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Inside the Quiet Revolution in Products Liability

Theodore Eisenberg
Cornell Law School, ted-eisenberg@lawschool.cornell.edu

James A. Henderson Jr.
Cornell Law School, jim-henderson@postoffice.law.cornell.edu

ARTICLES

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Theodore Eisenberg*
& James A. Henderson, Jr.**

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** Frank B. Ingersoll Professor of Law, Cornell Law School.

"A bullet in the head of products liability reform." Thus did a lobbyist orally characterize our article in this law review, *The Quiet Revolution in Products Liability*, describing declining plaintiff success in products liability cases in the 1980s.[1] From the coverage and criticism the *Quiet Revolution* received around the country[2] and around the world,[3] the trends we discovered struck many as surprising enough to be newsworthy and others as sufficiently threatening to warrant a special response.[4] Products liability's sustained presence on state and federal legislative agendas[5] warrants continuing and expanding the study begun in the *Quiet Revolution*.

This Article substantially augments our earlier sketch of national products liability trends in the 1980s. Major new endeavors include extending the analysis of trends to more recent years, reconciling some of the ambiguities in interpreting the observed trends, and describing and analyzing trends in the size of products liability case awards. The additional data confirm the earlier findings of de-

1. Henderson & Eisenberg, *The Quiet Revolution in Products Liability: An Empirical Study of Legal Change*, 37 UCLA L. REV. 479 (1990).

2. Butcher, *Explosive Increase in Size of Jury Awards is Easing Off*, KAN. CITY BUS. J., May 21, 1990, § 1, at 26; Cordtz, *The Losers Lottery*, FIN. WORLD, Sept. 4, 1990, at 72; DeBenedictis, *Products Defendants Gaining: Appeals Courts Less Receptive to Products-Liability Cases*, 76 A.B.A. J. 35 (1990); Gest, *Why the Injured Lose Suits*, U.S. NEWS & WORLD REP., April 8, 1991, at 52; Locke, *Court Decisions Favor Defendants, Law Scholars Say*, BUS. INS., Dec. 4, 1989, at 40; Morin, *A Shift Toward the Defense*, LAW. MONTHLY, Mar. 1990, at 1; TRIAL, Feb. 1990, at 101; Henriques, *Those Newly Cash-Rich Insurers*, N.Y. Times, Apr. 1, 1990, § 3, at 15, col. 3; Henriques, *Friendlier Legal Climate for Insurers*, N.Y. Times, Mar. 4, 1990, § 3, at 27, col. 3; Labaton, *Product Liability's "Quiet Revolution,"* N.Y. Times, Nov. 27, 1989, at D2 col. 1 (reprinted in different forms in San Jose Mercury News, Dec. 8, 1989; The Kan. City Times, Nov. 28, 1989).

3. Smart, *The Liability Battle: Business Becomes a Road Warrior*, BUS. WEEK, Apr. 9, 1990, at 25; *Tortious is As Tortious Does*, ECONOMIST, Oct. 27, 1990, at 10; *Allianz, The First of the Few*, ECONOMIST, Aug. 11-17, 1990, at 79. *See* T. Eisenberg & J. Henderson, Jr., Inside the Quiet Revolution in Products Liability (Sept. 25, 1991 presentation to representatives of the Japanese External Trade Organization and the Japanese Ministry of International Trade and Industry).

4. A. Havenner, Not Quite A Revolution in Products Liability (Manhattan Institute Judicial Studies Program White Paper); A. Havenner, A Critique of "The Quiet Revolution in Products Liability" (June 19, 1990) [hereinafter Havenner, Critique]; Huber, *Cockroaches in Court*, FORBES, Oct. 1, 1990, at 248.

5. *E.g.*, H.R. 420, H.R. 2700, S. 640, 102d Cong., 1st Sess. (1991); Hayes & Simon, *Product-Liability Law Gains Momentum*, N.Y. Times, July 29, 1991, at B2, col. 3; Quayle, *Now is the Time for Product Liability Reform*, BNA Daily Rep. for Executives, Mar. 27, 1990; *Fisher, Lewis Call for Reforms to State's Product Liability Laws*, PR Newswire, Feb. 14, 1991 (introduction of Pennsylvania bill), *available in* LEXIS, Nexis library, Currnt File; Hoffman, *Crunch Time for Tort Reforms: Challenges Expected in 22 States This Year*, BUS. INS., Feb. 4, 1991, *available in* LEXIS, Nexis library, Currnt File.

clining plaintiff success rates, with the trends even more definite in the late 1980s. New surprises also emerge. Despite a widespread impression of ever-increasing awards in products cases, evidence of recent declining real-dollar awards is about as persuasive as is evidence of increasing awards. Combining success rate trends and award trends shows products liability in decline since 1985. By most measures, products liability's impact at the end of the 1980s had returned to about where it was at the beginning of the decade. Moving beyond describing and interpreting the national trends, we also examine the sources of defendants' increasing success. The 1980s pro-defendant movement is not the result of sharp reversals in a few jurisdictions; rather, it is truly national, with most states showing defendant success rate increases in the second half of the 1980s. Nor did the national trend result from shifts in a relatively few important products categories. As best we can tell, the trend spans nearly all nonasbestos products lines.[6] Legislative reforms do appear to have contributed; but even in non-reform states, the success rate of products cases has declined. A widespread, independent shift in judicial attitudes continues to be the likely major source of the decline.

This general shift in attitude suggests that the tort reform movement of the 1970s and 1980s may have succeeded in a broader sense even if it failed to achieve many of its more specific legislative goals. As part of the case for reform legislation, tort reformers sought to reshape public opinion about products liability law. They successfully linked products liability cases to the mid-1980s insurance crisis; this linkage may have persuaded individual judges, as it

6. Even more than before, asbestos personal injury cases have taken on a life of their own. Henderson & Eisenberg, *supra* note 1, at 521–22; Schuck, *Introduction: The Context of the Controversy*, in TORT LAW AND THE PUBLIC INTEREST: COMPETITION, INNOVATION AND CONSUMER WELFARE 18, 24 (P. Schuck ed. 1991) (stating that asbestos litigation swamps the other products data). They now comprise more than half of all federal products filings. At the district court level, they have been separately reported by the Administrative Office of the U.S. Courts since 1984. We exclude the district court asbestos cases since 1984. The pre-1984 asbestos cases, not separately reported by the Administrative Office, have little effect on the results. Henderson & Eisenberg, *supra* note 1, at 549–53. Analyses of the published opinion data with and without asbestos cases suggest that asbestos cases have no material effect on our central published opinion findings. By not stating asbestos results separately for the published opinion data, we do not wish to understate the social importance of asbestos litigation. The sheer volume of asbestos litigation, however, suggests the need to address that problem separately and judges struggle to do so. *See, e.g.*, Blum, *Untangling Asbestos Litigation: Many Seek a National Answer for the Problem*, Nat'l L.J., Mar. 18, 1991, at 1, col. 1; Labaton, *Judges' Panel, Seeing Court Crisis, Combines 26,000 Asbestos Cases*, N.Y. Times, July 30, 1991, § A, at 1, col. 1.

tried to convince the public, that reform was needed. The judicial perception of the need for reform may have depressed plaintiffs' success rates.

I. INTRODUCTION

The *Quiet Revolution* addressed the question of how plaintiffs were faring against the background of a widely shared impression about the movement of products liability litigation. The near-universal impression prior to publication of the article was that products liability was booming for plaintiffs in all respects.[7] In light of the declining trends we reported for plaintiffs' successes, the accepted wisdom of a continuing pro-plaintiff products liability boom had to be reconsidered, if not rejected. After shattering the perception that everything was going better for plaintiffs, a new generation of questions has emerged. Some questions arise from critiques of our conclusions. Others arise in the course of rethinking the *Quiet Revolution*'s implications in light of additional data.

One important issue addressed in the earlier article, to which we return in this one, is whether a steady decline in plaintiffs' success in court necessarily indicates a decline overall in how well products claimants are doing in and out of court. But before one reaches that issue, one must resolve a more basic issue: Have we in fact observed a decline in plaintiffs' success in court? Since there is disagreement about whether we even detected a trend shift, one central objective is identifying criteria by which to gauge the success of any given class of cases.[8] Even complete and accurate data about appellate decisions and case outcomes leave room for disagreement about the direction in which a class of cases is moving.

A. *Criteria for Assessing the Data*

Among the plausible numerical measures of case success are measures of the "typical" case: the mean success rate, the mean or median award, and the expected return, which combines the success rate and mean award. When success rates and awards point in the same direction, the average case conveys a clear message. When they diverge, more judgment is required. A declining success rate, when combined with a sharp rise in the mean award, might be counted as increasing overall success. The typical case, however

7. *E.g.*, Henderson & Eisenberg, *supra* note 1, at 481.

8. *E.g.*, Hensler, *Researching Civil Justice: Problems and Pitfalls*, 51 LAW & CONTEMP. PROBS., Summer 1988, at 55.

measured, should be assessed in the context of the volume of litigation. Even an increasing average expected return, when combined with a plummeting volume of litigation, would probably be viewed as a pro-defendant set of indicators. Measures of volume include the number of cases filed and the total dollars awarded in cases that terminate. All of these indicators must be evaluated in light of a possibly shifting profile of filings.[9]

Each of these possible measures must also be addressed with respect to a specified time period. For example, the period from 1965 to sometime in the early 1980s was almost certainly a period of increasing plaintiff success by most indicators. That earlier period of presumed plaintiff success is not covered here or in the *Quiet Revolution*. Further complications arise because trends in different measures need not all shift at the same moment. Like measures of economic recession, some indicators may lead others, with a period of uncertainty before a consensus is reached.

The *Quiet Revolution* addressed some but not all of these measures. Our goal in that article was to establish an important counter-intuitive trend in products liability law. To do so, it was essential not only to establish the trend but also to ask whether the trend was merely a reflection of larger developments unrelated to products liability law. We thus offered comparisons of the products trend we detected with trends in other areas of law—other tort cases and private non-tort cases. To the extent the data allowed, we eliminated movement across areas of law as the dominant source of declining products liability plaintiffs' success.

This Article presents a wider range of products case measures. After briefly summarizing our methodology, Part II examines trends in national success and filing rates. It provides both the basic

9. Other measures could also be relevant. From the plaintiffs' (or plaintiffs' attorneys') perspective, the return on investment may be all that matters. How much must a plaintiff invest to obtain a specified level of expected return? Even a nominally successful case, in which judgment is entered for plaintiff and a dollar award is made, can be unsuccessful by investment criteria. For those seeking the cause of a trend, how the subject class of cases has been faring relative to other classes of cases might be the most relevant question. *See* W. VISCUSI, REFORMING PRODUCTS LIABILITY 18 (1991). *But see* A. Havenner, *supra* note 4, at 14 (criticizing the *Quiet Revolution* for offering data comparing products liability with other areas of law). Indirect measures, such as the movement of insurance premiums, also can be useful. W. VISCUSI, *supra*, at 25–31; Blackmon & Zeckhauser, *State Tort Reform Legislation: Assessing Our Control of Risks*, in TORT LAW AND THE PUBLIC INTEREST: COMPETITION, INNOVATION, AND CONSUMER WELFARE 272 (P. Schuck ed. 1991); Viscusi, *The Performance of Liability Insurance in States with Different Products-Liability Statutes*, 19 J. LEGAL STUD. 809 (1990).

data and an interpretation suggesting their implications for settled cases and for disputes that never reach court. Part III, for the first time in any published study of national scope, supplies a detailed examination of the size of products awards, including means, medians, expected returns, and the sum of awards. Finally, Part IV explores the possible sources of the national success rate and awards trends.

B. *Data and Methodology*

The *Quiet Revolution* discussed the methodology and sources used in that article and in this one.[10] Therefore, we only summarize the data here and note changes from the earlier data. Except where otherwise stated, the same two data sources used in the *Quiet Revolution* are used here. One source consists of the bulk of published opinions in products liability law, as reported in the Products Liability Reporter (Commerce Clearing House ("CCH")).[11] Data on all federal district court cases, available on computer tapes originating with the Administrative Office of the United States Courts, comprise the second source.[12] Our earlier study covered the period 1976 to 1988 for the published opinions (with data on some years missing and different methodology used for pre-1983 years[13]) and fiscal 1979 to 1987 for the district court cases. Since its publication we have filled in the gaps and unified the methodology in the opinion data so that they are substantially complete for calendar years 1979 through 1989. The district court data now cover complete fiscal years from 1979 to 1989. Although the Administrative Office data are organized by fiscal years, some of our analyses organize them on a calendar year basis. This facilitates comparison with other annual data, such as the consumer price index ("CPI") and the published opinion data.[14]

Developments since the *Quiet Revolution* warrant discussion of the representativeness of our sample. We plainly were not clear enough about this matter in our earlier article because distinguished

10. Henderson & Eisenberg, *supra* note 1, at 499–503, 518–22.

11. *Id.* at 499–500.

12. *Id.* at 518–22.

13. *Id.* at 505.

14. Therefore, when calendar years are used for district court data, the data for 1978 and 1989 are for six-month periods. When fiscal years are used, twelve-month periods beginning on July 1 are covered. As before, our analysis of the district court data includes the Administrative Office's general personal injury products liability category, as well as the more specialized personal injury products categories: airplane, marine, and motor vehicle. *Id.* at 521.

products liability observers seem confused about the sample's makeup. One observer has termed our conclusions problematic because "the database was limited to federal court products liability cases published by the CCH reporting service."[15] As we explained in the *Quiet Revolution*, we rely on two separate databases.[16] The published opinion data, derived from CCH, are not limited to federal court cases. They consist of the vast majority of products liability opinions, both state and federal, published in the years covered. The district court level data are limited to federal courts but are not limited to those cases resulting in opinions reported by CCH. They include all federal district court products cases terminated, whether or not they reached trial. Another observer seems under the same misimpression that we have only federal court cases,[17] thereby ignoring the dominance of state court opinions in our published opinion data.[18] Yet another observer seems to believe that we rely exclusively on trial outcomes to establish the success rate trend.[19] The *Quiet Revolution* does not base its claim of a pro-defendant success rate trend on tried cases.[20]

Even an accurate grasp of the data we used leaves one major concern: the lack of state court trial level data. This is a potential problem because the bulk of tort litigation is in state court. The *Quiet Revolution* addressed this question and, based on others' studies of state and federal products filings, concluded that plaintiffs file enough products cases in federal court to yield meaningful results.[21] Based on those studies, we estimate that between 20% and 50% of products filings during the relevant periods were in federal court, with substantial variation from state to state.[22] And state court trends are likely to match federal court trends. In almost all federal

15. Schuck, *supra* note 6, at 30.

16. Henderson & Eisenberg, *supra* note 1, at 499–501, 518–522.

17. Viscusi, *The Dimensions of the Product Liability Crisis*, 20 J. LEGAL STUD. 147, 159 n.20 (1991).

18. State court opinions comprise approximately 66% of the opinions represented in Figure 1 *infra*.

19. A. Havenner, Critique, *supra* note 4, at 20 (relying on tried case analogies to refute our analysis).

20. Henderson & Eisenberg, *supra* note 1, at 525 (all cases reaching judgment), 533 (success at motion stage); *see* Figure 2 *infra* (no trend in tried cases); Eisenberg & Henderson, *Is the Quiet Revolution in Products Liability Reflected in Trial Outcomes?*, CORNELL L.F., July 1990, at 2, 3.

21. Henderson & Eisenberg, *supra* note 1, at 520–21.

22. *See id.* at 520–21 n.165.

products cases, federal courts apply state law, as announced by state courts, to cases based on diversity jurisdiction.[23]

Newly available data support the view that federal courts receive a substantial portion of the nation's products liability litigation. A survey of geographically diverse state courts representing about 10% of the national population found 129 products liability case terminations in one month in 1988.[24] The Administrative Office data show 811 federal products terminations for that month.[25] If one assumes that the 129 state court terminations in the surveyed courts would translate into approximately 1,290 terminations for all state courts, then federal products terminations for the surveyed month comprise 811 of 2,101 cases, or 39% of all products terminations.[26] Taking into account the size of awards, the federal presence likely is even greater. The average federal products case probably yields a substantially higher award than the average state products case.[27] Federal courts probably would then account for more than 50% of all dollars awarded in products litigation. We therefore again conclude that the federal district court data include a sizeable enough portion of products cases to provide meaningful results.

II. SUCCESS RATES AND FILING RATES

Before looking inside the quiet revolution to determine why products defendants began faring better in the mid-1980s, we ought to be sure that there was in fact a revolution, and that it favored defendants. We raise this issue because some reactions to our findings deny the basic conclusion that defendants fared better in the late 1980s than in the early- to mid-1980s. The reasons for these denials vary. Concerns voiced about the *Quiet Revolution* include

23. Erie R.R. v. Tompkins, 304 U.S. 64 (1938).

24. Rottman, *Tort Litigation in the State Courts: Evidence from the Trial Court Information Network*, STATE CT. J., Fall 1990, at 4, 9. The state court survey included courts encompassing more than 10% of the population but some courts did not report their terminations by case type. *Id.* at 16 n.7. Using the populations reported by Rottman, *id.* at 7, we calculated the population served by those courts reporting terminations by type of case.

25. We used July 1988 to sample federal monthly terminations. This was the month predominantly used by Rottman. *Id.* at 17.

26. This estimate should be qualified by several factors, including the brevity of the period covered by the state court survey. We have included all federal products liability categories in our July 1988 sample. We do not know the definition of products liability used in the state court survey. The federal terminations for July 1988 include 290 asbestos cases. The state court data do not allow determination of the number of asbestos cases. In addition, there may be states in which tort cases can be filed in more than one court of general jurisdiction. *See id.* at 16 n.4.

27. *See infra* note 100 and accompanying text.

the implications read into it by others,[28] its use of ratios,[29] its reliance on students as research assistants,[30] the makeup of the case sample,[31] our alleged failure to take into account selection effect considerations,[32] our motives in writing it,[33] and its graphical technique.[34] Our data have even been said to be evidence of a pro-plain-

28. A. Havenner, *supra* note 4, at 1.

29. *Id.* at 2; A. Havenner, Critique, *supra* note 4, at 2; Huber, *supra* note 4.

30. Schuck, *supra* note 6, at 30.

31. *Id.* at 30; A. Havenner, *supra* note 4, at 15–17; A. Havenner, Critique, *supra* note 4, at 19–23. On misimpressions about the sample used in the *Quiet Revolution*, see *supra* text accompanying notes 15–20.

32. A. Havenner, *supra* note 4, at 15–17; A. Havenner, Critique, *supra* note 4, at 19–22. *See infra* note 49. For discussion and tests of selection effect theory, see Clermont & Eisenberg, *Trial by Jury or Judge: Transcending Empiricism*, 77 CORNELL L. REV. (1992) (forthcoming); Eisenberg, *Testing the Selection Effect: A New Theoretical Framework with Empirical Tests*, 19 J. LEGAL STUD. 337 (1990); Eisenberg, *Litigation Models and Trial Outcomes in Civil Rights and Prisoner Cases*, 77 GEO. L.J. 1567 (1989); Eisenberg & Johnson, *The Effects of Intent: Do We Know How Legal Standards Work?* 76 CORNELL L. REV. 1151 (1991); Gross & Syverud, *Getting to No: A Study of Settlement Negotiations and the Selection of Cases for Trial*, 90 MICH. L. REV. 319 (1991); Priest & Klein, *The Selection of Disputes for Litigation*, 13 J. LEGAL STUD. 1 (1984); Wittman, *Dispute Resolution, Bargaining and the Selection of Cases for Trial: A Study of the Generation of Biased and Unbiased Data*, 17 J. LEGAL STUD. 313 (1988). For evidence that some inferences can be drawn from observed case outcomes despite selection effect problems, see Eisenberg, *The Relationship Between Plaintiff Success Rates Before Trial and at Trial*, 154 J. ROYAL STATISTICAL SOC'Y, ser. A, pt. 1, at 111 (1991) [hereinafter Eisenberg, *Relationship*].

33. A. Havenner, Critique, *supra* note 4, at 3 ("Henderson and Eisenberg's analysis is so convoluted as to almost surely be politically motivated."). One of the authors has been on record for almost twenty years as opposed to expansionary trends in products liability. *See, e.g.*, Henderson, *Judicial Review of Manufacturers' Conscious Design Choices: The Limits of Adjudication*, 73 COLUM. L. REV. 1531 (1973); Henderson, *Extending the Boundaries of Strict Products Liability: Implications of the Theory of the Second Best*, 128 U. PA. L. REV. 1036 (1980); Henderson & Twerski, *Doctrinal Collapse in Products Liability: The Empty Shell of Failure to Warn*, 65 N.Y.U. L. REV. 265 (1990); Henderson & Twerski, *Closing the American Products Liability Frontier: Rejection of Liability Without Defect*, 66 N.Y.U. L. REV. 1263 (1991) [hereinafter *Frontier*]. During this same period he has testified many times in support of products liability reform before both the Congress and numerous state legislatures.

34. A. Havenner, *supra* note 4 *passim*; A. Havenner, Critique, *supra* note 4 *passim*. As best we can tell, Havenner's main complaint about our graphs is that, when plotting ratios that can theoretically run from 0 to 1 (or from 0 to 100%), we did not use a y-axis that runs from 0 to 1 when the data only occupy a fraction of the 0 to 1 range. This practice is quite common, as the reader of any graph of unemployment rates can verify. *E.g.*, *Fear of Foreigners*, ECONOMIST, Aug. 10–16, 1991, at 15, 16; Wall St. J., Sept. 9, 1991, at 1, col. 4. The graphical principle we relied on was to fill the graph space with data, not with blank space. *E.g.*, Sproul & Keigler, *Computers, Networks and Work*, SCI. AM., Sept. 1991, at 119, 121; Yan, *Has AIDS Peaked*, SCI. AM., Sept. 1991, at 30, 34; N.Y. Times, Sept. 1, 1991, § 3, at 2 (3 graphs). One graphical principle suggested by Tufte is to have a reasonably high data-ink to ink ratio. E. TUFTE, THE VISUAL DISPLAY OF QUANTITATIVE INFORMATION 93–105 (1983). We tried to achieve this in the *Quiet Revolution*'s graphs. *But see* Havenner, *supra* note 4 *passim*.

tiff trend.[35] Such skepticism suggests revisiting the national trends in light of more recent data, and then analyzing whether the trends are plausibly consistent with anything but declining plaintiff success.

A. *New Data Confirm the Results Reported in the Quiet Revolution*

The *Quiet Revolution* reported declining plaintiff success at both the published opinion and district court levels through the mid to late-1980s. Using the additional data described above,[36] Figure 1 shows a continuing decline in plaintiff success rates. Success rates in published opinions fell from 56% in 1979 to 39% in 1989, a drop of 29%. At the federal district court level, as an aggregate measure of success, we again use the plaintiff success rate in all cases in which issue is joined and a judgment for plaintiff or defendant is reported.[37] By this measure plaintiff success rates fell from 41% in 1979 to 31% in 1989, a drop of 24%.[38]

Figure 2 presents the district court data by procedural stage. It shows that the decline in success is attributable to trends in cases at the pretrial procedural stages. Success rates in pretrial cases with known judgments declined from about 50% in 1978 to about 26% in 1989.[39] The decline is much less attributable to cases resolved during or after trial, the other two lines in Figure 2.

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35. A. Havenner, *supra* note 4; A. Havenner, Critique, *supra* note 4; P. HUBER & R. LITAN, *Overview*, in THE LIABILITY MAZE: THE IMPACT OF LIABILITY ON SAFETY AND INNOVATION 1, 3 (P. Huber & R. Litan eds. 1991) (citing A. Havenner, *supra* note 4).

36. *See supra* text accompanying notes 12–14.

37. Henderson & Eisenberg, *supra* note 1, at 522. For the rest of the analysis we drop the restriction that issue has been joined and include all district court cases with a known judgment for plaintiff or defendant. Figure 1 preserves this restriction to maintain compatability with the central results reported in the *Quiet Revolution*. The data underlying the published opinions line in Figure 1 are in this Article's Appendix A, Table A-1. The data for the federal district courts line in Figure 1 for 1979 to 1987 are in Henderson & Eisenberg, *supra* note 1, at 545 (Table A-2). To these district court data we add the analogous figures for 1988 and 1989, which show plaintiff win rates of .320 and .309, respectively.

38. As before, we exclude from the aggregate statistics the massive and unsuccessful Bendectin trial completed in 1985 in the Southern District of Ohio. *See id.* at 519 n.159.

