



SCHOOL OF LAW
TEXAS A&M UNIVERSITY

Texas A&M University School of Law
Texas A&M Law Scholarship

Faculty Scholarship

1-2009

Estimating the Effect of Damages Caps in Medical Malpractice Cases: Evidence from Texas

David A. Hyman

Bernard Black

Charles Silver

William M. Sage

Follow this and additional works at: <https://scholarship.law.tamu.edu/facscholar>



Part of the [Health Law and Policy Commons](#), [Law and Politics Commons](#), and the [Torts Commons](#)

ESTIMATING THE EFFECT OF DAMAGES CAPS IN MEDICAL MALPRACTICE CASES: EVIDENCE FROM TEXAS¹

David A. Hyman, Bernard Black, Charles Silver, and William M. Sage²

ABSTRACT

Using claim-level data, we estimate the effect of Texas's 2003 cap on non-economic damages on jury verdicts, post-verdict payouts, and settlements in medical malpractice cases closed during 1988–2004. For pro-plaintiff jury verdicts, the cap affects 47-percent of verdicts and reduces mean allowed non-economic damages, mean allowed verdict, and mean total payout by 73-percent, 38-percent, and 27-percent, respectively. In total, the non-econ cap reduces adjusted verdicts by \$156M, but predicted payouts by only \$60M. The impact on payouts is smaller because a substantial portion of the above-cap damage awards were not being paid to begin with. In cases settled without trial, the non-econ cap affects 18-percent of cases and reduces predicted mean total payout by 18-percent. The non-econ cap

- 1 We owe special thanks to Fang Zhang, Myungho Paik, and Kevin Kavanagh for their work in analyzing the data, and to Vicky Knox at the Texas Department of Insurance for patiently answering our many questions. For comments and suggestions, we thank Einer Elhauge, Meredith Kilgore, Russell Korobkin, Ed Richards, Cathy Sharkey, those who attended presentations of the paper at the Leonard Davis Institute of Health Economics at the University of Pennsylvania, Rand Institute for Civil Justice, and the Harvard, Stanford, University of Kansas and Washington University Schools of Law, and participants at the Annual Meetings of the Canadian and Midwest Law and Economics Association, and the Conference on Empirical Legal Studies. Funding for this study was provided by the Jon David and Elizabeth A. Epstein Program in Health Law and Policy at the University of Illinois College of Law and by the Center on Lawyers, Civil Justice, and the Media at the University of Texas School of Law. The working paper version of this article is available at <http://ssrn.com/abstract=995649>.
- 2 Hyman is Richard W. and Marie L. Corman Professor of Law and Professor of Medicine, University of Illinois. Tel. 217-333-0061, email: dhyman@law.uiuc.edu. Hyman is the corresponding author.
Black is Hayden W. Head Regents Chair for Faculty Excellence, University of Texas Law School, and Professor of Finance, University of Texas, Red McCombs School of Business. Tel. 512-471-4632, email: bblack@law.utexas.edu.
Silver is McDonald Endowed Chair in Civil Procedure, University of Texas Law School. Tel. 512-232-1337, email: csilver@law.utexas.edu.
Sage is James R. Dougherty Chair for Faculty Excellence in Law, University of Texas School of Law, and Vice-Provost for Health Affairs, University of Texas at Austin. Tel. 512-232-7806, email: wsage@law.utexas.edu.

has a smaller impact on settled cases than tried cases because settled cases tend to involve smaller payouts. The impact of the non-econ cap varies across plaintiff categories. Deceased, unemployed, and (likely) elderly plaintiffs suffer a larger percentage reduction in payouts than living, employed, and non-elderly plaintiffs.

We also simulate the effects of different caps and find substantial differences in cap stringency across states. Different caps reduce aggregate payouts in tried cases (all cases) by between 16-percent and 65-percent (7-percent and 42-percent). Caps on total damages have especially large effects.

1. INTRODUCTION

1 Damages caps are ground zero in the debate over medical malpractice reform. To proponents, caps on non-economic damages (“non-econ caps”) are a silver bullet, simultaneously targeting frivolous lawsuits, excessive damage awards, run-away juries, and high medical malpractice premiums. To critics, non-econ caps are both ineffective (because they will not materially lower malpractice premiums or the cost of health insurance) and unfair (because they reduce damage awards by larger amounts for the most severely injured, and for women, children, and the elderly). Since California enacted a non-econ cap in 1975, there have been legislative battles in many states and at the federal level over such caps. At present, 30 states have a cap on non-economic damages or total damages.³

2 Most prior studies of the effect of non-econ caps have been conducted using high-level data on aggregate payouts and number of claims, often aggregated across states with different types of caps and different definitions of what counts as a malpractice claim. The few case-level studies that have been performed have only analyzed awards—not payouts.

3 In this paper, we use detailed case-level data to estimate the impact of the Texas non-econ cap on jury awards, post-verdict payouts, and settlements in medical malpractice cases. We employ a unique dataset of all closed medical malpractice claims in Texas from 1988–2004 with payouts over \$25,000 in 1988 dollars.⁴ In 2003, Texas capped non-economic damage at

3 See Avraham (2006a); Sharkey (2005). Five states have adopted caps, only to have them struck down as unconstitutional. Sharkey (2005). Table 11 lists the states with caps and summarizes the caps.

