STABILITY, NOT CRISIS: MEDICAL MALPRACTICE CLAIM OUTCOMES IN TEXAS, 1988-2002

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Abstract

Using a comprehensive database of closed claims maintained by the Texas Department of Insurance since 1988, this study provides evidence on a range of issues involving medical malpractice litigation, including claim frequency, payout frequency, payment amounts, defense costs, and jury verdicts. The data present a picture of stability in most respects and moderate change in others. We do not find evidence in claim outcomes of the medical malpractice insurance crisis that produced headlines over the last several years and led to legal reform in Texas and other states. At least in Texas, the rapid rise in insurance premiums that sparked the crisis may reflect, in significant part, insurance market dynamics rather than changes in claim outcomes.

Controlling for population growth, the number of large paid claims (over $25,000 in real 1988 dollars) was roughly constant from 1990-2002. The number of smaller paid claims declined. Controlling for inflation, payout per large paid claim increased over 1988-2002 by an estimated 0.1% (insignificant) - 0.5% (marginally significant) per year, depending on the dataset we use to define "medical malpractice" claims. Jury awards increased by an estimated 2.5% (insignificant) - 3.6% (barely significant) per year, depending on the dataset, but actual post-verdict payouts in tried cases showed little or no time trend. Real defense costs per large paid claim rose by 4.2-4.5% per year. Real total cost per large paid claim, including defense costs, rose by 0.8-1.2% per year.

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I. INTRODUCTION

The medical malpractice ("med mal") "crises" of the 1970s, 1980s, and 2000s had the same cause: sharp spikes in insurance premiums. They also had the same political effect: demands by doctors and hospitals for liability-reducing reforms. Health care providers sought caps on pain and suffering and punitive damages, limits on contingent fees, abrogation of the collateral source rule, screening panels, and pre-filing expert reports, among other changes. In many states, including Texas, they got at least some of what they wanted. President George W. Bush has made federal legislation limiting malpractice liability a priority for his second term.

Attempts to address insurance crises by reforming liability rules assume that insurance rates are closely linked to claim outcomes. Med mal liability is the disease, insurance rate spikes are the symptoms. This has been disputed. Researchers who study the tort system have found only a loose connection between changes in filings and outcomes and premium spikes.[1] If the connection between tort processes and insurance rates is weak, liability reforms may not prevent future insurance crises.

To determine whether litigation outcomes are tightly connected to malpractice insurance rates, one needs good data on claim outcomes, including claim frequency and payout frequency and amounts, from both jury verdicts and settlements. Historically, these data have been lacking. To address this problem, Texas and a handful of other states require insurance carriers to file reports of closed claims.[2] Until recently, however, academic researchers have ignored these databases. Only the states themselves have studied them, and their reports have serious shortcomings.

In this article, we examine fifteen years of closed medical malpractice claim reports gathered by the Texas Department of Insurance (*TDI*). Texas is the second most populous state in the country and was among those identified by the American Medical Association as being caught in the recent malpractice insurance crisis.[3] Texas began collecting closed claim reports after the prior insurance crisis in the 1980s. The Texas Closed Claim Database (*TCCD*) is rich in length (1988-2002), comprehensive in covering all closed claims, and provides detailed information about payments, defendants, trial outcomes, defense costs, and other matters.[4]

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[1] See, e.g., Tom Baker, *Medical Malpractice Insurance Reform: "Enterprise Insurance" and Some Alternatives* in MEDICAL MALPRACTICE REFORM IN THE UNITED STATES: NEW CENTURY, DIFFERENT ISSUES (Ronen Kersh and William Sage, eds., forthcoming 2005); Tom Baker, *Medical Malpractice and the Insurance Underwriting Cycle* (working paper 2005), http://ssrn.com/abstract=616281 (arguing that "the insurance cycle, not dramatic changes in medical malpractice claim payments," underlay the early 2000s malpractice crisis); Katherine Baicker and Amitabh Chandra, *The Effect of Malpractice Liability on the Delivery of Health Care* (NBER Working Paper 10709, 2004), at http://ssrn.com/abstract=583707 (finding "a fairly weak relationship between malpractice payments . . . and premiums—both overall and by specialty").

2 See, e.g., TEXAS DEPARTMENT OF INSURANCE, 2002 TEXAS LIABILITY INSURANCE CLOSED CLAIM ANNUAL REPORT 1 (2004), at http://www.tdi.state.tx.us/general/forms/report4.html (Texas established its reporting requirement to address "an absence of reliable information concerning liability insurance claims, related court actions and other information pertinent to the claims settlement process and the civil justice system in Texas").

[3] AMERICAN MEDICAL ASSOCIATION, AMA ANALYSIS: A DOZEN STATES IN MEDICAL LIABILITY CRISIS (June 2002).

[4] Florida maintains a similar but less comprehensive database of closed insurance claims. In contemporaneous work, Neil Vidmar and coauthors have used this dataset to study medical malpractice claims in Florida for 1990-

The *TCCD* allows us to assess changes over time in the number and cost of malpractice claims. We find that malpractice claims and payments were stable over the period for which we have data. More specifically (unless otherwise noted, all dollar values in this article are in real 1988 dollars):

- Adjusted for population growth, the total number of closed claims, the number of "large" paid claims (payouts of at least $25,000 in 1988 dollars), and the percentage of claims that produced large payouts were stable over 1990-2002. Adjusted for physician growth (a measure of the intensity with which people use the health care system), the total number of paid claims and the number of large paid claims declined.[5]
- The number of smaller paid claims (less than $25,000 in 1988 dollars) declined sharply.
- Mean and median payouts per large paid claim rose by an estimated 0.1 (insignificant) - 0.5% (marginally significant) per year over 1988-2002. The mean payout in 2002 was about $528,000 and the median was about $200,000, in 2002 dollars.
- In large paid claim cases that were tried, jury verdicts increased by an estimated 2.5% - 3.6% per year, with the increase and its significance depending on the dataset we use. However, actual post-verdict payouts showed little or no time trend.
- Total payouts to patients were about $515 million in 2002 (in 2002 dollars) and were roughly constant over time. In 2002, total payouts equaled about 0.6% of total Texas health care spending ($93 billion in 2002 dollars).
- Defense costs per large paid claim rose by 4.2-4.5% per year, depending on the dataset, but the increase was gradual and the dollars involved are a fraction of payout dollars. (We lack data on defense costs for zero-payout and small payout claims.).
- Total cost (payout plus defense cost) per large paid claim rose by 0.8-1.2% per year, depending on the dataset. The total annual cost for all large paid claims was roughly flat as a percentage of Texas Gross State Product or Texas health expenditures.
- Paid claims averaged 4.6 per 100 practicing Texas physicians per year in 2000-2002, down from 6.4 per 100 physicians per year in 1990-1992. Total claims averaged 25 per 100 physicians per year in 2000-2002, of which about 80% closed with no payout.

This evidence suggests that no crisis involving malpractice claim outcomes occurred. It thus also suggests a weak connection between claims-related costs and short-to-medium term fluctuations in insurance premiums. If so, litigation reforms may not prevent future insurance crises. To be sure, malpractice claims typically involve a several year lag between initial claim and payout. It is theoretically possible that the spike in insurance premiums was driven by a spike in number of new claims or expected cost per claim that is not yet reflected in the closed claims that we study. But the more likely explanation is that the rise in premiums reflects insurance market dynamics, and not litigation dynamics.

2001. See Neil Vidmar, Paul Lee, Kara MacKillop, Kieran McCarthy and Gerald McGwin, *Seeking the "Invisible" Profile of Medical Malpractice Litigation: Insights from Florida*, DEPAUL L. REV. (forthcoming 2005).

[5] *TDI* found evidence of incomplete claim reporting for 1988 and 1989. Thus, our statements about trends in number of claims rely on data from 1990-2002.

To offer evidence that the medical malpractice claims process is not in crisis is not to defend the malpractice litigation system, which has important known problems. Nor is it to suggest that the current level of malpractice litigation is optimal. Our hope is that better understanding of the claims process will lead to reforms that address real shortcomings in the malpractice litigation and claims payment systems, rather than respond to anecdotes or the rhetoric of crisis.

Part II describes the state closed claim databases and the limited work that has been done on them. Part III provides details on our dataset. Part IV discusses our principal results. Part V describes limitations and complications that result from our use of closed claim data and lack of access to data on open claims. Part VI concludes.

II. STATE CLOSED CLAIM DATABASES

Table 1 lists the non-proprietary closed claim databases of which we are aware, the periods they cover, and whether researchers have access to claim data.[6] The only national database, the National Practitioner Data Bank, covers only physicians, not hospitals, and has problems as to completeness.[7] Only Florida and Texas make claim reports, without identifying information, available to researchers. An appendix, available from the authors on request, summarizes the information on medical malpractice claims and payouts over time that is available from the states' reports on their own databases.

[6] NATIONAL ASSOCIATION OF INSURANCE COMMISSIONERS, MALPRACTICE CLAIMS: FINAL COMPILATION, MEDICAL MALPRACTICE CLOSED CLAIMS, 1975-1978 (1981). The Physicians Insurance Association of America has maintained a closed claim database since 1985 but does not make its data available to researchers (we asked). Some other private databases of uncertain completeness also exist. For example, Jury Verdict Research, Westlaw, and Lexis collect information on jury verdicts and settlements.

[7] See, e.g., Lawrence Smarr, *A Comparative Assessment of the PIAA Data Sharing Project and the National Practitioner Data Bank: Policy, Purpose, and Application*, 60 LAW AND CONTEMPORARY PROBLEMS 59-79 (1997); Joseph Hallinan, *Attempt to Track Malpractice Cases is Often Thwarted*, WALL STREET JOURNAL, Aug. 27, 2004, at 1.

Table 1. Non-Proprietary Closed Claim Databases

All non-proprietary closed claim databases of which we are aware, the periods they cover, and whether information on individual claims is publicly available, and hence available to researchers.

National databases	**Years covered**	**Researcher access**
National Association of Insurance Commissioners	1975-1978	No
National Practitioner Data Bank	1990-present	yes
State databases		
Florida	1975-present	yes
Illinois	1980-present	No
Missouri	1979-present	No
Minnesota	1982-1987	No
Massachusetts	1987-present	No
Nevada	2002-present	No
Texas	1988-present	yes

No academic study has previously used the *TCCD* to examine malpractice litigation.[8] One recent study by Neil Vidmar and coauthors uses the Florida database to assess changes in malpractice claim frequencies and payouts over time.[9] Vidmar et al. study closed Florida claims from 1990 through 2003. They have data on claims against *non*-self-insured entities (many hospitals and some physicians self-insure), which were closed *with* payments for the entire period; and on claims closed with*out* payment for 1990-1997 (after which Florida ceased collecting this information). They do not have data on jury verdicts. Vidmar et al. report that total claim frequency was stable over 1990-1997, averaging about 2,600 per year. The number of zero-payment claims dropped over this period. The number of paid claims increased over 1990-2003, but roughly in line with Florida's population growth and more slowly than its supply of physicians. The number of paid claims per 100,000 Florida residents declined slightly from 9.96 in 1990 to 9.74 in 2003, and the number of paid claims per 100 doctors fell from 3.98 in 1990 to 3.33 in 2002.

Turning to payment amounts, Vidmar et al. found that mean (median) payments for paid claims increased substantially. In real 2003 dollars, the mean (median) payment increased from $177,000 ($49,000) in 1990 to $300,000 ($150,000) in 2003. The authors attribute these changes to (1) a significant increase in the severity of the injuries claimants sustained, and (2) larger awards within injury severity categories, possibly driven by the growing cost of health

[8] The only uses we know of are summary annual reports published by *TDI* and brief discussion in a study commissioned by a partisan interest group as part of the tort reform debate in Florida. See FLORIDA HOSPITAL ASSOCIATION, MEDICAL MALPRACTICE ANALYSIS (2002) (prepared by Milliman USA, Inc.). The only academic uses of the *TCCD* we know of are Herbert J. Kritzer, *Advocacy and Rhetoric vs. Scholarship and Evidence in the Debate over Contingency Fees: A Reply to Professor Brickman*, 82 WASHINGTON UNIVERSITY LAW QUARTERLY 477 (2004); and Martin Grace, *Tort Reform: Are There Real Benefits?* (working paper 2004), at http://www.rmi.gsu.edu/rmi/research/papers/tortreformarethererealbenefitsaug2004.pdf. Neither article focuses on medical malpractice.

[9] See Vidmar et al. (2005), *supra* note 4. Several studies use the Florida database but do not study claim frequency or payouts over time. See Frank A. Sloan and Chee Ruey Hsieh, *Variability in Medical Malpractice Payments: Is the Compensation Fair?*, 24 LAW AND SOCIETY REVIEW 997 (1990); FRANK A. SLOAN, PENNY B. GITHEN, ELLEN WRIGHT CLAYTON, GERALD B. HICKSON, DOUGLAS A. GENTILE, AND DAVID F. PARTLETT, SUING FOR MEDICAL MALPRACTICE (1993); James W. Hughes and Edward A. Snyder, *Litigation and .Settlement Under the English and American Rules: Theory and Evidence*, 38 JOURNAL OF LAW AND ECONOMICS 225 (1995).

care. Vidmar et al. did not perform a regression analysis to estimate the relative importance of these or other factors.

III. THE TEXAS CLOSED CLAIMS DATABASE

Texas is a useful setting for assessing trends in health care, including medical malpractice. Texas is the 2nd largest state measured by population and the 3rd largest in total health care spending. It is often thought to be a pro-plaintiff state. During the period we study, it enacted only limited medical malpractice reforms, and thus offers a good laboratory to study a mostly "unreformed" jurisdiction. The principal legal change during this period was 1995 tort reform which capped punitive damages and de facto required plaintiffs in medical malpractice cases to provide an expert report supporting their claim at the time of filing a lawsuit.[10]

A. Description of the Data

The *TCCD* is an extraordinary resource. Since 1988, *TDI* has received detailed reports of closed claims relating to five lines of insurance: General Liability, Medical Professional Liability, Other Professional Liability, Commercial Automobile Liability, and Liability Portion of Commercial Multi-Peril Insurance. Closed claims data are currently available through 2002. The forms and accompanying instructions that insurers use when submitting information have remained substantially the same.

The *TCCD* contains two kinds of reports: individual level reports of claims involving indemnity payments of more than $10,000 in nominal dollars; and aggregate level reports of all other closed claims. Over 1988-2002, it includes 158,695 individual reports across all lines of coverage. Table 2 provides a breakdown of individually reported claims, including duplicate claims, by coverage category. In addition, aggregate reports cover more than 1 million claims with zero payout or payout of up to $10,000 in nominal dollars.

[10] A memorandum describing changes in Texas law affecting medical malpractice suits from 1980-2002 is available from the authors on request. The principal changes were as follows. In 1988, the Texas Supreme Court struck down a $500,000 statutory cap on all damages except those relating to "expenses of necessary medical, hospital, and custodial care . . . for treatment of the injury." Texas enacted this cap in 1977 in response to the 1970s malpractice crisis. The court also invalidated an alternative $150,000 cap on non-economic damages. Lucas v. U.S., 757 S.W. 2d 687, 691 (Tex. 1988.) In 1990, the court upheld both caps for wrongful death cases and held that the caps applied to each defendant individually, rather than all defendants combined. Rose v. Doctor's Hospital, 801 S.W. 2d 841 (Tex. 1990). A 1995 tort reform statute (i) capped punitive damages for all torts at the greater of (a) $200,000 or (b) 2 times other damages, but no more than $750,000; (ii) limited venue to the county in which the accident occurred or the defendant maintained its principal place of business; (iii) required plaintiffs in medical malpractice cases to either post a bond or provide an expert report supporting their claim when filing a lawsuit; and (iv) limited prejudgment interest. In 1998, the Texas Supreme Court held that a hospital is vicariously liable for errors committed by an emergency room physician only when the hospital held out the physician as an employee or allowed the physician to so represent. Baptist Memorial Hospital System v. Sampson, 969 S.W.2d 945 (Tex. 1998).

Table 2. Overview of the Texas Closed Claim Database (*TCCD*)

Number of closed claim reports filed with TDI with payout of over $10,000 in nominal dollars, including duplicate reports (reports by two or more defendants involving the same incident), by type of insurance policy, from 1988-2002.

Insurance line	Number of reports	Percent
Commercial auto liability	82,452	52%
Mono-line general liability	36,957	23%
Texas commercial multiperil	21,633	14%
Medical professional liability	**16,437 (14, 697 without duplicates)**	**10%**
Other professional liability	1,215	1%
Unidentified	1	0%
Total	**158,695**	**100%**

A "claim" is an incident causing bodily injury and resulting in a request to an insurer by a policyholder for coverage. In medical malpractice cases, the policyholder is normally a health care provider. If a single incident involves multiple possible defendants, each policyholder's request for coverage is a separate claim. We define a "claimant" as the injured person (plus any others who, because of the injury, may be entitled to compensation, such as a patient's spouse or children).[11]

An insurer must file a report with *TDI* in the year when a claim "closes" -- when the insurer "has made all indemnity and expense payments on the claim."[12] When total known payments to a claimant by all defendants equal $25,000 (nominal) or more, the primary carrier for each defendant must complete a "Long Form" that includes extensive description of a claim's characteristics and history. When total payments are $10,001-24,999 (nominal), each primary carrier must complete a somewhat less extensive "Short Form."[13] For example, the Short Form does not ask for the cause of injury. If total payments are $0-$10,000 (nominal), insurers do not file individual reports. Instead, beginning in 1990, they file an aggregate annual report which indicates, by line of insurance, the number of zero-payment claims, the number of claims with $1-10,000 payments, and total dollars paid.