39. For a description of the Administrative Office's procedural stages, some of which we have combined here for clarity of presentation, see *id.* at 522 n.178. Figure 2 combines the two pretrial procedural stages reported in the aggregate for all years in Table 1 *infra*. Figure 2 excludes the dismissal, at an early procedural stage, of several hundred Agent Orange actions in the Eastern District of New York in 1984. Other Agent Orange actions in the Eastern District settled. It also excludes a large combined

Figure 3 shows that the declining trend in plaintiff success is matched by an equally striking but more recent decline in products filings.[40] It shows the number of nonasbestos products filings in federal district courts from 1975 to 1991. The decline from 1985 to 1991 is about 35%, with a corresponding decline in their percentage of the federal docket from 3% to near 2.5%.[41]

Raw filings may not be the best measure of products liability activity over time. The number of products and the population both increase over time. As a result, the number of filings may increase even if victims of products accidents are filing less frequently.

Bendectin trial in the Southern District of Ohio, in 1985, which was coded as a defendants' victory in several hundred cases. *See supra* note 38. The data underlying Figure 2 are in Appendix A, Table A-2.

40. No single source provides all the federal products case-filing data needed to trace time trends while accounting for asbestos cases. Figure 3 combines data from three sources: (1) the ANNUAL REPORTS OF THE ADMINISTRATIVE OFFICE OF THE U.S. COURTS, (2) T. DUNGWORTH, PRODUCTS LIABILITY AND THE BUSINESS SECTOR: LITIGATION TRENDS IN FEDERAL COURTS (1988), and (3) UNITED STATES GENERAL ACCOUNTING OFFICE, BRIEFING REPORT TO THE CHAIRMAN, SUBCOMMITTEE ON COMMERCE, CONSUMER PROTECTION AND COMPETITIVENESS, COMMITTEE ON ENERGY AND COMMERCE, HOUSE OF REPRESENTATIVES, PRODUCT LIABILITY: EXTENT OF "LITIGATION EXPLOSION" IN FEDERAL COURTS QUESTIONED (1988) [hereinafter GAO REPORT]. For the total federal filings used to compute the percentage-of-docket figures, we rely on the Annual Reports of the Administrative Office. For personal-injury products filings from 1975 to 1982, we rely on the GAO REPORT, *supra* at 27, and T. DUNGWORTH, *supra* at 31. Dungworth, working from the Administrative Office data, provides the total products filing figures, including non-personal-injury products filings. The GAO REPORT, also working in part from the Administrative Office data, provides the non-personal-injury products figures, which we subtract from Dungworth's totals. For 1983 to 1991, we rely on the Administrative Office's reports of personal-injury products filings which, beginning in 1983, were broken down by subcategories of products cases. For 1975 through 1986 we rely on the GAO REPORT for asbestos filings. The Administrative Office had no separate asbestos category until 1984. From 1987 through 1991, we use the Administrative Office's reports of asbestos filings. The 1991 Administrative Office data are from a preliminary report and are subject to change.

The GAO REPORT provides some insight into the sharp peak in nonasbestos products filings in 1985. The peak results from the greatest number of Dalkon Shield (1,410) and Bendectin (594) cases having been filed in that year. GAO REPORT, *supra*, at 22 (Table 2). If one excludes these two categories of mass tort cases, growth in products filing rates during the 1980s is smoother, with the peak occurring in 1986. Since the GAO REPORT supplies data only through 1986, we do not know the number of Dalkon Shield and Bendectin filings included in later Administrative Office products filing figures. Even assuming Bendectin and Dalkon Shield filings to be zero since 1986, the number of personal-injury products filings in 1991, excluding asbestos, Dalkon Shield, and Bendectin filings, is below the number of such filings in 1986. For the influence of duplications in the Administrative Office filing data on the trend in products filings, see GAO REPORT, *supra* at 20 (little effect on percentage growth and rate of growth).

The data underlying Figure 3 are in Appendix A, Table A-3.

41. The percentage-of-docket figures are computed from Appendix A, Table A-3.

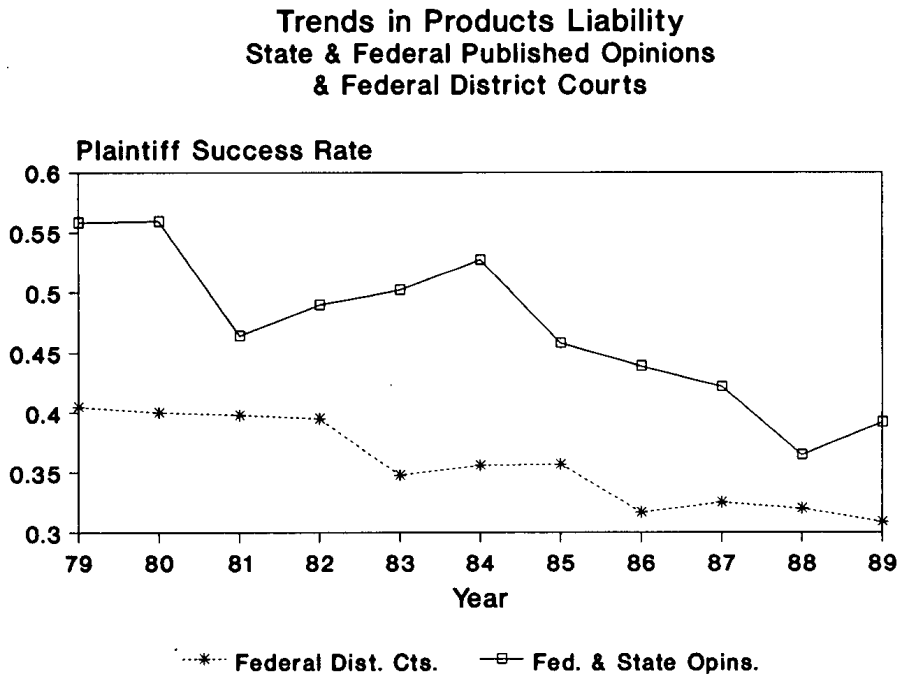

Figure 1

Following the General Accounting Office, we use the gross national product for personal expenditures on durable and nondurable consumer goods as a rough index of the number of products-consumer interactions.[42] Using this adjustment, products filings declined by 44% from 1985 to 1991.[43] If one excludes Bendectin and Dalkon Shield cases, then GNP-adjusted products filings have been below 1981-82 levels in every subsequent year except 1987.[44] Thus, the 1981 to 1985 increase in products filings can be viewed as completely attributable to Bendectin and Dalkon Shield cases. Under this view, general products liability filings as well as success rates have been decreasing since 1981.

In short, all of the additional data on filings and success rates reinforce the impression of products litigation portrayed two years ago in the *Quiet Revolution*. Interpreting these data is a more difficult and controversial task than reporting them. We posit that a pro-defendant revolution began in the early to mid-1980s and con-

42. *See* GAO REPORT, *supra* note 40, at 43. For a summary of researchers' reservations about GNP measures, see M. MAIER, THE DATA GAME: CONTROVERSIES IN SOCIAL SCIENCE STATISTICS 97–106 (1991).

43. *See* Appendix A, Table A-3. Data on Bendictin and Dalkon Shield cases after 1986 are not available. By not removing these cases from post-1986 filing figures we understate the decline in other products filings.

44. *Id.*

tinued through at least 1989. We base this assertion on declining plaintiffs' success in products litigation, on pro-defendant trends in explicit lawmaking in products cases at both trial and appellate levels, and on steadily declining products filings in federal courts.

Two principal objections can be posed to our interpretation. First, do our data accurately represent filed products liability disputes? Second, even if they do, is it possible to combine such pro-defendant in-court trends with an overall movement in products law that favors plaintiffs and not, as we assert, defendants? Each objection will be addressed in turn.

B. *Do the Data Reasonably Represent Filed Disputes?*

The cases that reach formal resolution, and for which data are available, do not comprise a random sample of all filed products liability disputes. The data on cases reaching judgment do not include the fate of the products cases that are dropped or settle after filing without a formal judgment being entered. But the filed cases without observed outcomes are resolved in the shadow of opinions and district court decisions.[45] Is it sensible to infer a declining rate of success in the filed cases without known outcomes?

To some the answer is no. For them, the lack of comprehensive data about all filed cases means that the observed sample of formally resolved products liability cases is not a representative cross-section of all products liability filings.[46] Some observers who dismiss our findings on this ground even label the sample "meaningless"[47] or "statistical noise."[48]

We disagree with these critics. The inference that the success rate in filed but informally resolved cases (mostly settlements) tracks that of observed declines in formally resolved cases is sensible for several reasons. First, common sense and a basic understanding of legal institutions lead one to conclude that informal settlements, pre- or post-filing, a fortiori take into account recent trends in doctrine and results in trial courts. While logically possible, it would be remarkable if plaintiffs in any area of law were to suffer a lengthy period of declining doctrinal success, with a corresponding decline

45. *See* Farber & Katz, *Interest Arbitration, Outcomes, and the Incentive to Bargain*, 33 INDUS. & LAB. REL. L. REV. 33 (1979); Mnookin & Kornhauser, *Bargaining in the Shadow of the Law: The Case of Divorce*, 88 YALE L.J. 950 (1979).

46. A. Havenner, *supra* note 4, at 15–17; A. Havenner, Critique, *supra* note 4, at 19–22.

47. Huber, *supra* note 4, at 248.

48. A. Havenner, *supra* note 4, at 17.

in success at the district court and appellate levels, but enjoyed increasing success in settled cases.[49] The concern about sample representativeness would be more important if settlements occurred completely independently of trial court results and published opinions. But it is implausible, bordering on impossible, that settlements are reached independently. Some tort reform supporters admit as much when they bemoan the pro-plaintiff effects of high jury verdicts on case settlements.[50]

Second, the Administrative Office data are complete enough at every post-filing stage to allow sensible inferences about filed cases without known judgments. Although the outcomes in cases resolved after filing but before completion of trial are frequently unknown, we can draw inferences from such cases whose outcomes

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49. Opinions and formally resolved cases may be a fraction of all litigated cases but opinions are a near-complete sample of products doctrine. There is no hidden mass of opinions that may reveal products doctrinal trends we have missed. Havenner seems to overlook the distinctions among doctrinal development, trial court motion results, and trials. In support of the claim that our data show little, he states:

> [I]t is helpful to imagine the analogy of a district attorney's "success rate" in prosecuting criminal defendants. Shrewd courthouse observers know that the d.a. who boasts a "perfect" conviction record-winning every case-may not be tough on defendants at all, but may be choosing only the easy cases to prosecute. A drop in such a d.a.'s "success rate" might signal that the climate of prosecution is getting laxer or tougher; without further information, it is impossible to say which. Possibly cases are being lost because the d.a. has ceased to prepare for trial properly, or because judges are siding more with defendants. Or possibly the lower success rate in isolation signals that the d.a. has now begun to pursue cases that are less easy to win, perhaps indicting defendants who turn out to be innocent. In other words, trends in a prosecutorial success rate in isolation say nothing about whether the climate for criminal defendants is getting more or less friendly.

Id. at 3. It is true that in isolation prosecutorial success rates say little about the larger climate. However, consider a set of facts, unlike Havenner's, that bears some relation to that revealed in the *Quiet Revolution*. Suppose that the state supreme court for a decade has announced criminal law doctrines that continually favor defendants. Suppose that, during the same period, not one but the vast majority of prosecutors in the state suffer increased dismissals of prosecutions by trial judges without even letting the cases get to the jury. According to Havenner, two reasons suggest that we can draw no inferences about the direction of criminal law from these facts. First, the supreme court only announces doctrine in a small fraction of all litigated criminal law cases. Second, the prosecutors, en masse, may have been jointly moved to bring factually weaker prosecutions in the face of the supreme court's pro-defendant doctrine. Neither reason seems persuasive. The first borders on the silly; the second is possible, but one suspects prosecutors would be moved to bring factually stronger, not weaker, cases in the face of doctrine moving in defendants' favor. At this and other points, Havenner seems to believe that we are drawing inferences based on tried cases. *See supra* note 19.

50. *See* Malott, *America's Liability Explosion: Can We Afford the Cost?*, 52 VITAL SPEECHES DAY 180, 180 (1986); McCormick, *The American Tort System: A Time to Rebalance the Scales of Justice*, 52 VITAL SPEECHES DAY 267, 268–69 (1986).

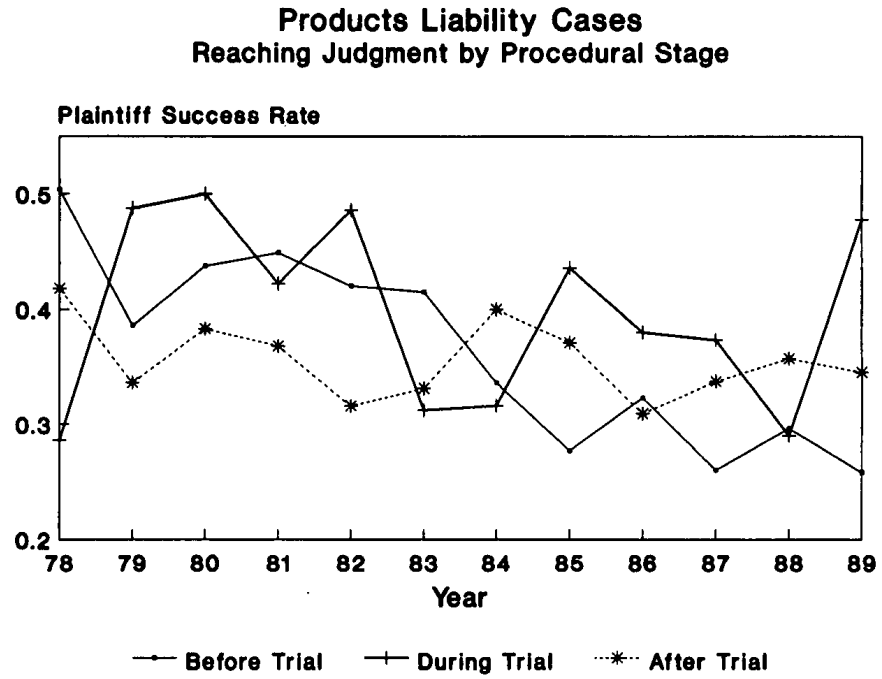

Figure 2

are known. Table 1 divides the case termination data into four procedural stages. "Before Trial, No Motion" refers to filed cases resolved without trial and without a court ruling on a motion. "Before Trial, After Motion" refers to cases resolved before trial but after the court has ruled on at least one motion. "During Trial" refers to cases in which a trial has commenced but the case was resolved by motion, settlement, or withdrawal before the trial was completed. "After Trial" refers to cases resolved by judge or jury after completion of a trial.[51] For cases resolved after trial, the Administrative Office data show a definitive winner or loser in 87.4% of the cases. Given that the outcomes of some trials are ambiguous, the trial data are quite complete.

The data regarding judgments at pretrial stages are more ambiguous and with good reason. Filed cases that make the least procedural progress through the system are most likely to result in dropped claims or informal settlements. The parties often have no need or desire to enter a judgment in the record in such cases. There may be good reason not to do so. For example, one or both parties may desire confidentiality about the outcome.

51. We have condensed the more numerous Administrative Office procedural classifications. *See supra* note 39.

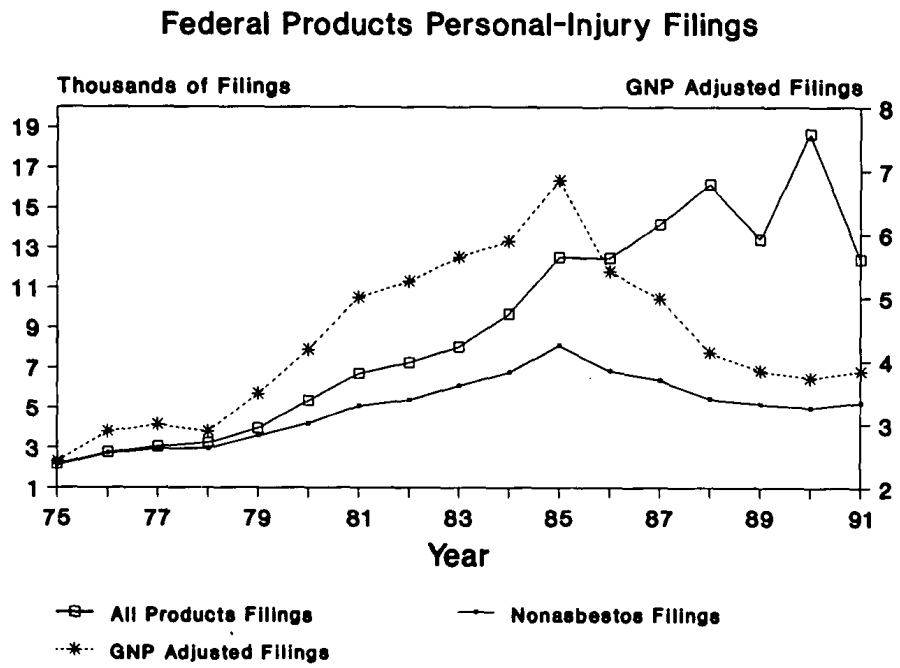

Figure 3

At the earliest procedural stage, "Before Trial, No Motion," the known judgment rate is 6.7%, with 1,920 known outcomes and 26,948 cases with unknown outcomes. For a population with a

Table 1
Filed Federal Products Liability Cases with Known and Unknown Judgments by Procedural Stage

Procedural Stage	*N Judgment Known*	*N Judgment Unknown*	*% Known*	*% Known Outcomes Successful*	*% of All Products Terminations*
Before Trial, No Motion	1,920	26,948	6.7	28	43.7
Before Trial, After Motion	3,446	25,961	11.7	35	44.6
During Trial	582	1,314	30.7	40	2.9
After Trial	5,099	735	87.4	29	8.8

combined size of 28,868 cases, 6.7% can be a reasonably high sample rate. *If* it were a random sample, one could be 95% confident that the true sample mean was within .02 of the observed sample mean.[52] Thus, even for the "Before Trial, No Motion" cases, one

52. This calculation is based on the formula in G. SNEDECOR & W. COCHRAN, STATISTICAL METHODS 439 (8th ed. 1989) (equation 21.6.2). The yearly data are sufficiently numerous so that the individual year estimates, with the exception of cases resolved during trial, are only slightly less precise.

could be 95% confident that the "true" success rate was between 26% and 30%.

Moreover, the time trends that concern us do not require that the observed level of plaintiffs' success in filed claims correspond exactly with the success rate in settled filed cases. These success rates most likely do not correspond because settlements at the early procedural stages probably result in some sort of payment to plaintiffs more often than resolutions reached at later stages. But we need not establish absolute levels of success in either the observed or the informally resolved filed cases. Our concern is with changing success rates over time, not absolute levels of success. Thus, the critical requirement is not that formally resolved filed cases be a perfectly unbiased sample of all filed cases, but rather that any bias that may exist in the observed success rate not have changed substantially over time. Since there is no known evidence of such change, it makes more sense for policymakers to treat changes in the Administrative Office's observed success rates as evidence of changes in unobserved success rates in filed cases than it does to discard them as meaningless.

C. *Beyond Filed Disputes: Refutation of Other Explanations for the Apparent Pro-Defendant Trend*

Before one concludes that steady declines in both products liability filings and plaintiffs' success in court indicate an overall decline in how well products claimants are faring, one must consider other possible explanations for these observed declines. Critics who dismiss as conjectural our conclusion of overall decline must carry two burdens: first, they must posit at least one "plaintiffs doing better overall" scenario that is consistent with combined and substantial declines in filings and in-court success rates; and second, they must show either that available data support that scenario, or at least that the data with which to reject it are unavailable.

Given our results for cases resolved in court, plaintiffs can be faring better overall only if they are doing so in unobserved cases. The following analysis demonstrates that even if it were plausible for unobserved cases to be getting better for plaintiffs at the same time in-court cases are getting worse, it is highly implausible that unobservable and in-court outcomes could have been moving in opposite directions in the time period focused on—from 1979 to 1990. As we shall make clear, "plaintiffs doing better overall" hypotheses founder on the fact that products filings fell steadily from 1985 to 1991. It is difficult to imagine a pro-plaintiff scenario consistent

with combined and substantial declines in both filings and success rates.

To understand the relationship between filings and success rates, one should consider the pre-filing influences on products disputes. In particular, one should consider over time (1) the products-related accidents that might lead to a lawsuit, (2) the relative propensities of persons injured in such accidents to make out-of-court claims, and to press denied out-of-court claims by filing lawsuits, and (3) the post-claim, pre-filing behavior of plaintiffs and defendants in resolving out-of-court claims, which will filter disputes before filing. Only the unresolved residue of out-of-court disputes actually leads to lawsuits. What changes in these three pre-filing influences could produce the observed patterns of declining success rates and filings?

For example, if victims' propensities to sue increased over time, holding all other factors constant, plaintiffs' success rates could decline even in the absence of a change in judicial treatment. Such an increasing propensity to sue should lead to factually weaker claims being brought. Similarly, if the number of product-related accidents declined while other factors including judicial treatment held constant, filings would also decline. Fewer accidents should lead to fewer products disputes. If the number of accidents declined and plaintiffs' propensity to sue increased, the net effect on numbers of filings would be difficult to predict but one would expect to observe a declining success rate. Thus, if the number of accidents has not declined, it is difficult to explain declining filings without hypothesizing an additional change in behavior. Either plaintiffs' propensities to sue have decreased, or the numbers of claims being settled prior to filing have increased. We discuss these possibilities in the sections that follow.

1. Shifts in Accident Trends Do Not Explain the Observed Pattern of Decline

Declining numbers of accidents in the late 1980s could help to explain declining filings even without a pro-defendant legal trend. However, the number of accidents in this country have not followed time trends that prove helpful in explaining the decline in filings since 1985. Figure 4 presents time series data on injuries from accidents, disabling injuries, and accidental deaths in the United States.

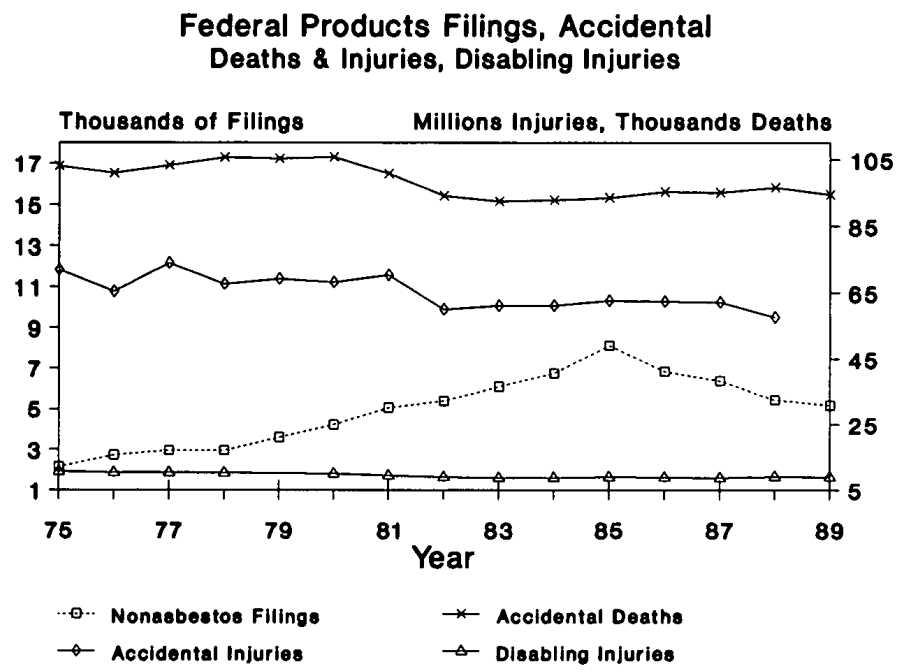

Figure 4

These occurrences provide some measure of the number of incidents that might lead to products lawsuits.[53]

The number of accidental injuries declined from 1975 to 1982 and the number of accidental deaths declined from 1975 to 1983. The number of disabling injuries, especially likely sources of litigation, also decreased from 1975 to 1982. During these same periods the number of products filings ran counter to these trends—they increased rather than decreased—suggesting one should be skeptical of putting too much stock in accident rate trends in this context. Even more telling is the fact that accidental deaths and accidental injuries have been increasing since the early to mid-1980s (except for a drop in accidental injuries in 1988). Disabling injuries have remained at fairly constant levels since 1982. Thus, the post-1985 drop in products filings does not correspond to a parallel decline in the number of accidental injuries, disabling injuries, or accidental deaths. One can no more explain declining products filings by fewer accidental injuries and accidental deaths than one can explain the earlier period of increased products filings by reference to increasing accidental deaths and injuries. Since there is little evidence of decreased accidents during the late 1980s, not even the decrease in

53. The data underlying Figure 4 are in Appendix A, Table A-4.

products filings, much less plaintiffs' declining success rate, can be attributed to a decreasing pool of possible disputes.