4 Unless otherwise indicated, all dollar amounts in this paper are in 1988 dollars, computed using the Consumer Price Index for All Urban Consumers (annual average) as a price index.

\$250,000 for medical malpractice cases against physicians and other individual health-care providers, with an additional \$250,000 or \$500,000 possible if a hospital or other health-care institution is also liable. We simulate the effect of this cap on jury awards and post-verdict payouts by applying it to the jury verdict cases in our dataset—to which the non-econ cap did *not* apply. We use the results of this analysis to predict the Texas cap's effect on “settled cases” in our dataset (cases that were settled without a full trial). We also use the Texas data to simulate the effect of different caps, including the actual caps adopted by the states that have them.

We innovate in this paper partly by using a rich case-level dataset to estimate the effect of a single cap in a single state, Texas. We also innovate in methodology, by developing a simulation approach that can be used to estimate the effects of caps adopted by other states. Our simulation approach can potentially be used with other datasets as well.

For jury trials, we have uniquely detailed case-level data on both awards and payouts. Most previous studies of cap effects use aggregate state-wide results. The few case-level studies have information on verdicts but not payouts (or payouts but not verdicts) and have biased samples, no breakout of damages into economic, non-economic and punitive components, or both problems. Unlike previous studies, we can simulate the effect of the non-econ cap on both awards and payouts. We can also use the detailed data from tried cases to estimate the effect of the cap in settled cases. We also can use the Texas data to simulate the effect of a wide variety of caps, including those adopted in other states. Other studies also face an endogeneity problem. A non-econ cap will affect which cases are brought and which are settled; the amounts cases settle for; and how cases are tried. Thus, one cannot simply compare pre-cap and post-cap outcomes to determine the effect of the cap on case-level

Source: www.bls.gov/cpi/. To convert to 2007 dollars, multiply by 1.75. In regressions, we define year as (calendar year—1988). This paper is one of a series using the Texas closed claims database to explore different aspects of medical malpractice and personal injury litigation. Other pieces of this overall project include Bernard Black, Charles Silver, David A. Hyman and William M. Sage (2005) (trends in overall payouts, referred to below as *Stability, Not Crisis*); David A. Hyman, Bernard Black, Kathryn Zeiler, Charles Silver, and William M. Sage (2007) (comparing jury verdicts with actual payouts); Kathryn Zeiler, Charles Silver, Bernard Black, David A. Hyman, and William M. Sage (2007) (physician policy limits and out-of-pocket payments); and Bernard Black, David A. Hyman, Charles Silver, and William M. Sage (2008) (analyzing defense costs in medical malpractice claims).

outcomes. We avoid this problem because a non-econ cap was *not* in effect during the period we study. We analyze the hypothetical impact of the non-econ cap on cases brought before the Texas non-econ cap was adopted.

6 Our simulation approach and dataset also have important limitations. At the aggregate level, we cannot study how caps affect claim frequency, malpractice insurance premiums, or the total cost of malpractice litigation. At the case level, our simulation approach assumes—counterfactually—that the same cases will be brought with a cap as were brought without one. Depending on how plaintiffs and defendants respond to caps in making micro-level decisions, the percentage effects on allowed awards and payouts in the cases that are still brought could be larger or smaller than the simulation results we report. Our data is also limited to a single state, albeit a large one.

7 Our principal conclusions for the Texas cap are

- The non-econ cap affects 47-percent of jury awards (154/326) and reduces the mean (median) allowable awards of non-economic damages by 73-percent (33-percent). The mean allowed non-econ award drops from \$597,000 to \$158,000.
- The cap reduces the mean (median) “allowed verdict” (the allowable portion of the jury award, plus interest) by 37-percent (36-percent). The mean allowed verdict drops from \$1.28 million to \$800,000.
- The cap reduces the mean (median) predicted payout in jury verdict cases by 27-percent (23-percent). The mean payout drops from \$696,000 to \$512,000. The reduction in mean payout (\$184,000) is substantially smaller than the reduction in the mean allowed verdict (\$480,000).
- The cap affects 18-percent of settled cases. Predicted aggregate payouts in settled cases decline by 18-percent. The mean settlement payout declines from \$313,000 to \$257,000.
- The non-econ cap has a disparate impact across plaintiff demographic groups, with larger percentage reductions borne by deceased, unemployed, and (likely) elderly plaintiffs, relative to non-deceased, employed, and non-elderly plaintiffs.

8 Our principal conclusions on cap design are

- A flat \$250,000 nominal cap (as in California and some other states) affects 52-percent of verdicts and reduces mean post-verdict payout by 29-percent.

- The caps adopted by different states have widely varying predicted effects. For mean allowed verdicts, the predicted reduction ranges from 28-percent (Wisconsin) to 76-percent (Louisiana). Including both tried and settled cases, the impact on mean payout ranges from 7-percent (Illinois) to 42-percent (Louisiana). Total damages caps generally have a larger impact on payouts in tried cases than non-econ caps.
- The disparate impact of non-econ caps across plaintiff demographic groups fades as the level of the non-econ cap increases.
- If a non-econ cap is not adjusted for inflation, its effect increases over time. The California non-econ cap blocked 35-percent of non-economic damages and 8-percent of payouts in 1975; this rose to 79-percent of non-economic damages and 29-percent of payouts in 2003. By 2043, at an assumed 4-percent inflation rate, it will block 94-percent of non-economic damages and 40-percent of payouts.

