respect to BILOSS is evaluated using the estimated coefficient for $(\text{Ln(BILOSS)})^2$ rather than setting this term equal to zero, the elasticity estimate is 0.56. This estimate for court awards is somewhat higher than was observed for out-of-court settlements. The positive LAG coefficient suggests that deferred awards long after the accident receive greater compensation.[35]

It is also noteworthy that claims based on the related criteria of absolute liability and strict liability receive greater compensation even after taking into account the size of the loss. Both the prospects for a successful claim and the size of the court award are raised by the application of these criteria.

Evaluated at the mean BILOSS level, the differences are less, as the

[34] The highest elasticity yielded once these terms are dropped is for the nonfatal subsample, where it reached a value of .60.

[35] Although compensation for the present value of the injured party's losses may be one explanation, an alternative possibility is that cases settled by the courts after a long life are a different mix.

TABLE 8

Ln(BIPAY) Regression Results for WIN-VERDICT Subsample

Independent Variables	Coefficients
Intercept	2.430
	(.728)
Ln(BILOSS)	.830
	(.198)
$(\text{Ln(BILOSS)})^2$	−.013
	(.012)
JOB	.099
	(.265)
REG	.147
	(.260)
COLLATERAL	.611
	(.238)
LAG	.186
	(.044)
ABSOLUTE	2.694
	(1.248)
STRICT	.406
	(.253)
NEGLECT	.278
	(.277)
STATE	.191
	(.448)
$\bar{R}^2$	.71
N	159

Note.—Standard errors are in parentheses.

elasticity is .59 in equation (1) and .54 in equation (2).[36] These estimates are somewhat higher than are the comparable results for settled cases so that court awards tend to be a bit more responsive to BILOSS levels than are out-of-court settlements.

IV. Conclusion

The analysis of this extensive data set provides a view on products liability litigation that is at odds with the public perceptions stemming from the substantial publicity given to large damage awards in litigated

[36] These estimates are higher than the comparable results for medical malpractice cases, where the elasticity is .44. See Danzon & Lillard, *supra* note 4, at 358. Their analysis did not investigate the possible dependence of the elasticity on BILOSS, as no quadratic term was included.

cases. The great majority of claims are settled out of court (98 percent of all claims receiving payment), and the amount of the bodily injury payment is often comparable to the size of the reported loss. The elasticity of the bodily injury loss with respect to the bodily injury payment is substantially below one for the average loss, and this elasticity declines as the size of the loss increases. These estimates may, however, be influenced by measurement error, particularly if claimants overstate their losses.

The most fundamental implications of the results pertain to the validity of economic models of the litigation process. Many of the fundamental features common to economic models of litigation were borne out in the results. The decision to drop a product liability claim, for example, is negatively related to the size of the loss and the presence of violations of government regulations. That is to be expected since these factors raise the expected court award (that is, the probability of winning multiplied by the size of the award). Similarly, factors that diminish the claim's prospects, such as an injury being job related, increase the likelihood that the claim is dropped.

The decision to settle a claim out of court is also governed by economic factors. As predicted by several economic models, there is a negative relationship between the size of the stakes and the likelihood of settlement. The expected outcomes in court also have a backward influence on both parties' attitudes toward out-of-court settlement, but there appeared to be a differential influence on firms' settlement offers. These results were consistent with the firm's having a stake in the court outcome that extends beyond the immediate court award and litigation expenses to embrace factors such as lost sales and future liability burdens.

The findings also shed light on the validity of recently proposed models of the selection of cases for litigation. In the basic selection model with symmetric losses for the two parties, the parties should adjust their out-of-court settlement behavior so that each party has an identical chance of success in court for those cases that proceed to a court verdict. For the sample examined, the success rate for plaintiffs was only 37 percent. Moreover, the application of strict liability criteria increased the chance of receiving a court award even though no differential effect of more favorable legal criteria should be observed in the basic case selection model.

Although not all the findings were consistent with the basic selection model, a modified model recognizing the differential payoffs to the parties or an alternative selection model may be appropriate. The empirical tests needed to distinguish which of these alternative approaches is most appropriate have not yet been developed, in large part because the theories remain in their formative stages. What is clear is that the basic model of symmetric rewards in which changes in legal principles have no effect on the average success rate of litigated cases is not borne out.

Economic models provide a useful methodology for structuring litigation decisions. Moreover, many of the common features of these models are borne out empirically. However, the task of selecting the most appropriate approach is not yet complete.