We do not claim that these national data precisely count the incidents that lead to products liability litigation. Obviously, many accidental injuries and deaths have no products overtones, and some products incidents might not be classified as accidents. But knowledge of the exact relationship between overall accidents and products-related accidents is not of central importance here. Overall accident data will mislead only if their relationship to products-related accidents has changed over time. Absent reason to believe that such a change has occurred, and absent more specific data, the national accident trends are a reasonable proxy with which to measure trends in products-related incidents.[54]

The products filings pattern makes more sense if viewed as responding to the changes in legal doctrine shown in Figure 1, rather than to changes in the number of accidents. From the early 1970s to sometime in the early 1980s, developments in products doctrine continued to favor plaintiffs, thereby attracting an increasing number of products filings. In the early 1980s success rates turned against plaintiffs, and since the mid-1980s, the amounts recovered in court have been insufficient to offset the declining success rate.[55] With both success rates and real dollars recovered declining, filings can be expected to plummet, absent extreme increases in the number of products accidents.[56]

2. Changes in Plaintiffs' Propensity to Make Claims Do Not Explain the Observed Patterns of Decline

Given the accident patterns described above, the recent decline in products filings must be attributed either to changes in accident victims' propensity to file lawsuits or to changes in post-accident,

54. P. Huber & R. Litan, *supra* note 35, at 5–6; Priest, *Products Liability Law and the Accident Rate*, in LIABILITY: PERSPECTIVES AND POLICY 184, 187–94 (R. Litan & C. Winston eds. 1989); Priest, *Understanding the Liability Crisis*, in NEW DIRECTIONS IN LIABILITY LAW 196, 203 (W. Olson ed. 1988); W. VISCUSI, *supra* note 9, at 19–20.

55. Figure 7 *infra* (expected return line).

56. In evaluating the number of products disputes, it is important to distinguish between the absolute number of accidents and the accident rate, a measure based on accidents per number of hours worked or per mile traveled. In assessing the relationship between the number of filings and accidents, the absolute number of accidents seems the relevant datum, not the accident rate. Thus, the happy fact that accident *rates* have declined and, at least by this measure, that America is becoming a safer place in which to live and work, does not forecast a decline in filings. *But see* W. VISCUSI, *supra* note 9, at 19 (relying on rates in assessing products filings); Viscusi, *supra* note 17, at 153.

pre-filing settlement behavior. Reduced propensity to sue is admittedly a strong candidate for explaining declining filings. Assuming a constant number of incidents generating a constant number of potential disputes, declining filings will occur if plaintiffs press their grievances to the suit stage less often.

This decreasing propensity to sue is a plausible explanation for lower filings until one considers declining success rates. The observed decline in success rates should correlate with increased tendencies to sue, not decreased tendencies to sue, because more suits will result in more marginal claims reaching court. The greater the number of marginal claims, the lower the rate of success. Thus, in assessing changing propensities to sue, declining filing rates and declining success rates point in opposite directions: the first suggests a decreasing propensity to sue, and the second suggests an increasing propensity to sue. Because the data support these divergent results, changes in propensities to sue seem unlikely to explain the combination of filing and success trends.

Of course, both decreased products filings and decreased success could be explained by a combination of decreasing products-related accidents and an increased tendency to sue. If this view is correct, then plaintiffs have fewer opportunities to sue and thus are less selective about the quality of the suits they bring. This explanation requires that the products-related accident trends differ substantially from overall accident trends, an unlikely proposition. It also requires that, holding constant the quality of the relevant claims, plaintiffs in the late 1980s had a greater propensity to sue than ever.

It is unlikely, however, that changes in propensities to sue can explain declining plaintiff success rates. In 1988, the RAND Institute for Civil Justice ("ICJ") conducted the most comprehensive study of accident victims' propensities to sue. For on-the-job, products-associated injuries it found that only 24 percent of accident victims consider making a claim, 7 percent take action, 6 percent consult a lawyer, and 4 percent hire a lawyer.[57] For nonwork, product-associated injuries, the figures are even lower: only 8 percent consider making a claim, 2 percent take action, 1 percent con-

57. D. HENSLER, M. MARQUIS, A. ABRAHAMSE, S. BERRY, P. EBENER, E. LEWIS, E. LIND, R. MACCOUN, W. MANNING, J. ROGOWSKI & M. VAIANA, COMPENSATION FOR ACCIDENTAL INJURIES IN THE UNITED STATES 124 (1991) [hereinafter COMPENSATION].

sult a lawyer, and 1 percent hire a lawyer.[58] These recent low rates suggest that a shift in claiming behavior towards filing marginal claims is not a plausible explanation for the declining success rate. Admittedly, the ICJ did not gather time series data on this issue. But the recent low suing rates leave little room for a significant increase in propensity to sue.[59]

Moreover, the available data do not support a substantial rise in propensity to sue. Barbara Curran's 1977 survey found that 20 percent of people with a tort liability problem consulted a lawyer.[60] Another pre-ICJ study by the Wisconsin Civil Litigation Research Project, though methodologically distinct, found that lawyers were hired in 11 percent of tort incidents in 1980.[61] Contrast the results of these two studies with that of the ICJ whose 1988 consult-a-lawyer figure for all torts was 7 percent.[62] To the limited extent the Curran and CLRP data are comparable with the ICJ data, they do not support a trend of increasing litigiousness.[63]

Finally, even if plaintiffs experience an increased propensity to sue, their lawyers may not share their enthusiasm. However eager plaintiffs may be to file suit, those with marginal claims may be unable to find attorneys willing to represent them.[64] In periods of in-

58. *Id.* A surprisingly low filing rate has been detected in medical malpractice cases as well. *See* Sack, *Hospital Study Finds Few Suits, Much Negligence*, N.Y. Times, Jan. 29, 1990, at A1, col. 3.

59. ICJ's Director reaches a related conclusion. He suggests that, in light of the low litigation rates, businesses should fear growing numbers of disputes in the future. McCarthy, *Looking Ahead: Business is Losing Liability Battle*, L.A. Times, Feb. 6, 1991, § D, at 3, col. 1.

60. B. CURRAN, THE LEGAL NEEDS OF THE PUBLIC: THE FINAL REPORT OF A NATIONAL SURVEY 135 (1977) (Fig. 4.26).

61. *Id.* at 116 (Table 5.1). ICJ presents results for motor vehicle accidents separately. In contrast, the 11% CLRP figure does include motor vehicle incidents. ICJ's data allow calculation of a figure for all accidental injuries, including motor vehicles. *Id.* at 123 (Table 5.3). We compute it to be 5%, below the CLRP 11% aggregate figure for the earlier period. The ICJ study itself notes that the higher claiming rate in the CLRP study may be attributable to inclusion of a different profile of incidents. *Id.* at 115.

62. COMPENSATION, *supra* note 57, at 122 (Fig. 5.2).

63. Because of the studies' limited comparability, we do not claim a trend of decreasing or even necessarily constant propensity to sue. But we do think it important that proponents of the increased-propensity hypothesis supply more than anecdotal evidence.

When one considers only serious injuries—life threatening or long-term impairment, *id.* at 125 (Table 5.5), the figures remain low. On-the-job, product-associated, serious injuries led to hiring a lawyer in 9% of the incidents; nonwork, products-associated incidents led to hiring a lawyer in 3% of the incidents.

64. *See* COMPENSATION, *supra* note 57, at 134 (Table 5.9) (22% of accident victims who sought attorneys were turned away); Mullen, *In U.S., Court is Now the First*

creasing success or growing awards, it is likely that lawyers will test the limits of evolving doctrine by pressing increasingly marginal claims, especially those claims with higher potential payoffs.[65] The growth in products filings and mean recoveries through the early 1980s[66] could well have resulted from such behavior. Conversely, the late 1970s to early 1980s period of declining success could well have resulted in lawyers rethinking their approach to marginal claims, eventually leading to lower filings.[67]

3. Rejecting the Pro-Plaintiff Hypothesis: Changes in Post-Claim, Pre-Filing Settlement Behavior Do Not Explain the Observed Patterns

The numbers-of-accidents and propensities-to-sue data suggest that neither factor explains declining filings and declining success. Only the third factor, post-claim, pre-filing behavior, remains as a possible basis for a "plaintiffs doing better overall" hypothesis. Plaintiffs are claiming in about the same number and quality of cases, the pro-plaintiff argument might run, and judges treat the filed cases that reach them about the same or perhaps even better than before. But more favorable pre-filing treatment by defendants of the stronger cases means they need never grow into lawsuits.[68] Only the weaker cases that survive the changing-over-time settlement process lead to lawsuits being filed, resulting in both fewer filings and lower observed success rates for those that are filed. We refer to this "plaintiffs doing better overall" hypothesis as the "pro-plaintiff hypothesis."

a. Fleshing Out the Pro-Plaintiff Hypothesis

Critics hypothesize that products doctrine has been increasingly pro-plaintiff, or at least has not moved in a pro-defendant direction, during the relevant period. According to this pro-plaintiff hypothesis, claims that ten years ago required court actions to establish their validity are now being settled routinely and generously without lawsuits, leaving only the dregs of claims—claims that would have been laughable in the early 1980s—to proceed to

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Resort, Chi. Trib., July 21, 1991, § 4 at 1 (Philip Corboy, leading plaintiffs' tort lawyer, rejects 18 of 20 potential clients).

65. On the relationship between likelihood of success and size of award at trial in products cases, see Clermont & Eisenberg, *supra* note 32.

66. *See* Figure 3 *supra*; Figures 5, 6 *infra*.

67. Eventually, the more selective filings ought to lead to increased success rates.

68. Huber, *supra* note 4, at 248.

court.[69] Once in court, of course, these factually weaker claims do worse than earlier factually stronger claims; but out-of-court settlements more than make up the difference. According to this view, the declining in-court fortunes of products plaintiffs reflect how *well* plaintiffs are doing over all, not how *badly*. At most, under this view, the data support the conclusion that pro-plaintiff trends in products doctrine have slowed rather than having reversed direction.

Those who advance this pro-plaintiff hypothesis do not attempt to support it with data. Indeed, it would be difficult to do so, since data on the pre-filing patterns of settlement are difficult to obtain. The sections that follow demonstrate the implausibility of the hypothesis, notwithstanding the unavailability of data bearing directly on pre-filing settlement behavior.

b. Distinguishing More Carefully Between Observable (In-Court) and Unobservable (Pre-Filing) Stages of Dispute Resolution

Exploring the pro-plaintiff hypothesis requires briefly sketching the major stages in the evolution of a products claim, from initial injury to final disposition on appeal. We touched on this subject in connection with our earlier rejection of declining accident trends and increasing propensity to sue as explanations for our observed declines in plaintiffs' success; but a closer examination is required in this context. The major stages in the evolution of a products claim are:

(1)	(2)	(3)	(4)	(5)	(6)	(7)
injury	claimant's knowledge of injury and its cause	claimant's decision to press claim	claimant's hiring of lawyer	filing of claim	trial	appeal

A products dispute can terminate by settlement or by being dropped at any stage. The injured party may not even recognize the possibility of suing. Those who consider suing may decide not to press ahead or may terminate their efforts after consulting a lawyer. Disputes terminated at stages (1) through (4) are usually unobservable in the sense that they do not generate formal, official documentation in court records. Informal resolutions after stage (5) and before stage (6) are readily observable only when recorded as judgments in court records. We have already suggested the relationship

69. Huber, *supra* note 4, at 248.

between filed cases that end with and without formal resolution.[70] Resolutions at stages (6) and (7) are usually known. For convenience we shall refer to resolutions that occur at or before stage (5) as unobservable resolutions, and those that occur after stage (5) as observable resolutions.

For the pro-plaintiff hypothesis to be valid, at least three conditions must be satisfied. First, it must be plausible that out-of-court trends could be moving in the opposite direction from in-court trends. Second, and more particularly, it must be plausible that these products trends could have been moving in opposite directions from 1979 to 1990. Finally, it must be plausible that unknown or out-of-court resolutions have been sufficiently large in comparison to known resolutions to cause overall results (observable and unobservable) to be substantially different from observable results standing alone. All three of these necessary conditions are implausible.

c. The General Correspondence Between Observable and Unobservable Trends

Several reasons suggest that it is sensible to infer declining plaintiff fortunes in unobservable disputes from observable declines in filed cases. The first parallels the reason for believing that observable in-court disputes provide useful information about cases that settle after filing. Informal settlements, pre- or post-filing, take into account in-court results. If in-court results favor defendants, common sense suggests that out-of-court settlements are shaped by similar forces.[71]

Second, relevant studies from other areas support the conclusion that developments at one procedural stage often reflect developments at other stages, thus increasing the likelihood that developments in the mass of settled, unreported cases reflect judicial decisionmaking trends in cases leading to opinions or judgments. For example, an easing of the standard of proof in the Voting Rights Act of 1965 quickly translated into greater plaintiff success rates at trial.[72] Classes of cases that tend to fare well at trial also

70. A. Havenner, *supra* note 4, at 10, 13; Henderson & Eisenberg, *supra* note 1, at 516.

71. *See supra* text accompanying notes 45–50.

72. T. EISENBERG, CIVIL RIGHTS LEGISLATION 1098–99 (3d ed. 1991). This quick translation of a new legal standard into changed success rates at trial may be due to unusual features of voting rights litigation. The raising of plaintiffs' burdens in employment discrimination cases led to declines in their subsequent success in cases leading to opinions. *See* B. Greenberg & K. Kemble, What Did *Watson* and *Wards Cove* Really Do To Plaintiffs' Chances? (unpublished paper May 17, 1991). *But see* Memo-

tend to fare well in pretrial motions;[73] classes of cases that tend to do well in jury trials tend to do well in judge trials.[74] Most importantly, the linkage between developments among legal stages has been found to extend back to the pre-filing settlement stage. Danzon's study of medical malpractice cases finds that out-of-court settlement outcomes positively correlate with in-court outcomes.[75] Moreover, although the relationship is imperfect, she finds that claims "that have a higher probability of winning at verdict also have a higher probability of receiving some compensation in settlement."[76] Finally, our data on filed cases resolved before trial, although less complete than the data on trials,[77] match the trend in published opinion cases.[78]

Thus, common sense, knowledge of how legal institutions work, the substantial amount of data available about cases resolved without trial, and data from other studies all point to a single conclusion: The hypothesis that products plaintiffs have been faring less well in the bulk of unobserved disputes is more plausible than the pro-plaintiff hypothesis that the trend in unobserved disputes is unrelated to, or inversely related to, results in observed adjudicated disputes.[79] Indeed, those claiming that the tort system was out of

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randum for the Attorney General Re: Impact of 1989 Supreme Court Decisions (Feb. 7, 1991), *reprinted in* BNA Daily Labor Rep., Feb. 11, 1991, at D-1.

73. Eisenberg, *Relationship*, *supra* note 32, at 111–13.

74. Clermont & Eisenberg, *supra* note 32. Civil rights cases, which fare relatively poorly on appeal, also fare relatively poorly at the district court level. Eisenberg & Schwab, *What Shapes Perceptions of the Federal Court System?*, 56 U. CHI. L. REV. 501, 523–25, 527 (1989).

75. P. DANZON, MEDICAL MALPRACTICE: THEORY, EVIDENCE, AND PUBLIC POLICY 50 (1985). It does not appear that the out-of-court settlements studied by Danzon are limited to disputes that led to lawsuits.

76. *Id.* at 50.

77. *See* Table 1 *supra*.

78. *See* Figure 2 *supra*.

79. One result in our published opinion data has led to claims that, despite our characterization of our data, they show a time trend favoring plaintiffs. The *Quiet Revolution* reported that, from 1983 to 1987, the number of groundbreaking products opinions for products liability plaintiffs exceeded the number of groundbreaking cases for products defendants. In 1988, groundbreaking cases for defendants exceeded groundbreaking cases for plaintiffs. Henderson & Eisenberg, *supra* note 1, at 511–16. Some observers rely on these findings to question the notion of a pro-defendant trend. A. Havenner, *supra* note 4, at 7–10; A. Havenner, Critique, *supra* note 4, at 9–12; Viscusi, *supra* note 17, at 159–60 n.20.

If the groundbreaking case data were the only available data, we would agree that they support a pro-plaintiff trend, at least until 1988. But these data, evaluated in light of the mass of other data, cannot reasonably support a pro-plaintiff trend. First, the number of groundbreaking cases is quite small in relation to the total number of opinions. For the six years for which we have data, the difference between pro-plaintiff and

hand in the 1980s concede that out-of-court trends reflect in-court trends when they state that the decided cases are "only the tip of the iceberg" that affect the thousands of other cases that get settled before going to court.[80] Pre-filing behavior, such as insurance company rate-setting practice, also is believed to track liability patterns in court during this period.[81] Although other factors undoubtedly influence pre-filing behavior, cases that do reach court, yielding judgments and opinions, are the most powerful influences on such behavior. Faced with definite data about post-filing trends, policymakers uncertain about pre-filing trends should assume a positive rather than inverse relationship.[82]

d. The Relative Size of Unobservable and Observable Resolutions

Unobservable settlements are a small enough portion of total settlements that they could not, in any event, outweigh pro-defendant trends in observable cases. Even if there are divergent results

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pro-defendant decisions totals 83 opinions, or 14 opinions per year. *See* Henderson & Eisenberg, *supra* note 1, at 544 (Table A-1). Given the subjective judgment involved in labeling a case as groundbreaking, *see* A. Havenner, *supra* note 4, at 9–10, this small number of cases is a thin reed on which to base a pro-plaintiff trend. Second, if the groundbreaking-decision effect in fact swamped the declining-plaintiff-success effect shown in the other thousands of opinions and thousands of district court cases, products liability filings should increase. Plaintiffs' attorneys would be expected to exploit the latest pro-plaintiff trend and to try to push the frontiers of products law even further in light of their increasing success; we should see rather startling growth in products filings. Yet nonasbestos products filings have plummeted since 1985. Figure 3 *supra*. For other explanations of the groundbreaking case trends, see Henderson & Eisenberg, *supra* note 1, at 513–16.

We should explain here why we do not report groundbreaking decisions for 1989 in this Article. Unlike the question whether a case benefits plaintiffs or defendants, the question whether a case breaks ground for plaintiffs or defendants cannot be reliably answered by student research assistants. Indeed, only one of the authors is qualified to make that judgment. After formulation of the *Quiet Revolution*'s thesis, that author's characterization of cases as breaking new ground might be considered suspect. It is one thing to make an admittedly subjective judgment in characterizing cases in the absence of any preformed thesis; it would be quite another to characterize the cases after announcing the thesis stated in the *Quiet Revolution*. The groundbreaking case characterizations for opinions published through 1988 were made before we even thought of writing the *Quiet Revolution*.

80. McCormick, *supra* note 50, at 268.

81. Blackmon & Zeckhauser, *supra* note 9; Viscusi, *supra* note 9. *But see infra* text accompanying notes 168–71 (doubts about link between insurance rates and tort reform).

82. *Cf.* M. GALANTER & J. ROGERS, THE TRANSFORMATION OF AMERICAN BUSINESS DISPUTING? SOME PRELIMINARY OBSERVATIONS, at 2 n.1 (Disputes Processing Research Program Working Paper No. 10–3 (1991)) (in analysis of business litigiousness, assuming that the relationship between litigation and non-litigation use of lawyers is positive).

for unobservable and observable resolutions, this divergence probably has little effect on our conclusions. Moreover, although many more cases settle than are formally resolved in court, we have a reasonable measure of in-court settlement trends from the Administrative Office data. Thus the only question is what portion of the overall pay-out by defendants is represented by unobservable, prefiling, out-of-court settlements of products claims.

This portion likely is small. Substantial settlements even in strong cases probably do not routinely result without the plaintiff having hired an attorney and filed a lawsuit. Both institutional and practical considerations support this view, though we remain open to evidence of a change over time in this factor. At the institutional level, defendants have little incentive to hand over large sums of money without first waiting to see whether the claim is strong enough to attract a lawyer on a contingency basis and whether a victim is serious enough to file a lawsuit. The marginal cost of being sued (in contrast to actively defending a suit) probably is small; waiting to see if a victim sues is an inexpensive way of testing that victim's seriousness and her potential to marshall the substantial resources needed to bring a successful products liability case.

In addition, plaintiffs' attorneys also face pressure to "file first and seek settlement later." At the practical level, it often is difficult for products liability attorneys to label a case "weak" or "strong" for settlement purposes until the discovery associated with a filed lawsuit commences. Evidence in medical malpractice cases suggests that the discovery process supplies both sides with the information needed to evaluate the merits of a claim. Plaintiffs who learn that their cases are weak drop their claims and only rarely press to trial;[83] but it is often difficult for them to ascertain in advance of discovery the strength of their claim.[84]

These informed speculations find additional support in the limited available data. Kakalik and Pace studied compensation paid in tort litigation and compared it to tort compensation paid without litigation. Excluding automobile torts, they estimated the total compensation paid nationwide in 1985 in all tort claims, with and

83. Farber & White, *Medical Malpractice: An Empirical Examination of the Litigation Process*, 22 RAND J. ECON. 199, 201 (1991).

84. For a study suggesting that settlements in securities class actions do not reflect the merits, see Cooper-Alexander, *Do the Merits Matter? A Study of Settlements in Securities Class Actions*, 43 STAN. L. REV. 497 (1991). Much of Cooper-Alexander's analysis suggests that the reasons for the nonresponsiveness to the merits are peculiar to securities litigation. *Id.* at 524–68.

without lawsuits, to be $17.4 billion in 1984 dollars.[85] Of this amount, $13.4 billion, or 77 percent of the total, was paid in tort lawsuits. Metzloff estimates that only one-third of medical malpractice claims settle without a suit being filed.[86] Given these estimates of the relative sizes of lawsuit and non-lawsuit awards and claims, there probably is not room for the unobservable disputes to swamp the trends evident in observable disputes.

III. TRENDS IN THE SIZE OF PRODUCTS LIABILITY AWARDS

Fully assessing products liability trends requires studying the size of awards as well as success rates.[87] Awards, like filings and

85. J. KAKALIK & N. PACE, COSTS AND COMPENSATION PAID IN TORT LITIGATION 36 (1986) (Table 3.5). Kakalik and Pace note that two different methods of estimation of litigation payments yielded similar results. One method rested on insurance industry data; the other on individual lawsuit survey data. *Id.* at 35 (Table 3.4). Another estimate based on insurance industry data found that of claims in excess of $100,000 closed in 1985, only four percent of the claimants had not filed a lawsuit. L. SOULAR, A STUDY OF LARGE PRODUCT LIABILITY CLAIMS CLOSED IN 1985, at 1 (1986), *cited in* M. GALANTER, THE DEBASED DEBATE ON CIVIL JUSTICE, at 26 n.33 (Disputes Processing Research Program Working Paper No. 10–10, 1992).

86. Metzloff, *Researching Litigation: The Medical Malpractice Example*, 51 LAW & CONTEMP. PROBS., Autumn 1988, at 199, 219.

87. Much of the current products debate focuses on the size of recoveries. Reasons for the emphasis on award size go beyond the fact that the size of awards obviously matters in assessing a class of litigation. Many voicing concern about products liability seek and have obtained products liability reform in part by establishing in the public's mind a crisis atmosphere about the litigation system. *See infra* Part IV(D); Daniels, *The Question of Jury Competence and the Politics of Civil Justice Reform: Symbols, Rhetoric, and Agenda-Building*, 52 LAW & CONTEMP. PROBS., Autumn 1989, at 269. The crisis image requires jarring numbers and success rates; otherwise, these statistics just do not attract much attention. Since most successful cases end in settlement, there is no formal judgment to fold into a success rate calculation in most cases. And it will not grab many headlines to state that 50% (or perhaps even 80%) of products liability cases *settle*. Cases that do reach judgment supply even less numerical ammunition to fire at the products system. Only about 30% of tried cases result in plaintiffs' victories and in cases that reach judgment without trial, defendants prevail more often than plaintiffs. *See supra* Table 1. Again, these are hardly the kinds of numbers on which to base a call for massive reform.

Faced with success rate numbers that tell such a dull story, and also with decreasing filings, some reform proponents resort to other strategies. One is to simply state that success rates are higher than any reasonable reading of national data warrants. P. HUBER, LIABILITY: THE LEGAL REVOLUTION AND ITS CONSEQUENCES 10 (1988); W. OLSON, THE LITIGATION EXPLOSION: WHAT HAPPENED WHEN AMERICA UNLEASHED THE LAWSUIT 164–65 (noting large products trial awards but also noting that most cases of the kind discussed tend to lose), 173 (1991). *But see* Henderson & Eisenberg, *supra* note 1, at 481 n.7. A second is to rely on shocking anecdotes with high awards. Huber, *Junk Science in the Courtroom*, FORBES, July 8, 1991, at 68–69. Some of the principal anecdotes are of questionable accuracy. Daniels, *supra*, at 292–97; Hayden, *The Cultural Logic of A Political Crisis: Common Sense, Hegemony and the Great American Liability Insurance Famine of 1986*, in 11 STUDIES IN LAW, POLITICS, AND

success rates, respond to doctrinal change. Allowing or eliminating punitive damages, or capping damages, for example, should influence the distribution of awards. Moreover, as in the case of success rates, adjudicators' general receptivity to products liability cases should influence award levels.