This paper proceeds as follows. Part 2 reviews previous studies of the impact of non-econ caps on payouts. Part 3 describes the Texas medical malpractice dataset. Part 4 presents our simulation results from applying the Texas cap to pre-cap jury verdicts. Part 5 extends the model to the 97-percent of cases that are settled without a full trial. In Part 6, we simulate the effects of the caps adopted by other states and examine other variations in cap design. Part 7 discusses some implications of our findings, and Part 8 concludes.

2. PAST RESEARCH ON CAPS ON NON-ECONOMIC DAMAGES

There is a large empirical literature on the effect of caps on non-economic damages on verdicts, claim frequency, malpractice insurance payouts, malpractice premiums, defensive medicine, physician supply, overall health insurance premiums, mortality rates, and more. Some of this literature is peer reviewed but much appears in government reports, non-peer reviewed journals, and policy papers issued by think tanks and advocacy groups. There have been several recent reviews of this literature.⁵ We focus in this review on the much smaller number of studies that rely on claim-level data.

5 Nelson, Morrissey, and Kilgore (2007); Mello (2006); U.S. Congressional Budget Office (2004); Studdert, Mello, and Brennan (2004); U.S. Office of Technology Assessment (1994).

2.1. Case-Level Studies of Jury Verdicts

11 We are aware of five academic studies that use case-level data to analyze the effect of caps on verdicts. Sharkey (2005) relies on the Bureau of Justice Statistics survey of state civil trials, conducted in 1992, 1996, and 2001, and finds no effect of a non-econ cap on jury awards and no significant effect on allowed awards. However, her data does not break out damages into economic, non-economic, and punitive components.

12 Four studies rely on jury verdict reporters (JVRs), which are widely believed to be biased toward larger verdicts. David M. Studdert, Y. Tony Yang, and Michelle M. Mello (2004) study 298 California malpractice jury verdicts over 1985–2002 in which the jury award exceeded the non-econ cap. The non-econ cap reduced non-econ awards by 73-percent and total awards by 35-percent, with greater reductions for more severely injured plaintiffs. They found no evidence that the non-econ cap had a greater impact on female or elderly plaintiffs.

13 A RAND study by Nicholas M. Pace, Daniella Golinelli, and Laura Zakaras (2004) also relies on California JVR reports. They study 257 verdicts over 1995–1999, and find that the non-econ cap applied in 45-percent of cases, and reduced aggregate jury awards from \$421 million to \$295 million (30-percent). Death cases were affected by the cap more often than non-fatal injury cases (58-percent versus 41-percent). Cases involving infants and the elderly were modestly more likely to be affected by the cap.

14 Michael L. Rustad (2006) studied 186 pro-plaintiff jury verdicts against nursing homes in California, Florida, and Texas during the period 1990–2004. For 149 of these cases, a break-out of non-economic damages was available, with a total of \$300 million in non-economic damages awarded. Rustad states that “thirty-four percent of the cases had noneconomic damage awards of \$250,000 or below . . . and thirty-seven percent . . . exceeded \$1,000,000.” He further states that “in thirteen percent of the nursing home cases, the claimant’s overall recovery would be downsized by ninety percent or more [by a \$250,000 (nominal) non-econ cap]. In another one of three cases, the recovery will be reduced between zero and ninety percent.” Using Rustad’s data, we estimate that a flat non-econ cap of \$250,000 would reduce non-economic damages for his sample by 91-percent.⁶

6 The article does not contain sufficient information to determine how a non-econ cap would affect non-economic damages. Professor Rustad provided additional details in response to our request.

Lucinda M. Finley (2004) studied pro-plaintiff jury verdicts with a breakout of non-economic damages from California (131 cases), Maryland (88 cases), and Florida (130 cases). Not all of these cases involved medical malpractice. She found that women and elderly accident victims suffered a “significant disparate impact from caps . . . los[ing] greater percentages of their total compensatory awards than men who are of working age. These disparate negative effects will be especially pronounced for elderly women.” Deceased plaintiffs were also adversely affected, with “the greatest impact in cases where an infant or child dies.” Finley does not report whether the differences she observed were statistically significant.

None of these studies evaluates the effect of caps on both verdicts and payouts. Yet post-verdict payouts can differ substantially from jury verdicts.⁷

2.2. Claim-Level Studies of Settlements

The papers discussed previously all study jury verdicts. Two studies use NPDB reports of payouts by physicians (most of which come from a settlement without trial) to examine the effects of damages caps. Janelle Guirguis-Blake and coauthors (2006) find that during 1999–2001, mean payments were 26-percent lower in states with total damages caps than states without these caps, and 22-percent less in states with non-econ caps than in states without such caps. H. E. Frech, William G. Hamm, and C. Paul Wazzan (2006) find that states with caps have 21-percent lower per-claim payments in 2004 than states without caps. The analysis in these studies is quite limited. Guirguis-Blake and coauthors conduct a simple *t*-test for differences in means between states with and without caps. They treat all total-damages (non-econ) caps as the same and do not control for state or claim characteristics. They treat each case as a separate observation, thus heavily weighting California (with a strict non-econ cap). The Frech et al. study is purely descriptive. The authors conduct no statistical tests and do not distinguish between total damages caps and non-econ caps.