Claim reporting from 1990 on is more complete than for 1988 and 1989 because *TDI* experienced reporting problems in the early years. *TDI* began an annual claim reconciliation and review process in 1990, and believes that reporting from 1990 on is reasonably complete. Below, for findings that depend on complete reporting (number of claims per year, total dollars paid per year, etc.), we rely primarily on the 1990-2002 times series. For findings that involve *per claim amounts*, we use the entire 1988-2002 time series; we get similar results in robustness checks that exclude 1988-1990.

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[11] The *Closed Claim Reporting Guide*, Reporting Unusual Circumstances, p. 9, states that multiple reports must be filed if a single incident produces multiple demands for compensation because the incident caused multiple injuries. Also, when the number of claimants exceeds 10, insurers use different forms and their reports are not contained in our dataset. These exceptions to the "one incident, one claim" rule are not likely to be significant for medical malpractice.

[12] See *Closed Claim Reporting Guide*, at 18.

[13] The *Closed Claim Reporting Guide* (containing reporting instructions, the most recent version is from 2002), the long and short forms, summary *Closed Claim Annual Reports* (through 2002), and the core data on which we rely are available at http://www.tdi.state.tx.us. In some cases, the online data is incomplete and was completed through information provided to us directly by TDI.

TDI's review process makes Texas's post-1990 data more reliable than Florida's data, which have never been audited for accuracy by the Florida insurance department.[14] Even so, the review process does not eliminate all ambiguity. For example, a primary carrier is supposed to indicate the total amount a claimant received from all sources. An insurer knows what it paid to settle the claim but may not know how much other carriers paid. Thus, in cases with payments by multiple carriers, reports of total payments may be inaccurate. *TDI* also does not verify non-financial information. For example, although carriers must identify the type of injury a patient sustained (e.g., death, brain damage, or spinal cord injury), *TDI* does not investigate the accuracy of insurers' descriptions.

Medical malpractice cases often involve multiple defendants and multiple insurers. Beginning in 1991, *TDI* sought to identify multiple filings relating to the same incident ("duplicate reports"), but its approach is imperfect. In particular, TDI does not identify reports filed in different years as related. To identify duplicate reports for 1988-1990 and to correct for *TDI*'s under-identification of duplicate reports in later years, we reviewed all individual claims. We identified 1518 duplicate reports, versus 951 identified by *TDI*.[15] Below, unless otherwise stated, we exclude duplicate reports when reporting claim frequencies and payouts. To measure defense costs (which each insurer reports individually), we sum all insurer reports involving the same incident.

The $10,001 and $25,000 reporting thresholds are not adjusted for inflation. Thus, some claims that are individually reported in later years would have involved less detailed or only aggregate reporting in earlier years, assuming the same real payout. To address this "bracket creep," we convert all payouts to real 1988 dollars using the *Consumer Price Index for All Urban Consumers (CPI)* as a price index. A payout of $25,000 in 1988 is equivalent to $38,017 (nominal) in 2002.

Identifying claims involving medical malpractice is more complicated than one might expect. The *TCCD* offers three plausible ways of identifying medical malpractice claims, based on the type of insurance, the care provider, or the cause of harm. One definition ("*A*" claims) includes all claims covered by medical professional liability policies. It misses medical malpractice claims covered under other types of insurance, notably "other professional liability" and "general liability." A second definition ("*B*" claims) involves claims against medical providers, the relevant reporting choices being physicians or surgeons (we refer to this group below as "physicians"), hospitals, nursing homes, dentists, and oral surgeons. This definition misses claims where the defendant is coded as "other," which might occur when the defendant is a nurse, nurse practitioner, chiropractor, medical clinic, or home health care agency. A third

[14] See DELOITTE CONSULTING, MEDICAL MALPRACTICE FINANCIAL INFORMATION, CLOSED CLAIM DATABASE AND RATE FILINGS (2004), Appendix F (Florida data "has never been audited or checked for accuracy or completeness," and the Florida insurance officials "suspect[ ] that errors and inconsistencies in the data submitted are likely").

[15] Some decisions on whether to treat reports as duplicates involved subjective judgments about whether two similar reports actually related to the same incident. A summary of *TDI*'s duplicate identification procedures, our procedures, and why we identify duplicates that *TDI* missed is available from the authors on request. The presence of multiple defendants and multiple reports creates other risks of inaccurate reporting, besides failure to identify duplicates. For example, an insurer for one defendant may not know how much another defendant paid in settlement. One advantage of malpractice defense unified under a single defendant or insurer would be improved data reporting. See Kenneth S. Abraham and Paul C. Weiler, *Enterprise Medical Liability and the Choice of the Responsible Enterprise*, 20 AMERICAN JOURNAL OF LAW AND MEDICINE 29 (1994).

definition ("*C*" claims), available only for Long Form claims, involves claims coded as arising from "complications, misadventures of surgical/medical care." This definition misses some claims, including those where the harm is coded as a "fall" (in a hospital or a nursing home) or as "other." Below, we report results for three slices of the claim universe:

A "broad superset" ("*BRD*"). The *BRD* superset includes all nonduplicate large claims (payout over $25,000 in 1988 dollars) that were paid under medical professional liability insurance (*A* claims) *or* were against a health care provider (*B* claims) *or* involved injuries caused by complications or misadventures of medical or surgical care (*C* claims). The *BRD* superset includes 12,840 claims. During 2000-2002, the annual *BRD* flow averaged 987 cases, with mean (median) payout of $343,000 ($134,000) per claim.

A medium-sized "med mal insurance" set ("*MED*"). The *MED* set includes all nonduplicate large (payout over $25,000 in 1988 dollars) claims covered by medical professional liability insurance (*A* claims). This definition is similar to the Florida definition. Claims under medical liability insurance are the only ones for which we have data for claims with $0-10,000 (nominal) payout. Thus, these claims are the best choice for tracking the total number of malpractice claims and the fraction of claims that result in a payout. The *MED* set includes 11,967 claims. During 2000-2002, the *MED* annual flow averaged 926 cases, with mean (median) payout of $351,000 ($134,000) per claim.

An extended version of *MED* (MED_{all}) includes 2,440 cases with payout of at least $10,000 in nominal dollars but less than $25,000 in 1988 dollars, plus aggregate reports covering 4,643 paid claims with payouts from $1 to $10,000 in nominal dollars and 63,274 zero-payout claims. When using the MED_{all} dataset, we sometimes include duplicate reports from the *MED* dataset because we cannot exclude these reports from the zero-or-small claims.

A narrow "core med mal" set ("*NAR*"). The *NAR* set includes all nonduplicate large claims (payout over $25,000 in 1988 dollars) that are were paid under medical professional liability insurance (*A* claims) *and* were against a physician, hospital or nursing home (*B* claims) *and* involved injuries caused by complications or misadventures of medical or surgical care (*C* claims). This set excludes some cases that would be considered medical malpractice cases, but we can be confident that a claim within *NAR* involves medical malpractice as conventionally defined. *NAR* claims account for about 83% of dollars paid in the *BRD* superset. The *NAR* set includes 10,439 claims. During 2000-2002, the *NAR* annual flow averaged 810 cases, with mean (median) payout of $351,000 ($137,000) per claim.

We exclude claims against dentists and oral surgeons from the *BRD* and *NAR* datasets. We lack the data to do so for the *MED* dataset.[16]

As we show below, time trends for the different datasets are similar. We therefore report data and findings mainly for the *BRD* superset, and report findings for other datasets when there is particular reason to do so. We also create expanded "*10k*" versions of the *BRD*, *MED*, and *NAR* datasets, which include claims with payouts from $10,001-25,000 in 1988 dollars. We use these datasets to test the robustness of our findings for large paid claims and to assess whether there are different trends for smaller claims than for large claims.

[16] There are 475 dentist cases (3.6% of all cases). Payouts in these cases are usually small. The average payout on *BRD* dentist cases was $93,000 during 2000-2002 compared to $343,000 for other *BRD* cases (in 1988 dollars).

B. Data Limitations

We discuss below some important limitations of our study. Some involve data availability that limits what questions we can address with our dataset. Some arise because this article is only the first in a series of planned projects to study the rich, detailed *TCCD* database. We have not yet had the time to ask all of the questions one might want to ask.

1. Time Period Available for Study

We have 15 years of data. However, there was underreporting of large paid claims for 1988-1989, so we have only 13 years of reliable data on the number of these claims. There was underreporting through 1994 of claims with payout less than $10,000 nominal, so we have only 8 years of reliable data on the number of these claims. Below, except as explicitly noted, we report regression results for the entire period for which reliable data is available. We thus let the dataset determine the starting date for our analysis, rather than making that choice ourselves. In Figures 2, 3, 9, and 11, we visually report results for number of claims, total payout per year, and total cost per year including 1988 and 1989, to avoid any claim that we have intentionally suppressed the results for these years.

2. Open Claims

We have data only on closed claims, not still-open claims. Thus, we cannot rule out the possibility that malpractice premium spikes were driven by a large increase in claims that remained open at the end of 2002. Nonetheless, this explanation seems unlikely. First, premiums began spiking in 1999, while our data run through 2002. If the number of new claims had risen sharply in 1999 (or earlier), that would likely be reflected in the number of claims that were closed in 2001-2002. In fact, large paid claims, adjusted for population, were lower in 2001-2002 than in 1999-2000 (see Figure 3). There is also no significant time trend in the total number of closed claims. Turning to payout per claim, adjusted for inflation, there is no strong overall time trend in either payout per large claim (see Figure 8) or jury verdicts (see Figure 14). Insurers base their estimates of future payout on past experience. The experience that was available to them when premiums began spiking does not seem especially alarming.

3. Defense Costs for Zero-or-Small Claims

Some malpractice claims generate small payments, and many lead to zero payments. We have defense cost data only for claims with at least $10,000 (nominal) payouts. Defense costs rose over time for these claims (see Figure 10). They likely rose for other claims as well. However, defense costs per claim are much more under insurers' control than payouts. They likely change smoothly over time. Moreover, defense costs remain only a fraction of total insurer costs. Thus, defense costs are unlikely to explain more than fraction of the increase in malpractice insurance premiums from 1999-2003. We expect to investigate defense costs more closely in future work.

4. Unreported Payments

Mutual risk-pooling groups and self-insured entities that rely on captive insurers must report closed claims to *TDI* in the same manner as primary insurers. For “pure” self-insured entities (which don’t rely on captives or risk-pooling), excess insurance carriers must report as if they are primary carriers, if the payout triggers a payment by the excess carrier. Still an unknown number of pure self-insured entities don’t report closed claims. Thus, our data miss some percentage of overall Texas payouts on malpractice claims. We have no reason to believe

that the number of these missing claims change over time as a percentage of the total. In any event, for the purpose of understanding the connection between claim outcomes and malpractice insurance rates, payments on uninsured claims should not matter.

5. Claim Frequencies and Physician Specialties

We cannot study physicians by specialty because the *TCCD* does not include this information. Claim trends for surgeons and obstetricians may differ from those of pediatricians and oncologists. Specialists in different areas often pay vastly different amounts for malpractice insurance, may face different premium trends, and may differ in their near-term ability to adjust their fees to reflect changes in premiums. Still, micro-shifts seem unlikely to explain more than a fraction of the average 135% premium increase faced by Texas physicians over 1999-2002.

We also do not analyze claims based on provider type. Doctors receive a modest fraction of all health care dollars, but pay a majority of malpractice premiums.[17] If the fraction of payouts made by doctors rose relative to other providers (principally hospitals and nursing homes), our study would miss the resulting pressure on doctors' premiums and incomes. We expect to study claims by provider type in future work.

6. Claim Frequency and Payouts by City or County

Below, we report statewide experience. Just as our macro-level data can hide variation by physician specialty, it could hide variation across cities or counties within Texas. The *TCCD* includes county information. We expect to explore in future work what can be learned from county-level examination of claim outcomes. The county-level insurance rate information collected by *Medical Liability Monitor* and by *TDI* for its 2003 study of medical malpractice insurance show some variation in insurance premia by county, but on the whole do not suggest large county-level variation in premium trends. This, in turn, suggests that insurers are not seeing large county-level variations in claim trends.[18]

7. Underlying Rate of Medical Negligence and Severity of Harm

We cannot directly measure the rate of medical negligence. We have available only crude controls for the number of medical encounters (such as population and number of physicians per capita). If the fraction of medical encounters that involve negligence decreased (increased) over time, while the fraction of negligent encounters that lead to claims increased (decreased), this could produce the stable number of large paid claims, adjusted for population, that we observe. Similarly, if severity of harm increased (decreased) over time, while the ratio of payout to harm decreased (increased), this could produce the stable payout per large paid claim that we observe.[19]

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[17] See William M. Sage, *Understanding the First Malpractice Crisis of the 21st Century*, in 2003 HEALTH LAW HANDBOOK 1 (Alice G. Gosfield ed., 2003).

[18] See *Medical Liability Monitor* (annual surveys of malpractice insurance rates for 1995-2004); TEXAS DEPARTMENT OF INSURANCE, MEDICAL MALPRACTICE INSURANCE: OVERVIEW AND DISCUSSION (2003), at http://www.tdi.state.tx.us/general/pdf/spromptpay.pdf.

[19] A recent report found "little evidence that patient safety has improved in the last five years." HEALTHGRADES, PATIENT SAFETY IN AMERICAN HOSPITALS 1 (2004), at http://www.healthgrades.com/media/english/pdf/HG_Patient_Safety_Study_Final.pdf.

8. Jury Verdicts and Post-Trial Payouts

Jury verdicts are inherently hard to study, because they are limited in number and highly skewed in distribution. We find some evidence of a trend toward higher jury awards over time, though the trend is not statistically reliable and is sensitive to choice of dataset, . However, there is a much smaller trend, if any, in post-trial payout amounts. We expect to investigate jury verdicts and post-verdict payouts more closely in future work.

9. The Link Between Insurance Premiums and Claim Outcomes

We report here evidence on malpractice claim outcomes. If claim-based accounts of the malpractice insurance crisis are correct, we should find significant increases in claim frequencies, payout per claim, jury verdicts, etc. Because, by and large, we do not find these changes, our study suggests that claim-based accounts of the insurance crisis are incorrect at the macro-level. We do not, however, study insurance premiums in detail. Nor do we assess the year-by-year connection between insurance premiums and claim outcomes or other factors that might predict insurance rates. Even if insurance market forces largely explain the recent spikes in insurance premiums, claims and premiums should vary together over the long term. We plan to study the connection between claim outcomes and insurance rates in future work.

10. The Effect of Liability Caps

In response to a surge in malpractice insurance rates (see Part IV.A below), Texas adopted comprehensive tort reform, including caps on non-economic damages, effective for claims filed after Sept. 1, 2003. These changes postdate the period we study, so we cannot assess how they will affect claim outcomes. On economic grounds, one would expect liability caps to reduce both the number of large paid claims and the average payout per claim. In the long run, this should lead to lower insurance premiums.[20] An open question is whether caps on non-economic damages or other reforms will affect the volatility of insurance premiums *in percentage terms*.

C. Other Variables

We use, in various portions of our analysis, the following variables. We provide definitions when these are not self-evident. Sources for each are listed in Appendix *A*.

- *real 1988 dollars*: We convert current dollars in each year to 1988 dollars (or, occasionally 2002 dollars) using the Consumer Price Index for All Urban Consumers as a price index.
- *Texas population*
- *real Texas Gross State Product (GSP)*: Texas GSP adjusted for inflation.
- *Texas physicians*: Nonfederal physicians in active practice in Texas, as reported by the Texas Department of Health.

[20] For evidence of this effect, see W. Kip Viscusi and Patricia H. Born, *Damages Caps, Insurability, and the Performance of Medical Malpractice Insurance* (working paper, 2004), at http://ssrn.com/abstract=607203. But see Catherine M. Sharkey, *Unintended Consequences of Medical Malpractice Damages Caps*, 80 NYU LAW REVIEW (forthcoming 2005), at http://ssrn.com/abstract=668023 (arguing that changes in behavior by plaintiffs' lawyers could partly offset this effect).

- *Texas real health care spending*: Texas health care spending in real 1988 dollars (or, occasionally, 2002 dollars). Real health care spending is adjusted for general inflation but *not* for inflation that is specific to health care.
- *real medical care services cost index*: Medical care services cost index, adjusted for general inflation
- *real rate of increase in health care costs:* Trailing three year geometric annual average real increase in medical care services costs. For 2002, this is the geometric average annual increase for 1999-2002, and similarly for earlier years.
- *nominal interest rate*. Annual average interest rate on 10-year U.S. Treasury bonds.

IV. FINDINGS

This section proceeds as follows. In Part A, we briefly describe the increases in medical malpractice premiums for Texas physicians that occurred 1999-2003. In Part B, we describe the magnitude of malpractice litigation in Texas by presenting aggregate statistics. In Parts C-I, we report results for, respectively, the number of paid claims, payout per claim, total payout per year, defense costs, total costs (payouts plus defense costs), jury verdicts, and claims per physician.

A. Malpractice Premiums in Texas

In 2003, *TDI* surveyed malpractice carriers and found that the three carriers who collectively dominate the market raised their rates for physicians dramatically after 1999. The unnumbered figure below (taken from the TDI report) shows the trends. Table 3 summarizes the rate histories for these insurers. This insurance crisis led to extensive malpractice liability reform in Texas in 2003, including a $250,000 cap on non-economic damages per defendant and a $500,000 aggregate cap on recovery of non-economic damages from all physicians and health care institutions.[21] We address below whether there have been changes in claim outcomes of a magnitude sufficient to explain this premium surge.