But awards' movement in response to doctrine can only be a tendency subject to other, sometimes stronger, influences. Inflation or deflation, changes in the seriousness of injuries, improved techniques in establishing damages, and increasing or decreasing medical costs all may exert more powerful influences on national award trends than does legal doctrine. Thus, while success rates might be expected to respond in an observable manner to doctrinal change, award sizes are more likely to follow a path of their own, at least until the change is fully absorbed by plaintiffs and defendants.

Regardless of the path awards might be expected to follow, two problems plague prior data about products awards. First, the only national time series data relate to awards at trial, but most successful products cases are not resolved at trial. The two major sources of published data relied on to analyze trial awards are Jury Verdict Research, Inc. ("JVR")[88] studies of national data and ICJ studies of jury awards in California and Cook County, Illinois.[89] Impressions of trends in awards are largely shaped by the ICJ and JVR trial data.[90] Yet, as Table 1 reveals, almost 90 percent of federal prod-

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SOCIETY 95, 104–08 (A. Sarat & S. Silbey eds. 1991). Despite Daniels' public questioning of some anecdotes, some tort reform proponents have repeated the same anecdotes. P. HUBER, GALILEO'S REVENGE: JUNK SCIENCE IN THE COURTROOM 4 (1991) (psychic story); Huber, *supra*, at 68 (same); W. OLSON, *supra*, at 152–53 (same); W. VISCUSI, *supra* note 9, at 1 (same). Perhaps Daniels' analysis was unavailable to these authors at the time of their writing.

88. "JVR retrieves and analyzes information from our active database of over 150,000 personal injury cases throughout the United States." Jury Verdict Research, Inc. Sales Brochure 3 (1990). JVR data are said (by JVR) to be the most commonly cited source of information on American jury verdicts. *The Liability Insurance Crisis, Hearings Before the Subcommittee on Economic Stabilization of the House Committee on Banking, Finance and Urban Affairs*, 99th Cong. 2d Sess. (1986) (statement of Phillip J. Herman, Chairman of the Board, Jury Verdict Research Inc.); Broder, *Characteristics of Million Dollar Awards: Jury Verdicts and Final Disbursements*, 11 JUST. SYS. J. 349, 349 n.1 (1986).

89. *See* D. HENSLER, M. VAIANA, J. KAKALIK & M. PETERSON, TRENDS IN TORT LITIGATION: THE STORY BEHIND THE STATISTICS (1987) [hereinafter TRENDS]; M. PETERSON, CIVIL JURIES IN THE 1980S: TRENDS IN JURY TRIALS AND VERDICTS IN CALIFORNIA AND COOK COUNTY, ILLINOIS (1987).

90. *E.g.*, Tort Policy Working Group, U.S. Dep't of Justice, Report of the Tort Policy Working Group on the Causes, Extent, and Policy Implications of the Current Crisis in Insurance Availability and Affordability 38 (1986) (Chart E) [hereinafter "Working Group"]; W. VISCUSI, *supra* note 9, at 96; Broder, *supra* note 88; Daniels,

ucts cases terminate without a trial being commenced. Neither JVR nor ICJ offer systematic time series national data about pretrial products awards. Moreover, information that is reported about the relatively few cases that reach trial is biased in a manner that inflates the level of awards.

A. *Awards in Cases Not Tried*

Lack of data about pretrial award levels would not be troublesome if pretrial awards closely tracked trial awards, about which more is known. But awards in tried cases should be much higher than awards in cases resolved without trial. The increased expense added by trial leads parties to press to trial only in cases with relatively high stakes. Trials tend to result when the parties cannot agree on the expected return of the case; there is greater room for substantial disagreement over the expected return when the stakes are higher.[91]

Figure 5 shows, in 1989 dollars, the mean and median awards in products cases resolved without trial. Not surprisingly, the mean and median awards in cases not tried are almost always substantially lower than in tried cases.[92] For the twelve whole or partial calendar years for which Administrative Office data are available, the mean trial award is $1,143,000 and the mean pretrial award is

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supra note 87, at 297–304; Daniels & Martin, *Jury Verdicts and the "Crisis" in Civil Justice*, 11 JUST. SYS. J. 321, 324–328 (1986); Cohn, The Lawsuit Cha-Cha, NEWSWEEK, Aug. 26, 1991, at 58; Marcotte, *An Enigma Rapped in a Riddle?*, A.B.A. J., (1988) (citing ICJ data on Cook County and San Francisco jury verdicts).

91. An ICJ study of asbestos litigation found mean recoveries for tried cases of $255,000 with a median of $123,000. J. KAKALIK, P. EBENER, W. FELSTINER, G. HAGGSTRON & M. SHANLEY, VARIATION IN ASBESTOS LITIGATION COMPENSATION AND EXPENSES xvi (1984). The mean and median for cases not concluded by trial decreases slightly if one excludes cases in which a trial was not even commenced. The mean and median for cases closed before trial were $60,000 and $33,000 respectively. *Id.* at xvi. RAND's study of aviation accident litigation reports mean awards of $599,032 for cases closed after trial began and substantially lower amounts in cases resolved without trial. J. KAKALIK, E. KING, M. TRAYNOR, P. EBENER & L. PICUS, COSTS AND COMPENSATION PAID IN AVIATION ACCIDENT LITIGATION xii, 33–34 (Fig. 3.3), 52 (1988). The factors that lead to higher awards in tried cases are likely to apply to other products litigation as well as to asbestos and aviation litigation. Indeed, these factors probably apply to all litigation. *See* P. DANZON, *supra* note 75, at 41 (medical malpractice data); J. DERTOUZOUS, E. HOLLAND & P. EBENER, THE LEGAL AND ECONOMIC CONSEQUENCES OF WRONGFUL TERMINATION 25, 38, 40 (1988) (mean award in wrongful termination jury trials is $646,855, leading to actual payments of $307,628 after post-trial reductions; 95% of all wrongful termination cases settled for an average of $30,000).

92. *Compare* Figure 5 *with* Figure 6 *infra*.

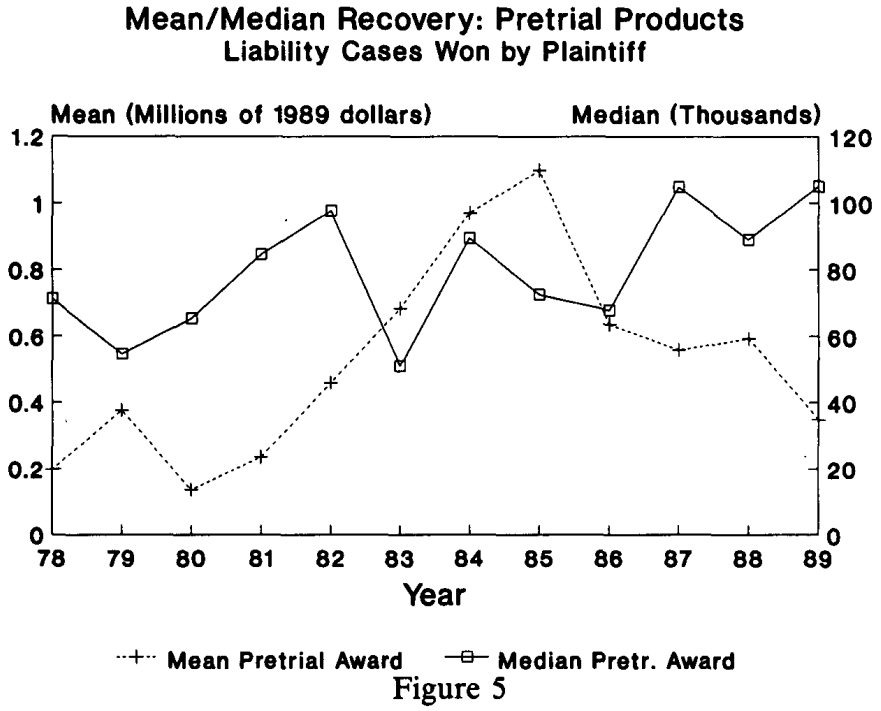

Figure 5

$549,000. The median trial award is $205,000 and the median pretrial award is $75,000.[93]

Not only does the level of pretrial awards undermine the common portrait of products awards, its trend also is surprising. The pretrial pattern of means divides into a period of increase from 1978 to 1985 and a period of decrease from 1985 to 1989. The level of pretrial awards for the most recent three years reported shows no real growth in mean pretrial awards since 1983, but much of the gain from 1978 to 1983 has been maintained. The pretrial median award trend shows a peak in 1982, that was only exceeded in 1987 and by the Administrative Office data covering six months of calendar year 1989. Any upward movement in the pretrial median line disappears if the effect on awards of one state, Texas, is taken into account,[94] or if medical inflation is considered.[95] No pattern of ever-increasing growth emerges in pretrial awards in the 1980s.

93. These calculations are not weighted by the number of cases per year. The data underlying Figure 5 are in the "All Pretrial Terminations" columns of Appendix A, Table A-5.

94. *See infra* note 131.

95. *See infra* text following note 152.

B. *Awards in Tried Cases*

More data have been available about the size of awards in tried products cases. These published data show striking growth. ICJ reports that the mean products liability award in San Francisco went from $51,000 in the early 1960s to $1,105,000 in the early 1980s and from $202,000 to $718,000 in Cook County. Median awards in San Francisco increased from $27,000 in the early 1960s to $200,000 in the early 1980s and from $69,000 in the early 1960s to $187,000 in the early 1980s.[96] JVR reports the average 1971 jury verdict to be $195,020 and the average 1989 products verdict to be $1,057,612. The median award rose from $71,500 in 1971 to $400,000 in 1989.[97]

JVR and ICJ thus both support the view that trial awards have been increasing over the long term. Our claim of a pro-defendant trend, however, focuses on the 1980s. The recent JVR data show little interesting growth. Only in 1983 and 1984 did mean products trial awards substantially exceed 1981 levels. Since 1984 they have declined.[98] From 1980-81 through 1989 there was no upward trend in JVR median trial products awards. Only two high years, 1984 and 1985, substantially exceeded the 1981 median award level.[99]

The Administrative Office products data provide more support for an increasing trial award trend than do the JVR data. Figure 6 shows, in 1989 dollars, the mean and median award in tried cases as reported by the Administrative Office.[100] The Administrative Office data show modest growth in mean trial awards from 1978 to 1983, a three-year period of strikingly high awards from 1984 to 1986, and

96. D. HENSLER, SUMMARY OF RESEARCH RESULTS ON PRODUCT LIABILITY 4, 5 (1986).

97. JVR figures used here for 1971 to 1980 are from W. VISCUSI, *supra* note 9, at 96 (Table 5.2). JVR figures used here for 1981 to 1989 are from JURY VERDICT RESEARCH, CURRENT AWARD TRENDS IN PERSONAL INJURY 31 (1991 ed.) [hereinafter JURY VERDICT RESEARCH]. The figures Viscusi reports for 1981 to 1988 sometimes differ from the figures in *id*. These dollar figures are in nominal, not 1989, dollars. The dominant ICJ and JVR trial data include only jury trials. M. PETERSON, *supra* note 89; JURY VERDICT RESEARCH, INC., HOW TO USE THE PERSONAL INJURY EVALUATION HANDBOOKS TO EVALUATE PERSONAL INJURY CASES, at page following table of contents (1991).

98. JURY VERDICT RESEARCH, *supra* note 97, at 31. The nominal dollar figures reported by JVR have been adjusted to 1989 dollars.

99. *Id*.

100. JVR estimates of mean awards are higher than the Administrative Office estimates from 1978 to 1983. Administrative Office estimates are higher in 1985 and 1986. The estimates are close to each other in 1984, 1987, 1988, and 1989. The difference between JVR and Administrative Office medians for the period 1979 to 1985 is striking, with the JVR median in most years differing by more than 100% of the Administrative

a sharp decline in 1987 (but with levels remaining noticeably higher than the mean awards during the pre-1984 period). The data on trial medians show growth from 1978 to 1980, a decline from 1980 to 1983, a "bubble" that corresponds to the bubble in mean trial awards from 1984 to 1986, and fluctuation at historically high levels in 1987, 1988, and 1989. We conclude that awards at trial have generally been increasing and, at least in federal court, have been increasing in the 1980s. The source of that increase is explored below.[101]

Unlike JVR, the ICJ trial studies do not contain individual year's results.[102] They aggregate the data into five-year periods. Only one five-year period overlaps with the available Administrative Office data: 1980 to 1984. ICJ's data are limited by their

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Office median. In 11 of the 12 years, JVR reports higher median awards than the Administrative Office data.

The higher JVR statistics are not surprising once one accounts for JVR's methodology. JVR publishes data only on jury trials, only reports on awards that it deems important, and does not take into account post-verdict reductions of awards. Broder, *supra* note 88; Daniels, *supra* note 87, at 301; Daniels & Martin, *supra* note 90, at 327; Galanter, *The Civil Jury as Regulator of the Litigation Process*, 1990 U. CHI. LEGAL F. 201, 236; Localio, *Variations on $962,258: The Misuse of Data on Medical Malpractice*, 13 L., MED. & HEALTH CARE 126 (1985); Zuckerman, Koller & Bovbjerg, *Information on Malpractice: A Review of Empirical Research on Major Policy Issues*, 49 LAW & CONTEMP. PROBS., Spring 1986, at 85, 90. Reliance on such data necessarily overestimates the true median and mean of trial awards. A study of JVR data in million-dollar products liability cases found the average award to be reduced 24% by courts after the verdict. Broder, *supra* note 88, at 355 (Table 4). *See also* M. SHANLEY & M. PETERSON, POSTTRIAL ADJUSTMENTS TO JURY AWARDS (1987); Marcus, *Few Large Jury Awards Survive Appeal*, Wall St. J., Jan. 28, 1991, at B3 (large awards often reduced). Since the Administrative Office data are filed at the end of the case in the district court, they should reflect post-trial award reductions ordered or agreed to before final judgement is entered, but not appellate reductions. Moreover, the degree of overestimation is probably greater than the raw numbers suggest. The Administrative Office data are limited to federal courts, which are generally believed to attract more than their share of "big" cases. Part of this is due to jurisdictional amount limitations, 28 U.S.C. § 1332 (1988), and part may be due to the logistics of getting to federal court. Data from a study comparing similar cases for a similar period in state and federal courts confirms the generally greater stakes of federal court cases. J. KAKALIK & N. PACE, *supra* note 85, at 93–95 (not limited to tried cases).

101. *See infra* Parts IV(B) IV(C). Interestingly, if one believes the JVR data on products trials to be representative, it is likely that products awards in state court trials declined in the 1980s. The Administrative Office data show increasing trial awards in federal courts in the 1980s. The JVR data, which include both federal and state trials, show no increasing award trend in the 1980s. Therefore, if one removed the federal trials from the JVR data it is likely that the remaining state court JVR cases would show declining trial awards during the 1980s. The longer term JVR trend, as noted in the text, does suggest an increasing awards trend.

102. This is probably because there are too few products cases in ICJ's yearly data to be meaningful.

source, California and Cook County jury verdict reporting services, a limitation that ICJ readily acknowledges.[103] The source not only limits the number of cases and geographical scope of the ICJ data, it also systematically excludes the relatively small, but nontrivial, number of cases tried before judges, which have lower mean and median awards in the products liability area than cases tried before juries.[104] Table 2 shows that the ICJ data for San Francisco and Cook County provide higher estimates of mean and median awards than the Administrative Office data provide for the nation. For comparative purposes, the Table includes the five-year figures from JVR as well, which show a median award more than twice the Administrative Office figure.[105]

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103. TRENDS, *supra* note 89, at 14.

104. Clermont & Eisenberg, *supra* note 32.

105. However careful ICJ and JVR researchers are in qualifying the implications of their limited data sources, the uniqueness of their data inevitably leads to generalization, by ICJ and others, of a national result. *See* Daniels, *supra* note 87, at 302–03 (describing tendency). Even the careful writer who properly qualifies the data cannot prevent the reader from remembering the handful of large numbers and not the qualifications. Conscientious qualifiers about numerical calculations may be dwarfed by full page ads in the Wall Street Journal, the New York Times, and other popular information sources. Indeed, the insurance industry has bombarded the media with such full-page and two-page advertisements about our flawed product liability system. *See infra* Part IV(D); NEW YORKER, Feb. 10, 1992, at 54–55; ATLANTIC, Apr. 1990, at 46–47; NEW YORKER, Mar. 26, 1990, at 54–55; U.S. NEWS & WORLD REP., Mar. 26, 1990, at 18–19; N.Y. Times, Mar. 26, 1991, at D9; Wall St. J., June 15, 1989, at A4–A5. High jury awards have been a special target of the campaign. *See* Daniels, *supra* note 87, at 286–91 (collecting advertisements).

The Administrative Office data offer advantages over other sources of data about award trends: they are not pre-screened for significant cases; the district court clerks are expected to report on the termination of every case filed; they are not limited geographically in that every federal district reports results; and they are not limited to tried cases.

Some cautionary notes are also appropriate. The Administrative Office data, like much of the other data relied on to assess trial awards, have not been validated. A field study of constitutional tort cases found cases with money recoveries that the Administrative Office data did not detect. Eisenberg & Schwab, *The Reality of Constitutional Tort Litigation*, 72 CORNELL L. REV. 641, 687 (1987). However, the field study showed that the Administrative Office data did reveal the same general patterns as the more detailed data and noted that the Administrative Office data do not systematically exclude cases. *Id.* In addition, the Administrative Office data are limited to federal courts and products liability awards in excess of $9,999,000 are trimmed to that figure. Such awards, however, are rare. *See* Clermont & Eisenberg, *supra* note 32.

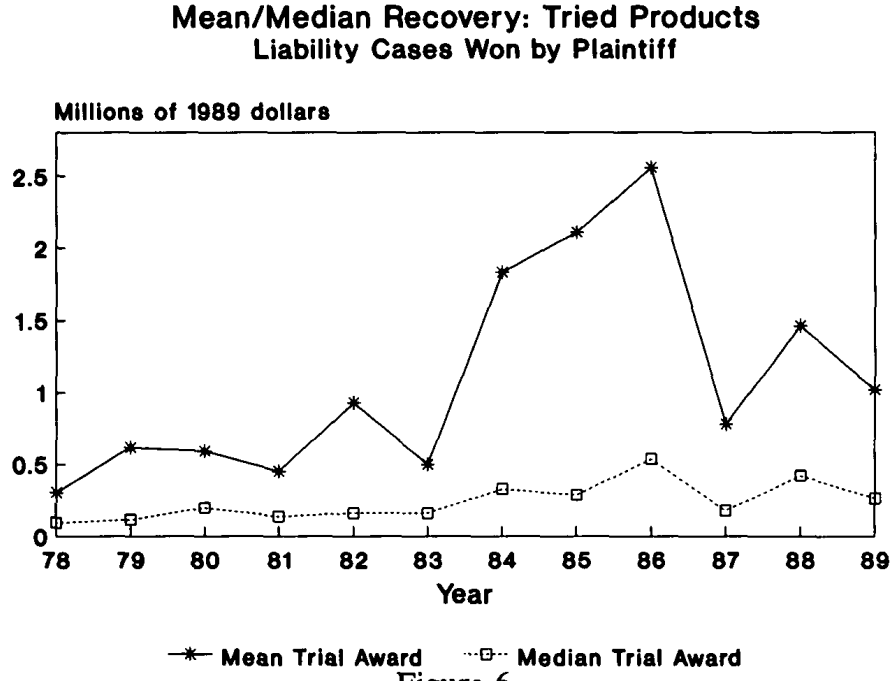

Figure 6

Table 2
Mean and Median Products Liability Awards at Trial 1980-1984, in Millions of 1989 Dollars

	Mean	*Median*
Administrative Office data	.858	.197
ICJ data—Cook County	.988	.223
ICJ data—San Francisco	1.319	.239
JVR data	1.267	.432

In summary, three features of the award trends stand out. First is the period of substantial growth in the early and mid-1980s in both pretrial and trial mean awards. Second is the peak in both mean and median awards in tried cases from 1984 to 1986. Third is the mixed performance of awards in cases resolved without trial. The mean pretrial award peaked in 1985 and has been largely in decline since. With the exception of 1989, median pretrial awards showed little steady growth during the 1980s; for much of the decade they declined. Considering that the vast majority of cases are not tried, the overall award patterns are more equivocal than some observers have suggested.

C. *Expected Returns and Sum of Awards*

Assessing the impact of products liability litigation is enhanced by measures that combine and transcend success rates, means, and medians. Expected returns combine the probability of a successful outcome with the mean award in successful cases; they thus measure what a hypothetical average victim can expect to recover. The sum of awards is important because it gives weight to the frequency of awards as well as their size; it thus measures the actual dollar drain (excluding defense costs) on businesses that pay products awards.

Figure 7, using the left-hand scale, shows the expected return for the "typical" federal products case filed in each year from 1978 through 1989. It shows increasing returns through 1985 followed by a sharp drop, with 1989 expected returns back at about the 1981 level.[106]

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106. To arrive at a single representative expected return amount for products cases, some assumptions are necessary. There are large differences in trial and pretrial awards, different numbers of cases terminate at and before trial, and our sample is more complete with respect to tried cases than it is with respect to cases not tried. We first construct an expected return for tried cases and for cases not tried. We then weight these expected returns by the relative frequency of tried and not-tried cases.

For cases that proceed to trial with known outcomes, combining success rates and awards is straightforward. One simply multiplies the year's mean award by the year's success rate to arrive at the expected return. For the relatively few tried cases with unknown outcomes, see Table 1 *supra* (known outcomes in 87.4% of trials), one may rely on the observed trial success rates and mean awards. More judgment is required to generate an expected return figure for cases that do not proceed to trial. Fortunately, the relevant results are not very sensitive to the assumptions made in calculating expected returns in such cases. For not-tried cases in which judgment is entered for plaintiff or defendant, observed success rates and means can be used. We assume a settlement in 60% of the cases that do not report a clear judgment. *See* Rottman, *supra* note 24, at 9. A settlement rate estimate of up to 80% might be supported. Eisenberg & Schwab, *Explaining Constitutional Tort Litigation: The Influence of the Attorney Fees Statute and the Government as Defendant*, 73 CORNELL L. REV. 719, 733 (1988) (Table IV) (showing settlement in 73% and success in 84% of a wide range of non-civil rights cases). Eighty percent is probably too high because we defined settlement and success generously to avoid understating the success of constitutional tort litigation. *Id.* at 726–27. The calculation can be done using the 80% settlement rate, without substantially affecting the shape of the time trend. A further refinement is to take into account plaintiffs' declining success rate in cases with known judgments by assuming a correlative declining success rate in cases without known judgments, as shown in Figures 1 and 2 *supra*. This, too, has little effect on the shape of the curve. We further assume that the observed mean award in not-tried cases with a known outcome is received in 60% of the not-tried cases lacking a known outcome. In other words, 40% of the cases filed with unknown outcomes are assumed to be dropped with no recovery. These figures,

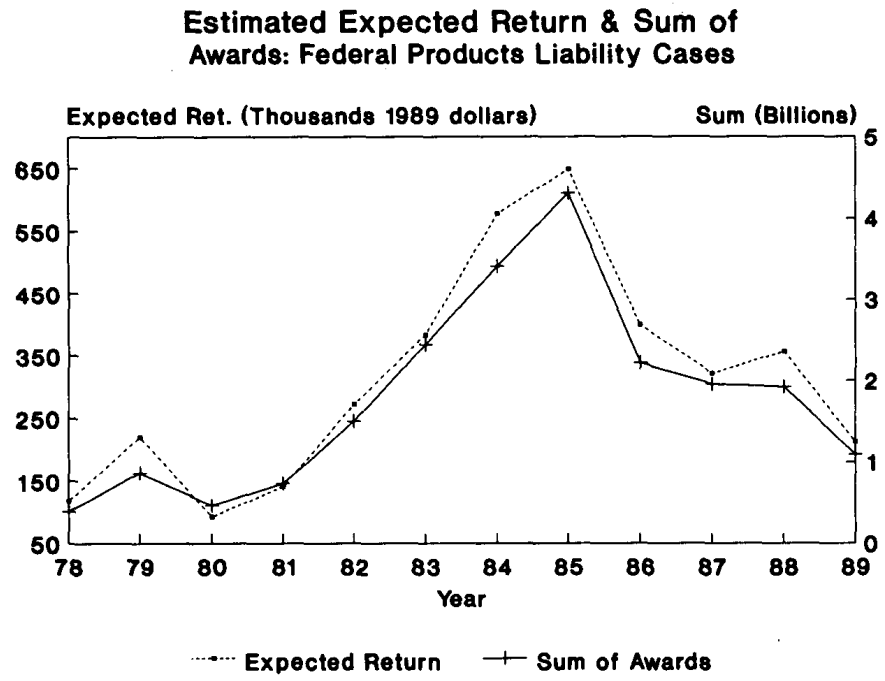

Figure 7

Regardless of the levels of awards and expected returns, for some purposes the total amount paid out in products awards is of interest. Awards that are few in number, even if high, may be of little social importance. Declining means accompanied by vast increases in the number of awards have different social implications.