Avraham (2006b) estimates that a non-econ cap predicts a 15–20-percent decline in annual payouts per physician. However, his results are sensitive to assumptions about how to handle settlements in states in which caps

7 Hyman et al. (2007).

were later judicially invalidated during the period between enactment and invalidation. Albert Yoon (2001) studies Alabama's adoption and later judicial invalidation of a cap on non-economic and punitive damages, and finds that adoption reduces mean recoveries by roughly \$20,000, and invalidation returned damages to their pre-cap level. Finally, a consultant report estimates a 19-percent decline in physician payouts from a proposed Wyoming non-econ cap.⁸

2.3. Studies of Aggregate Payouts

19 An extensive literature assesses the effect of non-econ caps on aggregate payouts. These studies treat all caps as equivalent. The data source is typically filings with the NAIC or state insurance commissioners. Most of these studies report evidence that non-econ caps reduce aggregate payouts, with estimated effects ranging from 15-percent to 31-percent.⁹ A separate literature, beyond the scope of this review, assesses the effect of damages caps on malpractice insurance premiums.¹⁰

3. DATA AND METHODOLOGY

20 In this section, we discuss our data and its limitations, the various Texas caps on damages in medical malpractice cases, and our procedure for applying these caps to jury verdicts and settlements.

3.1. Data Source

21 Our data comes from the Texas Closed Claims Database (TCCD), a publicly accessible database that contains individual reports of closed personal

8 Biondi, Lord, and Zuch (2004). The methodology used is not stated in the report.

9 Weiss, Gannon, and Eakins (2003) ("In states with caps, the median payout between 1991 and 2002 was 15.7-percent lower than the median in states without caps"); Viscusi and Born (2005) ("losses in states with noneconomic damage reforms are reduced 16-17-percent compared to states without these measures."); Viscusi, Zeckhauser, Born, and Blackmon (1993) (14-percent); Blackmon and Zeckhauser (1991) (30-percent); Sloan, Mergenhausen, and Bovbjerg (1989) (31-percent reduction in insurer payouts); Danzon (1986) (23-percent); Danzon (1984) (19-percent). Gronfein and Kinney (1991) found that a state with a total damages cap (Indiana) had higher payouts than two control states (Michigan and Ohio). Several of these studies have been criticized for "methodological shortcomings." U.S. Congressional Budget Office (2004); Mello (2006).

10 For reviews, see Nelson, Morrissey, and Kilgore (2007); Thorpe (2005).

injury claims covered by mono-line general liability, commercial auto liability, commercial multi-peril, medical professional liability, and other types of professional liability insurance involving payouts by all defendants of more than \$10,000 in nominal dollars, closed from 1988 on. Data are currently available through 2004.

Medical malpractice dataset. We construct a medical malpractice dataset, which we call BRDminus for consistency with our prior work, which includes the following cases.¹¹

- Payout by all defendants is at least \$25,000 in 1988 dollars (roughly \$44,000 in 2007 dollars). We convert payouts to 1988 dollars using the Consumer Price Index for All Urban Consumers (CPI)
- The claim meets two of the following three criteria:
 - It was paid under medical professional liability insurance
 - It was against a health-care provider (physician, hospital, or nursing home)¹²
 - It involved injuries caused by “complications or misadventures of medical or surgical care”¹³

11 For a further discussion of the TCCD, the medical malpractice claims included in this database, and dataset limitations, see Black et al. (2005) (overall medical malpractice database); Hyman et al. (2007) (jury verdicts). The TCCD contains individual reports for claims with payout of at least \$10,000 nominal. We limit our sample to cases involving at least \$25,000 because only these cases are reported on a “Long Form” that contains the nature of the injury, which we require to classify a claim as involving medical malpractice. The reporting thresholds are not inflation-adjusted. Thus, some claims that are reported on the Long Form in later years would have been reported on the Short Form in earlier years. To address this “bracket creep,” we limit the sample to cases with payouts of at least \$25,000 in 1988 dollars. The Texas Department of Insurance (TDI) Closed Claim Reporting Guide (2004) (containing reporting instructions), the long and short forms, summary “Closed Claim Annual Reports,” and the core data on which we rely are available from TDI at <http://www.tdi.state.tx.us>. In some cases, the online data was incomplete, and we supplemented it with information provided to us directly by TDI.

12 Other types of health-care providers (for example, nurses and free-standing medical clinics) are not separately listed in the Long Form.

13 We also include cases that meet one of these three criteria and otherwise seem likely to involve medical malpractice. For example, we include cases against nursing homes that were paid under “other professional liability” rather than medical professional liability insurance. We similarly exclude cases that meet two of these criteria, but do not seem likely to involve medical malpractice. Thus, we exclude cases paid under automobile liability insurance even if they meet the other two criteria.

23 A “claim” is an incident causing bodily injury and resulting in a request to an insurer by a policyholder for coverage. An insurer must file a report with the Texas Department of Insurance (“TDI”) in the year a claim “closes”—when the insurer “has made all indemnity and expense payments on the claim.”¹⁴ Beginning in 1990, TDI checks each report for internal consistency and reconciles individual reports with insurer-level aggregate annual reports.¹⁵ We reviewed all medical malpractice claim reports to identify “duplicate” reports—multiple reports involving the same underlying case. When duplicate reports exist, we treat the last-filed report as the primary report and exclude earlier reports involving the same case. The last-filed report should capture any prior payouts by defendants who did not file closed claim reports, such as self-insured hospitals.