[21] Other 2003 reforms include: (i) a requirement that damages based on expected future medical expenses be paid as expenses accrue and terminate on the patient's death; (ii) a requirement that other future damages be paid periodically rather than in a lump sum; (iii) a limit on hospital liability for charity care; (iv) a limit on insurer liability for wrongful failure to settle; (v) a 10-year statute of repose; and (vi) a variety of procedural changes relating to jury instructions, standards of proof, bond requirements, and expert witnesses.

Texas Malpractice Insurance Rates, 1999-2003

Changes in physician malpractice insurance rates for principal Texas carriers, based on data collected by *TDI*. Percentage increase is relative to rates in effect at Dec. 31, 1998. Percentage changes are *not* adjusted for inflation. Source: TDI, *Medical Malpractice Insurance: Overview and Discussion* (2003), chart 1.

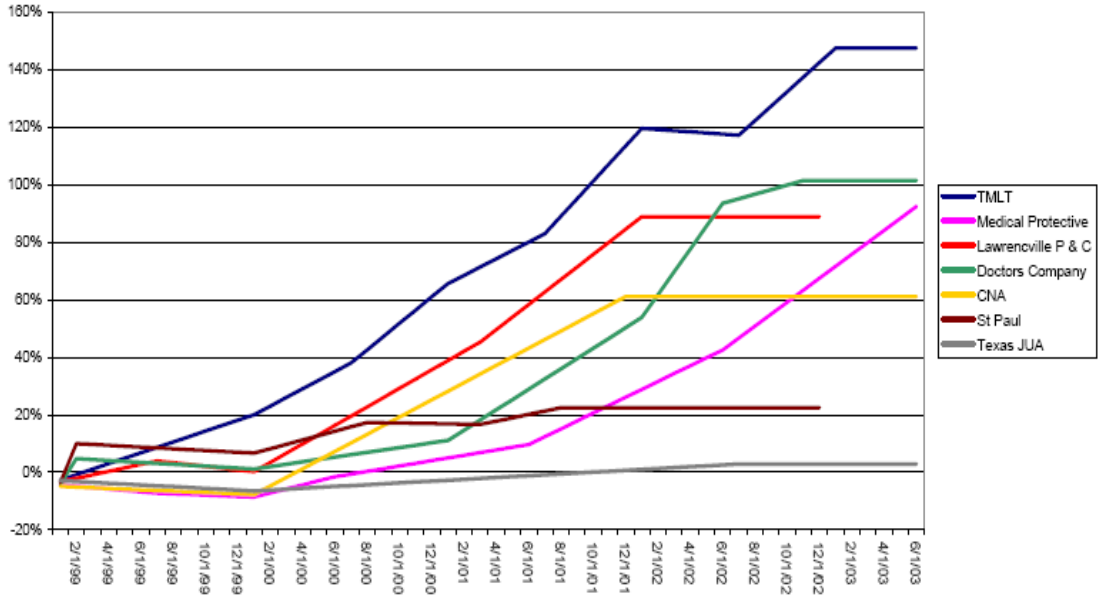


Table 3. Texas Medical Malpractice Rate Increases, 1999-2003

Percentage increases in medical malpractice insurance rates over the indicated periods. The last column is adjusted for inflation based on the Consumer Price Index for All Urban Consumers. The table reflects rate increases, not rates. A company with a larger (smaller) percentage rate increase could still charge a lower (higher) premium than another company. The Texas Joint Underwriting Association is a rate-regulated insurer of last resort for physicians who cannot find coverage elsewhere. Its rates are generally higher than those available from other carriers. Source: TDI, *Medical Malpractice Insurance: Overview and Discussion* (2003).

Company	**Physicians covered (in 2002)**	**Increase (1999-2003, nominal $)**	**Inflation-adjusted increase**
Texas Medical Liability Trust	9,964	155%	128%
The Medical Protective	5,235	107%	85%
The Doctors' Company	1,456	99% (2000-2003)	82%
Weighted average increase		**135%**	**110%**
Texas Joint Underwriting Ass'n	510	10% (2000-2002)	2%
All other surveyed insurers	432	varies	varies

B. Malpractice Litigation: Aggregate Statistics

Number of Claims and Claim Distribution. Table 4 provides summary information about our largest class of individually reported claims, BRD_{10k}. The largest payouts, over $1 million, account for only 5% of paid claims but 42% of payment dollars. Payouts over $250,000 account for 25% of paid claims over $10,000, but 78% of payouts. The tendency for a small fraction of paid claims to account for a large fraction of dollars paid would be even sharper if the table included payouts of less than $10,000, which (in the MED_{all} dataset) account for about 28% of all paid claims, but only 0.5% of payout dollars. Based on the *BRD* dataset, the mean (median)

payout per large paid claim was $490,000 ($205,000) for the entire period, and $528,000 ($200,000) in the most recent year (2002), in each case in 2002 dollars.

Table 4. Summary Statistics for BRD_{10k} Claims

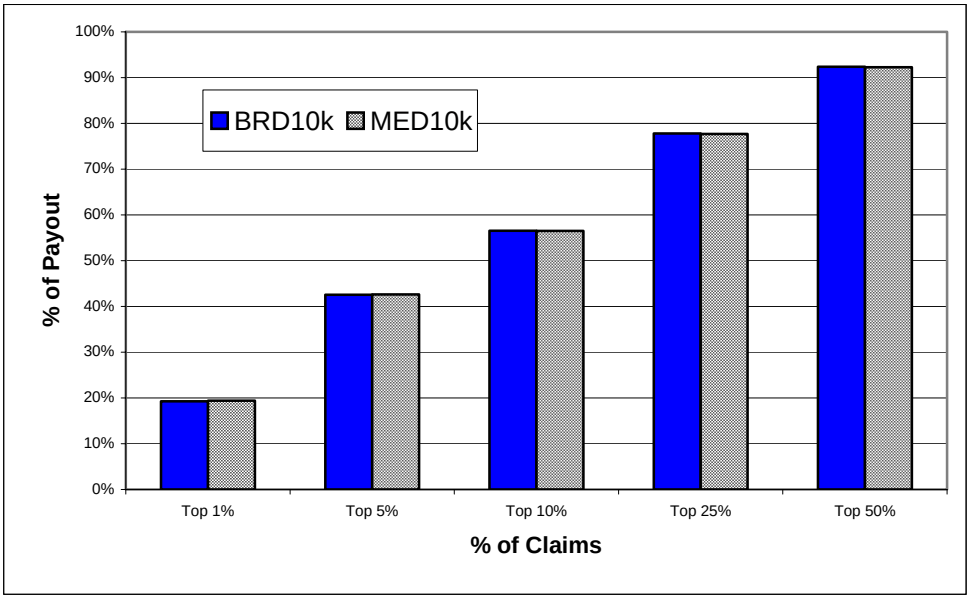
Number of medical malpractice claims from 1988-2002 with payouts in various size ranges (in 1988 dollars), based on the BRD_{10k} dataset (nonduplicate claims with payout over $10,000 in 1988 dollars that were paid under medical liability insurance, were against a health care provider, or involved injuries due to medical care).

Payout	Number of claims	% of total	Payout	% of total
$10,000 - 25,000	2,738	17.6%	$46 million	1.1%
$25,000 - 100,000	5,235	33.6%	$291 million	6.9%
$100,000 - 250,000	3,745	24.0%	$601 million	14.4%
$250,000 - 1,000,000	3,099	19.9%	$1,484 million	35.5%
over $1,000,000	761	4.9%	$1,763 million	42.1%
Total	15,578	100.0%	$4,185 million	100.0%

Figure 1 provides similar information in visual form for the BRD_{10k} and MED_{10k} datasets. The largest 1% of paid claims generated almost 20% of the payout dollars. The largest 10% of paid claims accounted for more than half of the total payout. And the largest 50% of claims accounted for 90% of the payout dollars.

Figure 1. Percentage of Total Payout by Payout Size Percentiles

Fraction of total payout for all medical malpractice claims from 1988-2002 accounted for by claims at or above various percentiles, based on payout size, based on the BRD_{10k} dataset (nonduplicate claims with payout over $10,000 in 1988 dollars that were paid under medical liability insurance, were against a health care provider, or involved injuries due to medical care) and the MED_{10k} dataset (nonduplicate claims with payout over $10,000 in 1988 dollars that were paid under medical liability insurance).



Plainly, one could learn much about malpractice claims by studying only large paid claims. Yet doing so would miss an important part of the story. Not only do smaller paid claims account for few payout dollars; claims resolved without payments are the most common by far.

A distinctive feature of malpractice compensation is the high frequency of claims closed with zero payment.

Only the MED_{all} dataset contains information on zero-payment claims, so we use it to illustrate this point. The MED_{all} dataset contains no reports of zero-payment claims in 1988 and 1989 (TDI began to collect this information in 1990) and understates the frequency of zero-payment claims in 1990-1994 because reporting in those years was incomplete. Table 5 therefore reports data only for 1995-2002. About 81% of claims were closed with zero payment, while another 5% closed with a small "nuisance" payment of under $10,000. Note, however, that the 81% of claims closed with no payout overstates the fraction of *incidents* that were closed with no payout because many claimants sued multiple defendants.

Table 5. Payout Distribution, Including Zero-Payout and Small Paid Claims

Number of claims and percentage of total claims in various payout size ranges for medical malpractice claims in the MED_{all} dataset (all claims reported under medical liability insurance), including duplicate claims, for 1995-2002. Payouts are in 1988 dollars.

Time period	**1995-2002**	
Payout (1988 $)	**Number of claims**	**Percent**
$0	48,064	80.8%
$1-10,000	2,815	4.7%
$10,000-25,000	1,299	2.2%
$25,000-250,000	5,136	8.6%
over $250,000	2,188	3.7%
Total MED_{all} claims	**59,502**	**100.0%**

Medical associations and tort reform groups cite the frequency of zero-payment claims as evidence of frivolous litigation. Plaintiffs' attorneys may have incentives to pursue weak cases when large damages are possible. They may also bring peripheral defendants into cases to increase the odds of collecting from someone. These tactics will often produce zero-payout claims. But the number of zero-payout claims seems too large to explain on these grounds alone. Moreover, empirical studies report that plaintiffs' attorneys screen med mal cases carefully and reject small or weak claims.[22] This makes sense because malpractice lawsuits are expensive, well defended, and usually brought on contingency. One must therefore look for explanations for zero-payout claims despite gatekeeping by plaintiffs' attorneys.

Several explanations are possible. First, some closed claim reports may not involve demands for compensation. When a mishap occurs, a provider may report a potential claim without waiting for a patient to seek compensation. The insurer will then open an incident file. If the injured patient fails to seek relief, the incident file will be closed without payment. Other studies have reported significant volumes of these types of claims.[23] Second, carriers also open

[22] See, e.g., Herbert M. Kritzer, *Contingency Fee Lawyers As Gatekeepers in the Civil Justice System*, 81 JUDICATURE 22 (1997); Henry S. Farber and Michelle J. White, *Medical Malpractice: An Empirical Examination of the Litigation Process*, 22 RAND JOURNAL OF ECONOMICS 199 (1991).

[23] See MINNESOTA DEPARTMENT OF COMMERCE, MEDICAL MALPRACTICE CLAIM STUDY 1982-1987, at 6 (1989) (discussing incident reports and insurer reserving practices); id. at 21 (finding that 36% of insurance files were closed without payment because the claim was not pursued). See also Herbert L. Weisberg and Richard A. Derrig, *Fraud and Automobile Insurance: A Report on Bodily Injury Liability Claims in Massachusetts*, 9 JOURNAL OF INSURANCE REGULATION 497, 503 (1991) (reporting that 18.3% of closed claim files "were screened out [of the

claim files when patients (or their attorneys) request medical records for review, with or without filing lawsuits. This information is often not otherwise available.[24] After records are produced, many claims are dropped and, again, zero-payment files are produced. TDI does not require a closed claim report for these sorts of inquiries, but its instructions on this point are not clear, and some insurers may report these inquiries as claims. Third, medical malpractice claims that seem possibly valid based on initial evidence often appear weaker after further discovery. When plaintiffs' attorneys drop these cases, more zero-payment files are produced. Fourth, plaintiffs may need to sue all plausible defendants to ensure that the named defendants do not point to non-defendants as the harm-doers.[25]

Some of these sources of zero payments indicate that insurance processes and the tort system are working as they should. Others suggest that better informal procedures for providing information to injured patients might reduce the number of zero-payout insurance files or zero-payout lawsuits. Unfortunately, the data that *TDI* collects on zero-payout claims does not let us estimate the importance of different sources of zero payouts.

Who Gets Sued? TDI requires insurers to identify the nature of both *their client* (whom we will call the "principal defendant") and "*other defendants*". Table 6 summarizes the distribution of claims across provider types. Manifestly, multiple defendants are a common feature of medical malpractice litigation. The first column lists the total number of defendants of each type (sometimes multiple physicians or hospitals are named in a single claim). The second column lists the number of *claims* in which a given type of provider is named. Physicians are the most common defendants, and are named in about 80% of closed claims. Hospitals are named 46% of the time. The sum of these percentages exceeds 100% because many reports identify more than one provider type (for example, a physician and a hospital) as co-defendants.

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study] because no claim had materialized"). Most patients who suffer harm due to malpractice never sue. See, e.g., STEPHEN DANIELS AND JOANNE MARTIN, CIVIL JURIES AND THE POLITICS OF REFORM (1995).

[24] See David A. Hyman and Charles Silver, *The Poor State of Health Care Quality in the U.S.: Is Malpractice Liability Part of the Problem or Part of the Solution*, CORNELL L. REV. (forthcoming 2005), at http://ssrn.com/abstract=526762 (discussing studies of communications between providers and patients about risks and mistakes); Gerald B. Hickson, Ellen Wright Clayton, Penny B. Githens, and Frank A. Sloan, *Factors that Prompted Families to File Medical Malpractice Claims Following Perinatal Injuries*. 267 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION 1359 (1992) (finding that patients often sue to obtain information).

[25] For additional explanations of zero-payment claims, see Michael J. Saks, *Do We Really Know Anything About the Behavior of the Tort Litigation System--And Why Not?*, 140 UNIVERSITY OF PENNSYLVANIA LAW REVIEW 1147, 1217-25 (1992); Samuel R. Gross and Kent D. Syverud, *Don't Try: Civil Jury Verdicts in a System Geared to Settlement*, 44 UCLA LAW REVIEW 1, 54 & n.78 (1996).

Table 6. Medical Malpractice Cases by Provider Type

Number of times that particular provider types were named as defendants, and number and percentage of claims naming particular provider types as defendants, for large paid medical malpractice claims in the *BRD* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that were paid under medical liability insurance, were against a health care provider, or involved injuries due to medical care), from 1988-2002. Percentages in the last column sum to more than 100% because many claims name more than one type of defendant.

Provider type	Total number of times named	No. of *claims* in which named	% of claims in which named
Hospitals	6,367	5,802	45.2%
Physicians	17,422	10,206	79.5%
Nursing homes and other health care providers	5,367	2,984	23.2%
All other defendants	2,463	1,367	10.6%
Total	31,619	20,359	
Total *BRD* Claims	12,840	12,840	

Table 7 shows a breakdown of cases by number of defendants. About 59% of large paid claims involve two or more defendants. Almost 20% of large paid claims involve four or more defendants. The frequency of multiple defendants may illuminate the common complaint by physicians that plaintiffs often sue doctors who delivered appropriate care. It seems unlikely that many cases involve actual malpractice by four or more separate defendants. They problem may be that once plaintiffs' attorneys decide to bring cases, they often name as defendants physicians who were only tangentially involved. Many physicians may then perceive malpractice lawsuits as unjustified *as to them*, even if others were in fact negligent.

Table 7. Defendants per Large Paid Medical Malpractice Claim

Number of defendants per claim, for large paid medical malpractice claims in the *BRD* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that were paid under medical liability insurance, were against a health care provider, or involved injuries due to medical care), from 1988-2002.

Number of defendants	Number of reports	Percent
1	5,317	41.4%
2	3,247	25.3%
3	1,835	14.3%
4 or more	2,441	19.0%
Total	**12,840**	**100.0%**

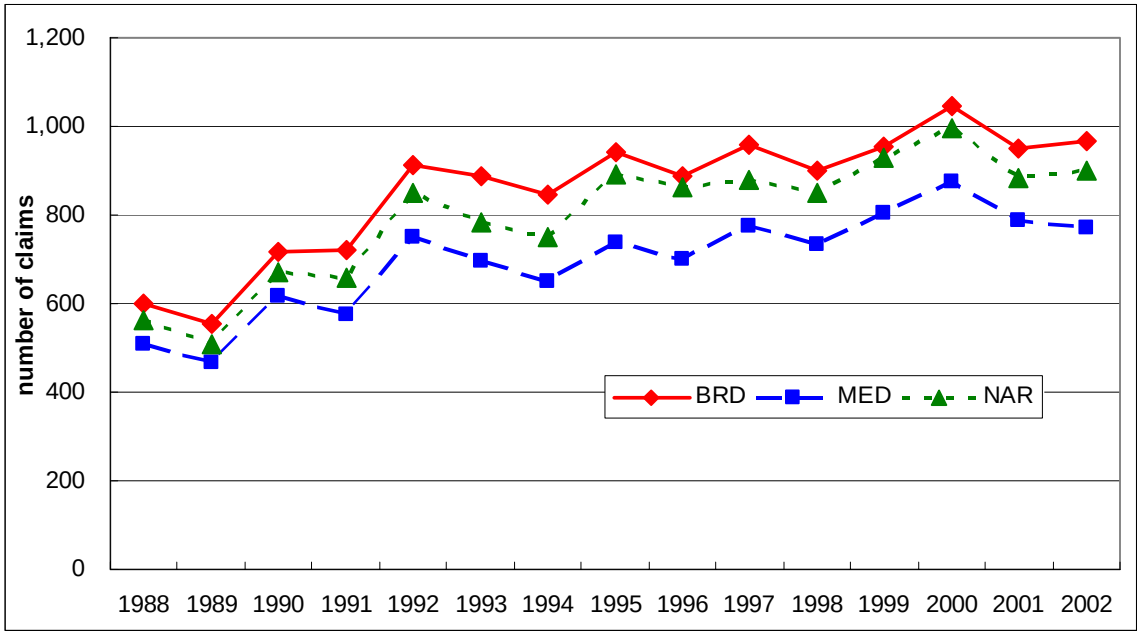
C. Number of Large Paid Claims

1. A graphical picture of large paid claims per year.

Figure 2 shows the annual number of large paid claims for the *BRD*, *MED*, and *NAR* sets. The trends for the three datasets are highly similar. Even if we exclude 1988-1989, when reporting was incomplete, a rising trend over time is apparent. A simple regression of number of claims (as dependent variable) against year and a constant term confirms a significant time trend, with the increase averaging 19 *BRD* claims per year over 1990-2002.