The total of awards is the sum of all awards paid. As in the case of expected returns, constructing an aggregate figure—the sum of all awards paid out in a year—requires dealing with cases in which the award amount is not known. For tried cases with known judgments, we use the observed awards. For tried cases lacking either known judgments or known awards, we use the observed success rates and awards in tried cases with known awards. For pretrial cases, we assume an 80 percent settlement rate for cases with no clear judgment and use the pretrial mean award for cases with observed awards. Figure 7, using the right-hand scale, presents the results. Like the expected return line, it shows a peak in 1985 fol-

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adjusted to reflect the number of tried and not-tried cases, allow estimation of a single expected return amount for products cases.

For 1978 and 1989, data are available for only six months. We double the sum of awards for those two years. Alternatively, one could divide the data into six-month intervals. The time trends would look similar to those in Figure 7. The data underlying Figure 7 can be found in Appendix A, Table A-7.

lowed by a steady decline. The level of the sum of the awards is highly sensitive to the assumptions about the rate of settlement in pretrial cases. The shape of the time pattern is not sensitive to such assumptions and it is the shape of the curve, not its absolute position, that is important for our purposes.

D. *Summary of Products Success Indicators*

In light of our many measures of products cases' success over time, it is helpful to summarize the results. Table 3 divides the history of products liability into three periods. The first, from about 1965 to about 1979, is generally regarded as a period of near unrelenting growth and plaintiff success. Our data do not address this period. For present purposes, we adopt the accepted wisdom and assume that our products liability indicators would have favored plaintiffs. We leave open, as indicated by the question marks in Table 3, only the time-trend for success rates and comparison with other areas. For simplicity we are willing to ascribe pro-plaintiff movement there.

Around 1979, matters began to change. The success rate data since then have been uniformly negative; the mean award level in the bulk of cases, those resolved without trial, followed the earlier decline in median awards and has remained in decline since 1985. From 1985 to the time of the most recently available data, the products battle has been a slaughter. Filings began to plummet; success rates continued to fall. Most measures of awards—means, expected returns, and sums—are down. Medians are equivocal. Even the much relied-on breakthrough-case pattern[107] reversed itself in 1988. As noted in the *Quiet Revolution*, trends in other areas of law do not track the failing fortunes of products liability plaintiffs.[108]

Table 3 establishes the direction of change. Much of the disagreement about products plaintiffs' fortunes, however, concerns not the direction but the level of success. Even if the direction clearly has changed, are plaintiffs still relatively well-off from an historical perspective? This question depends on the historical period used as a point of reference. Products plaintiffs probably remain better off than they were before the mid-1960s, when modern products liability doctrine took hold. Nonetheless, the indicators strongly suggest that products plaintiffs are worse off today than they were in 1985.

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107. See *supra* note 79.

108. Henderson & Eisenberg, *supra* note 1, at 526–27, 528–29, 531–32. But the mean trial award trend, the most pro-plaintiff feature of the awards data, does track movement in other areas. Figure 15 *infra*.

Table 3
Indicators of Products Liability Case Success

Criteria	*1965-79*	*1979-85*	*1985-89*
Filings	+	+	+
GNP Adjusted Filings (excluding Bendectin & Dalkon Shield cases)	+	+ (—since '82)	—
Opinion Success Rate	?	—	—
Breakthrough Cases	+	+	— ('88 only)
District Court Success Rate	?	—	—
Awards: Mean Pretrial	+	+	—
Mean Trial	+	+	—
Median Pretrial	+	+ (—since '82)	?
Median Trial	+	+	— (since '86)
Sum of Awards	+	+	—
Expected Return	+	+	—
Compared with Other Areas	?	+ (since '82)	—

+ = pro-plaintiff, — = pro-defendant period

Whether products plaintiffs are better off today than they were in 1975 or 1980 is more difficult to measure. Most of the indicators suggest that the present levels correspond to about the 1981 level. The expected return across all products cases is close to its 1981 level. Nonasbestos products filings are close to their 1980 level. More specifically, the median pretrial award (except in 1989) is back at its 1981 level; the median trial award is somewhat above its 1981 level.[109] The mean trial award remains above its 1981 level, as does the mean pretrial award. However, the mean pretrial award is at about its level in 1986, 1983, and 1979. Unlike the trial mean, the pretrial mean shows no steady growth from 1979 to 1989. Finally, the 1989 estimated sum of federal products awards has fallen to its 1982 level.[110]

Regardless of which historical level products cases have declined to, the direction of products law is clear. Two more years of data show that the in-court trends we identified earlier have deepened and strengthened. They do not seem to be a consequence of changes in accident rates or propensities to sue. The relationships

109. Award levels would be pushed further back in time by using a medical cost inflator instead of the CPI.

110. Because some shift in the profile of the merits of cases is likely over time, the meaning of the declining success rate in reference to a specific year is more difficult to assess. Given the many indicators at about their 1981 levels, only a dramatic shift in the quality of filings could support the conclusion that products plaintiffs are better off today then they were a decade ago. Time trends in plaintiff's propensity to sue and accident rates, which could correlate with trends in the quality of filings, are discussed *supra* text accompanying notes 53–67.

between out-of-court settlements and in-court outcomes render the pro-plaintiff hypothesis practically absurd.

IV. EXPLAINING THE PRO-DEFENDANT TREND

Whether one believes that products plaintiffs' fortunes remain at all-time highs and only the rate of increase has changed, or that plaintiffs' fortunes are in decline when measured absolutely, clearly *something* changed in the 1980s. Exploring the possible sources of that change, however the change is characterized, is important. To the extent our data allow, this Part explores possible sources of change. Since these sources can be studied without definitively characterizing the change they explain, this analysis should be of interest whether or not one accepts all of our conclusions in Parts II and III. Readers may disagree about the nature of the change being explained and yet agree on its causes.

Although the data limitations preclude exploring every possible factor that might have meaningfully contributed to the observed change, the data do allow exploring several key factors. This Part explores these factors contributing to change, both at the district court and published opinion levels. It first analyzes success rates and then considers award trends. Tort reform legislation only partially explains the increased rate of defendant success. The sources of the most striking exception to the pro-defendant trend—the increase in trial awards—probably are not unique to the products liability system. With the most easily testable explanations for plaintiff success rates and awards proving to be of limited value, we then consider other potential explanations for the pro-defendant trends we have identified.

A. *Success Rates*

1. Local Influences

Geographical Patterns of Change

The *Quiet Revolution* and the preceding analysis present aggregate data for the entire country. However useful such data are in presenting a single picture, aggregation may distort reality. Products liability doctrine operates predominantly at the individual state level, rather than at the national level. In the day-to-day world of products liability practice, national data often may be less important than state level data.

State level data are directly relevant to our thesis in two ways. First, they may show that the pro-defendant trend originates in rel-

atively few states. However important these states may be, the implications of such a trend would differ from the implications of a truly national trend. Second, tracing the pro-defendant trend to a few important states could simplify the task of identifying the trend's sources. Perhaps a limited number of doctrinal changes in a few states could explain much of the overall pattern. Such an explanation seems particularly promising in light of Terrence Dungworth's finding that the bulk of products filings affect a relatively small percentage of businesses.[111]

Figures 8 and 9 present state-by-state results for the published opinion and federal district court data respectively.[112] For both data sets, we divide the cases by time period. The first period covers 1979 to 1984 and the second covers 1985 to 1989.[113] The figures show the difference in plaintiff success rates between the two periods. Published opinions show only thirteen of fifty-one jurisdictions with a difference favoring plaintiffs;[114] two jurisdictions show no difference; and thirty-six show a difference in success rates favoring defendants. At the district court level, Figure 9 shows nineteen jurisdictions with a pro-plaintiff trend, one with no difference, and thirty-one with a pro-defendant trend.[115]

Both data sets suggest that the pro-defendant success rate trend is not a local or regional phenomenon. A large majority of jurisdictions at both levels are part of the pro-defendant shift, though a few regions escape the overall trend. Only Delaware, Missouri, Nebraska, and North Dakota show pro-plaintiff movement in both the opinion and the district court data. In the opinion data, the New England states of Maine, Massachusetts, New Hampshire, and Rhode Island did not join the pro-defendant trend. The central states not favoring defendants—North Dakota, Nebraska, Kansas, and Missouri—may suggest a non-random pattern. In the district court data, a substantial region stretching west from Michigan and Indiana to a vertical line suggested by Montana, Wyoming, Colo-

111. T. DUNGWORTH, *supra* note 40, at vi, vii.

112. The data underlying Figures 8 and 9 are in Appendix A, Table A-8. Neither Alaska nor Hawaii, not displayed in the figures, have enough cases to influence the overall impression conveyed by the data.

113. We use two time periods instead of the annual time periods relied on for the aggregate national data because few states have enough opinions in each year to yield meaningful annual results. The cases are grouped on the basis of the law applied. Thus, federal cases applying state law are ascribed to the state whose law is being applied.

114. Jurisdictions with pro-plaintiff trends that do not show up clearly or are not included on the opinion map are Delaware, Hawaii, and Rhode Island.

115. Two jurisdictions with pro-plaintiff trends, Delaware and the District of Columbia, do not show up clearly on the district court map.

rado, Arizona, and New Mexico did not favor defendants. Perhaps states in this region moved less quickly to expand products liability doctrine before the 1980s, and therefore were less likely candidates for retraction in the 1980s. Even without this central region, the pro-defendant trend appears in New England, the Northeast, the Atlantic Coast, the Southeast, Texas, and the Northwest.

Any distortion introduced by using standard state sizes in the figures[116] understates the pervasiveness of the pro-defendant trend. For example, at the district court level, states that have not been part of the trend include Montana, North Dakota, South Dakota, Wyoming, Arizona, and New Mexico. These states are large in area but small in population. Maps that scaled states by population rather than by geographic size would show an even more strikingly national trend.

Tort Reform Statutes

The 1970s and 1980s were periods of substantial tort reform lobbying efforts, many of which resulted in state legislation. The reform movement effectively may have linked several states in a pattern not visible on the maps. It may be that the pattern of reform enactments, and not individual state results, helps explain the pro-defendant trend.

We constructed variables to reflect each state's reform activities. Reform statutes addressed many issues, several of which are relevant here. These include limits on recoveries for pain and suffering, modification of joint and several liability, limits on punitive damages, standards governing the award of punitive damages, standards governing liability, and procedural changes.[117] We initially subdivided tort reform statutes into those applicable to tort generally, those applicable primarily to products liability, and those primarily affecting damages.[118] We also created an aggregate reform category, which counted a state as a reform state if it had any tort reform provisions.

We further subdivided reform states on the basis of the effective date of their reform statutes. This separated states with reforms predating the period covered here from states with reforms

116. *See* M. MONMONIER, HOW TO LIE WITH MAPS 68–70, 94–96, 102, 137–38 (1991).

117. *See, e.g.*, Daniels, *supra* note 87, at 271–72.

118. Within the category of products reform statutes, we coded for three degrees of reform: mild, broad, and comprehensive. These gradations did not prove helpful in explaining the data.

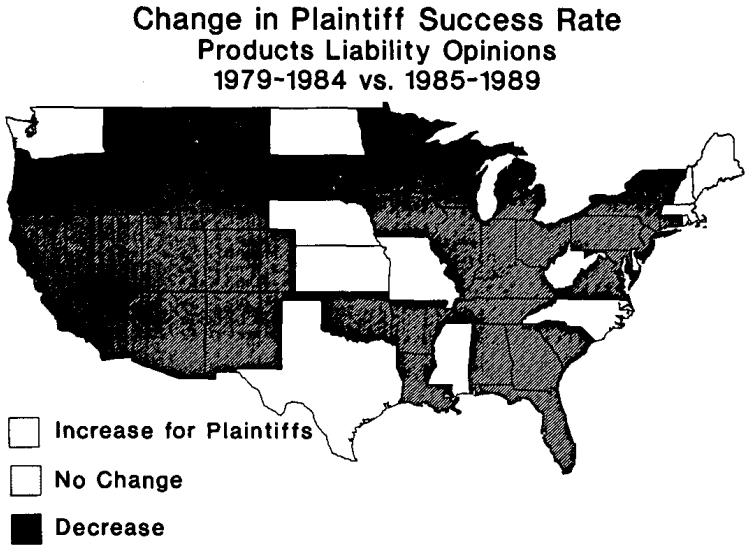

Figure 8

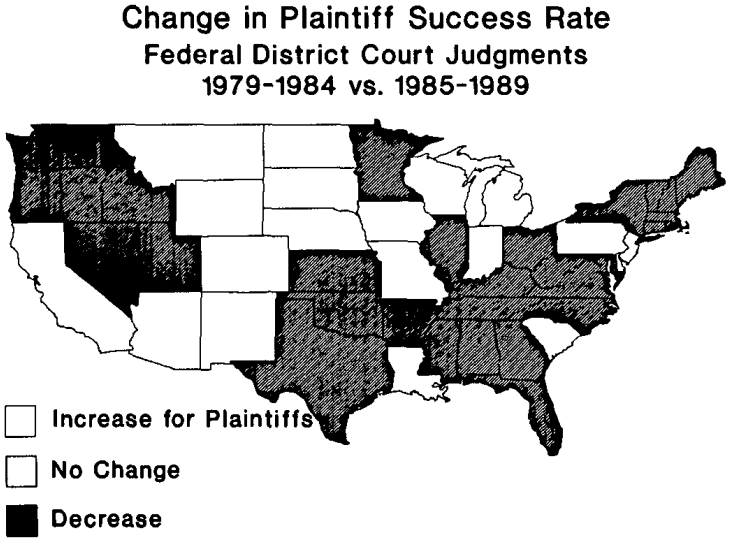

Figure 9

that took effect from 1979 to 1989. We thus in effect divided the country into three groups of states. One group consists of any state in which a reform statute was in effect prior to 1979, labeled "Reform Before." A second group of states enacted reform measures between 1979 and 1989 and is labeled "Reform During." The third

group of states has not enacted relevant tort reform measures and is labeled "No Reform."

Figure 10 shows the plaintiff success rate opinion trend for reform and non-reform states.[119] Two major findings emerge. First,

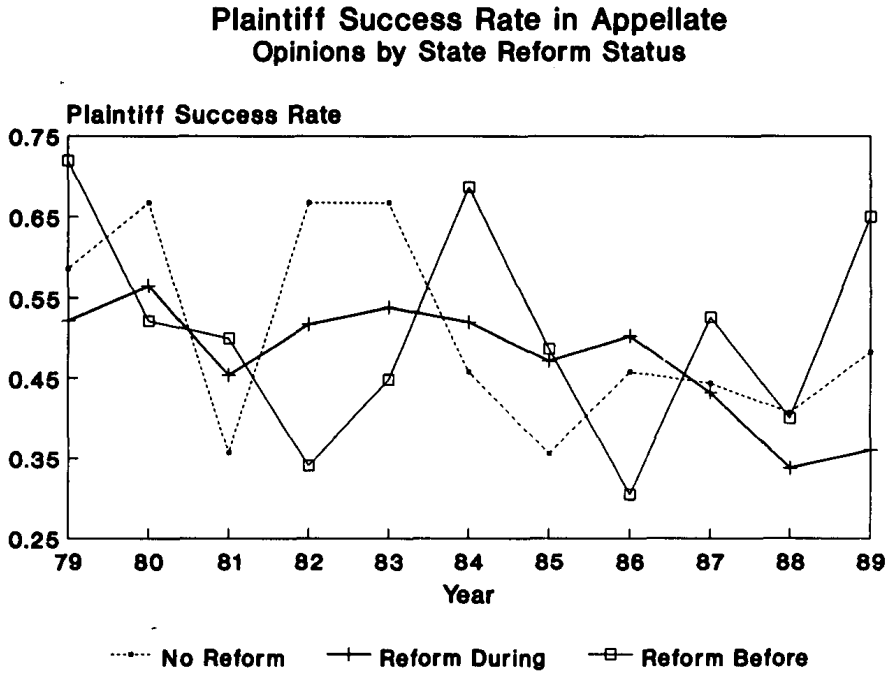

Figure 10

the sharp downward slope of both "No Reform" and "Reform During" states suggests that the pro-defendant opinion trend is not isolated to states in which reform was enacted during the relevant period. This may suggest that tort reform efforts, even in states that did not enact reform legislation, reduced plaintiff success rates. Second, states with tort reform in place before 1979 are not part of the pro-defendant opinion trend. This may suggest that the effects of reform efforts and reform statutes in "Reform Before" states occurred before 1979. The former finding strongly suggests that not all of the pro-defendant trend can be attributed to enactment of tort reform measures. This pattern of results may suggest that, for purposes of explaining the 1980s decline in plaintiff success rates, tort reform efforts are more important than the reforms themselves.

119. Figure 10 is limited to appellate opinions. The data underlying Figure 10 are in Appendix A, Table A-1. District court opinions also show a downward sloping success rate for plaintiffs. Appendix B, Table B-1.

Figure 11 presents analogous results for the federal district court data.[120] It suggests that tort reform had a greater impact on

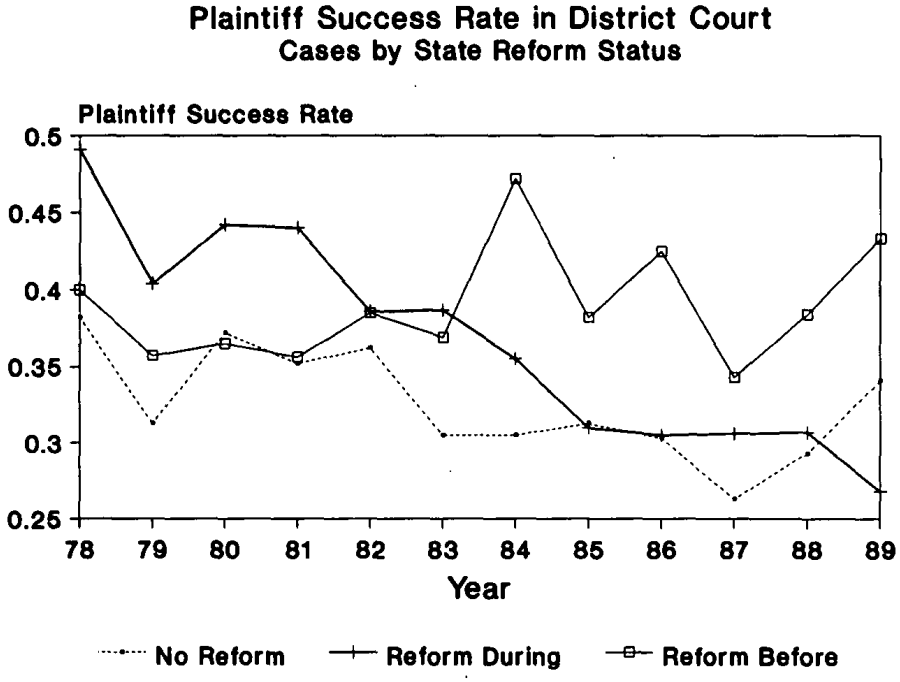

Figure 11

the mass of district court cases than on the highly filtered set of cases that lead to published opinions. From 1978 to 1983, plaintiffs enjoyed greater success in "Reform During" states than in "No Reform" states. Since 1985, their success rates have not differed substantially. For "Reform During" states, this rough equality in success rates occurs at levels well below the success rates during the 1978 to 1984 decline. For "No Reform" states, success rates declined from the period of 1982 to 1987 and have rebounded in 1988 and 1989. The "Reform Before" states are not part of the pro-defendant district court trend. At the district court level, more than at the appellate opinion level, enactment of reform measures helps explain declining plaintiff success rates.

In addition to separating reform states from non-reform states, we differentiate within "Reform During" states on the basis of the effective date of their reforms. Since reforms took effect in different states in different years, there is no single date that one can designate as dividing the country into pre-reform and post-reform peri-

120. The data underlying Figure 11 are in Appendix A, Table A-9.

ods. Within each "Reform During" state, however, one can identify a pre-reform and post-reform period by identifying the effective date of reform in that state.

Table 4 shows, within reform states, the plaintiff success rates before and after the effective dates of reform. The table is limited to

Table 4
Plaintiff Success Rates in Reform States
Before and After Effective Dates of Reform

Nature of Reform	*Before effective date*		*After effective date*	
Published Appellate Opinions	*N*	*Success rate*	*N*	*Success rate*
Products reform statutes	1,132	.48	777	.46
Tort reform statutes	1,622	.48	287	.40
Damages reform statutes	1,800	.47	109	39
District Court Outcomes				
Products reform statutes	4,146	.38	177	.32
Tort reform statutes	5,466	.37	453	.26
Damages reform statues	5,479	.36	440	.42

cases resolved in reform states, and it explores effects within them.[121] Reform statutes had their expected effect within reform states. In appellate opinions, Table 4 shows declines in success rates after the effective dates of each of the three kinds of reform statutes.[122] Federal district court cases show declining success after the effective dates of products and tort reform statutes, but increasing success rates after the effective date of damages reform statutes.[123]

These within-reform-state results support an explanation of the pro-defendant trend as partially resulting from reform legislation. Reform measures, at least in the short run, might well be expected to affect success rates. But as Figures 10 and 11 suggest, the trend on appeal and, for much of the 1980s, at the district court level, is not attributable solely to activity in reform states.

2. The Effect of Product Type

Reform movements help explain, but fail to explain completely, the pro-defendant trend. Moreover, we detect no definitive geographical patterns in the data. Might certain major product categories be responsible for the shift in decisional trends? To account for product categories in the published opinion data, we divided

121. Cases from states that enacted more than one kind of reform statute appear more than once in the table.

122. Although the three kinds of reform statutes have effects in the expected direction, only the tort reform statute effect is significant at the .05 level.

123. All of the district court effects are significant beyond the .01 level.

products into twenty-one major categories. To see whether certain product categories disproportionately influence the pro-defendant trend, we again divided the data into two time periods: 1979 to 1984, and 1985 to 1989. Each product category has a success rate in each of the two time periods.

The results, presented in the Appendix,[124] again show the near-universality of the pro-defendant movement in success rates. The pro-defendant trend could not have been the consequence of a few products categories. Nearly every major products category shows a positive success rate difference. In categories of substantial size, only toxics and tools failed to result in greater subsequent defendant success rates.[125]

At the district court level, where the Administrative Office data support only four products categories, the story is similar. Each category experienced declining success from the earlier period to the later period. As at the appellate level, we find no evidence that the pro-defendant trend can be tied to specific product categories.

3. Multivariate Analysis

The preceding analyses of statewide effects, tort reform statutes, and product categories consider these factors in isolation of each other. One possible concern is that these factors may combine in ways that cannot be observed through such separate analysis. For example, perhaps most of the product category effects occur in one or a few states. These considerations support using multivariate analysis in which the effects of several factors can be considered simultaneously. Such analysis can test the effect of statewide effects, tort reform, and product type on the outcome of opinion and district court cases. The results of the multivariate analysis, presented in Appendix B, confirm the influences of each factor in isolation. Most importantly, both the appellate opinions

124. Appendix A, Table A-10.

125. Searching for patterns that might explain why some categories led others by substantial margins, the following is offered as a possibility. One would expect that categories of products that led the expansionary movement in the earlier, pro-plaintiff era, would lead other categories in the opposite direction when the shift in decisional trends came. Having gone furthest *for* plaintiffs before the 1980s, these product categories would have the furthest to come back when change occurred. Conversely, categories that never participated much in the pro-plaintiff surge earlier might not participate so robustly in the pro-defendant surge later. We do not have the data to test this hypothesis.

and the district court results show strong time trends favoring defendants, even controlling for the three factors discussed above.

B. *Awards Trends*

Success rates display a sufficiently uniform trend in both opinion and district court cases to support the conclusion that we are witnessing a nationwide, transcategorical pro-defendant trend. The time patterns of awards are less uniform, even though the data are limited to a single source, federal district court cases.[126] The awards trends differ depending on whether one looks at tried cases or cases resolved without trial. In each of these two categories, mean awards trends differ from median awards trends. Even focusing on a single procedural stage (pretrial or after trial) and measure (mean or median) leaves something less than a uniform trend. Mean pretrial and trial awards both show substantial growth through the mid-1980s, followed by substantial declines thereafter. Of these many trends we explore the sources of three as especially important: (1) the generally upward trend in both mean and median trial awards,[127] (2) the exceptionally large mean trial awards from 1984 to 1986,[128] and (3) the rise and fall of mean pretrial awards, with a peak in 1985.[129]

Since all of the earlier figures show amounts in 1989 dollars, an inflation adjustment is already included. The growth in awards is real growth, at least relative to the consumer price index. We first consider the factors studied with respect to success rate trends: geography, reform status and product-type. We then explore, in the next section, other sources of awards growth worth that are inapplicable to success rates; these include (1) a possible increasing tendency of juries to visit windfalls upon products plaintiffs; (2) the need to provide greater awards because plaintiffs' real losses increased; and (3) improved methods of convincing fact-finders to increase awards.