24 Our final medical malpractice sample of 14,241 distinct cases involving total payouts over 1988–2004 of \$4.6 billion. The sample includes 326 jury verdict cases involving awards of \$514 million and payouts of \$235 million.¹⁶

25 *Interest and Adjusted Verdict.* For each jury verdict, we compute an “adjusted verdict” (the amount to which the plaintiff is entitled before remittitur or damages caps) that equals the sum of reported damages and pre- and post-judgment interest. We add pre-judgment interest to the damages award for claims that do not report this amount, and add post-judgment interest for all claims based on the statutory rates for each type of interest.¹⁷ In the following, we use the term “interest” to refer to the

14 TDI, *Closed Claim Reporting Guide* (2004), at 18.

15 TDI has acknowledged potential problems with reporting completeness and consistency in 1988 and 1989. These problems do not appear to bias the samples of claims and jury verdicts that were reported in those years. See Black et al. (2005); Hyman et al. (2007).

16 The dataset includes 16,116 claim reports, but only 14,241 distinct cases. In identifying duplicate reports, we sometimes exercised judgment when claim reports were similar but not identical. Insurers also make some reporting errors that TDI does not catch. In a few cases when both the error and the correction were apparent, we corrected the underlying data. Details on the procedure we used to identify duplicates, the data adjustments we made, and our inclusion criteria are available from the authors on request. Claim reports might not capture all payouts by non-reporting defendants, either because the insurer that filed the last report was unaware of these payments or because the non-reporting defendant had not yet paid when the last report was filed.

17 For details on our procedure for estimating pre- and post-judgment interest, see Hyman et al. (2007).

sum of pre- and post-judgment interest. We then compute an “allowed verdict” that reflects the impact of judicial oversight and damages caps on the amounts to which plaintiffs are legally entitled, including the effect of remittitur and caps on interest. We compute the allowed verdict in each case both before and after applying the non-econ cap.

Comparative Fault. Texas is a comparative negligence state. The TDI Reporting Guide does not specify how insurers should report damages if the jury assigns some fault to the plaintiff. It appears, from our review of the reports, that insurers generally reported the “net” amounts for which the defendants were liable, and we so assumed, but we cannot be sure this was true in every case.

Reporting Before or After Remittitur and Damages Caps. The TDI Reporting Guide does not specify whether insurers should report damages before or after a reduction due to jnov, remittitur, or a damages cap. It appears, from our review of the reports, that insurers generally reported “gross” amounts before the reduction, and we so assumed, but we cannot be sure this was true in every case.

Dataset Scope. The TCCD includes only “insured” claims. We lack claims against “pure” self-insured providers (which don’t rely on captives or risk-pooling). Most physicians carry malpractice insurance, but many hospitals do not. We lack data on claims against the University of Texas hospital system and UT-employed physicians. There is no data source available that would enable us to estimate how many claims are outside our dataset. It seems likely that our dataset captures most trials in which physicians make payments, but a smaller and unknown fraction in which the payers are hospitals and other providers.

Other Dataset Limitations. We have data on plaintiff age and employment status, but not injury severity or gender. We have data on policy limits only for the insured defendant, and only for the primary policy covering that defendant.

Punitive Outliers. In two outlier cases, juries awarded substantial punitive damages (\$16 million and \$41 million), most of which exceeded the punitive cap, and none of which were paid. These cases also had large non-econ damage awards. We winsorize the punitive damages in these cases at the level of the next largest punitive award (\$2.7 million).¹⁸

18 In prior work, we excluded these outlier cases from regressions and most other analyses. We retain them here in order not to exclude cases with large non-econ awards. Hyman et al. (2007).

3.2. Remittitur and Other Damages Caps

31 We discuss in this section how remittitur and each damages cap effect ad-
justed verdicts. Jury awards are before applying any caps. Payouts are after
any verdict reductions due to remittitur and jnov, the death cap, and the
punitives cap. In the following, we use the term “other caps” to refer to the
combined effect of remittitur, the death cap, and the punitives cap.

32 *Remittitur and jnov.* Judges reduced 15 awards in our dataset through remit-
titur and reversed 3 through jnov (judgment notwithstanding the verdict).¹⁹
The remittitur cases involved primarily non-economic damages. We as-
sumed that the remittitur applied first to non-economic damages, and then
to economic damages, except for one case in which the remitted amount ex-
actly matched the award of economic damages. Remittitur reduced awarded
non-economic damages from \$186 million to \$180 million.

33 *Death Cap.* Texas has a cap on the sum of compensatory (economic and
non-econ) damages plus pre-judgment interest in medical malpractice
cases resulting in death (“death cap”) of roughly \$975,000 in 1988 dollars,
indexed for inflation. This cap existed throughout our sample period.²⁰

34 The death cap does not apply to medical expenses, but we lack data on the
breakdown between medical expenses and other economic damages, so we
assumed that the death cap applied to all compensatory damages. It applies
on a per-defendant basis, but we treated it as a single amount, regardless of
the number of defendants. Both assumptions cause us to somewhat overstate
the effect of the death cap, and therefore understate the effect of the non-econ
cap. With these assumptions, the death cap reduces allowable non-economic
damages from \$180 million (after remittitur and jnov) to \$162 million.