Figure 2. Number of Large Paid Claims per Year

Number of large paid medical malpractice claims per year from 1988-2002 for the *BRD* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that were paid under medical liability insurance, were against a health care provider, or involved injuries due to medical care), the *MED* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that were paid under medical liability insurance), and the *NAR* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that are were paid under medical liability insurance *and* were against a physician, hospital or nursing home, *and* involved injuries due to medical care). Number of claims for 1988 and 1989 is lower than the actual number due to underreporting.

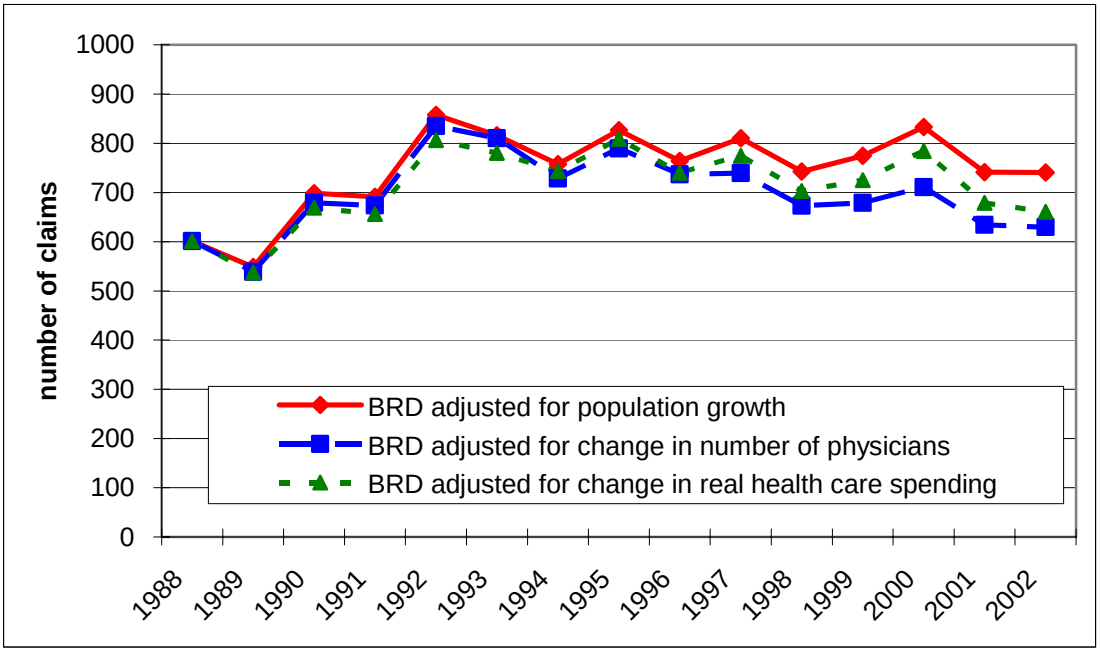


Some increase in number of claims should be expected, for two reasons. One factor is the growth in Texas population. A second is rising per capita consumption of medical services. Other things equal, an increase in either factor should predict an increase in medical malpractice claims. We use two imperfect proxies for the intensity of medical care service consumption. The first is the number of physicians per capita; the second is real health care spending per capita, adjusting for *medical care services inflation* (which is generally higher than overall inflation). Increases in these variables should predict higher service levels and therefore more claims. Other factors that we do not control for, including changes in the health, age, and ethnic composition of the Texas population, the mix of medical services (some services are more litigation prone than others), and the underlying rate of negligent medical care could also affect expected number of claims, payout per claim, or both.

Figure 3 shows the number of *BRD* claims per year, adjusted (respectively) for population, number of physicians (which is equivalent to adjusting separately for population and for physicians per capita), and real health care spending (which is equivalent to adjusting separately for population and for real health care spending per capita).

Figure 3. Adjusted Number of Large Paid Claims per Year

Number of large paid medical malpractice claims per year from 1988-2002 for the *BRD* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that were paid under medical liability insurance, were against a health care provider, or involved injuries due to medical care), adjusted for Texas population, real Texas health care spending (health care spending adjusted for medical care services inflation) and number of physicians. Number of claims for 1988 and 1989 is lower than the actual number due to underreporting.



With a simple adjustment for population (the top line in Figure 3), the number of large claims per year shows little time trend. The number of claims peaks in 1992 but then declines, and by 2002 has almost returned to its 1990 level. The lack of a positive trend (or a possible decline after 1992) is stronger with if we also adjust for intensity of medical care consumption (the bottom two lines).

2. Regression analysis: methodology

We turn next to ordinary least squares (*OLS*) regression analysis of the time trend in number of claims per year. Our implicit model of the claims generating process is that people have some number *Y* of medical encounters per year, some fraction *f* of which lead to a malpractice claim. The number and nature of encounters can vary across time. The fraction of encounters that lead to claims and the amount of damages can vary across time and with the nature of the encounter and the personal characteristics of people. However, we assume that each person's outcome is independent of other persons' outcomes. The number of claims per year is then a count variable, which results from *Y* independent draws from a pool of encounters, each of which produces a claim with probability *f*. As long as the draws are independent and the number of claims per year is large, *OLS* is appropriate.

Ideally, we would want to use regression analysis to untangle the effects of time, population, intensity of medical services consumption, and other factors on claim frequency. However, the limited sample size (13 years from 1990-2002) and high colinearity among these potential influences makes this impractical (as an extreme example, the correlation between year

and population is 0.998). The best we can do is to assess whether paid claim frequency, adjusted for population, or further adjusted for medical intensity, has a time trend.

We make no claim that year causally predicts number of claims or, later in this article, per claim amounts. Instead year likely proxies for underlying changes in the world, which themselves have a time trend. We expect in future work to use the *TCCD* to conduct a finer-grained analysis of the underlying factors that influence claim outcomes.

3. Regression analysis: results

The regressions in Table 8 confirm the impression from Figure 3 that with any of these adjustments, there is no significant time trend for 1990-2002, and a negative trend from 1992-2002, especially if we adjust for medical intensity. In robustness checks, we obtain similar results for the *MED* and *NAR* datasets, and similar results if we exclude 1990 (to allow for the possibility that 1990 results include some catchup reporting of claims that should have been reported in 1988 or 1989).[26]

Table 8. Adjusted Number of Large Paid Claims per Year

Ordinary least squares regression analysis of number of large paid medical malpractice claims per year for the indicated periods, for the *BRD* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that were paid under medical liability insurance, were against a health care provider, or involved injuries due to medical care). The number of claims is adjusted respectively for Texas population, number of Texas physicians, and real health care spending (health care spending adjusted for medical care services inflation). We treat the first relevant year as year 0 (1990 for regression (1-3), 1992 for regressions (4-6)). We show results separately for the 1992-2002 subperiod to assess a possible trend over the latter time period, as suggested by visual inspection of Figure 2. *t*-statistics, based on robust standard errors, are in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels (omitted for constant term). Significant results (at 5% or better) are in **boldface**.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent variable	**Number of large paid claims (*BRD* dataset)**					
Adjusted for	**population**	**physicians**	**health care spending**	**population**	**physicians**	**health care spending**
Time period	**1990-2002**	**1990-2002**	**1990-2002**	**1992-2002**	**1992-2002**	**1992-2002**
Year	1.26	-8.50	-1.69	-7.13	**-18.81**	**-11.06**
	(0.32)	(1.98)*	(0.40)	(2.03)*	**(6.91)*** **	**(3.22)** **
Constant	765.9	767.7	743.3	823.3	818.2	801.3
	(27.08)	(25.25)	(24.65)	(39.62)	(50.79)	(39.41)
Observations	13	13	13	11	11	11
R^2	0.0090	0.2619	0.0141	0.3142	0.8414	0.5349

We focus in this article primarily on large paid claims (over $25,000 in 1988 dollars), because these claims represent over 99% of payout dollars. These are roughly constant over 1990-2002. In addition, the number of smaller paid claims declined sharply during this period. The reasons are unclear. Perhaps plaintiffs' counsel realized that smaller claims were no longer worth bringing or seriously pursuing. But the outcome is clear. Figure 4 shows this decline. It presents, for the MED_{all} dataset, separate lines for "small" paid claims (less than $10,000),

[26] Throughout this paper, unless otherwise stated, (i) when we report regression results for the *BRD* dataset, we obtain similar results with the *MED* and *NAR* datasets; (ii) when we report regression results for 1990-2002 (for number of claims, total payout per year, and total cost per year), we obtain similar results for 1991-2002; (iii) when we report results for 1988-2002 (for per claim amounts), we obtain similar results for 1990-2002 and for 1991-2002.

medium paid claims ($10,000-25,000), large paid claims, and total paid claims. A sharp decline in small paid claims, from 740 in 1990 to 235 in 2002, is apparent. Less easy to see is that medium paid claims also declined, from 138 in 1990 to 109 in 2002, even before adjusting for population growth or medical intensity.

Figure 4. Number of Paid Claims by Size of Payout

Total paid medical malpractice claims from 1990-2002, and claims within the indicated payout ranges, in real 1988 dollars, for the MED_{all} dataset (all claims reported under medical liability insurance). We exclude nonduplicate claims with payout over $10,000 in nominal dollars, but lack the data to identify duplicate claims involving payouts of less than this amount.

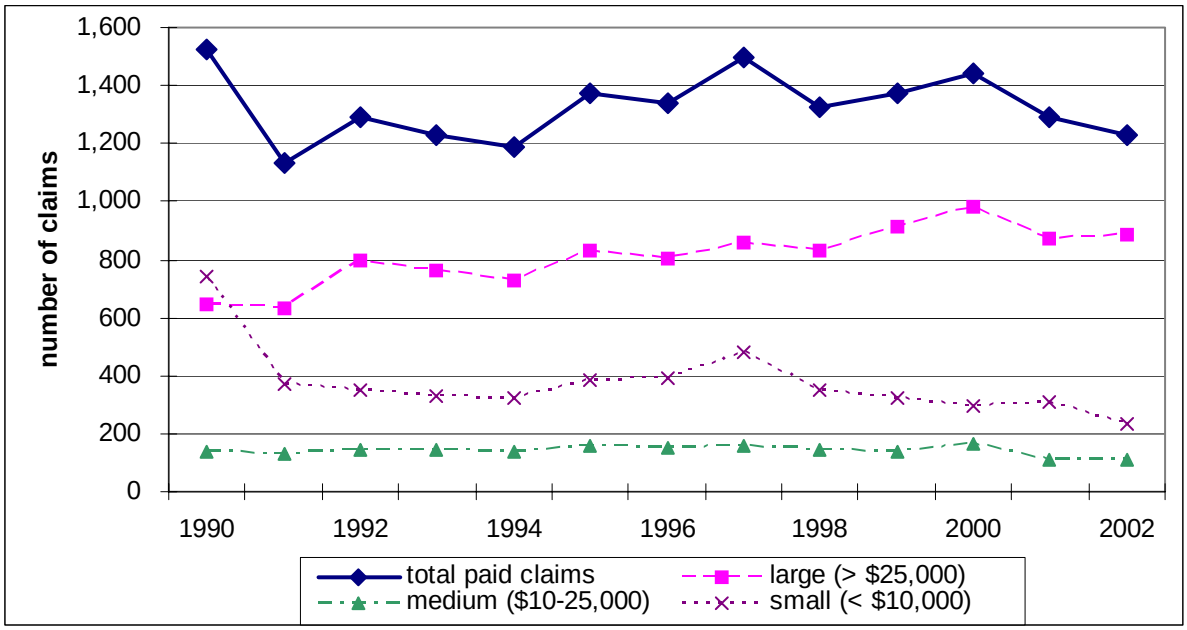
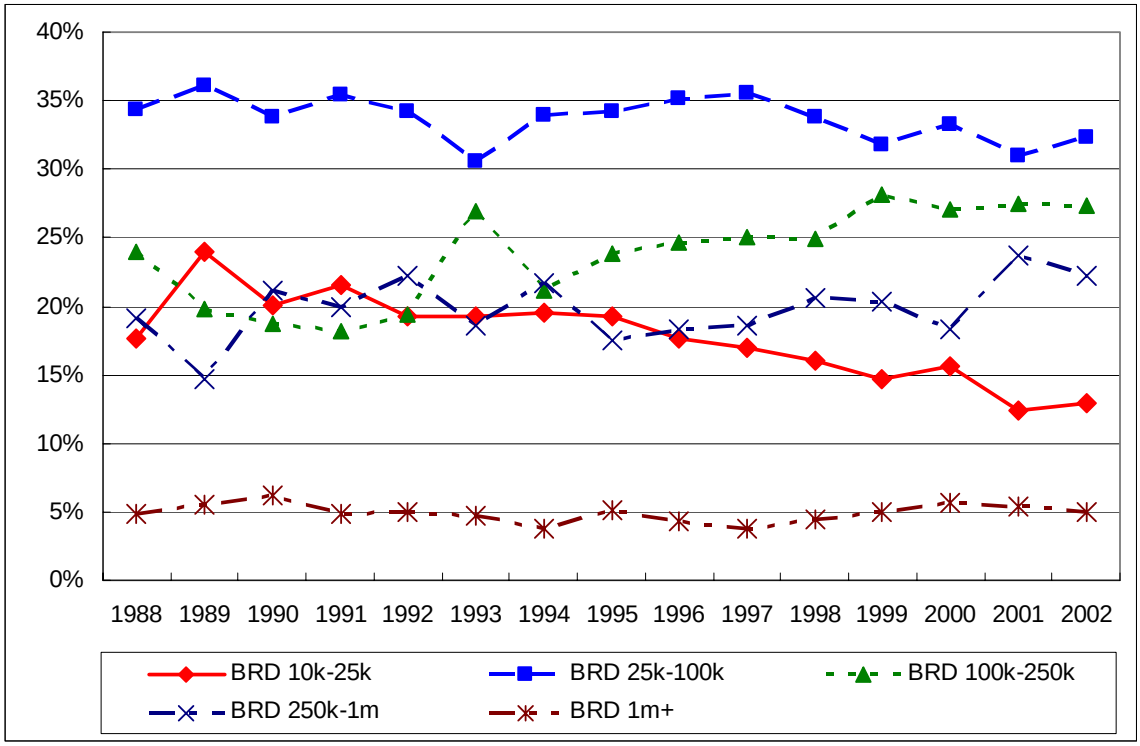


Figure 5 provides a more detailed breakdown of the size distribution of large and medium paid claims. It separates claims in the BRD_{10k} dataset into five size ranges—$10,000-$25,000; $25,000-$100,000; $100,000-$250,000; $250,000-$1,000,000; and over $1,000,000. There were only limited changes in size distribution within this class of claims. As a percentage of all paid claims, the two smallest payment categories shrank, and the middle category ($100-250,000) picked up the increase. Of particular note is the absence of a trend for "very large" claims over $250,000. These claims represent almost 80% of payout dollars (see Table 4). Claims over $1 million consistently represent about 5% of paid claims over $10,000.

Figure 5. Percentage of Paid Claims Over $10,000 by Size of Payout

Paid medical malpractice claims with payout of at least $10,000 in 1988 dollars, within the indicated payment ranges, based on the BRD_{10k} dataset (nonduplicate claims with payout over $10,000 in 1988 dollars that were paid under medical liability insurance, were against a health care provider, or involved injuries due to medical care), from 1988-2002,



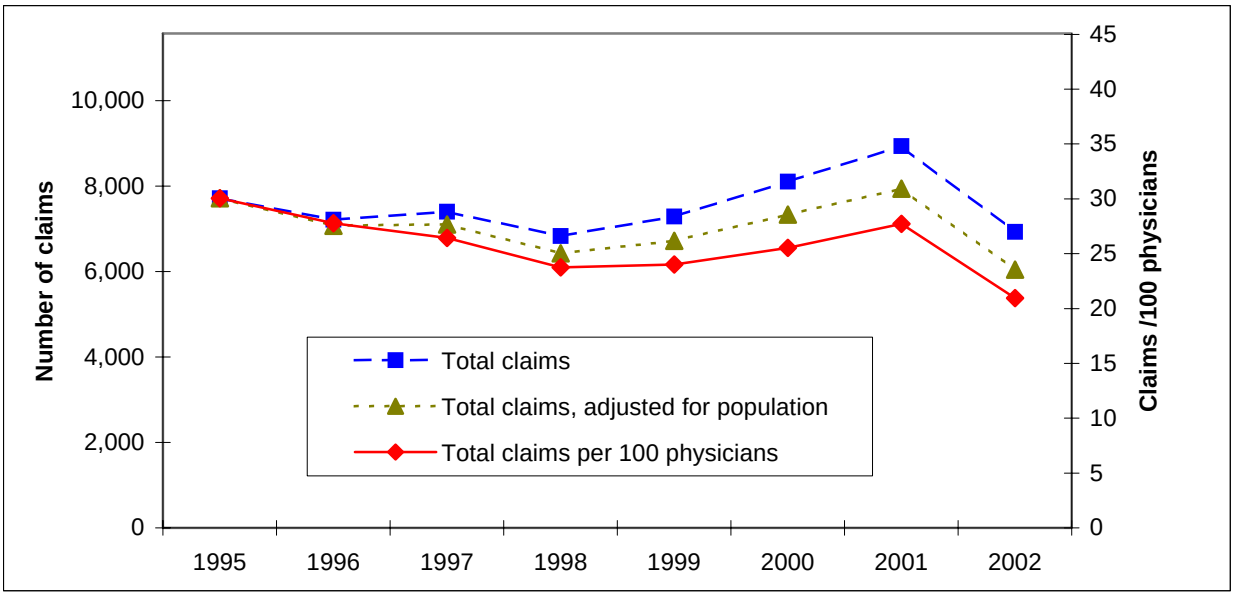
D. Total Claims and Total Paid Claims

We concentrated above on *large* paid claims. Physicians, however, are likely to care primarily about what affects them -- which includes their risk of being sued (related to total number of claims), and their risk of paying damages (related to total number of paid claims). Figure 6 presents information on the total number of claims, the number of claims adjusted for population, and the number of claims per 100 physicians per year, from 1995 on. We lack good data for prior years due to underreporting of zero-payout claims before then, which *TDI* believes was corrected in 1995. Figure 6 includes duplicate reports (reports by two or more defendants involving the same incident) relating to the same injury. This seems appropriate in assessing per-physician risk. The number of claims per 100 physicians per year overstates physicians' actual risk, because some claims involve other health care providers.