1. Local Influences

The Geographical Pattern of Change

126. Since a small fraction of products cases are appealed, and only a subset of those reliably report award amounts, award trends should be studied primarily through the district court data.

127. Figure 6 *supra*.

128. *Id.*

129. Figure 5 *supra*.

The interesting movements in awards, like the pro-defendant success rate trend, have been national. The 1985 peak in pretrial mean awards occurred in the middle of the period of general increase in mean trial awards. To explore the national scope of this movement in mean trial and pretrial awards, we again divide the time line into two periods: one before 1984 and after 1986, and the other from 1984 to 1986. This discontinuous division isolates the years of highest mean trial and pretrial awards—the bubble—from the rest of the period studied. The bubble is a national, not local, phenomenon: of forty-eight jurisdictions[130] reporting any awards during both the bubble and non-bubble periods, thirty-six (seventy-five percent) show higher mean awards during the bubble period; and of the thirty jurisdictions reporting ten or more awards during both periods, twenty-four (eighty percent) show higher mean awards during the bubble. Similarly, the growth in mean trial awards shows that the vast majority of states had higher mean and median awards from 1985 to 1989 than from 1979 to 1984. No single state or small group of states explains either the general upward trend in trial mean and median awards, or the increases and decreases in pretrial and trial mean awards.[131]

Reform Statutes

Awards trends are largely independent of statutory reform patterns. As when analyzing success rate trends, we divide the country into three groups of states: (1) any state in which a reform statute was in effect prior to 1979; (2) states that enacted reform measures between 1979 and 1989; and (3) states that have not enacted relevant tort reform measures. One might expect the growth in awards to have been dampened in reform states more than in other states. Figures 12 and 13 present the results for the mean pretrial and trial awards.[132]

Figure 12 shows that mean pretrial awards peaked in all three groups of states either in 1985 or from 1984 to 1986. Jurisdictions enacting reform statutes from 1979 to 1989 had a lower peak but they followed the overall trend. When mean awards declined, they

130. We include a total of 51 jurisdictions: the states plus the District of Columbia.

131. One aspect of the median pretrial award trend does have a geographical component. Although there is no noticeable decade-long trend in median pretrial awards, Figure 5 does show a period of high median pretrial awards from 1987 to 1989. This brief plateau disappears if one removes awards reported from Texas. Texas federal district courts report by far the most awards. Of 3,483 awards reported from 1978 to 1989, 642 are from Texas.

132. The data underlying Figures 12 and 13 are in Appendix A, Tables A-5 and A-6.

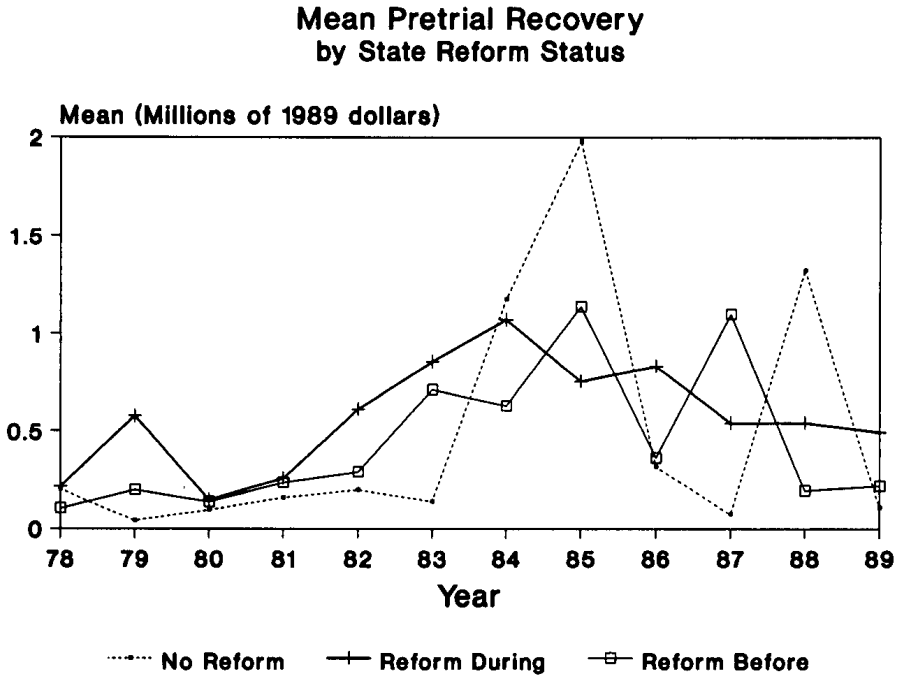

Figure 12

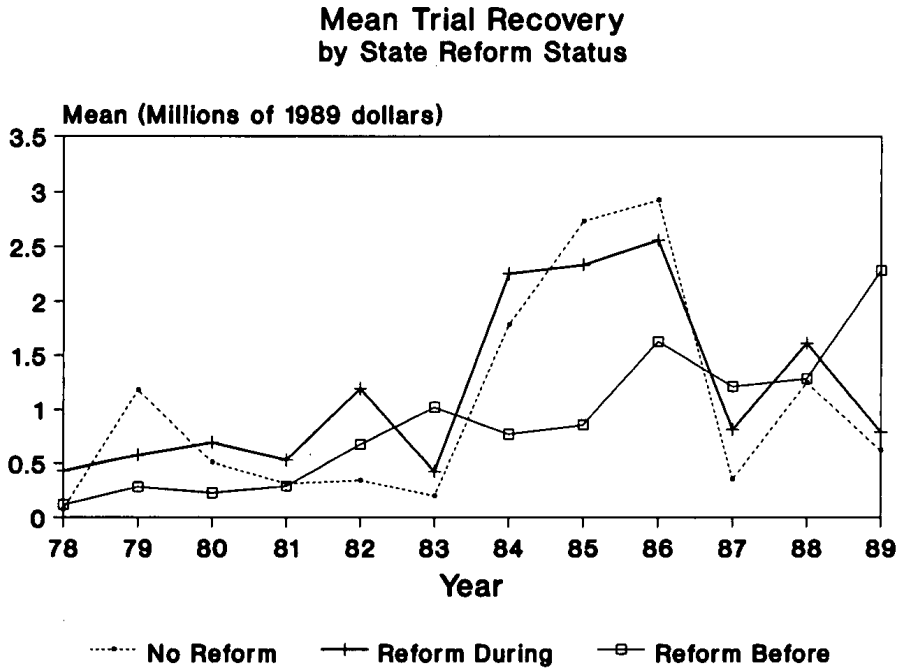

Figure 13

did so in all three state groups. Much of the added volatility in the other two groups of states is probably attributable to the smaller number of cases comprising their samples.

Figure 13 shows that the 1984 to 1986 peak in mean trial awards (followed by a decline, but still remaining at historically high levels) occurred both in jurisdictions with reform statutes enacted from 1979 to 1989 and in jurisdictions with no reform statutes at all. Jurisdictions that already had reform statutes in place showed steady growth throughout the decade. Neither the peaks in mean trial awards nor the peak in mean pretrial awards can be tied to reform legislation.

Without presenting graphical evidence, we report that similar results obtain for pretrial and trial median awards. Median pretial awards in all three groups of states show no noticeable trend, and trial medians in all three show a decade-long increase.

An alternative method of analyzing awards data would be to divide the states into groups based on whether they had a specific type of reform statute: one that focused on damages. Here, too, there is little evidence that reform movements underlie the observed trends. Such analysis makes even clearer than do Figures 12 and 13 that states enacting reform statutes tend to be states with higher awards than states without reform statutes. Perhaps the highest award states felt the greatest need for reform. However, states with reform statutes show a post-reform decline in award levels that is no more striking than states with no reform statutes. On the whole, reform statutes help explain the award trend less than they explained the success rate trend.

2. The Effect of Product Type

The small number of Administrative Office product type categories—four—limits our ability to tie damage trends to specific products. Moreover, the general residual Administrative Office products category, "Other," is so numerically dominant[133] that it tends to swamp any effect in the other categories. A plot of award trends by product category shows that the trend in the dominant "Other" category remains even when separating out the effects of airplane, marine, and motor vehicle products cases. Airplane cases,

133. *E.g.*, ADMINISTRATIVE OFFICE OF THE U.S. COURTS, ANNUAL REPORT OF THE DIRECTOR (1990).

usually involving death or serious physical injury, tend to have the highest awards.[134]

3. Multivariate Analysis

As in the case of the success rate analysis, multivariate regression analysis considers, simultaneously, the effects of jurisdiction, reform status, and product type. This analysis confirms the effects of these factors in isolation from one another. Even controlling for product type and for time, states with reform statutes display higher awards than states without reform statutes. Controlling for reform status and for time, airplane products cases have higher awards than other products cases. Moreover, the central time trend in awards, with the peak in 1984 to 1986, survives for reform status and for product type.[135]

C. *Further Explanations of Award Trends*

One result worth pursuing further is the steady increase in the mean and median trial award for much of the 1980s. Increasing trial awards often are relied on to document the claim of pro-plaintiff movement in products law. Even after the 1984 to 1986 bubble burst, mean trial awards declined to historically high levels and median trial awards showed fairly steady growth. Prior claims of such an increase have, understandably, been challenged on the ground that the data were questionable or too narrow;[136] but the decade-long, nation-wide data presented here, with positive trial awards reported for 1,580 cases, confirm that an increase in trial awards did occur. What other factors might explain the steady growth in mean trial awards? As noted above, major influences on damages often have little to do with the legal decisionmaker. Inflation, increasingly persuasive methods of proof, and rising medical costs are all strong candidates for shaping award trends. Before considering them, however, one prominent feature of the award system should be explored: juries.

1. Juries' Increasing Generosity

One explanation for increasing trial awards is that uncontrolled juries have gone wild. Commentators and critics often identify the jury as one possible explanation for many features of the

134. Appendix B, Table B-3.
135. *Id.*
136. *See* Daniels, *supra* note 87, at 297.

tort system.[137] Even when pretrial awards settled down after 1985, trial awards continued at relatively high levels.[138] Given the award trends, increasingly pro-plaintiff jury behavior becomes a plausible source of award increases.

But two problems arise in attributing increased trial awards to juries. First, serious studies of jury awards find them not to be excessive or irrational; in particular, juries have not been found to be overly generous on awards.[139] For example, the General Accounting Office's study of products liability in five states found that damage awards were not erratic or excessive, and that compensatory awards were strongly associated with injury severity and the amount of economic loss.[140] Detailed studies of medical malpractice cases do not support depicting the jury as out of control on either liability or damages.[141]

Second, attributing the time trend to juries requires explaining why the trend in jury-trial products awards is very similar to the pattern in judge-trial products awards.[142] Figure 14 shows the mean products trial award broken down by judge trial and jury trial. The trends are similar.[143]

Thus, if juries have gone crazy, they (or the factors affecting them) have infected judges as well. Perhaps judges respond to ju-

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137. *E.g.*, Copulos, *The American Consumer Pays Dearly for the Liability Insurance Crisis*, HERITAGE FOUND. REP. (June 30, 1986) (high jury awards push up the price of insurance liability premiums), *available in* LEXIS, Nexis library, Archive file; Litan, *The Safety and Innovation Effects of U.S. Liability Law*, in AMERICAN ECONOMIC ASS'N PAPERS AND PROC. 59, 63 (May 1991) (attributing differences in products liability suit and award patterns between U.S. and other countries to the existence of jury trials in the U.S.); *see* Daniels, *supra* note 87.

138. Figures 5 and 6 *supra*.

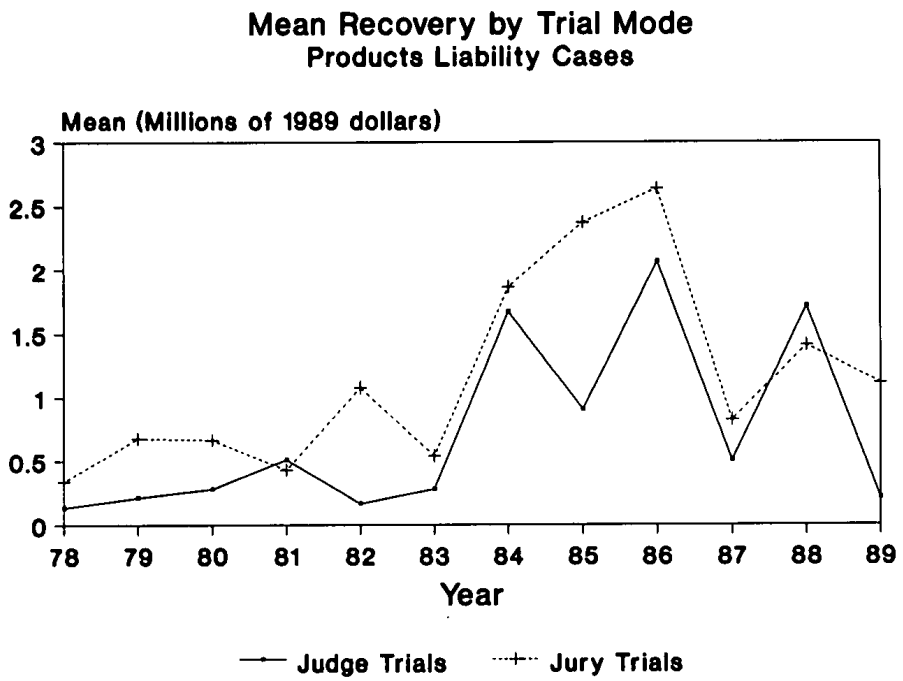
139. J. GUINTHER, THE JURY IN AMERICA xiii–xiv (1988); Greene, *On Juries and Damage Awards: The Process of Decisionmaking*, LAW & CONTEMP. PROBS., Autumn 1989, at 225, 246; Daniels & Martin, *supra* note 90, at 325–26, 347–48.

140. U.S. GENERAL ACCOUNTING OFFICE, REPORT TO THE CHAIRMAN, SUBCOMMITTEE ON COMMERCE, CONSUMER PROTECTION, AND COMPETITIVENESS, COMMITTEE ON ENERGY AND COMMERCE, HOUSE OF REPRESENTATIVES, PRODUCT LIABILITY: VERDICTS AND CASE RESOLUTION IN FIVE STATES (Sept. 1989); Galanter, *supra* note 100, at 245.

141. P. DANZON, *supra* note 75, at 42; Metzloff, *Resolving Malpractice Disputes: Imaging the Jury's Shadow*, LAW & CONTEMP. PROBS., Winter 1991, at 43.

142. Clermont & Eisenberg, *supra* note 32.

143. The data underlying Figure 14 are in Appendix A, Table A-11. The tendency towards higher awards in jury trials, as shown in Figure 14, probably results from higher stakes cases being routed to juries. Clermont & Eisenberg, *supra* note 32. Figure 14 is similar to Figure 3 in *id.*, but with a noticeably lower mean award in judge trials in 1985. The class of products cases included in Figure 14 differs from the class of products cases in *id*. The present study is limited to personal-injury products cases. The other study was not so limited. *See id*.



ries' awards so that juries effectively set the "going rate" for damages. However, the wilder and more erratic one believes jury behavior to have been, the less likely it is that the presumably more sober judges could have been swept up in the frenzy. Given that case studies fail to show that juries are in an award frenzy, it would seem that factors other than hysteria influenced both judge and jury to be more generous with awards. In addition, Viscusi's study of products law concludes that juror excess is an unlikely source of trial award growth over time.[144]

2. New Standards and Methods of Proof

If increasing generosity of juries is not a strong candidate for explaining trial award growth, factors that might, and perhaps should, influence juries may provide greater insight. American expectations about how products and technology should perform probably have increased.[145] Moreover, the plaintiffs' bar has become much more sophisticated in suing corporations. RAND's ICJ director states that specific areas of recent improvement include:

> greater sharing of information about cases, the use of computerized networks to disseminate successful arguments, the growth of

144. W. VISCUSI, *supra* note 9, at 243 n.17 ("Overall, there is little evidence that increases in award levels reflect increased generosity by juries.").

145. Mullen, *supra* note 64, at 1 (comments of Marc Galanter).

specialized practices and experts and the development of complex economic analyses for calculating plaintiffs' losses.[146]

Techniques of proving intangible elements of recovery such as pain and suffering, a large component of many large products awards,[147] probably have improved over time as well.[148]

3. Medical Expense Inflation

Not only have methods of proof changed, the dominant component of awards has soared. Medical costs are the major component of awards in the serious products liability cases likely to reach trial or likely to result in large pretrial settlements.[149] The more serious the injury, the higher the medical costs, and the higher the plaintiffs' recovery.[150] The consumer price index ("CPI"), which is often used to control for general inflation over time, inadequately controls for modern medical expense inflation.[151]

Medical expense inflation has two effects on award levels. First, one might monitor the real products recoveries by using a medical expense inflator rather than, as we have done, the CPI inflator geared toward more general and modest inflationary trends. Medical inflation undoubtedly contributes to the real growth in awards.[152] Analyzing the awards data using a medical inflator rather than the CPI would eliminate any hint of an upward trend in median pretrial awards; but it makes little difference in the trial trends described above using the CPI.[153] The real growth in trial awards exceeds growing medical costs.

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146. McCarthy, *supra* note 59.

147. W. VISCUSI, *supra* note 9, at 104.

148. *E.g.*, J. HENDERSON & R. PEARSON, THE TORTS PROCESS 235–45 (3d ed. 1988). The March 1991 issue of Trial magazine, devoted to the general topic of proving damages, contained articles entitled "Videotape Evidence: Show Me, Don't Tell Me," "ABCs of Psychological Injury Case," and "Establishing Emotional Damages for Children." TRIAL, Mar. 1991, at 52, 22, 35.

149. J. HENDERSON & R. PEARSON, *supra* note 148, at 97.

150. *Cf.* P. DANZON, *supra* note 75, at 40 (higher economic loss corresponds to higher awards in medical malpractice cases). Higher medical expenses may also lead to higher awards for non-medical damages.

151. W. VISCUSI, *supra* note 9, at 97.

152. "Medical price inflation, not runaway juries, is the principal source of escalation." *Id.* at 243 n.17.

153. If one inflates 100% of awards by medical expenses, there is a noteworthy change in the median trial award curve. The 1984-1986 bubble survives but the post-1986 decline no longer remains at historically high levels. In fact, median awards in the 1987-1989 period then become lower than median awards dating back to 1980-1983. Much of this effect disappears if one applies a medical expense inflator to only 50% of the award and a CPI inflator to the other 50% of the award, reflecting the fact that medical expenses are a major part of awards but not the whole award.

Medical cost inflation's second effect is potentially more volatile. In cases involving serious disabling injuries, awards needed to make plaintiffs whole must reflect not only current medical inflation but must also project medical inflation into the future. If medical inflation this year is two percent higher than general inflation, and if one expects medical expenses to continue to grow by more than general expenses into the indefinite future, then skyrocketing amounts are needed in present dollars to compensate long-term disabled plaintiffs.[154] For example, using medical cost increases and an underlying rate of inflation based on three-month treasury bills, Viscusi states, "the present value over a thirty-year period of $1 in medical expenses in 1971 dollars rose from $40.70 in 1971 to $122.60 in 1987."[155] This effect undoubtedly would make plaintiffs' already mixed success in obtaining higher pretrial awards over time look even more anemic. However, even this factor cannot completely explain the 1980s growth in mean trial awards.[156]

4. Award Trends in Other Areas

Although unable to quantify our belief, we suspect that improved methods of proof and increased medical costs explain the most striking features of trial award growth. However, we hesitate to press too hard for deep explanations of trial award trends peculiar to products liability because the most notable features of the awards—that they peaked in 1984 to 1986 in tried cases and subsequently declined—are not unique to products cases. This is illustrated by Figure 15, which shows the mean trial award for products cases, together with the ratio of that mean in each year to the mean award in two other major areas, contract cases and general personal-injury cases.[157] The flatness of the ratio lines—indeed, they decline relative to the late 1970s—suggests much the same movement in mean awards in both contract and general personal injury cases as in products cases.

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154. *See* W. VISCUSI, *supra* note 9, at 99; Gamboa & Hanak, *Catastrophic Injuries, Catastrophic Costs: The Life Care Plan*, TRIAL, Mar. 1991, at 59.

155. W. VISCUSI, *supra* note 9, at 99.

156. We tried the calculation assuming a 30-year disability and a baseline trial award consisting of the 3-year average trial award from 1978 to 1980. The 3-year average was multiplied in each year by a factor to reflect both medical inflation and projected medical inflation based on that year's medical inflation. Even applying a 30-year horizon medical inflator to 100% of the award would not lead to growth in mean trial awards as great as that shown in Figure 6.

157. The data underlying Figure 15 are in Appendix A, Table A-11. *See also* Galanter, *Law Abounding: Legalisation Around the North Atlantic*, 55 MODERN L. REV. 1, 10–11 n.80 (1992) (long-term trial award trends in contract cases have increased).

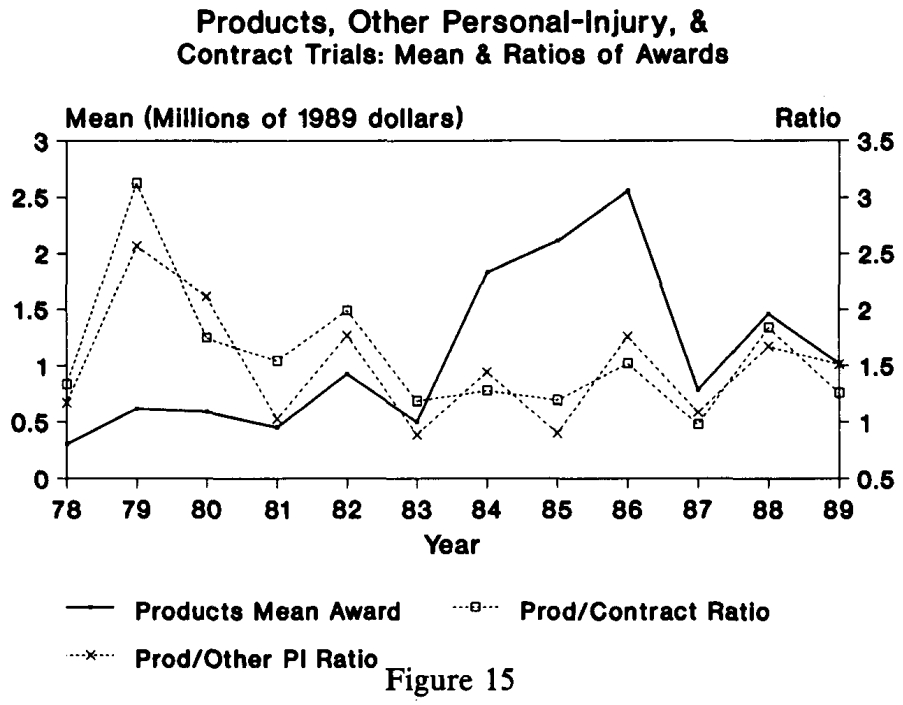

Figure 15

Some of these trends may result from common factors. General personal injury awards probably move in response to the same forces that shape products liability award trends: medical inflation, improved methods of proof, and a possibly changing profile of injuries.[158] Those who believe that the entire tort system, and not just its product liability component, is out of control may find that these data reinforce their views. It is more difficult to envision a common source for both the contract and the tort award patterns. Perhaps these patterns merely reflect larger economic patterns that transcend the litigation system: the sharp decline in trial awards in 1987 only slightly precedes the stock market crash of 1987.

D. *More General Causes of the Pro-Defendant Trend*

Even if improvements in proof and escalations in medical costs are the major sources of the upward trend in trial awards, the major story in our data—the steadily declining success rates, the level median pretrial awards, and the post-1985 declines in awards, expected returns, and sums of awards—remains at least partly unexplained.

158. Nonetheless, there is evidence that similar injuries lead to an award premium in products liability and medical malpractice cases that is greater than the award in general personal injury cases. M. PETERSON, COMPENSATION OF INJURIES: CIVIL JURY VERDICTS IN COOK COUNTY 35–36 (1984).