35 *Punitives Cap.* Texas law caps punitive damages and provides that these
damages are available “only if the claimant proves by clear and convincing
evidence that the harm with respect to which the claimant seeks recovery
of exemplary damages results from: (1) fraud; (2) malice; or (3) gross

19 The defendants made payments over \$25,000 in these three cases, notwithstanding the jnov.

20 Tex. Rev. Civ. Stat. Ann. art. 4590i, §§ 11.02, 11.04 (West Supp. 1998). The damages cap, adopted by the legislature, applied to all medical malpractice cases. It was held unconstitutional in general in 1988, *Lucas v. U.S.*, 757 S.W. 2d 687 (Tex. 1988), but was held to be constitutional for wrongful death cases in 1990, *Rose v. Doctors Hosp.*, 801 S.W.2d 841 (Tx. 1990). We assumed that the cap applied in cases closed in 1988–1990, prior to the *Rose* decision.

negligence.” The punitives cap was modified in 1995. For cases filed before September 1, 1995, the cap was the greater of (a) \$200,000 or (b) $(4 \times \text{compensatory damages})$. For cases filed after September 1, 1995, the cap was the greater of (a) \$200,000 or (b) $[(2 \times \text{economic damages}) + (\text{the lesser of awarded non-economic damages or } \$750,000)]$.²¹

Other Issues. Texas law caps damage awards against public hospitals at \$250,000 (nominal, not adjusted for inflation). Because we cannot identify which claim reports involve public hospitals and the cap applied throughout our sample period, we ignore its effects (if any) on verdicts and payouts.

Prior to appellate review, it is not always clear how a cap should be applied. For example, it was not until 2002 that the Texas Supreme Court decided that the death cap applied to the sum of (compensatory damages + pre-judgment interest), rather than compensatory damages alone.²² We assume that appellate interpretations were in effect for the entire period the statute was effective, irrespective of when the appellate case was decided.

3.3. Methodology for Applying the Non-Econ Cap

To apply the non-econ cap to pre-cap cases, we need to make a number of assumptions. We tried to make reasonable assumptions, but also tested the sensitivity of our results to alternate assumptions. Our central estimate is that the Texas non-econ cap will reduce allowed non-economic damages in jury verdict cases by 73-percent, and reduce payouts in these cases by 27-percent. Under a variety of alternative assumptions, the fraction of disallowed non-economic damages ranges from 70-percent to 77-percent, and the reduction in payouts varies from 25-percent to 28-percent.²³

21 Tex. Civ. Prac. and Rem. Code Ann. § 41.003 (standard for awarding punitive damages); id. § 41.008 (West 1997) (post-1995 cap); id. § 41.007 (West 1991) (repealed 1995) (prior cap). The terms “fraud,” “malice,” and “gross negligence” are also narrowly defined. Id. § 41.001.

22 *Columbia Hosp Corp. of Houston v. Moore*, 92 S.W.3d 470, 474 (Tex. 2002).

23 For example, if we applied the non-econ cap before other damages caps and remittitur, instead of after, the non-econ cap would reduce allowed non-economic damages by 77-percent (from \$186 million to \$43 million), instead of 73-percent (from \$162 million to \$43 million). If we assumed that the non-econ cap was \$250,000 (nominal) in all years, instead of \$160,707 real (hence larger in earlier years), the cap would reduce allowed non-economic damages by 70-percent (from \$162 million to \$49 million). If we assume that all awarded economic damages were medical expenses (thus reducing the effect of the death cap), the non-econ cap would reduce non-economic damages by 74-percent (from \$167 million to \$44 million).

3.3.1. Jury Verdict Cases

39 In 2003, as part of a comprehensive package of tort reforms, Texas enacted a non-econ cap. The cap applies to medical malpractice cases filed after September 1, 2003, so it does not affect any of the jury verdict cases in our sample, and it applies to a trivial number of settled cases (58 cases, or 0.4-percent). The cap limits non-economic damages against physicians and other individuals who are licensed health-care providers to \$250,000 (nominal, not adjusted for inflation) for all of these individuals together. A separate \$250,000 (nominal) cap applies to each hospital or other licensed health-care facility, with total non-economic damages capped at \$500,000 (nominal) for all health-care facilities. Thus, the cap will be \$250,000 (nominal) if there is only one liable defendant, but can be as high as \$750,000 (nominal), depending on the number and type of liable defendants.²⁴ In estimating the effect of the non-econ cap, we applied the actual statutory cap, taking into account the number and type of liable defendants, and the jury's allocation of fault to each defendant. In its average effect, the Texas cap is equivalent to a simple cap on non-economic damages recoverable from all defendants of \$336,000 (nominal) or \$216,000 in 1988 dollars.²⁵

40 The Texas non-econ cap is not adjusted for inflation. We, therefore, had to decide how to apply the cap across our sample period. In the following, we assume that the cap was a constant \$250,000 in 2003 dollars, the year the cap was enacted, which equals \$160,707 in 1988 dollars. This treats the cap as if it had been inflation adjusted.

41 An alternate assumption would be that the cap was a constant \$250,000 in nominal dollars, and therefore decreased over our sample period in real dollars, from \$250,000 in 1988 dollars to \$156,600 in 1988 dollars in 2004. Under this assumption, the cap would be less stringent in earlier years. Allowed non-economic damages in 1988 dollars would be \$49 million instead of \$43 million in 1988 dollars, and the non-econ cap would reduce allowed non-economic damages by 70-percent instead of 73-percent. We prefer to assume an inflation adjusted cap, because this provides a better measure of the stringency of the cap *when adopted*.