Figure 6 shows an apparent decrease over time in total claims per 100 physicians per year, which is marginally significant despite the very small sample size (see Table 9). While the trend in claims per physician is not alarming, the total claim rate is substantial. For 2000-2002, total claims averaged 25 per 100 physicians per year, meaning that the average physician faced a 1-in-4 annual chance of being involved in a claim, and perhaps a 1-in-2 chance of facing at least one claim during this 3 year period.

Figure 6. Total Malpractice Claims

Total medical malpractice claims, claims adjusted for population, and claims per 100 physicians, for the MED_{all} dataset (all claims reported under medical liability insurance), including duplicate claims, from 1995-2002.



At the same time, about 80% of all claims close without payment. Thus, a physician's risk of facing a payout is much smaller than the risk of facing a claim. This risk, too, has fallen over time. Figure 7 shows total paid claims and large paid claims per 100 physicians per year. *Total* paid claims declined from an average of 6.4 per 100 physicians per year in 1990-1992 to 4.6 per 100 physicians per year in 2000-2002. *Large* paid claims also declined, though more slowly, from 3.60 per 100 physicians in 1990-1992 to 3.26 per 100 physicians in 2000-2002. The shrinking space between the two lines in Figure 7 reflects the sharp decline over time in smaller paid claims (less than $25,000 in 1988 dollars).

Figure 7. Paid Claims per 100 Physicians

Total paid medical malpractice claims and large paid claims per 100 physicians per year, including duplicate claims, for the MED_{all} dataset (all claims reported under medical liability insurance), including duplicate claims, from 1990-2002.

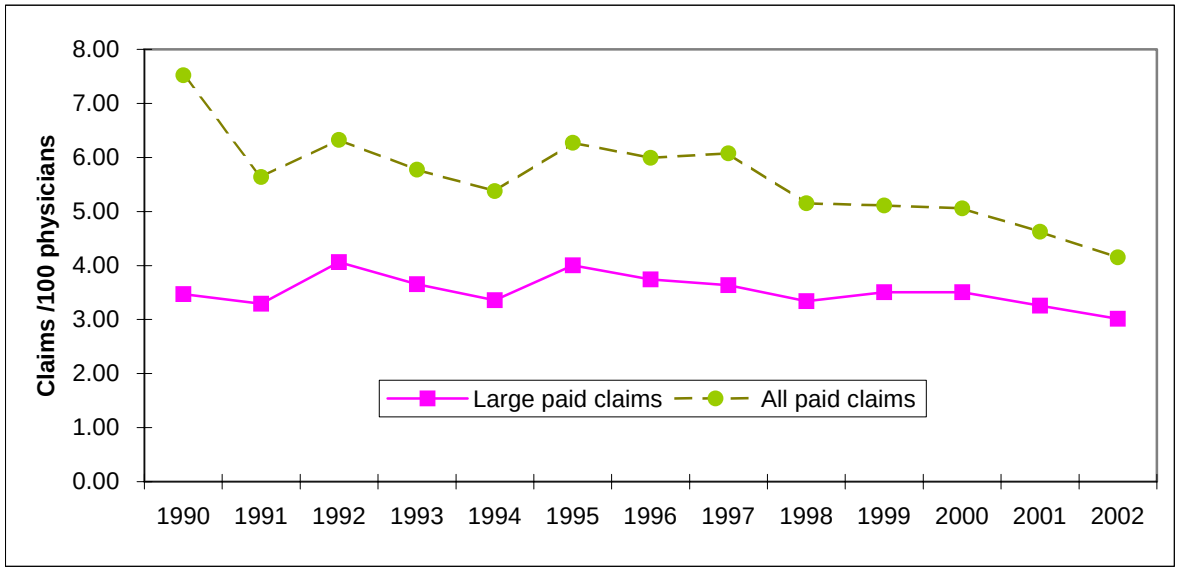


Table 9 provides regression analyses of total paid claims and total claims, first unadjusted, then adjusted for population and for number of physicians. The number of *paid* claims declines significantly over 1990-2002 when adjusted for either population or number of physicians. Physician-adjusted *total* claims also decline by an estimated 204 claims per year over 1995-2002, but the decline is only marginally significant due to the short time period. In robustness checks, we obtain similar results for total claims for 1990-2002, in regressions that include both a year variable and a 1995-dummy (=1 for 1995 and all later years) that is intended to capture the one-time jump in 1995 due to more complete reporting.

Table 9. Total Claims and Total Paid Claims

Ordinary least squares regression analysis of total number of paid medical malpractice claims per year for 1990-2002, and total medical malpractice claims per year for 1995-2002, for the MED_{all} dataset (all claims reported under medical liability insurance), including duplicate claims. *t*-statistics, based on robust standard errors, are in parentheses. We treat the first relevant year as year 0 (1990 for regression (1-3), 1995 for regressions (4-6)). *, **, *** indicate significance at the 10%, 5%, and 1% levels (omitted for constant term). Significant results (at 5% level) are in **boldface**.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	**Total paid claims (MED_{all} dataset)**			**Total claims (MED_{all} dataset)**		
Adjusted for	**None**	**Population**	**Physicians**	**None**	**Population**	**Physicians**
Time period	**1990-2002**	**1990-2002**	**1990-2002**	**1995-2002**	**1995-2002**	**1995-2002**
Year	1.8	**-24.8**	**-39.1**	67.9	-75.8	-203.7
	(0.18)	**(-2.72)****	**(-4.74)*****	(0.6)	(-0.75)	(-2.27)*
Constant	1496.099	1453.088	1446.725	7317	7312	7332
	(20.70)	(22.50)	(24.82)	(15.55)	(17.21)	(19.56)
Observations	13	13	13	8	8	8
R^2	0.0028	0.402	0.6715	0.0573	0.085	0.4629

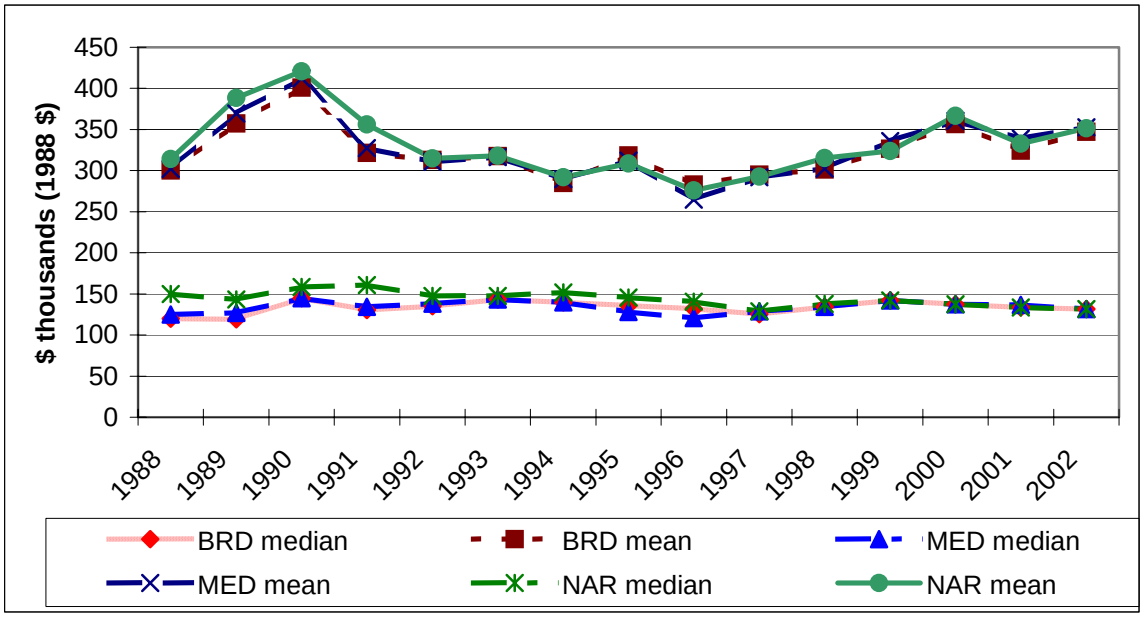
E. Payout per Large Paid Claim

The number of paid claims is one part of the malpractice liability equation. Payout per claim is the second key factor in assessing time trends in the dollar exposure faced by health care providers. Figure 6 shows the mean and median dollars per claim for the *BRD*, *MED*, and *NAR* datasets in 1988 dollars. The trend lines for the three datasets are nearly identical, confirming that it makes little difference to our results which dataset we use. The mean greatly exceeds the median, reflecting the skewed nature of malpractice payouts.

The central observation from Figure 8 is that both the mean and median payouts per large paid claim were relatively stable. For the *BRD* dataset, the mean payout was $300,000 in 1988, peaked at $401,000 in 1990, and was $347,000 in 2002, all in 1988 dollars. The median payment was $120,000 in 1988, peaked at $145,000 in 1990, and was $132,000 in 2002. These are large payouts, compared to other forms of tort litigation. But, contrary to conventional wisdom, they are not increasing.

Figure 8. Mean and Median Payout per Large Paid Claim

Mean and median payout in thousands of 1988 dollars, per large paid medical malpractice claim from 1988-2002, for the *BRD* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that were paid under medical liability insurance, were against a health care provider, or involved injuries due to medical care), the *MED* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that were paid under medical liability insurance), and the *NAR* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that are were paid under medical liability insurance *and* were against a physician, hospital or nursing home, *and* involved injuries due to medical care).



The stability in real payout per claim shown in Figure 8 is especially remarkable given that health care costs account for a significant fraction of the harm from medical malpractice, and these costs rose significantly faster than overall prices between 1988 and 2002.[27] The geometric average real increase in an index of health care services over this period was 2.4% per year. Other things equal, one would therefore expect average and median payouts to rise simply to reflect the "real" (after general inflation) increase in medical care prices. No such increase occurred. We cannot determine what fraction of payouts reflect health care costs, but if we could measure this fraction and then adjust payouts for the effect of the real increase in health care prices (much as we adjust for overall inflation), the mean and median payouts would likely decline over the 1988-2002 period.

Regression results tell a similar story. Table 10 shows results for a regression of that natural logarithm of the payout amount for each claim against year. These are "per claim" regressions, in contrast to the "per year" regressions reported above for number of claims per year. For regressions involving claims per year, we excluded 1988-1989 because of incomplete reporting in those years. We have no reason to expect bias in which types of claims were reported in 1988-1989 compared to later years. We find no evidence of bias in the size

[27] Studying jury verdicts over 40 years, Seabury and coauthors found that rising medical costs are a significant contributor to jury verdicts. Seth A Seabury, Nicholas M. Pace, and Robert T. Reville, *Forty Years of Civil Jury Verdicts*, 1 JOURNAL OF EMPIRICAL LEGAL STUDIES 1 (2004).

distributions presented in Figure 5, nor a change in the skewness of the payout distribution after 1990. Thus, we use all *BRD* claims in the regressions. We confirm in robustness checks that results are similar if we exclude 1988 and 1989**.**

We use log (payout) as the dependent variable because of the strong skewness of raw payout. This reduces skewness (kurtosis) from 9.5 (154) to 0.62 (3.1). The payout distribution still violates the normality assumption underlying OLS regression, but not radically so. A second advantage of using log (payout) as the dependent variable is that the coefficient on year can be interpreted as the fractional change in *dollar payout*, as long as this coefficient is small. Regressions (1-3) show that there is no strong time trend in payout per claim for the *BRD*, *MED*, or *NAR* datasets. The coefficients on year are insignificant and the point estimates are small, at .005 (0.5%) per year for the *BRD* dataset, 0.3% per year for the *MED* dataset, and 0.1% per year for the *NAR* dataset. In robustness checks, we obtain similar results with dollar payout as the dependent variable, the coefficient on year is small and insignificant for all datasets. The low R^2 values confirm that year is not an important predictor of payout per claim.

Recall that there was a sharp decline over time in the number of paid claims involving less than $25,000 in 1988 dollars. In regression (5), we switch to the BRD_{10k} dataset, thus including claims down to $10,000. We now find a significant increase in payout, averaging .017 (1.7%) per year. This increase, however, is driven by a *decline* in the number of medium payout claims, with payouts from $10,000 to $25,000. To sharpen this point, regression (6) shows the trend in mean payout for *all* paid claims regardless of size, based on the MED_{all} dataset. We have only annual rather than per claim data for these claims. The decline in small claims then generates a 2.4% average annual increase in payout per claim. However, these claims account for a trivial fraction of total payout dollars (see Table 4). This is not the stuff of a crisis in malpractice claim payouts.

We ran robustness checks with a number of additional control variables, either instead of or in addition to year. These included $year^2$ (to test for possible nonlinearity); Texas GSP per capita; a real medical care services cost index; the nominal interest rate on 10-year U.S. Treasury bonds (to control for the time value of money); and the real rate of increase in health care costs (to control for the effect of health care costs on payouts). None were significant, nor, with one exception, did their inclusion lead to a significant coefficient on year. The exception, shown in regression (4), was rate of medical care cost increase. This has the predicted positive sign, and is significant. When this variable is included, the coefficient on year becomes significant but remains economically modest at .010 (1.0%) per year. This combination of variables aside, we find no significant time trend in payout per claim.

Table 10. Regressions for Log (payout per large paid claim)

Ordinary least squares regression of natural logarithm of payout per large paid medical malpractice claim for the *BRD*, *MED*, *NAR*, and BRD_{10k} datasets, for 1988-2002, and for all paid medical malpractice claims for the MED_{all} dataset for 1990-2002. Datasets are defined in Part III.A. We treat the first year of the time period (1988 or 1990) as year 0. *t*-statistics, based on robust standard errors, are in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels respectively (omitted for constant term). Significant results (at 5% level) are in **boldface**.

	(1)	(2)	(3)	(4)	(5)	(6)
Dependent Variable	**Log (payout per large paid claim)**					
Dataset	***BRD***	***MED***	***NAR***	***BRD***	BRD_{10k}	MED_{all}
Time period	**1988-2002**	**1988-2002**	**1988-2002**	**1988-2002**	**1988-2002**	**1990-2002**
Year	0.005	0.003	0.001	**0.010**	**0.017**	**0.024**
	(1.92)*	(1.38)	(0.24)	**(2.78)*** **	**(6.51)*** **	**(3.12)*** **
Rate of medical cost increase				**2.679**		
				(2.07) **		
Constant	11.87	11.89	11.95	11.78	11.39	12.03
	(554.66)	(536.55)	(512.57)	(215.65)	(508.10)	(179.94)
Observations	12840	11967	10439	12840	15578	13
R^2	0.0003	0.0002	0.0000	0.0006	0.0028	0.4698

F. Total Payouts per Year

In the previous section, we focused on payout *per claim*. If there is stability in adjusted number of claims (from Sections C and D), and in payout per claim (from Section E), there will necessarily also be stability in adjusted total payout *per year*. Figure 9 confirms this. It shows total payouts on all malpractice claims per year, adjusted for (i) Texas population; (ii) real health care spending; (iii) number of physicians, and (iv) real Texas GSP. Adjusting for GSP provides a measure of whether the social burden of malpractice payments, relative to the overall Texas economy, is growing or shrinking. From 1990 (the first year with complete reporting) through 2002, there is no trend in total payouts per year adjusted for population, and a decline in total payouts relative to Texas GSP.

To convey a sense of the magnitude of malpractice payouts, total payouts in 2002 were $510 million, or about 0.55% of total Texas health care spending of about $93 billion (both numbers are in 2002 dollars). This compares to payout of $436 million in 1990, which was 0.8% of Texas health care spending of $52 billion in that year (both numbers are in 2002 dollars). Note that Figure 9 uses 1988 dollars. We caution readers that while the decline in total payout adjusted for GSP is significant, the $510 million payout underestimates the social burden of medical malpractice litigation. In particular, it excludes defense costs (addressed below), self-insured claims, and the potential cost of defensive medicine.

Figure 9. Total Medical Malpractice Payouts per Year

Total payouts on all large paid medical malpractice claims for the *BRD* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that were paid under medical liability insurance, were against a health care provider, or involved injuries due to medical care), from 1988-2002. Payouts for 1988 and 1989 are lower than the actual amounts due to underreporting.