The state-by-state results, the analysis of product categories, and the influence of tort reform statutes do not fully explain these trends. Sources of the *increase* in mean trial awards do not come close to explaining the larger pro-defendant trend. This section moves beyond these factors to other possible, and sometimes less quantifiable, influences on products liability.[159]

One interpretation of the failure to detect a smoking-gun cause of the decline is that the shift in attitude was so deep and widespread as to defy one's ability to isolate a single variable or set of quantifiable variables to explain it. Another is simply that what goes up must come down: plaintiffs did so well in products cases in the 1960s and 1970s that decline was inevitable; there was no room left for improvement. Both of these explanations are plausible. If one believes them to be incomplete, are there explanations for our hypothesized massive shift in judicial attitude?[160]

1. The Reagan Judges

In conversations with colleagues about possible causes of the pro-defendant trend, one explanation frequently mentioned is the growing influence of President Reagan's judicial appointees.[161] Most of our data are within the period of the Reagan presidency, and much of our opinion data are from federal courts. To the extent this Reagan-effect is a proxy for possibly growing conservatism in America during the 1980's, it is a plausible, though largely untestable, explanation for the pro-defendant trend. If the Reagan-effect is asserted as a more specific cause of the trend—that Reagan judicial appointees caused the trend—we think the explanation falters for two reasons.

First, although our district court non-opinion data are all federal, the published opinion data are dominated by state court opinions. The trend in state appellate opinions is very similar to the

159. One line of reasoning could tie the increase in trial awards to declining success rates. It may be that decreasing success rates forced products plaintiffs to choose to press to trial only claims with higher damages prospects. As one loses more cases, one needs bigger victories to make up for the losses. Moreover, products liability trials do display an inverse relationship between the amount demanded in the complaint and the likelihood of success. *See* Clermont & Eisenberg, *supra* note 32. Even accepting this tendency, the dominant downward trend in plaintiffs fortunes needs further explanation.

160. On the possibility of increased safety leading to lower plaintiff success rates, see Henderson & Eisenberg, *supra* note 1, at 524 and accompanying notes.

161. *See also* Schwartz, *The Beginning and the Possible End of the Rise of Modern American Tort Law*, 26 GA. L. REV. (1992) (forthcoming).

trend in federal appellate opinions.[162] To the extent appellate judges shape the law, the growing influence of Reagan's federal appellate appointees has not led the pro-defendant trend. It seems more likely that the federal district court judges responded to stated changes in legal doctrine, and that the pro-defendant thrust of those changes comes from state judges with no direct connection to Reagan.

Second, the litmus test issues for Reagan judges have been public law issues such as abortion, civil rights, and affirmative action.[163] Potential appointees' views of state products liability law have not been mentioned as a prominent feature of any president's judicial selection process. Although appointees with conservative views on public law issues might be expected to be hostile to products liability, the subordinate role of products liability in the selection process might not produce a noticeable trend in decisions.

2. The Making of Public Opinion

A more promising explanation of the pro-defendant trend rests in the efforts of tort reformers not only to secure passage of reform legislation, but also to change public and policymaker opinion about the tort and products liability system. Although tort reform's modern roots predate the 1980s,[164] the insurance crisis of the mid-1980s provided a shock that crystalized both the insurance industry and other businesses to act. Increases in insurance rates rendered the American public increasingly amenable to being influenced by horror stories about the products liability system.[165] The combination of dramatic increases in insurance rates, widespread reporting of the insurance crisis, a multimillion dollar publicity campaign to

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162. Appendix B, Table B-1 (state court variable small and insignificant). This result stems from our new data because the opinion data used in the *Quiet Revolution* showed no pro-defendant trend in federal appellate opinions. Henderson & Eisenberg, *supra* note 1, at 540 n.231.

163. *E.g.*, *Reagan Seeks Judges with Traditional Approach*, U.S. NEWS & WORLD REP., Oct. 14, 1985, at 67 (interview with Edwin Meese, Attorney General of the United States); Note, *All the President's Men? A Study of Ronald Reagan's Appointments to the U.S. Courts of Appeals*, 87 COLUM. L. REV. 766 (1987).

164. Weinberg, *The Political Education of Bob Malott, CEO*, HARV. BUS. REV., May-June 1988, at 74 (describing the products reform movement and one executive's role in it).

165. *E.g.*, Wasilewski, *Tort Reform: Courting Public Opinion*, 87 BEST'S REV.PROP.-CASUALTY INS. ED., June 1986, at 14 ("There is little dispute . . . that the liability insurance crisis . . . brought the civil justice system to the forefront in 1986."); *The Liability Crisis: Companies, Consumers and Courts; Are Insurers Caught in a Squeeze or Putting It On?*, N.Y. Times, May 25, 1986, at 18, col. 1 [hereinafter *Liability Crisis*].

link the insurance crisis to products liability rules,[166] and such rules' effects on daily life, may have created the kind of massive, widespread shift in attitude needed to produce the observed pro-defendant trend.

This is not the place to decide whether there was a 1980s insurance crisis or whether the products liability system had a substantial role in causing it. Although evidence links tort reform and declining insurance rates,[167] one also has reason to be skeptical.[168] For example, when Florida's insurance industry was offered a legislative package in which tort reform would be tied to forced reductions in insurance rates, it claimed that the tort reform law would reduce general liability insurance premiums by only one percent.[169] Our own data show little linkage between tort reform laws and declining awards.[170] And in the midst of the insurance crisis atmosphere, the director of government affairs for the Risk and Insurance Management Society, which generally supports tort reform, expressed concern about linking the insurance availability crisis and tort reform legislation.[171]

More important than the reality of an insurance crisis is whether the American public generally *perceived* an insurance crisis and whether that perception was successfully tied to the products liability system in a way that could have reshaped opinion. It was; public perception of a 1980s insurance crisis is undeniable.[172] Moreover, the links connecting the insurance crisis, daily life, and

166. Kittrell, *Tort System Burden Costly, Survey Finds*, BUS. INS., May 9, 1988, at 3 (Conference Board survey on the impact of product liability on business); Weinberg, *supra* note 164.

167. Blackmon & Zeckhauser, *supra* note 9; W. VISCUSI, *supra* note 9; Moore, *Premium Problem*, NAT'L L. J., Feb. 14, 1987, at 366, 368 (significant tort reform reduced insurance rates).

168. *See* Kriz, *Liability Lobbying*, NAT'L J., Jan. 23, 1988, at 191, 192 (insurance officials say tort reform will not lower insurance rates); Moore, *supra* note 167, at 368 (When reform statutes were enacted, states wanted to know what rate reductions to expect. Insurers' answers were "at best incomprehensible and were never accompanied by any data."). Given the dominance of asbestos cases in products litigation, it would be helpful to see insurance company losses, volume, premiums, and profits stated with and without their asbestos experience. *But see* Blackmon & Zeckhauser, *supra* note 9; W. VISCUSI, *supra* note 9 (no separation of asbestos data).

169. Moore, *supra* note 167, at 368.

170. Figures 12 and 13 *supra*.

171. Wasilewski, *supra* note 165, at 124. *See* Moore, *supra* note 167, at 367 ("Virtually everyone agrees that the cyclical nature of the insurance industry helped create the insurance crunch."); Editorial, *Half a Response on Insurance*, N.Y. Times, July 7, 1986, § 1, at 26, col. 1 (in the early 1980s insurance industry cut premiums below prudent levels).

172. *E.g.*, *Liability Crisis*, *supra* note 165.

products liability were forcefully made. Basic American activities—almost literally motherhood and apple pie—were threatened by products liability law's asserted generation of the insurance crisis. The Boy Scouts,[173] the Little League,[174] school sports activities,[175] charities,[176] town and city functions,[177] beaches and parks,[178] and even access to Yellowstone National Park[179] all appeared to be threatened. Products liability law's pernicious effects, through its influence on insurance rates, thus were portrayed as reaching deep into the fabric of American life, as well as crippling the business community.[180]

Using every technique of modern media-shaping, tort reform groups sought to assure that the public believed that products liability law was the cause of this threat to our way of life. The message was carried, and is carried,[181] through a variety of media: massive print media advertising campaigns;[182] television appearances on "The Today Show," "Good Morning, America," and the "McNeil-Lehrer News Hour," purchased television time;[183] and reports of surveys of business and public opinion.[184] The message was all the more persuasive because people could see first-hand the effects of the insurance crisis, whether or not it was in fact attributable to products doctrine. Fees for the Boy Scouts did increase; a key transportation link in New York City did temporarily shut down;[185] and diving boards were removed from public swimming pools

173. Bradley, *Product Liability to Be Included in Tort Reform*, Wichita Bus. J., Feb. 20, 1989, § 1, at 1, *available in*, LEXIS, Nexis library, Omni file; *Liability Crisis*, *supra* note 165; Wasilewski, *supra* note 165, at 124. The effect of insurance availability and tort liability on the Boy Scouts is a particular favorite of tort reformers. A NEXIS search reveals 36 joint occurrences of "products liability" and "Boy Scouts." Search of LEXIS, Nexis library, Omni file.

174. Seligman, *Litigation, It's Catching*, FORTUNE, July 21, 1986, at 110; Hardwick, *Opinion: Getting Liability Insurance*, N.Y. Times, July 15, 1986, § 11NJ, at 1, col. 5; *Liability Crisis*, *supra* note 165.

175. Appel, *Amateur Sports Threatened by Liability Insurance Crisis*, United Press Int'l, BC Cycle, Aug. 18, 1989, *available in* LEXIS, Nexis library, Omni file.

176. *Liability Crisis*, *supra* note 165.

177. Hardwick, *supra* note 174; *Liability Crisis*, *supra* note 165.

178. *Liability Crisis*, *supra* note 165.

179. Wasilewski, *supra* note 165, at 124.

180. *E.g.*, Kittrell, *supra* note 166.

181. *E.g.*, *Insurance Industry Begins Ad Campaign Focusing on Liability Abuse*, BNA Daily Rep. for Executives, Aug. 23, 1990, at A-9; *see supra* note 105.

182. *See supra* note 105; Daniels, *supra* note 87, at 284–92.

183. Wasilewski, *supra* note 165, at 15.

184. Kittrell, *supra* note 166.

185. *Liability Crisis*, *supra* note 165.

across the country. Many editorials called for tort reform.[186] The publicity and lobbying campaigns were so effective that the American Bar Association, hoping to prevent more drastic reform measures by state legislatures, voted to urge judges to scale down excessive tort awards.[187]

Even if subsequent analyses suggested other possible causes of the insurance crisis, the public's mind had been shaped. The intricacies of the insurance cycle and insurance company investment returns could not be grasped as easily, nor were they as forcefully marketed, as was the idea that products liability was the cause of the insurance crisis. Many reform statutes were enacted; many others were defeated after vigorous efforts to secure enactment. However, products liability reformers apparently succeeded in the larger legislature of public opinion, even though they failed to secure passage of anywhere near all the legislation they sought.[188] Among those apparently influenced were the appellate and district court judges who, at least since 1985, have increasingly favored defendants. These judges ultimately underlie the quiet revolution, and they have not been bounded by state lines, reform status, or product categories.

3. Underlying Rhythms in the Substantive Law

Even if much of the explanation for the shift in judicial attitudes toward products liability finds its source in efforts to shape public opinion, such efforts would have greatest effect if they could somehow be shown to coincide synergistically with deeper rhythms of doctrinal development leading in the same direction. Products commentators in recent years have argued that the major developments in products liability doctrine are exhausted and that the frontiers of the subject have been reached.[189]

Products liability law may be viewed historically as a series of expansionary eras associated with the tearing down of formal barriers to liability. The first major doctrinal development was the fall of the privity requirement in negligence cases early in this century.[190] The next major development was the evolution of strict liability in tort to replace negligence as the basis of liability for defective prod-

186. *See* Daniels, *supra* note 87, at 282.

187. Savage, *Bar Association Urges Judges to Limit Awards*, L.A. Times, Feb. 18, 1987, pt. 1, at 18, col. 1.

188. *E.g.*, McCarthy, *supra* note 59 (mixed success).

189. *See generally* W. VISCUSI, *supra* note 9; *Frontier*, *supra* note 33.

190. *E.g.*, MacPherson v. Buick Motor Co., 217 N.Y. 382, 111 N.E. 1050 (1916).

ucts.[191] The third significant expansion, stretching from approximately 1965 to the 1980s, extended tort liability to defective designs and failures to warn.[192] The final logical step in the nearly century-long progression of products doctrine, which has yet to be taken, would be the elimination of the necessity for plaintiffs to prove defect as a prerequisite to recovery.[193]

Plaintiffs have been urging this step for almost a decade; and a few courts have actually taken it.[194] However, in each instance in which courts have taken this step, the decisions were legislatively retracted.[195] This legislative cut-off of the major line of doctrinal expansion left products plaintiffs with no powerful substitute source of cases to compensate for unfavorable doctrinal developments. On this view, the decade-long media campaign to shape public opinion happened to coincide with what commentators view as the logical end of the expansionary era of products liability doctrine. Thus, the powerful normative message, born of liability insurance crises real or imagined, resonated with deep rhythms in doctrinal development, producing the remarkable shift in judicial attitudes we observe.

V. CONCLUSION

Although this study includes many measurable characteristics of products cases, some important matters are not covered. Our data do not allow assessment of defense costs. Defendants who faced increasing litigation costs from 1979 to 1989 may view the decade as anti-defendant even in the face of data showing a pro-defendant trend. Plaintiff defeats spare defendants damage payments but do not allow defendants to recover defense costs. Given litigation's high costs, both plaintiffs and defendants might view the time trend as unfavorable. Nor do our data directly address normatively-based products reform. There may be many unwise products precedents, for both plaintiffs and defendants, that are worthy of legislative attention.

191. *E.g.*, Henningsen v. Bloomfield Motors, Inc., 32 N.J. 358, 161 A.2d 69 (1960).

192. Henderson & Eisenberg, *supra* note 1, at 483–84.

193. *Frontier*, *supra* note 33.

194. *E.g.*, Halphen v. Johns-Manville Sales Corp., 484 So. 2d 110, 114–15 (La. 1986); Kelley v. R.G. Indus., 304 Md. 124, 497 A.2d 1143 (1985); O'Brien v. Muskin Corp., 94 N.J. 169, 181, 463 A.2d 298, 304 (1983).

195. REV. LA. STAT. ANN. § 9:2800.56(1) (West Supp. 1991); MD. CRIM. LAW CODE ANN. art. 27 § 36-I (West Supp. 1990); N.J. STAT. ANN. § 2A:58C-3(3) (West 1990).

In addition, however comprehensive the study, explanations beyond the data remain possible. Perhaps the scant accident data mask an important products-accident trend that would shed light on the decline in filings. Perhaps state courts are receiving greater-than-ever numbers of products filings as plaintiffs flee the Reagan-Bush federal judges. However unlikely, perhaps the unobservable mass of cases do differ dramatically from the observed results.

Any effort to quantify a major branch of the legal system must leave unanswered questions. Still, we do think our analysis requires proponents of products reform who rely on empirical data to do more than point out possibilities that our data leave open. To the extent that they rely on empirical analysis, it is time for them to make their own positive, non-anecdotal empirical case for reform.

Ironically, the data we amassed to support the conclusion that products liability law has experienced a pro-defendant shift in recent years provide the best quantitative evidence that, until 1985, products liability law was heading to new heights. These data supply the first, or at least most reliable, evidence of a truly national pro-defendant shift in trial and pretrial awards, expected returns, and the sums of awards in products litigation. As of 1985, our data show a preceding decade of increasing filings, increasing average inflation-adjusted trial and pretrial awards, increasing expected returns, and increasing sums of awards. Many of the calls for reform, whether or not at times overstated, may have had a basis in fact. Analysts working for defendants in 1985, using then-current data, probably had reason for alarm. But, these pro-plaintiff movements in the data all peaked at about the same time, in 1985 or 1986.

Since then, products liability plaintiffs' fortunes have been declining. Some proponents of further reform are likely to view these findings with dismay.[196] Some may even, echoing responses to our first article, again assert that our data in fact support a pro-plaintiff hypothesis. But a credible response to our results now requires more than conclusory claims of meaningless samples and biased data. Those who would rely on our data to support the need for products reform as of 1985 cannot simultaneously ignore the striking post-1985 declines in plaintiffs' fortunes.

196. On the implications of our findings, see Henderson & Eisenberg, *supra* note 1, at 541–43.

Appendix A

Table A-1
Published Opinions

Year	N Total	All States All Opinions N[a]	All States All Opinions Rate for Plaintiff	States with Reform During 1979-89 N[b]	States with Reform During 1979-89 Rate for Plaintiff	States with Reform Before 1979-89 N[b]	States with Reform Before 1979-89 Rate for Plaintiff	States with No Reform Statutes N[b]	States with No Reform Statutes Rate for Plaintiff
1979	246	217	.558	136	.522	32	.719	29	.586
1980	214	195	.559	124	.565	23	.522	15	.667
1981	296	252	.464	152	.454	34	.500	14	.357
1982	341	288	.490	170	.518	47	.340	24	.667
1983	403	259	.502	156	.539	29	.448	15	.667
1984	440	321	.527	196	.520	51	.686	24	.458
1985	476	286	.458	159	.472	37	.487	28	.356
1986	414	280	.439	157	.503	23	.304	24	.458
1987	373	251	.422	118	.432	19	.526	36	.444
1988	383	293	.365	154	.338	30	.400	27	.407
1989	320	240	.392	122	.361	20	.650	29	.483
Total	*3,906*	*2,882*	*.468*	*1,644*	*.477*	*345*	*.510*	*265*	*.494*

Notes: a. This is the total number of opinions, state or federal, clearly benefiting plaintiffs or defendants. This number differs from "N Total" by the number of opinions that did not clearly benefit plaintiffs or defendants. Federal opinions are assigned to states based on the state's law they applied. Federal opinions primarily addressing federal substantive or procedural issues are included.
b. Includes only *appellate* opinions, state or federal, clearly benefiting plaintiffs or defendants. Opinions primarily addressing federal substantive or procedural issues are excluded.

Table A-2
Federal District Court Products Liability Cases by Procedural Stage

Year	Total Terminations	N with Definite Judgment	Cases Terminated Before Trial N	Cases Terminated Before Trial Rate for Plaintiff	Cases Terminated During Trial N	Cases Terminated During Trial Rate for Plaintiff	Cases Terminated After Trial N	Cases Terminated After Trial Rate for Plaintiff
1978[a]	1,667	269	133	.504	14	.286	122	.418
1979	4,109	613	337	.386	41	.488	235	.336
1980	5,617	862	400	.438	52	.500	410	.383
1981	5,462	1,019	481	.449	71	.423	467	.368
1982	5,981	1,125	584	.421	72	.486	469	.316
1983	6,523	1,000	453	.415	61	.312	486	.331
1984	7,010	924[b]	441[b]	.336	38	.316	452	.400
1985	8,204	921[c]	499	.277	39	.436	383[c]	.371
1986	6,378	937	508	.323	50	.380	379	.309
1987	6,333	777	400	.260	51	.373	326	.337
1988	5,897	798	415	.296	69	.290	314	.357
1989[a]	2,824	391	194	.258	23	.478	174	.345
Total	*66,005*	*9,636*	*4,845*	*.361*	*581*	*.399*	*4,217*	*.353*

Notes: 98 cases are excluded from all but the "Total Terminations" column (and from Tables A-5, A-6, and A-9) due to ambiguities in their stage of procedural disposition.
a. 1978 and 1989 are six month figures.
b. Excludes 1984 Agent Orange pretrial disposition in the Eastern District of New York.
c. Excludes 1985 Bendectin trial in the Southern District of Ohio.

Table A-3
Products Liability Filings

Year	*Nonasbestos Products Filings*	*Total Products Filings*	*Total Civil Filings*	*Consumer GNP[a] (in billions)*	*Nonasbestos Filings Per Billion GNP[c]*	
1975	2,137	2,172	112,308	883	2.420	(2.324)
1976	2,717	2,757	125,086	941	2.887	(2.730)
1977	2,951	3,054	124,808	985	2.996	(2.832)
1978	2,948	3,240	131,980	1,021	2.887	(2.795)
1979	3,600	3,961	146,996	1,034	3.482	(3.354)
1980	4,217	5,354	168,789	1,009	4.179	(3.826)
1981	5,076	6,701	180,576	1,015	5.001	(4.454)
1982	5,382	7,251	206,193	1,024	5.256	(4.507)
1983	6,100	8,026	241,842	1,083	5.633	(4.395)
1984	6,755	9,677	261,485	1,148	5.884	(4.159)
1985	8,118	12,507	273,670	1,186	6.845	(4.283)
1986	6,832	12,459	254,828	1,263	5.409	(4.365)
1987	6,379	14,153	239,185	1,280	4.984	
1988	5,451	16,166	239,634	1,318	4.136	
1989	5,178	13,408	233,529	1,348	3.841	
1990	4,992	18,679	217,879	1,339	3.728	
1991	5,263	12,413	207,742	1,372[b]	3.836	

Notes: Filings are for fiscal years. GNP figures are for calendar years.
a. Personal consumption expenditures on durable and nondurable goods in 1982 dollars. Sources: U.S. Bureau of the Census, Statistical Abstracts of the United States; Economic Indicators (Prepared for the Joint Economic Committee by the Council of Economic Advisers July 1991).
b. Based on average of two available quarters.
c. Nonasbestos filings divided by consumer GNP. Figures in parentheses exclude Dalkon Shield and Bendictin cases through 1986.

Table A-4
Accidents and Injuries
(in thousands)

Year	*Accidental Deaths*	*Accidental Injuries*	*Disabling Injuries*
1975	103	71,900	10,700
1976	101	65,300	10,300
1977	103	74,000	10,400
1978	106	67,500	10,200
1979	105	69,100	
1980	106	68,100	10,000
1981	101	70,300	9,400
1982	94	60,000	9,000
1983	93	61,100	8,800
1984	93	61,100	8,700
1985	94	62,600	9,000
1986	95	62,400	8,900
1987	95	62,100	8,800
1988	97	57,700	9,100
1989	95		9,000

Sources: U.S. Bureau of the Census, Statistical Abstracts of the United States; Accident Facts.

Table A-5
Federal District Court Products Liability Cases
Pretrial Recoveries by States' Reform Status (in thousands of 1989 dollars)

	All Pretrial Terminations			States with Reform During 1979-89			States with Reform Before 1979-89			States with No Reform Statutes		
Year	*N*	*Mean*	*Median*	*N*	*Mean*	*Median*	*N*	*Mean*	*Median*	*N*	*Mean*	*Median*
1978[a]	38	198	71	25	216	57	5	104	86	8	202	969
1979	75	377	55	43	576	36	14	197	56	18	41	32
1980	106	136	65	67	147	60	19	139	86	20	97	23
1981	123	235	85	76	256	82	26	235	104	21	159	55
1982	147	459	98	88	610	114	23	290	193	36	198	41
1983	123	684	51	76	856	59	22	711	103	25	139	29
1984	109	970	90	57	1,071	140	30	627	105	22	1,175	24
1985	93	1,098	73	49	754	69	26	1,138	177	18	1,978	33
1986	115	638	68	69	832	84	31	362	31	15	316	68
1987	79	559	105	45	539	164	17	1,098	109	17	73	28
1988	97	594	89	53	541	89	26	195	98	18	1,323	15
1989[a]	38	349	105	21	493	110	10	217	164	7	108	35
Total	*1,143*	*549*	*75*	*669*	*593*	*90*	*249*	*481*	*101*	*225*	*490*	*35*

N's are limited to cases in which plaintiffs recovered amounts.
Note: a. 1978 and 1989 are six month figures.

Table A-6
Federal District Court Products Liability Cases
Trial Recoveries by States' Reform Status (in thousands of 1989 dollars)

	All Trial Terminations			States with Reform During 1979-89			States with Reform Before 1979-89			States with No Reform Statutes		
Year	*N*	*Mean*	*Median*	*N*	*Mean*	*Median*	*N*	*Mean*	*Median*	*N*	*Mean*	*Median*
1978[a]	51	304	95	31	436	228	10	119	48	10	77	39
1979	75	615	116	51	578	116	13	283	137	11	1,180	51
1980	152	589	199	103	696	260	25	225	157	24	511	117
1981	159	449	136	102	532	139	32	290	136	25	313	191
1982	138	924	161	85	1,195	173	23	679	176	30	344	120
1983	137	497	160	89	427	199	25	1,021	383	23	197	100
1984	174	1,830	327	103	2,254	328	40	772	298	31	1,784	298
1985	133	2,109	288	82	2,339	297	27	858	259	24	2,734	402
1986	112	2,557	533	68	2,565	899	13	1,632	396	31	2,928	394
1987	99	780	178	63	819	180	15	1,213	372	21	354	109
1988	101	1,462	419	56	1,613	527	30	1,289	262	15	1,248	314
1989[a]	57	1,017	265	34	794	268	10	2,287	432	13	625	120
Total	*1,388*	*1,143*	*205*	*867*	*1,241*	*248*	*263*	*821*	*193*	*258*	*1,142*	*139*

N's are limited to cases in which plaintiffs recovered amounts.
Note: a. 1978 and 1989 are six month figures.