24 Texas Civil Practice and Remedies Code § 74.301.

25 For a few cases with three or more liable defendants, dataset limitations meant that we had to exercise judgment on whether separate caps applied. When in doubt, we used a larger non-econ cap.

To estimate the effect of the non-econ cap on jury awards and payouts, we need to make assumptions about the order in which remittitur and different damages caps are applied, the order in which they affect different types of damages, and the order in which damages are paid. We assume that remittitur and the damages caps apply in the following order:

remittitur and jnov > death cap > punitives cap > non-econ cap

That is, we apply jnov or remittitur (if any) to a verdict first, the death cap next, the punitives cap third, and the non-econ cap last. We also assume that the death cap reduces interest first, non-economic damages second, and economic damages third; remittitur reduces non-economic damages first and economic damages second. The result is “allowed” amounts for economic, non-economic, and punitive damages, and interest, and an allowed verdict (the sum of these amounts).

Jury awards are broken out into different types of damages, but defendants pay a lump sum. We allocate the total payout to allowed damages and interest as follows:

First, to allowed economic damages until payout is exhausted or allowed economic damages are fully paid (“paid econ damages”)

Second, to allowed non-economic damages until payout is exhausted or allowed non-economic damages are fully paid (“paid non-economic damages”)

Third, to allowed punitive damages until payout is exhausted or allowed punitive damages are fully paid (“paid punitive damages”)

Fourth, to allowed interest (“paid interest”)

Fifth, to a “payout bonus” category, when defendants pay more than the allowed verdict²⁶

We use this assumed payout order to compute allowed paid damages both before and after applying the non-econ cap.

The premise of this approach is that the parties have lexical priorities in allocating payout to damages, with economic damages paid before non-economic damages; non-economic damages paid before punitive damages; and punitive damages paid before interest. In interviews with plaintiffs’

26 We observe a payout bonus in 43 cases, with a mean (median) payout bonus of \$216,000 (79,000). We exclude the payout bonus from our analysis, because we cannot predict how a non-econ cap would affect it.

lawyers, they confirmed that our assumed payment order is consistent with their expectations regarding the difficulty of sustaining the various components of a damages award on appeal.

47 In 38-percent of the jury verdict cases (123 of 326), paid non-economic damages exceeded the non-econ cap.²⁷ These “surplus” amounts totaled \$68 million. These 123 cases also involved unpaid interest of \$48 million (\$37 million) before (after) applying the non-econ cap. For these cases, how the non-econ cap would affect the amount of paid interest is unclear. On one hand, the plaintiffs would be entitled to lower non-economic damages and therefore less interest. On the other hand, if defendants paid less in non-economic damages, they might have paid a larger share of the interest on the remaining allowed award. In unreported regressions, we sought to estimate the net effect of the non-economic cap on interest payments, based on the observed marginal propensity for plaintiffs to receive interest payments, as a function of total award, total payout, policy limits, nature of damages, and other factors. Our best estimate was that plaintiffs would have received roughly \$1.5 million in additional interest. We determined that this amount was small enough, and the procedure for estimating it complicated enough, that we would do better to simply assume that defendants would not pay any surplus to plaintiffs as additional interest.²⁸

3.3.2. *Cases Settled Without a Full Trial*

48 To apply the non-econ cap to cases settled without a full trial (“settled cases”), we need a way to allocate the settlement amount among economic, non-economic, and punitive damages and interest. The TDI Reporting Guide asks insurers to allocate payouts in claims resolved without trial among these categories, in cases where the insurer believes the settlement was affected by a possible claim for non-economic damages, punitive damages, or

27 In 16-percent (53 of 326) of the cases, no non-economic damages were awarded. In an additional 31-percent (102 of 326) of the cases, awarded non-economic damages were less than the non-econ cap. In the remaining 15-percent (28 of 326) of cases, awarded non-economic damages exceeded the non-econ cap, but paid non-economic damages did not.

28 Details of our estimation procedure are available from the authors on request. If after applying the non-econ cap, every dollar of surplus payout was paid as otherwise unpaid interest on the post-cap allowed award, interest payments would rise by \$13 million.

pre-judgment interest. However, only about a third of claims provide this allocation—and in these cases, the allocation differs substantially from the results in jury verdict cases.²⁹ We concluded that the insurers' allocation was not reliable, and instead estimated a damages allocation as follows.

We first divide jury verdicts into the following subsamples:

- babies (age 0–1 month; 27 cases)
- children (age 2 months–18 years; 28 cases)
- adult non-elderly (age 19–64; 223 cases); divided into subsamples of employed plaintiff and non-death outcome (126 cases), unemployed non-death (48 cases), employed death (25 cases), and unemployed death (24 jury verdicts)
- elderly (age 65+; 48 cases); divided into subsamples of death (18 jury verdicts) and non-death (30 jury verdicts)

We chose the subsamples based on characteristics that predict differences in the ratio of non-economic to total damages, while requiring subsample sizes large enough to make it reasonable to extrapolate from the subsample to settled cases having the same characteristics.³⁰

Second, for each subsample, we determined the ratio of (total paid economic damages)/(total payout) for tried cases and assumed the same ratio would hold in settled cases within that subsample. Thus, for each settled case i , we assumed that:

$$\text{paid econ damages}_i = \text{ratio}_{\text{econ/total}} \times \text{payout}_i$$

29 Insurers allocated some payout to non-economic damages in 98-percent of settled cases, but juries awarded these damages in only 83-percent of cases. Insurers also estimated that non-economic damages represented 58-percent of total payouts, compared to our estimate of 41-percent in jury cases. These differences suggest that one should not rely too heavily on insurers' damages allocations in settled cases, as Joni Hersch, Jeffrey O'Connell, and W. Kip Viscusi (2007) did to model the impact of an early offer program for medical malpractice cases.