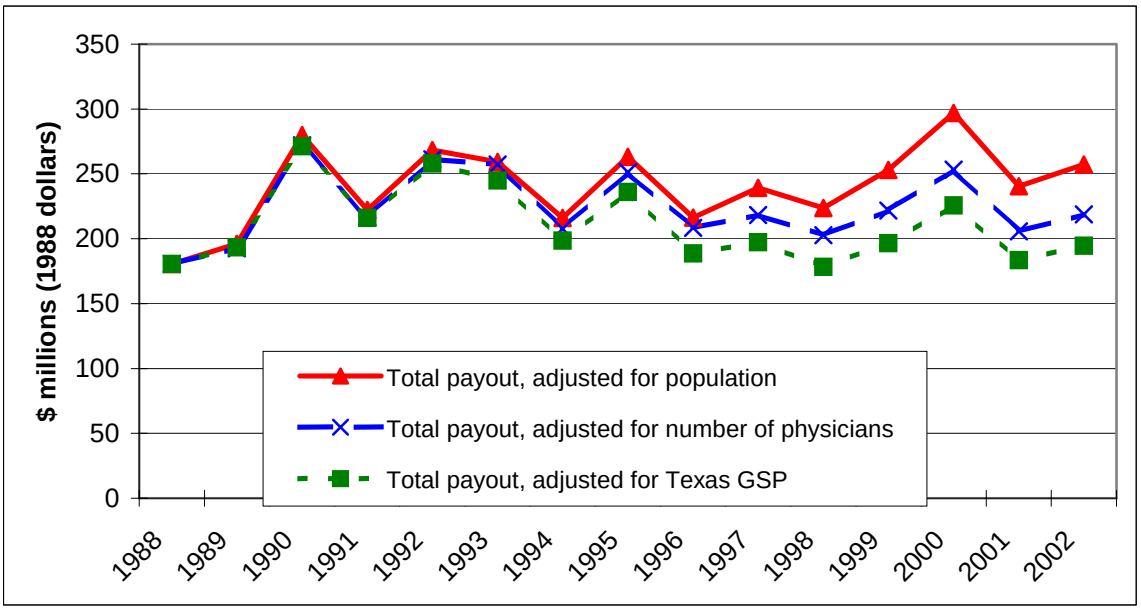


Table 11 provides regressions of total payout per year, first unadjusted, and then adjusted in the same ways as Figure 9, for 1990-2002. Unadjusted total payout increased by $6 million per year. But if we adjust for population growth, the coefficient on year becomes close to zero and insignificant. Adjusted for Texas GSP, total payouts fell by $5 million annually. Thus, the social burden of malpractice payouts declined, relative to ability to pay.

Table 11. Total Medical Malpractice Payouts per Year

Ordinary least squares regression of total payout per year for all large paid medical malpractice claims for the *BRD* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that were paid under medical liability insurance, were against a health care provider, or involved injuries due to medical care), for 1990-2002. *t*-statistics, based on robust standard errors, are in parentheses. We treat 1990 as year 0. *, **, *** indicate significance at the 10%, 5%, and 1% levels respectively (omitted for constant term). Significant results (at 5% level) are in **boldface**. Dollars in millions.

	(1)	(2)	(3)	(4)	(5)
Dependent variable	**Total payout per year in $ millions for large paid claims (*BRD* dataset)**				
Adjusted for	**None**	**Population**	**Physicians**	**Health care spending**	**Texas GSP**
Time period	**1990-2002**	**1990-2002**	**1990-2002**	**1990-2002**	**1990-2002**
Year	**6.34**	0.23	-3.06	-0.76	**-5.37**
	(2.78)**	(0.12)	(1.82)*	(0.42)	**(3.21)*****
Constant	251.2	247.6	248.7	240.4	246.7
	(15.59)	(17.85)	(20.99)	(18.79)	(20.87)
Observations	13	13	13	13	13
R^2	0.4133	0.0012	0.2321	0.0160	0.4836

G. Defense Costs for Large Paid Claims

We have not yet taken account of defense costs. Many sources report that these costs account for a sizeable portion of total malpractice insurance costs.[28] Our dataset contains information on defense costs only for claims with payouts of at least $10,000 in nominal dollars. Insurers must report total defense costs, broken down into expenses for outside counsel, in-house counsel, and other expenses such as court costs and stenographers. When two or more reports relate to the same incident, we sum defense costs across these reports to determine total defense costs for that incident. We lack information on defense costs for zero payout and small payout claims.

Figure 10 shows that defense costs per large paid claim rose steadily, from about $21,000 in 1988 to about $45,000 in 2002. The ratio of defense costs to payout increased from about 8% to about 15%. The increase in per claim costs drove an increase in total defense costs for all large paid claims, from $27 million in 1990 to $48 million in 2002. Payments to outside counsel accounted for most of this rise.

[28] See, e.g., INSURANCE INFORMATION INSTITUTE, MEDICAL MALPRACTICE INSURANCE 4 (June 2003) (citing study finding that defense costs account for 14% of total tort costs); Kenneth E. Thorpe, *The Medical Malpractice 'Crisis': Recent Trends and the Impact of State Tort Reforms*, HEALTH AFFAIRS WEB EXCLUSIVE, Jan. 21, 2004, at http://content.healthaffairs.org/cgi/content/full/hlthaff.w4.20v1/DC1 (contending that "[d]efense costs have greatly increased," contributing to insurers' financial woes).

Figure 10. Defense Cost per Large Paid Claim and Ratio of Defense Cost to Payout

Average defense cost per large paid medical malpractice claim for the *BRD* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that were paid under medical liability insurance, were against a health care provider, or involved injuries due to medical care), from 1988-2002. Ratio of defense costs to payout is based on total defense costs and total payout for each year. Defense costs for 1988 and 1989 are lower than the actual amounts due to underreporting.

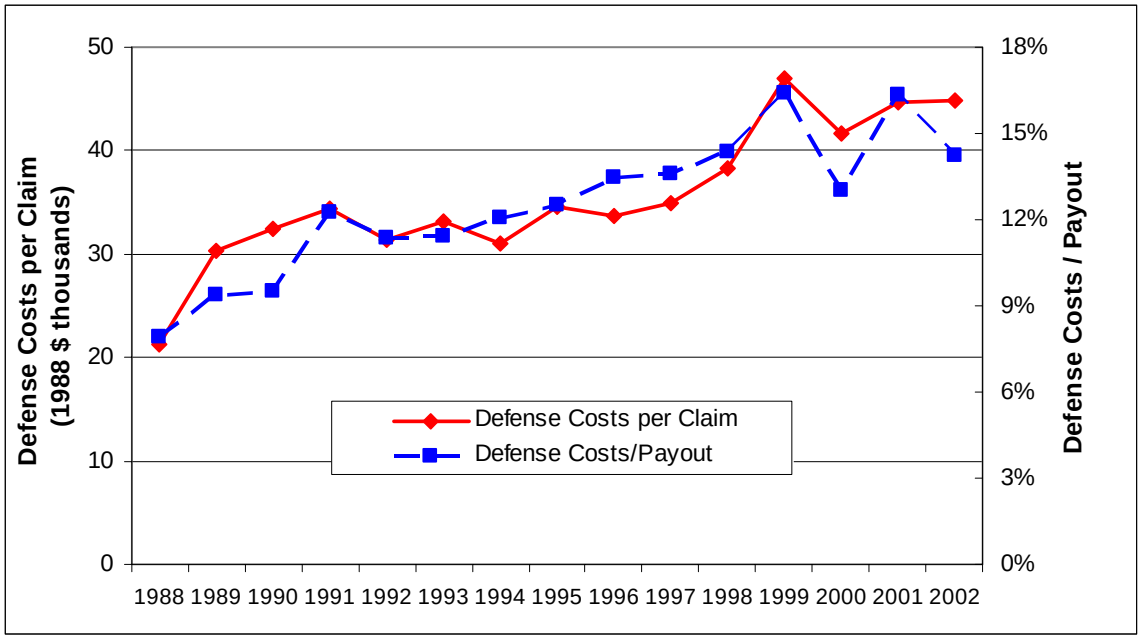


Table 12 provides a regression analysis of log (defense costs per claim) over time for the *BRD* dataset, with and without controls for log (payout per claim) and for the real increase in medical care costs. In robustness checks, we obtain comparable results for the *MED* and *NAR* datasets, and using raw dollars rather than log (dollars) for defense costs and payout. The .044 coefficient in regressions (1-2) indicates that defense cost per large paid claim rose by 4.4% per year -- a cumulative 83% increase over the 14 year period from 1988 to 2002. As regression (2) shows, there is a strong correlation between defense costs and payout. But the rise in defense costs still exists, with the same coefficient, controlling for payout. We plan to investigate defense costs further in future work. At this time, we can only speculate as to the cause of the increase. However, rising defense costs are not unique to Texas. A recent Washington study found rising defense costs, relative to payouts, there also.[29]

[29] STATE OF WASHINGTON, OFFICE OF INSURANCE COMMISSIONER, MEDICAL MALPRACTICE CLOSED CLAIM STUDY: CLAIMS CLOSED FORM JULY 1, 1994 THROUGH JUNE 30, 2004 (2005). Several explanations for increasing defense costs are possible. First, insurers may have spent more per claim to prevent payouts from rising. Second, heightened demand for legal services during the 1990s may have caused defense costs to rise faster than inflation. Third, plaintiffs' attorneys may have selected stronger cases over time or invested more resources in case development, forcing insurers to respond. Two additional explanations may be partly Texas-specific. The 1995 Texas reforms that effectively require plaintiffs to file expert reports at the outset of litigation may have forced insurers to spend more as well. Also, the number of claims resolved using court-annexed alternative dispute resolution procedures increased over the period. This may have increased defense costs.

Table 12. Regressions for Log (defense costs per large paid claim)

Ordinary least squares regression of natural logarithm of defense costs per large paid medical malpractice claim for the *BRD* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that were paid under medical liability insurance, were against a health care provider, or involved injuries due to medical care), for 1988-2002. We treat 1988 as year 0. *t*-statistics, based on robust standard errors, are in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels respectively (omitted for constant term). Significant results (at 5% level) are in **boldface**.

	(1)	(2)	(3)
Dependent variable	**Log (defense cost per large paid claim) (*BRD* dataset)**		
Year	**0.045**	**0.044**	**0.042**
	(16.00)* **	**(17.20)*** **	**(10.74)*** **
Log (payout per claim)		**0.464**	**0.464**
		(47.75)* **	**(47.77)*** **
Rate of medical cost increase			-1.201
			(0.75)
Constant	9.66	4.13	4.17
	(385.80)	(34.31)	(31.65)
Observations	12330	12330	12330
R^2	0.0203	0.1761	0.1761

It would, however, be wrong to blame defense costs for more than a fraction of the recent premium increases. In 2002, defense costs for large paid claims were still only 15% as large as payouts on these claims. Payouts are still the dog, with defense costs the (growing) tail. Moreover, defense costs grew smoothly over time and insurers should have good ability to predict them. Thus, rising defense costs should not cause sharp premium spikes. Finally, the increase in total defense costs for large paid claims-- from $27 million in 1990 to $48 million in 2002 -- is not of crisis proportions, compared to total payouts of $336 million for large claims in 2002.

To be sure, we lack data on defense costs for claims resolved for payments of $10,000 or less. Aggregate defense costs in zero-payment cases can be substantial.[30] However, there are several reasons to doubt that zero- and small-payout claims generated defense costs that were either large enough or unpredictable enough to trigger an insurance crisis. First, these costs should be predictable. Second, claims that generate large payouts involve higher defense costs per claim than smaller claims, as we see from Table 12. Third, the number of zero- and small-payout claims did not increase over time. Table 13 shows, from 1995 to 2002, the number of claims in different size ranges (*TDI* data on zero-payout claims is incomplete prior to 1995). There is no time trend in total claims. Other than a one-time jump in 1995 when *TDI* corrected the cause of prior incomplete reporting, there is no trend in earlier years either. Adjusted for population growth, total claims declined (see Table 14).

[30] See, e.g., AMERICAN MEDICAL ASSOCIATION, MEDICAL LIABILITY REFORM—NOW! 4 (2004), available at http://www.ama-assn.org/ama1/pub/upload/mm/450/mlrnowjune112004.pdf. (defendants spend an average of $16,160 in cases that are dropped or dismissed before trial); STATE OF WASHINGTON (2005), supra note 29, table 10 (in zero-payout cases *with defense costs*, these costs averaged $16,500 for 2000-2004, amounts not adjusted for inflation). Note, however, that a significant fraction of zero-payout claims close with no defense costs. In Washington, 35% of zero-payout claims closed without defense costs in 2003-2004.

A recent Washington study reports that defense costs in zero-payout cases represent roughly half of all defense costs.[31] If the same proportion holds true in Texas, then total payouts plus defense costs would have grown from $374 million in 1990 to $432 million in 2002. This is an important increase, but short of a crisis.

Table 13. Total Malpractice Claims per Year

Number of medical malpractice claims, including duplicates, for the MED_{all} dataset (all claims reported under medical liability insurance), from 1995-2002. We exclude nonduplicate claims with payout over $10,000 in nominal dollars, but lack the data to identify duplicate claims involving payouts of less than this amount. We show separately zero-payment claims, small paid claims (less than $10,000) , medium claims ($10,000-25,000 real), large paid claims, total claims, and population-adjusted total claims (base year = 1995).

Year	Zero-payout claims	Small paid claims	Medium paid claims	Large paid claims	Total claims	Population adjusted total claims
1995	6,108	388	194	1,028	7,718	7,718
1996	5,658	399	186	971	7,214	7,072
1997	5,699	490	192	1,019	7,400	7,107
1998	5,353	358	164	961	6,836	6,429
1999	5,738	330	158	1,063	7,289	6,722
2000	6,503	301	192	1,114	8,110	7,339
2001	7,450	310	132	1,051	8,943	7,945
2002	5,555	247	130	997	6,929	6,043
total	**48,064**	**2,823**	**1,348**	**8,204**	**60,439**	**56,375**

Lastly, trials are expensive. If the number of trials with defense verdicts increased, a cost increase could be hidden in the zero-payout claims. Trials are exceptionally expensive. We cannot test this hypothesis directly, but consider it implausible for several reasons. First, as we show below, the number of plaintiff verdicts in medical malpractice cases was roughly constant over time. Unless the fraction of trials won by plaintiffs fell (which no one has suggested), this implies a roughly constant number of defense verdicts as well. Second, studies of civil litigation consistently find that trials have become increasingly rare over time.[32] This trend applies to medical malpractice as well. A study by the Bureau of Justice Statistics of trials in 46 of the 75 largest counties in the U.S. (including several large Texas counties) reports that total medical malpractice trials declined from 1,347 in 1992 to 1,156 in 2001.[33] The BJS study also found that the fraction of med mal trials won by plaintiffs was stable at around 25%.

H. Total Claim Costs (Payout Plus Defense Costs)

We next assess the extent to which rising defense costs led to higher total costs (including defense costs), either per year or per large paid claim. Below, we use "*total cost*" to refer to the sum of payout plus defense costs, with the caveat that we lack information on defense costs for zero- and small-payout claims.

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[31] STATE OF WASHINGTON (2005), supra note 29, Table 10. This percentage did not increase over time.

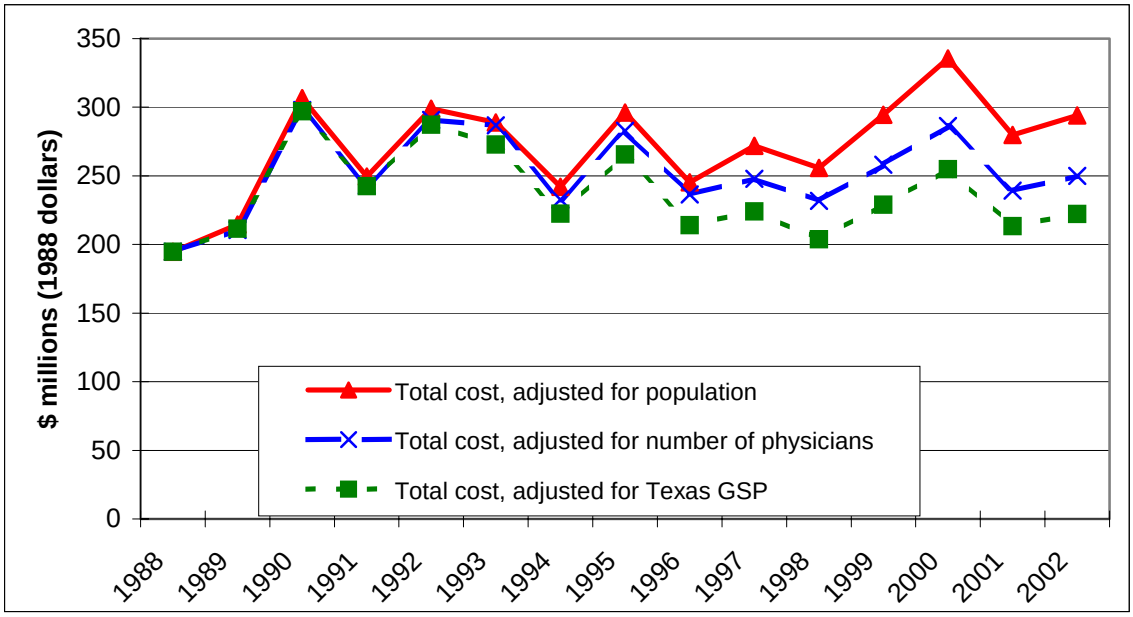
[32] See, e.g., Marc Galanter, *The Vanishing Trial: An Examination of Trials and Related Matters in Federal and State Courts*, 1 JOURNAL OF EMPIRICAL LEGAL STUDIES 499 (2004).