Table A-7
Federal District Court Products Liability Cases
Estimated Sum of Awards and Expected Return (in thousands of 1989 dollars)

Year	*Sum of Awards*	*Expected Return*
1978[a]	391,007[b]	118
1979	866,815	220
1980	464,293	92
1981	735,041	141
1982	1,499,114	272
1983	2,438,253	383
1984	3,413,452	578
1985	4,309,880	648
1986	2,217,221	399
1987	1,954,702	321
1988	1,922,999	356
1989[a]	1,093,659[b]	212

Notes: a. 1978 and 1989 are six month figures.
b. For these years, sum of awards figures have been doubled.

Table A-8
Plaintiff Success Rates by State
1979-1984 & 1985-1989

	Published Opinions				Federal District Courts			
State	*Success Rate 1979-84*	*Success Rate 1985-89*	*N 1979-84*	*N 1985-89*	*Success Rate 1979-84*	*Success Rate 1985-89*	*N 1979-84*	*N 1985-89*
Alabama	.57	.27**	28	34	.49	.38*	154	72
Alaska	.56	.50	9	6	.55	.43	11	7
Arizona	.65	.58	23	19	.24	.36	29	28
Arkansas	.67	.20**	21	10	.31	.27	91	63
California	.56	.40*	63	58	.35	.48**	179	109
Colorado	.56	.42	27	26	.41	.45	58	29
Connecticut	.50	.33	4	15	.29	.09**	48	68
Delaware	.56	.67	9	3	.00	.50*	8	4
District of Columbia	.78	.28**	9	18	.21	.45***	163	31
Florida	.58	.38**	69	50	.45	.27***	118	113
Georgia	.49	.41	43	42	.34	.25	181	123
Hawaii	.60	1.00	5	1	.44	.33	9	9
Idaho	.27	.18	11	11	.23	.20	22	10
Illinois	.43	.40	135	93	.27	.22	113	86
Indiana	.44	.42	32	33	.24	.33	103	70
Iowa	.69	.44	16	16	.40	.59*	53	32
Kansas	.64	.75	22	12	.55	.49	117	37
Kentucky	.54	.50	13	8	.31	.20	54	59
Louisiana	.41	.33	86	87	.25	.25	263	260
Maine	.50	.67	10	6	.46	.29	13	14
Maryland	.63	.31**	16	26	.15	.11	66	101
Massachusetts	.48	.51	29	51	.45	.31**	180	125
Michigan	.46	.40	74	48	.44	.45	322	233
Minnesota	.55	.44	29	39	.59	.18***	58	28
Mississippi	.42	.57	12	21	.39	.28*	137	112
Missouri	.45	.60	42	45	.55	.57	171	109
Montana	.46	.33	11	9	.30	.31	20	13
Nebraska	.46	.57	11	7	.27	.29	26	21
Nevada	.75	.71	8	7	.75	.08***	8	12
New Hampshire	.50	.50	4	8	.37	.23	60	31
New Jersey	.60	.50	35	30	.38	.41	94	73
New Mexico	.44	.25	18	4	.24	.50*	41	14
New York	.49	.42	70	83	.22[a]	.10***	217[a]	271
North Carolina	.59	.61	27	18	.44	.23**	66	39
North Dakota	.44	1.00*	9	4	.30	.38	10	13
Ohio	.55	.21**	20	14	.30	.22[b]	165	93[b]
Oklahoma	.74	.64	27	11	.44	.39	144	98
Oregon	.61	.54	33	13	.47	.39	57	28
Pennsylvania	.54	.33**	63	80	.26	.27	433	415
Rhode Island	.29	.38	7	8	.33	.27	21	15
South Carolina	.50	.44	16	9	.31	.37	116	70
South Dakota	.67	.38	9	8	.22	.43	23	7
Tennessee	.49	.27*	49	33	.37	.23**	139	81
Texas	.47	.48	72	69	.56	.49**	801	363
Utah	1.00	.40	4	5	.53	.20*	15	10
Vermont	.50	.25	4	4	.44	.09*	9	11
Virginia	.65	.29	17	7	.32	.27	118	55
Washington	.46	.59	28	27	.35	.23	48	44
West Virginia	.50	.50	4	4	.46	.43	48	21
Wisconsin	.63	.39	40	18	.12	.22	49	50
Wyoming	.50	.33	2	9	.21	.25	14	8
Total	*.52*	*.42***	*1,427*	*1,267*	*.39*	*.32****	*5,463*	*3,788*

* 1979-84/1985-89 rates differ at .01 level; ** at .05 level; *** at .01 level

Notes: a. Excludes 1984 Agent Orange pretrial disposition in the Eastern District of New York.
b. Excludes 1985 Bendectin trial in the Southern District of Ohio.

Table A-9
Federal District Court Products Liability Cases
by States' Reform Status

	States with Reform During 1979-89		States with Reform Before 1979-89		States with No Reform Statutes	
Year	*N*	*Rate for Plaintiff*	*N*	*Rate for Plaintiff*	*N*	*Rate for Plaintiff*
1978[a]	169	.491	45	.400	55	.382
1979	366	.404	84	.357	163	.313
1980	545	.442	137	.365	180	.372
1981	666	.440	188	.356	165	.352
1982	748	.386	148	.385	229	.362
1983	635	.387	168	.369	197	.305
1984	563[b]	.355	161	.472	200	.305
1985	588[c]	.310	157	.382	176	.313
1986	619	.305	120	.425	198	.303
1987	471	.306	108	.343	198	.263
1988	472	.307	159	.384	167	.293
1989[a]	246	.268	60	.433	85	.341
Total	*6,088*	*.366*	*1,535*	*.388*	*2,013*	*.321*

Notes: a. 1978 and 1989 are six month figures.
b. Excludes 1984 Agent Orange pretrial disposition in the Eastern District of New York.
c. Excludes 1985 Bendectin trial in the Southern District of Ohio.

Table A-10
Change in Plaintiff Success Rate by Product Category
Published Opinions

Product categories	*Success Rate 1979-84*	*Success Rate 1985-89*	*N 1979-1984*	*N 1985-89*	*Success Rate Difference*
Components	.45	.54	11	13	-.09
Toxics	.48	.55	110	161	-.07
Weapons	.33	.38	15	29	-.05
Tools	.49	.53	59	36	-.04
Cosmetics (non-prescription)	.47	.40	15	15	.07
Motor vehicle, business	.47	.40	122	103	.07
Other	.50	.42	209	99	.08
Industrial machinery	.47	.38	219	242	.09
Prescription drugs	.48	.38	122	117	.10
Construction equipment	.53	.42	94	52	.11
Buildings	.57	.43	28	30	.14
Aircraft	.56	.42	45	38	.14
Medical equipment	.53	.38	32	56	.15
Food & drink	.63	.47	38	55	.16
Appliances	.57	.40	67	42	.17
Farm equipment, animals, etc.	.57	.40	67	47	.17
Motor vehicle, personal	.50	.29	154	108	.21
Furniture	.54	.31	13	13	.23
Athletic equipment	.67	.44	55	50	.23
Electrical systems & gas	.53	.25	15	12	.28
Buildings	.80	.50	30	32	.30

Table A-11
Federal District Court Mean Trial Awards
By Judge/Jury Status & Compared with Other Areas
(in thousands of 1989 dollars)

	Products Jury Trials		Products Judge Trials		Products Combined		Other Personal Injury Cases		Contracts Cases	
Year	*N*	*Mean*	*N*	*Mean*	*N*	*Mean*	*N*	*Mean*	*N*	*Mean*
1978[a]	42	340	9	134	51	304	96	260	181	228
1979	65	677	10	215	75	615	173	240	421	197
1980	122	665	30	280	152	589	230	279	504	338
1981	122	430	37	510	159	449	226	439	581	291
1982	115	1,075	23	167	138	924	258	524	568	465
1983	114	541	23	279	137	497	220	560	530	419
1984	141	1,866	33	1,676	174	1,830	253	1,271	573	1,436
1985	109	2,374	24	905	133	2,109	282	2,345	616	1,772
1986	96	2,639	16	2,067	112	2,557	263	1,455	605	1,685
1987	86	822	13	505	99	780	269	722	571	802
1988	84	1,411	17	1,717	101	1,462	227	876	557	795
1989[a]	51	1,113	6	208	57	1,017	100	673	279	810
Total	*1,147*	*1,219*	*241*	*780*	*1,388*	*1,143*	*2,597*	*891*	*5,986*	*837*

Note: a. 1978 and 1989 are six month figures.

APPENDIX B

This Appendix considers whether the influence of factors analyzed separately in the text changes when they are considered together using multivariate analysis. The text suggests a pro-defendant time trend in both published opinions and federal district court dispositions. To the extent our data permit, we conclude that the time trends cannot be explained by factors other than a general shift in attitude by courts. In each of the models discussed below, the variable "Year" traces the success rate or award pattern over time. It is substantial and statistically significant in every model, even accounting for the other factors in the data. Before presenting the results, we describe the variables used to account for other possible influences on case outcomes.

I. VARIABLE DESCRIPTIONS

A. *Geographical Variables*

The geographical results in Figure 8, Figure 9, and Table A-8 suggest using a dummy variable for each state. We analyzed the data with individual state dummy variables for all sizeable jurisdictions at both the published opinion and federal district court levels. Those lengthy results are not presented here. As a group, the individual state variables do not add materially to the results discussed here. A more functional geographical grouping uses each state's statutory environment, as described below.

B. *Statutory Environment*

Another set of variables accounts for the statutory reform environment in each state, as presented in Figures 10 through 13 and Tables A-1, A-5, A-6, and A-9. As indicated in the text, we group tort reform statutes into those statutes applicable to tort generally ("Tort Reform"), those applicable primarily to products liability ("Products Reform"), and those primarily affecting damages ("Damages Reform"). A 0-1 dummy variable represents each of these statutory categories and is coded "1" for a state in which a statute was enacted and "0" otherwise. An aggregate category ("Statutory Reform") was coded "1" if any of the three statutory reforms had been enacted.

For each of the three types of reform statutes, we constructed variables to account for the time period of reform. "No Reform" is "1" for states that enacted no reform measures, "Reform During" is "1" for states that enacted any of the three kinds of reform mea-

sures from 1979 to 1989, and "Reform Before" is "1" for states with any of the three kinds of reform measures in effect before 1979. We also used variables to account for whether each type of reform statute (tort, products, and damages) was enacted during or before the period studied here. For example, "Reform Damages During" would be coded "1" for a state that enacted a damages reform statute between 1979 and 1989; "Reform Damages Before" would be coded "1" for a state that enacted a damages reform statute before 1979.

We also explored models using a set of variables in which a six-month lag period was allowed before statutory reforms were treated as effective. The assumption underlying this set of variables is that statutory changes are not always immediately reflected in pending cases. The case pipeline may need to be cleaned out before one should expect to observe reform statutes' effects. These six-month lag variables yielded no results substantially different from those presented here with the unlagged variables.

States with reform statutes were further categorized based on the effective date of their reform provisions. Cases decided in a reform state were coded "1" if decided after the effective date of reform and "0" if decided before the effective date. The variables used to track effective dates are "Tort Reform in Effect," "Products Reform in Effect," and "Damages Reform in Effect." An aggregate variable, "Reform Statute in Effect," was coded "1" if any of the three categories of reform statutes were in effect at the time of the decision.

To further account for each state's statutory environment we added two variables to track the state's experience with comparative negligence. During the 1970s and 1980s many states, through statutes or judicial decisions, adopted or modified their rules on comparative negligence.[197] The variable "Comparative Negligence" was coded "1" if a state, through statute or decision, adopted comparative negligence and "0" if it had not. The variable "Comparative Negligence in Effect" tracks whether each case was decided before or after the adoption of comparative negligence in the relevant state.

We have no illusion that our variables completely capture the statutory environment of a state. Subtleties of individual states' experiences are not fully accounted for by this system. For example,

197. W. LANDES & R. POSNER, THE ECONOMIC STRUCTURE OF TORT LAW 80-84 (1987).

in some states some reform provisions were struck down as unconstitutional.[198] In some states, the shift to comparative negligence did not include products cases.

C. *Product Category Variables*

The published opinion data and the federal district courts data provide different information about product type. For the published opinion data, we began with a few hundred products categories, which were then aggregated into the twenty-one major categories presented in Appendix A, Table A-10. In multivariate analyses using the 21 categories, little of present interest about the categories emerged. We further aggregated the product categories into six "super" categories: consumables, durables-transportation, durables-household appliances, durables-recreation, durables-productive, and other. A 0-1 dummy variable was coded for each of these categories.

For the district court data, the only categories available are the nonasbestos personal injury products categories maintained by the Administrative Office: "Airplane," "Marine," "Motor Vehicle," and "Other."

D. *Other Appellate Opinion Variables*

For the appellate opinion equation, we add a variable ("Plaintiff Appealed") to reflect who is appealing. It is "1" when plaintiff is the appellant. Appellate standard-of-review rules regarding deference to lower courts and the difficulty inherent in overturning a prior finding, have shown the party who is appealing to be an important predictor of appellate outcome.[199] Appellate courts tend to affirm lower courts.

The appellate data include both federal and state appeals courts. In the appellate equation we therefore include a "State Court" variable coded "1" when the opinion is by a state court and "0" when the opinion is by a federal court. The district court data

198. *E.g.*, Smith v. Department of Ins., 507 So. 2d 1080 (Fla. 1987); Brannigan v. Usitalo, 587 A.2d 1232, 1233 (N.H. 1991); Sofie v. Fibreboard Corp., 112 Wash. 2d 636, 659, 771 P.2d 711, 719 (1989). Some courts adopted comparative negligence on a retroactive basis. *See* Alvis v. Ribar, 85 Ill. 2d 1, 28, 421 N.E.2d 886, 898 (1981); Bradley v. Appalachian Power Co., 256 S.E.2d 879, 890 (W. Va. 1979).

199. *E.g.*, Eisenberg & Johnson, *The Effects of Intent: Do We Know How Legal Standards Work?*, 76 CORNELL L. REV. 1151, 1186, 1191 (1991).

are limited to federal district court opinions with only a few state trial court results.[200]

II. PUBLISHED OPINIONS RESULTS

It is difficult to predict what one might expect to influence published opinions. A substantial filtering mechanism is at work, whereby only a small fraction of products filings lead to published opinions. Few studies of the relationship between opinions and the mass of filings exist. And one study of the relationship between appellate and district court opinions suggests that surprising relationships may appear.[201]

We present here two opinion equations: one for federal district court opinions and one for state and federal appellate opinions. For each equation we include a variable "Year" to monitor any time trend in the data, a series of "Product Type" variables, and variables to account for the legal environment within each state. We include here only those variables that turned out to be the most interesting.

Table B-1 presents the results for both the appellate opinions and the federal district courts. For each equation, the dependent variable—whether defendant prevailed—was coded "1" if plaintiff prevailed and "0" if plaintiff failed. We employed regression-like analysis to determine the effect of each factor (independent variable), holding constant other factors about the case.[202]

Within each equation's results, the first column is the logistic regression coefficient, the second column shows the coefficient's significance, and the third column shows a variable's "odds multiplier," a standard way of expressing the size of a variable's influence for the regression technique used.[203] The odds multiplier is the

200. We coded for several other factors for all of the appellate opinions, including the details of the procedural progress below (*e.g.*, jury trial, judge trial, before trial). For cases decided from 1983 through 1988, we coded in greater detail for all published opinions, including the legal theories relied on by plaintiffs (strict liability, warranties, negligence), the degree of injury to plaintiffs, the environment of the injury (work or home), and procedural progress. These additional variables did not change the major findings described in Table B-1 below.

201. Eisenberg & Johnson, *supra* note 199, at 1191–93.

202. Since, for present purposes, products cases either succeed or fail, the dependent variable in this model is dichotomous, and we rely on logistic regression analysis in lieu of ordinary least squares regression. *See generally* M. FINKELSTEIN & B. LEVIN, STATISTICS FOR LAWYERS 448 (1990); D. HOSMER & S. LEMESHOW, APPLIED LOGISTIC REGRESSION (1989).

203. Each estimated coefficient provides an estimate of the corresponding variable's effect on the logarithm of the odds of the dependent variable adjusting for all other

Table B-1
Logistic Regression Results
Party Benefiting in Published Opinions

Dependent Variable: Benefits Defendant = 1
Benefits Plaintiff = 0

	District Court Opinions			Appellate Opinions		
Variable	*B*	*Sig.*	*Odds Multiplier*	*B*	*Sig.*	*Odds Multiplier*
Year	.0987	.0121	1.1037	.0624	.0000	1.0644
Product Type		.2363			.0812	
Other (reference category)						
Consumables	.3156	.5339	1.3711	-.0323	.8631	.9683
Durables-Transportation	.8869	.0975	2.4276	.2458	.1850	1.2786
Durables-Household	.3692	.5659	1.4465	-.1362	.5021	.8726
Durables-Recreation	.1214	.8940	1.1291	-.0707	.7852	.9317
Durables-Productive	.7663	.1348	2.1519	.1699	.3350	1.1852
Reform Statute in Effect	-.5198	.0319	.5946	.0625	.5649	1.0645
Comparative Negligence	-.3951	.0948	.6722			
Comparative Neglig. in Effect	.0805	.8149	1.0838	.3758	.0007	1.4561
Reform Level					.2205	
No Reform (reference category)						
Reform During				-.0279	.8370	.9725
Reform Before				-.2651	.1736	.7671
Plaintiff Appealed				.9326	.0000	2.5411
State Court				-.0380	.7182	.9627
Constant	-195.284	.0123		-124.578	.0000	

	Chi-Square	df	Sig.	Chi-Square	df	Sig.
-2 Log Likelihood	504.297	375	.0000	3092.562	2333	.0000
Model Chi-Square	19.070	9	.0246	156.956	12	.0000
Goodness of Fit	386.143	375	.3346	2346.207	2333	.0000

	Predicted			Predicted		
	Plaint.	*Defend.*	*% Correct*	*Plaint.*	*Defend.*	*% Correct*
Observed						
Plaintiff	51	110	31.68	576	557	50.84%
Defendant	37	187	83.48	362	851	70.16%
			Overall 61.82%			Overall 60.83%

amount by which the plaintiff's odds of winning the "average" case should be multiplied if the variable is present, holding all other variables constant.[204] To assess the magnitude of a variable's effect, multiply the odds of winning without the variable's presence by the variable's odds multiplier. An odds multiplier of 1.0 indicates that the variable's presence does not change the odds of winning. An odds multiplier greater than 1.0 indicates that the variable's pres-

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variables included in the model. The odds multiplier is obtained by taking the anti-log of the regression coefficient. D. HOSMER & S. LEMESHOW, *supra* note 202, at 58. The interpretation of the variable "Year" differs because, unlike all other variables it is continuous; the odds multiplier traces the effect of a unit increase (one year) in the variable.

204. The odds of winning should be distinguished from the probability of winning, even though the terms "odds" and "probability" often are informally used interchangeably. For example, "Plaintiff Appealed" has an odds multiplier of 2.5411. Assume that the odds of winning a case (based on all of the other factors about a case) are 1:1, corresponding to a probability of winning of 50%. The odds multiplier of 2.5411 means that the presence of "Plaintiff Appealed" changes the odds of defendant benefiting from from 1:1 to 2.5411:1, corresponding to a probability of defendant benefiting of 71.8%.

ence, holding other factors constant, increases the chances of winning. An odds multiplier of less than one indicates that, holding other factors about a case constant, the presence of the factor reduces the chances of winning. Within each equation's results the second column shows the probability that the observed result would occur by chance. Thus "Plaintiff Appealed" not only has a sizeable odds multiplier, there is less than one chance in ten thousand that one would observe this result by chance.

In the published opinions, no specific kind of reform statute proved both large and significant at the .05 level. We therefore used the constructed category "Reform Statute in Effect" and it too shows no substantial influence on the model. Thus, the multivariate analysis does not alter the impression conveyed by Figure 10—that states' reform status is not a likely source of declining plaintiff success in published opinions. No product category proved very useful in explaining case outcomes, though "Durables Transportation" products cases were nearly significantly more difficult than "Other" cases (the reference category) for plaintiffs to win. The variable "State Court" suggests no noteworthy distinction between state court and federal court appellate opinions.

The variable "Year" is significant at both the district court and appellate levels. Thus, even accounting (to the extent we can) for statutory reform environment, product type, and other items in Table B-1, there is a noticeable pro-defendant time trend in the opinion data.

III. Federal District Courts Results

For the mass of federal district court cases, we explored several multivariate models seeking to explain the factors influencing plaintiff victories and, in cases won by plaintiffs, the influences on award size. We present the results of one model for judgments and one for size of awards.

Table B-2 presents the results for the judgments equation. Of cases resulting in known judgments, reform statutes significantly correlate with increased defendant success. In states that enacted products reform statutes and tort reform statutes, cases decided after the effective dates of these statutes were significantly more likely to be decided for defendants. Interestingly, a damages reform statute being in effect had a pro-plaintiff effect. In states that enacted comparative negligence statutes, a mild, but not highly significant, pro-defendant effect emerges. States with no reform statutes showed a strong pro-defendant effect.

Table B-2
Lgistic Regression Results
Party Benefiting in Federal District Court Cases

Dependent Variable: Benefits Defendant = 1
Benefits Plaintiff = 0

Variable	*B*	*Signif.*	*Odds Multiplier*
Year	.0450	.0000	1.0460
Product Type		.8156	
Airplane Case	.0870	.3567	1.0909
Marine Case	.0259	.8658	1.0263
Motor Vehicle Case	-.0129	.8546	.9872
Other (reference category)			
Products Reform in Effect	.1508	.0079	1.1627
Tort Reform in Effect	.1773	.0907	1.1940
Damages Reform in Effect	-.1609	.0543	.8514
Comparative Neglig. in Effect	.0938	.1393	1.0983
Reform Level		.0000	
No Reform (reference category)			
Reform During 1979-89	-.2447	.0000	.7829
Reform Before 1979-89	-.4309	.0000	.6499
Constant	-3.2151	.0000	

	Chi-Square	df	Sig.
-2 Log Likelihood	12119.987	9356	.0000
Model Chi Square	89.600	10	.0000
Goodness of Fit	9365.403	9356	.0000

		Predicted	
	Plaint.	*Defend.*	*% Correct*
Observed			
Plaintiff	19	3326	.57%
Defendant	29	5993	99.52%
			Overall 64.18%

Table B-3
Ordinary Least Squares Regression Results
Size of Award in Federal District Court Cases

Dependent Variable: Logarithm of Award in 1989 Dollars

R Square	.09691	Adj. R Square	.09457
Standard Error	1.97299	N = 2716	
F	41.51196	Signif. F	.0000

Variable	*Coefficient*	*Std. Err.*	*Beta*	*T*	*Sig. T*
Year (coded 1 to 12)	.228890	.057891	.330026	3.954	.0001
Year Squared	-.011983	.004317	-.233346	-2.776	.0055
Jury Trial	1.022389	.079313	.243591	12.891	.0000
During Trial	.349229	.154618	.042442	2.259	.0240
Airplane Case	1.064876	.164506	.118432	6.473	.0000
Reform Damages During	.663432	.098418	.124505	6.741	.0000
Tort Reform in Effect	.552269	.182743	.057898	3.022	.0025
Constant	3.288297	.178285		18.444	.0000

Even after accounting for the most influential statutory effects, as well as product type and procedural stage, the "Year" variable remains highly significant. Even taking into account reform statutes, a pro-defendant time trend persists.

Table B-3 presents the results of the size-of-award equation. The significant positive coefficient for "Year" combined with the significant negative coefficient for "Year Squared" confirms the peaked (in 1985 or 1986) shape of the awards time distributions as shown in Figures 5 and 6. Jury trials corresponded to higher awards than judge trials and cases resolved during trial correspond to higher awards than cases resolved before trial. Cases resolved in tort reform states after the effective date of reform had higher awards than cases resolved in such states before the effective dates. States that enacted damages reform statutes during the 1979 to 1989 period had higher awards than states that did not enact damages reform statutes. Airplane cases resulted in higher awards than other products personal injury cases.[205]

205. The fact that the Adminstrative Office converts award amounts greater than $9,999,000 to that number results in censored data, for which ordinary least squares regression sometimes leads to questionable results. *See* W. GREENE, ECONOMETRIC ANALYSIS 724–33 (1990). Tobit models, appropriate for such censored data, lead to results only trivially different from ordinary least squares methods.

In addition, a sample selection problem attends the size-of-award data. One only observes an award size when plaintiffs prevail. For discussion of regression in a model accompanied by selection, see *id.* at 741–47. Using techniques developed for sample selection models, we find, with one exception, no material difference in results for the coefficients in Table B-3. The variable "During Trial" does become noticeably less signficant. A second selection effect problem arises because one observes a judgment predominantly in adjudicated cases and not in settled cases.