[33] THOMAS H. COHEN AND STEVEN K. SMITH, CIVIL TRIAL CASES AND VERDICTS IN LARGE COUNTIES, 2001 (Bureau of Justice Statistics 2004).

Figure 11 presents changes in the total cost of closed claims over time, adjusted separately for Texas population; real health care spending; number of physicians, and real Texas GSP. Qualitatively, the results are similar to those for total payout in Figure 9. From 1990 (the first year with complete reporting) through 2002, there is no trend in total cost adjusted for population, and there is a decline in total cost relative to Texas GSP. Adjusted for Texas GSP, total cost declined by 25%, from $297 million in 1990 to $222 million in 2002.

Figure 11. Total Cost per Year for Large Paid Claims

Total cost (payout plus defense costs) for all large paid medical malpractice claims, for the *BRD* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that were paid under medical liability insurance, were against a health care provider, or involved injuries due to medical care), for 1988-2002. Total costs for 1988 and 1989 are lower than the actual amounts due to underreporting.



We turn next from aggregate total cost per year to total cost per claim. Figure 12 presents data for the *BRD*, *MED*, and *NAR* datasets. From 1988 to 2002, the average total cost per claim in the BRD dataset rose from $324,000 to $397,000, about $5,000 per year (1.5% per year). However, the high water mark was in 1990, with a trough in the mid-1990s.

Figure 12. Total Cost (Payout Plus Defense Cost) per Large Paid Claim

Total cost (payout plus defense cost) per large paid medical malpractice claim for the *BRD* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that were paid under medical liability insurance, were against a health care provider, or involved injuries due to medical care), the *MED* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that were paid under medical liability insurance), and the *NAR* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that are were paid under medical liability insurance *and* were against a physician, hospital or nursing home, *and* involved injuries due to medical care).

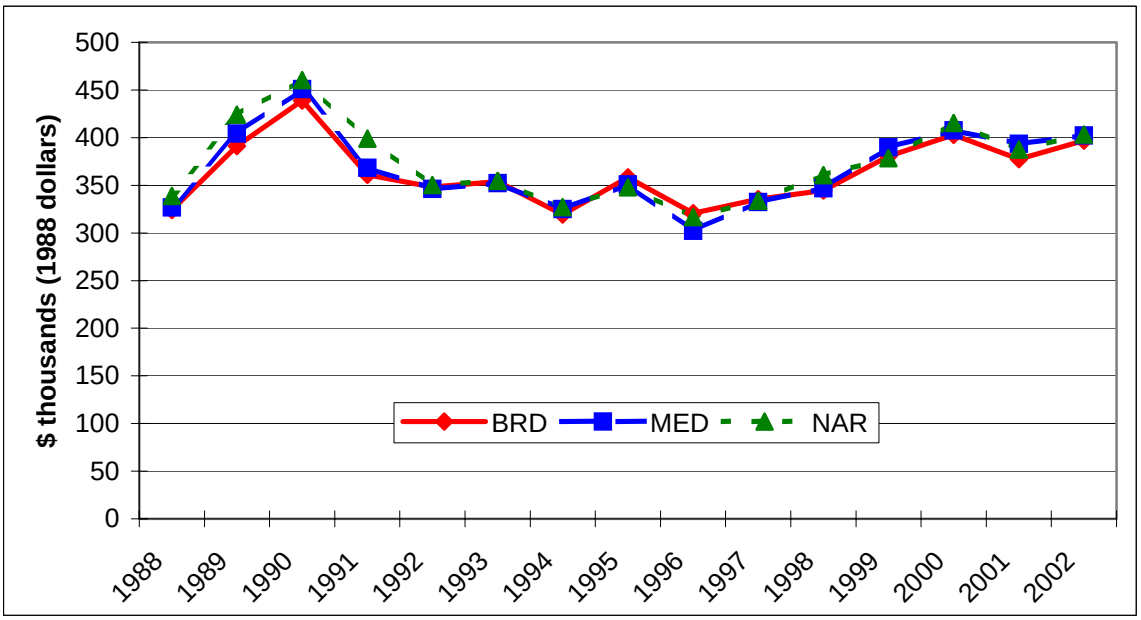


Table 14 provides results for regressions of log (total cost) against year plus a constant term for the *BRD*, *MED*, *NAR*, and BRD_{10k} datasets. We find a statistically significant increase of 1.2% per year for the *BRD* dataset. In robustness checks, we obtain similar results with total cost instead of log (total cost) as the dependent variable. Comparing Table 10 to Table 14, about 0.8-0.9% per year of this increase reflects rising defense costs. The rate of increase is higher, at 2.4% per year, for the BRD_{10k} dataset, but again, this reflects the declining number of small claims.

Table 14. Regressions for Log (total cost per large paid claim)

Ordinary least squares regression of natural logarithm of total cost (payout plus defense cost) per large paid medical malpractice claim for the *BRD, MED, NAR,* and BRD_{10k} datasets, for 1988-2002. Datasets are defined in Part III.A. We treat 1988 as year 0. *t*-statistics, based on robust standard errors, are in parentheses. *, **, *** indicate significance at the 10%, 5%, and 1% levels respectively. Significant results (at 5% level) are in **boldface**.

	(1)	(2)	(3)	(4)	(5)
Dependent Variable	**Log (total cost per large paid claim)**				
Dataset	***BRD***	***MED***	***NAR***	***BRD_{10k}***	***BRD***
Time period	**1988-2002**	**1988-2002**	**1988-2002**	**1988-2002**	**1988-2002**
Year	**0.012**	**0.010**	**0.008**	**0.024**	**0.017**
	(5.21)* **	**(4.45)*** **	**(3.38)*** **	**(10.15)*** **	**(4.78)*** **
Rate of medical cost increase					2.227
					(1.84)*
Constant	12.03	12.06	12.11	11.59	11.95
	(596.60)***	(580.97)***	(555.39)***	(551.32)***	(233.45)***
Observations	12840	11967	10439	15578	12840
R^2	0.0022	0.0017	0.0012	0.0067	0.0025

Over the same period, the real increase in health care costs averaged 2.2% per year. Thus, total costs per claim rose more slowly than health care costs. As explained above, health care costs account for a significant fraction of medical malpractice damages. If we were able to adjust for this component of damages, we would probably find a small or even zero increase in cost per claim. The lack of a crisis in claims remains clear.

I. Jury Verdicts

The stable performance of the tort system will surprise many who have heard that "out of control" juries are awarding ever larger amounts to plaintiffs, which supposedly then cause settlement payments to skyrocket. The results presented thus far show that, whatever juries were doing, payout per claim held steady. Only defense costs grew significantly.

In fact, juries weren't going crazy either. The TDI database includes data on tried cases that result in payouts of at least $10,000. The *BRD* dataset includes 361 cases tried to juries, plus 13 cases tried to a judge. Of these, 40 jury cases and 2 judge cases resulted in defense verdicts.[34] At first glance, defense verdicts followed by payouts of over $25,000 may seem odd. Anecdotal evidence suggests that many of these cases reflect pretrial "high-low" agreements between the parties, which limit the plaintiff's minimum and maximum recovery even if the actual verdict is outside the high-low bounds. Figure 13 shows the number of plaintiff jury verdicts per year, plus jury verdicts as a percentage of large paid claims. Although the number of trials fluctuated, from 11 in 1996 to 38 in 2000, plaintiff verdicts never accounted for more than 5% of large paid claims in any year and averaged about 3% over the period, with no time trend in this percentage. These findings comport with other studies showing that trials are rare.

[34] Eighteen of the "defense verdict" jury trials were entered as $0 verdicts. The other 24 were entered as $1 verdicts, with the most recent $1 verdict in 1997. Neither *TDI* nor local med mal lawyers could explain how a $1 verdict could occur. We surmise that these entries were entered by agreement to support (for some reason) a high-low settlement after a defense verdict.

Figure 13. Number and Percentage of Plaintiff Jury Verdicts

Number of plaintiff jury verdicts per year in large paid medical malpractice cases, and plaintiff jury verdicts as a percent of large paid claims, for the *BRD* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that were paid under medical liability insurance, were against a health care provider, or involved injuries due to medical care), from 1988-2002.

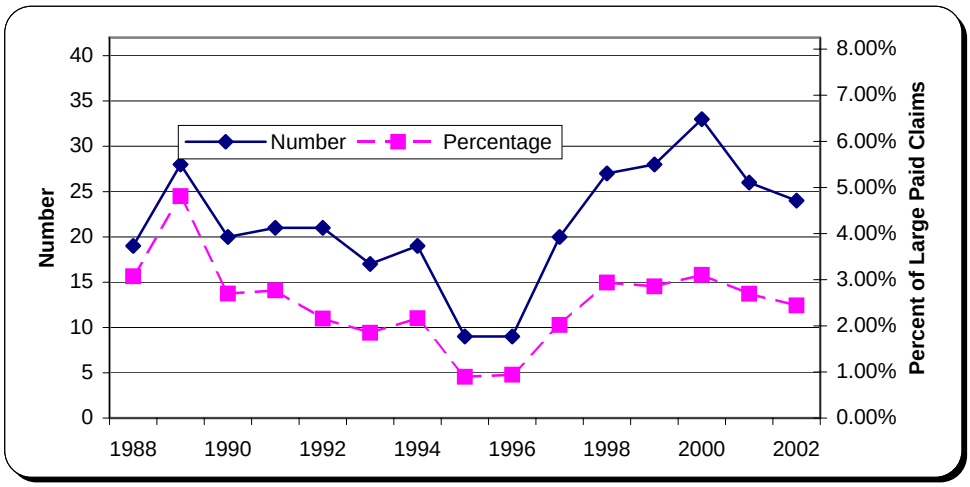
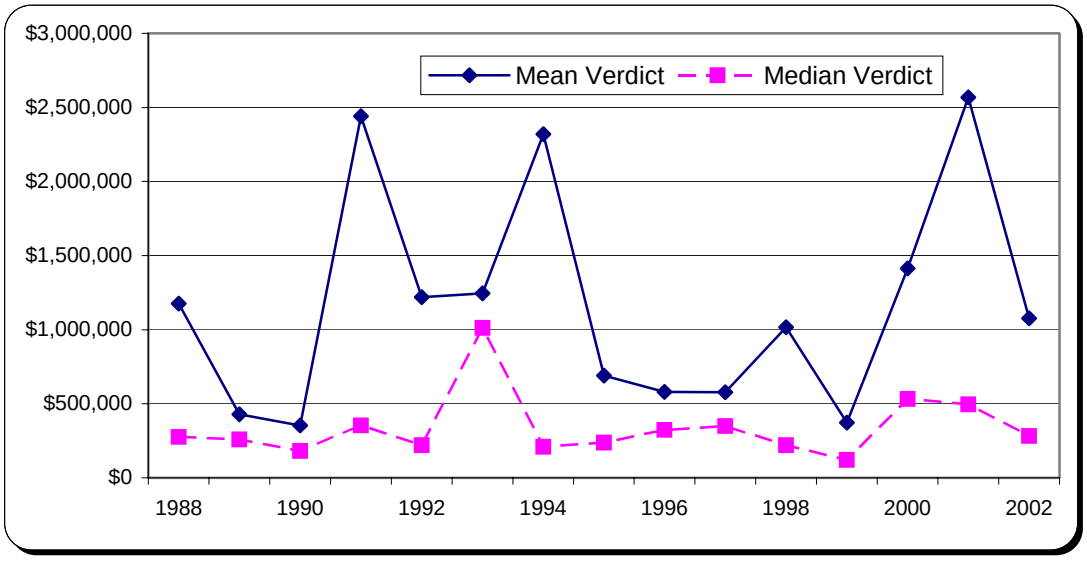


Figure 14 presents mean and median jury verdicts (in constant 1988 dollars) over time in cases where plaintiffs received reported payments, excluding $0 and $1 verdict cases. There is fluctuation, but no strong time trend. Across all 321 cases, the average verdict was $853,584, while the median was far lower at $394,302. The large difference between mean and median is consistent with other jury verdict studies.[35] The median verdict was more stable than the average verdict, although it too varied greatly. The lowest median verdict ($121,929) occurred in 1999 and the highest median verdict ($1,012,253) in 1993. In most years, the median verdict fell in the $200,000-$700,000 range.

[35] See, e.g., THOMAS H. COHEN, TORT TRIALS AND VERDICTS IN LARGE COUNTIES, 2001 (Bureau of Justice Statistics 2004) (reporting in constant 2001 dollars mean and median verdicts for tried tort cases in which plaintiffs prevailed of $565,000 and $27,000, respectively).

Figure 14. Mean and Median Plaintiff Jury Verdicts

Mean and median per year for plaintiff jury verdicts in large paid medical malpractice cases, for the *BRD* dataset (nonduplicate claims with payout over $25,000 in 1988 dollars that were paid under medical liability insurance, were against a health care provider, or involved injuries due to medical care), from 1988-2002.



Assessing statistically whether jury verdicts are changing is hard, because verdicts are highly variable, highly skewed, and limited in number. To further assess whether there was a time trend in jury verdicts, we regressed log (verdict) as dependent variable against year and a constant term, for the *BRD* and *NAR* datasets. The point estimates on year were positive and economically important, at 2.5% per year for the *NAR* dataset and 3.6% per year for the BRD dataset, but only the *BRD* estimate was statistically significant, and barely so (t = 1.96).[36] At the same time, there was no significant increase in actual payouts after verdict. When we regressed log (payout after verdict) on year and a constant term, the point estimate for year was an increase of 1.4% per year for the *BRD* dataset, but a 0.2% per year decline for the *NAR* dataset. There was no time trend in the within-year standard deviation of jury verdicts. We plan to investigate jury verdicts and post-trial outcomes in more detail in future work.

V. DISCUSSION OF RESULTS AND LIMITATIONS

A. Outcomes in Closed Medical Malpractice Claims have been Stable

The most important findings in this study are negative. For Texas, the frequency of large paid medical malpractice claims, and the per claim cost of these claims, were relatively stable from 1988 to 2002 when one controls for inflation and population. The most important changes we find are that defense costs rose and smaller paid claims (less than $25,000 in 1988 dollars) shrank in number. But rising defense costs cannot explain the premium spikes that occurred in

[36] Studying jury verdicts nationwide, the Bureau of Justice Statistics (BJS) found that the median jury verdict (in 2001 dollars) rose from $287,000 in 1996 to $431,000 in 2001, a sizeable increase THOMAS H. COHEN, MEDICAL MALPRACTICE TRIALS AND VERDICTS IN LARGE COUNTIES, 2001 (Bureau of Justice Statistics 2004). Looking only at those two years, we also find an increase in the median verdict in Texas, from $324,000 in 1996 to $497,000 in 2001 (both figures in 1988 dollars). However, we find a much weaker overall time trend in jury verdicts.

1999-2003. Defense costs rose gradually, and the absolute size of these costs remains small relative to payouts.

The clear implication is that "runaway med mal litigation" makes a poor poster child for the cause of tort reform. From 1988 to 2002, the tort system in Texas processed medical malpractice claims in a reasonably stable and consistent way. The malpractice litigation system has many flaws, but at least in Texas, sudden increases in claim frequencies and costs appear not to have been among them, during the period we study.

B. The Decline in Smaller Paid Claims

We find that smaller paid claims became less common in Texas over time. Studying closed med mal claims in Florida, Vidmar et al. made a similar observation. They reported that mean and median payouts on malpractice claims rose from 1990 to 2003, and that the mix of cases changed substantially. Using a nine level injury-severity scale developed by the National Association of Insurance Commissioners, they found that claims in the two lowest categories declined sharply as a percentage of total paid claims, while average injury severity rose from 5.34 in 1990 to 6.12 in 2003. We lack data on injury severity, and Vidmar et al. do not report the extent to which their reported increase in mean and median payouts is due to a decline in the number of small claims rather than larger payouts on large claims. Still, their findings are consistent with our finding of a decline in the number of smaller paid claims in Texas.

The decline in smaller paid claims leads us to view with suspicion the publicly quoted statistics about rising average payouts and jury verdicts in med mal cases. When the nature of claims changes over time, an increase (or decrease) in the average payout or the average jury verdict tells one little. A rising average payment (jury verdict) may mean only that the fraction of small claims declined. Had we not taken the declining frequency of small claims into account in our analyses, we would have found that the mean payout for the *BRD* dataset rose 40% over our sample period. If we also did not adjust for inflation (a common failing in the public debate), the increase in mean payout would have been 112%! Yet, with these adjustments, our central estimate is that the mean payout per claim on large paid claims increased by only 0.5% per year.

C. What is Causing Malpractice Premium Spikes?

If the tort system is not primarily responsible for the recent spikes in malpractice premiums, what is? An answer to this question is beyond the scope of this article, but we offer here some brief speculations. Much of the answer likely lies in malpractice insurance markets. One set of explanations involves insurance generally. It may not be coincidental that insurance rates soared at a time when the stock market was falling and interest rates were low. As returns on investment declined, carriers could have responded by raising rates.[37] Another possibility is that the period starting with Hurricane Andrew in 1992 and continuing through the attacks on the World Trade Center was marked by a series of catastrophes that over time stressed insurance and reinsurance markets, leading to higher premiums across many lines of insurance. A third explanation centers on the "long-tail" nature of medical malpractice insurance, which makes this

[37] A regression analysis found a significant negative relationship between interest rates and malpractice insurance premiums. Stephen Zuckerman, Randall R. Bovbjerg, and Frank Sloan, *Effects of Tort Reforms and Other Factors on Medical Malpractice Insurance Premiums*, 27 INQUIRY 167 (Summer 1990).

form of insurance prone to dramatic price swings.[38] When policies have "overhangs" that extend forward many years, small changes in loss expectations or expected returns on "float" can exert significant (upward or downward) pressure on prices. Medical liability insurance also faces severe "developments risks," ranging from changes in medical technology to changes in public expectations, that accentuate the uncertainty of actuarial estimates.[39]

A fourth consideration is that many malpractice insurers are undiversified, single-line companies sponsored by state and local medical societies. In Texas, for example, the Texas Medical Liability Trust has a 57% market share in covering physicians. These member-owned insurers may feel pressure to estimate future losses on the low side, and then need to compensate for past underpricing when their reserves are depleted. To the extent that other insurers must follow their lead to attract business, the result may be industry-wide premium swings. Another source of underpricing could have been the limited tort reforms which Texas adopted in 1995. As part of those reforms, the legislature instructed *TDI* to estimate insurers' savings and require rate rollbacks during 1996-2000 designed to pass these savings on to policyholders. If the rollbacks overstated actual savings, insurers would have underpriced and a correction would have been inevitable.

With these features of the insurance landscape in mind, let us return to Figure 12, which shows total cost per large paid claim. Over the full 1988-2002 time period, total cost per large paid claim grew by an unalarming 0.8-1.2% per year. But from the low point in 1996 to the high point in 2000, total cost per large paid claim grew by 5.7% per year. If insurers naively took each year's experience as the best guide to the future (instead of using recent observations to partially update their prior expectations, as a proper Bayesian would), they might have become overly optimistic about future payouts by 1996, underpriced malpractice insurance, and then become overly pessimistic by 2000. There is evidence that insurers in Texas and elsewhere underpriced malpractice coverage in the 1990s.[40] Insurers might also have noticed rising average payout per claim, without realizing that this increase resulted from a decline in small claims, rather than a surge in large claims.

The rate spike during 1999-2003 would then reflect a combination of factors. One would be insurers catching up for past underpricing. A second would be insurers' overestimates of future losses that were based heavily on then-recent loss experiences from 1996 to 2000. A third would be external stresses on insurance markets, including disasters and a decline in investment returns. A fourth might be a modest uptick in claim frequency. Put these together and presto! -- one could have premium spikes that far exceed the increase in future claim-related costs that a rational Bayesian analyst would predict.

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[38] See William M. Sage, *The Forgotten Third: Liability Insurance and the Medical Malpractice Crisis*, 3(4) HEALTH AFFAIRS 10 (2004); Tom Baker, *Medical Malpractice and the Insurance Underwriting Cycle* (working paper 2005), http://ssrn.com/abstract=616281 ; William M. Sage, *Medical Malpractice Insurance and the Emperor's Clothes*, DEPAUL LAW REVIEW (forthcoming 2005).

[39] See Tom Baker, *Insuring Liability Risks*, 29(1) GENEVA PAPERS ON RISK AND INSURANCE 87 (2004); Sage (2003), supra note 17; Mark F. Grady, *Why Are People Negligent: Technology, Nondurable Precautions, and the Medical Malpractice Explosion*, 82 NORTHWESTERN UNIVERSITY LAW REVIEW 293 (1988).

[40] See TDI, MEDICAL MALPRACTICE INSURANCE: OVERVIEW AND DISCUSSION (2003), supra note 18, at 43 (insurers in Texas earned unusually low returns on their net worth during 1991-2000). See also Joseph B. Treaster and Joel Brinkley, *Behind Those Medical Malpractice Rates*, NEW YORK TIMES, Feb. 22, 2005 (many insurers underpriced insurance during the 1990s).

VI. CONCLUSION

Paul Samuelson once quipped that the stock market predicted nine of the last five recessions. Malpractice insurance crises may signal changes in the performance of the tort system just as poorly. No sudden rise in claim frequency, payments, defense costs or jury verdicts preceded or accompanied the premium spike that occurred in Texas after 1998.

The apparent disconnect between stable claim-related outcomes and large swings in insurance premiums shows that for malpractice litigation, and perhaps for tort litigation more generally, one must be very cautious in inferring outcomes in civil justice processes from outcomes in insurance markets. In a tolerably competitive market (which Texas has), insurance premiums should reflect insurers' costs over the long run. But the long run may be long indeed. When considering tort reform, policymakers should heavily discount (if not simply disregard) short-term signals offered by insurance rates, despite the importance of those rates to health care providers. They should seek instead to obtain and rely instead on harder-to-collect, less visible data about claim rates and outcomes. Policymakers should also devote greater effort to generating data and databases that will cast light on the actual causes of the problems they seek to address, such as the Texas database on which this study relies.

In saying this, we mean to deny neither the importance of malpractice insurance rates nor the desire of policymakers to address significant rate increases. Liability insurance premiums can affect health care costs, access to services, physician supply, the level of defensive medicine, and other matters. Reforms that reduce the volatility of insurance prices may help providers to adapt to price changes, avoiding or ameliorating dislocations in health care markets. Our point, which has been largely neglected in the furious battle over malpractice liability, is that one needs to understand what is happening to claim outcomes as a basis for sensible policy changes. At least in Texas, not much happened to claim outcomes during the period we study.

References

Abraham, Kenneth S., and Paul C. Weiler, *Enterprise Medical Liability and the Choice of the Responsible Enterprise*, 20 AMERICAN JOURNAL OF LAW AND MEDICINE 29 (1994)

AMERICAN MEDICAL ASSOCIATION, AMA ANALYSIS: A DOZEN STATES IN MEDICAL LIABILITY CRISIS (2002)

AMERICAN MEDICAL ASSOCIATION, MEDICAL LIABILITY REFORM—NOW! (2004)

Baicker, Katherine and Amitabh Chandra, *The Effect of Malpractice Liability on the Delivery of Health Care* (NBER Working Paper 10709, 2004), at http://ssrn.com/abstract=583707

Baker, Tom, *Insuring Liability Risks*, 29(1) GENEVA PAPERS ON RISK AND INSURANCE 87 (2004)

Baker, Tom, *Medical Malpractice Insurance Reform: "Enterprise Insurance" and Some Alternatives* in MEDICAL MALPRACTICE REFORM IN THE UNITED STATES: NEW CENTURY, DIFFERENT ISSUES (Ronen Kersh and William Sage, eds., forthcoming 2005).

Baker, Tom, *Medical Malpractice and the Insurance Underwriting Cycle* (working paper 2005), http://ssrn.com/abstract=616281

COHEN, THOMAS H., TORT TRIALS AND VERDICTS IN LARGE COUNTIES, 2001 (Bureau of Justice Statistics 2004)

COHEN, THOMAS H., AND STEVEN K. SMITH, CIVIL TRIAL CASES AND VERDICTS IN LARGE COUNTIES, 2001 (Bureau of Justice Statistics 2004)

COHEN, THOMAS H., MEDICAL MALPRACTICE TRIALS AND VERDICTS IN LARGE COUNTIES, 2001 (Bureau of Justice Statistics 2004)

STEPHEN DANIELS AND JOANNE MARTIN, CIVIL JURIES AND THE POLITICS OF REFORM (1995)

DELOITTE CONSULTING, MEDICAL MALPRACTICE FINANCIAL INFORMATION, CLOSED CLAIM DATABASE AND RATE FILINGS (2004)

Farber, Henry S., and Michelle J. White, *Medical Malpractice: An Empirical Examination of the Litigation Process*, 22 RAND JOURNAL OF ECONOMICS 199 (1991)

FLORIDA HOSPITAL ASSOCIATION, MEDICAL MALPRACTICE ANALYSIS (2002)

Galanter, Marc, *The Vanishing Trial: An Examination of Trials and Related Matters in Federal and State Courts*, 1 JOURNAL OF EMPIRICAL LEGAL STUDIES 499 (2004)

Grace, Martin, *Tort Reform: Are There Real Benefits?* (working paper 2004), http://www.rmi.gsu.edu/rmi/research/papers/tortreformarethererealbenefitsaug2004.pdf

Grady, Mark F., *Why Are People Negligent: Technology, Nondurable Precautions, and the Medical Malpractice Explosion*, 82 NORTHWESTERN UNIVERSITY LAW REVIEW 293 (1988)

Gross, Samuel R., and Kent D. Syverud, *Don't Try: Civil Jury Verdicts in a System Geared to Settlement*, 44 UCLA LAW REVIEW 1 (1996)

HEALTHGRADES, PATIENT SAFETY IN AMERICAN HOSPITALS (2004), at http://www.healthgrades.com/media/english/pdf/HG_Patient_Safety_Study_Final.pdf

Hickson, Gerald B., Ellen Wright Clayton, Penny B. Githens, and Frank A. Sloan, *Factors that Prompted Families to File Medical Malpractice Claims Following Perinatal Injuries.* 267 JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION 1359 (1992)

Hughes, James W. and Edward A. Snyder, *Litigation and .Settlement Under the English and American Rules: Theory and Evidence*, 38 JOURNAL OF LAW AND ECONOMICS 225 (1995)

Hyman, David A., and Charles Silver, *The Poor State of Health Care Quality in the U.S.: Is Malpractice Liability Part of the Problem or Part of the Solution*, CORNELL L. REV. (forthcoming 2005), at http://ssrn.com/abstract=526762

INSURANCE INFORMATION INSTITUTE, MEDICAL MALPRACTICE INSURANCE (2003)

Kritzer, Herbert M., *Contingency Fee Lawyers As Gatekeepers in the Civil Justice System*, 81 JUDICATURE 22 (1997)

MINNESOTA DEPARTMENT OF COMMERCE, MEDICAL MALPRACTICE CLAIM STUDY 1982-1987 (1989)

NATIONAL ASSOCIATION OF INSURANCE COMMISSIONERS, MALPRACTICE CLAIMS: FINAL COMPILATION, MEDICAL MALPRACTICE CLOSED CLAIMS, 1975-1978 (1981)

Sage, William M., *Understanding the First Malpractice Crisis of the 21st Century*, in 2003 HEALTH LAW HANDBOOK 1 (Alice G. Gosfield ed., 2003)

Sage, William M., *The Forgotten Third: Liability Insurance and the Medical Malpractice Crisis*, 3(4) HEALTH AFFAIRS 10 (2004)

Sage, William M., *Medical Malpractice Insurance and the Emperor's Clothes*, DEPAUL LAW REVIEW (forthcoming 2005)

Saks, Michael J., *Do We Really Know Anything About the Behavior of the Tort Litigation System--And Why Not?*, 140 UNIVERSITY OF PENNSYLVANIA LAW REVIEW 1147 (1992)

Seabury, Seth A, Nicholas M. Pace, and Robert T. Reville, *Forty Years of Civil Jury Verdicts*, 1 JOURNAL OF EMPIRICAL LEGAL STUDIES 1 (2004).

Sharkey, Catherine M., *Unintended Consequences of Medical Malpractice Damages Caps*, 80 NYU. LAW REVIEW (forthcoming 2005), at http://ssrn.com/abstract=668023.

Sloan, Frank A., and Chee Ruey Hsieh, *Variability in Medical Malpractice Payments: Is the Compensation Fair?*, 24 LAW AND SOCIETY REVIEW 997 (1990)

SLOAN, FRANK A., PENNY B. GITHEN, ELLEN WRIGHT CLAYTON, GERALD B. HICKSON, DOUGLAS A. GENTILE, AND DAVID F. PARTLETT, SUING FOR MEDICAL MALPRACTICE (1993)

Smarr, Lawrence, *A Comparative Assessment of the PIAA Data Sharing Project and the National Practitioner Data Bank: Policy, Purpose, and Application*, 60 LAW AND CONTEMPORARY PROBLEMS 59 (1997)

STATE OF WASHINGTON, OFFICE OF INSURANCE COMMISSIONER, MEDICAL MALPRACTICE CLOSED CLAIM STUDY: CLAIMS CLOSED FORM JULY 1, 1994 THROUGH JUNE 30, 2004 (2005)

TEXAS DEPARTMENT OF INSURANCE, MEDICAL MALPRACTICE INSURANCE: OVERVIEW AND DISCUSSION (2003), at http://www.tdi.state.tx.us/general/pdf/spromptpay.pdf

TEXAS DEPARTMENT OF INSURANCE, 2002 TEXAS LIABILITY INSURANCE CLOSED CLAIM ANNUAL REPORT (2004), at http://www.tdi.state.tx.us/general/forms/report4.html

Vidmar, Neil, Paul Lee, Kara MacKillop, Kieran McCarthy and Gerald McGwin, *Seeking the "Invisible" Profile of Medical Malpractice Litigation: Insights from Florida*, DEPAUL LAW REVIEW (forthcoming 2005)

Viscusi, W. Kip and Patricia H. Born, *Damages Caps, Insurability, and the Performance of Medical Malpractice Insurance* (working paper, 2004), at http://ssrn.com/abstract=607203

Weisberg, Herbert L., and Richard A. Derrig, *Fraud and Automobile Insurance: A Report on Bodily Injury Liability Claims in Massachusetts*, 9 JOURNAL OF INSURANCE REGULATION 497, 503 (1991)

Zuckerman, Stephen ,Randall R. Bovbjerg, and Frank Sloan, *Effects of Tort Reforms and Other Factors on Medical Malpractice Insurance Premiums*, 27 INQUIRY 167 (Summer 1990)

Appendix A. Data Sources

- *inflation*: We convert current dollars in each year to 1988 dollars (or, occasionally 2002 dollars) using the Consumer Price Index for All Urban Consumers (annual average, 1988 = 100). Source: www.bls.gov/cpi/
- *Texas population*: Annual population estimates of Texas calculated by the U.S. Census Bureau are used. Source: http://www.census.gov/popest/states/
- *real Texas Gross State Product (GSP):* Texas GSP reported by the Bureau of Economic Analysis, converted to 1988 dollars using the Consumer Price Index for All Urban Consumers. Source: http://www.bea.doc.gov/bea/regional/gsp/
- *Texas physicians*: *Texas physicians*: Nonfederal physicians in active direct patient care practice as reported by the Texas Department of Health. (Source: http://www.tdh.state.tx.us/dpa/PHYS-lnk.htm). An alternate data source, available for most years, is American Medical Association, active non-federal physicians in direct-patient care, gives physician totals about 20% higher than the Texas Department of Health measure.
- *Texas real health care spending*: Texas health care spending in real 1988 dollars (or, occasionally, 2002 dollars). Real health care spending is adjusted for inflation in health care costs using the Medical Care Services Cost Index (note: *not* the overall Consumer Price Index), available from www.bls.gov/cpi. Texas health care spending for 1988-1998 is from Center for Medicare Statistics, U.S. Department of Health and Human Services. Texas health care spending for 1999-2002 is estimated using Center for Medicare Statistics data for U.S. health care spending and assuming a constant 0.054 ratio of Texas to U.S. population adjusted health care spending. The 0.054 ratio is estimated based on 1988-1998 data. (Source: http://www.cms.hhs.gov/statistics/nhe/state-estimates-provider/tx.asp)

- *real medical care services cost index*: Medical care services cost index (1988 = 100), adjusted for general inflation using the Consumer Price Index for All Urban Consumers. Source: http://www.bls.gov/cpi/home.htm
- *nominal interest rate on 10-year U.S. Treasury bonds*: Average annual yield on 10-year treasury securities. Source: http://federalreserve.gov/releases/h15/ (annual series)

Appendix B. Correlation Table

Correlation table for variables listed in Appendix A, plus selected variables for nonduplicate large paid claims, for the *BRD* dataset for 1988-2002, except when another dataset or time period is specified. * = significant at 5% level. Significant results in boldface.

		(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)	(9)	(10)	(11)	(12)	(13)	(14)
(1)	Year	1.0000													
(2)	Population	**0.9981***	1.0000												
(3)	Real Texas GSP	**0.9860***	0.9924*	1.0000											
(4)	No of physicians	**0.9803***	0.9868*	**0.9957***	1.0000										
(5)	Real health care spending	**0.9828***	0.9835*	**0.9790***	**0.9838***	1.0000									
(6)	Real med care services cost	**0.9745***	0.9630*	**0.9261***	**0.9146***	**0.9368***	1.0000								
(7)	Real rate of increase in med care services cost	**-0.7394***	-0.7541*	**-0.7986***	**-0.7668***	**-0.6947***	**-0.6366***	1.0000							
(8)	10-year nominal interest rate	**-0.9281***	-0.9187*	**-0.8844***	**-0.8678***	**-0.9173***	**-0.9495***	**0.5559***	1.0000						
(9)	No of *BRD* claims 1990-2002	**0.7962***	0.7909*	**0.7657***	**0.7527***	**0.7270***	**0.8377***	-0.5297	**-0.7608***	1.0000					
(10)	No of paid claims (MED_{all}) 1990-2002	0.0858	0.0912	0.1511	0.1266	0.0265	-0.0058	-0.4960	0.1382	0.2269	1.0000				
(11)	Total no of claims (MED_{all}) 1995-2002	0.2780	0.2776	0.2702	0.3271	0.2142	0.1620	0.0171	-0.0227	0.4300	0.0888	1.0000			
(12)	Mean payout per *BRD* claim	-0.0766	-0.0747	-0.0098	0.0387	0.0178	-0.1960	-0.0121	0.1952	-0.1822	0.4002	0.3307	1.0000		
(13)	Mean defense cost per *BRD* claim	**0.8693***	**0.8596***	**0.8702***	**0.8806***	**0.8892***	**0.8112***	**-0.6717***	**-0.7892***	0.5106	0.1131	0.3730	0.2275	1.0000	
(14)	Mean total cost per *BRD* claim	0.1299	0.1294	0.1917	0.2388	0.2215	0.0064	-0.1661	-0.0021	-0.0723	0.3947	0.3599	**0.9744***	0.4404	1.0000