30 In robustness checks, we obtain very similar results with other plausible choices of subsamples. We explored a variety of approaches to using jury case outcomes to predict outcomes in settled cases, including regression approaches in which we used the characteristics of jury cases to predict the amounts of different types of damages in settled cases. The regression estimates, however, were sensitive to the exact specification we used. We, therefore, adopted the allocation approach described in text.

52 And similarly for non-economic damages, punitive damages, and interest. In
the following, we estimate the sensitivity of our results to this assumption.

53 Third, we applied the non-econ cap to the estimated paid non-economic
damages. The Texas non-econ cap ranges from \$250,000 to \$750,000, de-
pending on the number and type of liable defendants. For settled cases, we
do not know the number of liable defendants, nor the allocation of liability
among these defendants, so we cannot determine the cap level for each
case. However, we do know that for jury cases, the Texas cap is equivalent
in overall effect to a simple cap of \$216,000 regardless of the number of
liable defendants. For the settled cases, we therefore assumed a simple cap of
\$216,000. To estimate how the non-econ cap would affect paid interest, we
multiplied pre-non-econ cap paid interest by the ratio of (post-all-caps paid
interest)/(post-other caps paid interest), determined based on tried cases.

54 This approach is likely to underestimate the effect of the non-econ cap
on settled cases for two distinct reasons. First, it applies the non-econ cap
to the amount of non-economic damages actually paid ex post, and ignores
the impact of the ex ante probability of winning at trial on the expected
settlement. Suppose, for example, that a malpractice claim has expected
non-economic damages of four times the non-econ cap (\$643,000) if the
plaintiff wins, and a 50-percent chance of success. For simplicity, we ignore
other types of damages, interest, time value of money, and information
asymmetry, and assume risk neutrality. Under rational bargaining with no
cap, the settlement should be half of the expected damages, or \$322,000.
Our approach applies the non-econ cap to this amount, reducing it from
\$322,000 to \$202,000. However, if a non-econ cap applies, the parties
should settle for \$101,000, because the plaintiff has a 50-percent chance
of winning an award that is capped at \$202,000. Our approach, therefore,
over-estimates post-cap settlements. In the following, we assess the sensi-
tivity of our estimate to varying the assumed chance of winning at trial.

55 Second, our approach assumes that each settled case has the same ratio
of non-economic to total damages. In fact, this ratio will vary across cases.
Because the cap hits the high-outlier awards, this variance will increase the
real-world effect of the cap, compared to our estimate.

56 Note, too, that settled cases could differ systematically from tried cases
in the proportion of payout attributable to non-economic damages, or

the likelihood of collecting the equivalent of pre-judgment interest as part of the settlement. Our allocation approach assumes away these possible differences.

3.3.3. Caps in Other States

We also simulate how the caps on non-economic damages and total damages adopted by other states would affect allowed verdicts and payouts for our sample. Appendix A summarizes these caps. Doing so requires some additional assumptions. First, some states' caps have exceptions or higher limits, which depend on facts not available to us (such as the plaintiff's life expectancy). We ignored these exceptions. Second, Colorado caps both non-economic damages and total damages. We assumed that the non-econ cap applies first. Third, if a state cap is not inflation adjusted, we treat it as being set at a specified real level in 2003. This is similar to how we handle the Texas cap. If the cap is inflation adjusted, we use the specified level as its value in 2003 dollars. We thus treat a non-inflation adjusted cap of \$250,000 and an inflation-adjusted cap of \$250,000 in 2003 dollars as equivalent. In fact, the non-adjusted cap will be more (less) generous before (after) 2003.

3.4. Strengths and Weaknesses of the Simulation Approach

Our simulation approach centrally involves holding constant the manner in which cases are chosen and brought, by applying a cap to cases brought *without* a cap in place. In fact, a non-econ cap will affect plaintiff's lawyers' choice of which cases to bring; both sides' choices on which cases to settle; the amounts cases settle for; and how cases are tried. This means that one cannot simply compare pre- and post-cap outcomes to determine how a non-econ cap affects outcomes. We avoid this endogeneity problem. The simulation approach also means that we are not limited to observing the effect of a single actual cap; instead, we can simulate how varying cap design changes the cap's impact on awards and payouts.

The simulation approach also has limitations, which are the flip side of its strengths. It assumes that the same cases will be brought, and that these cases will be settled and tried in the same way. The difference comes only at the end, when the cap affects allowed damages and payouts. We cannot assess how the cap will affect counsel's decisions on which cases to bring,

which to settle and for how much, which to take to trial, and how to try these cases. We cannot assess whether or how plaintiffs' counsel might try to compensate for a cap on non-economic damages by working harder to develop economic or punitive damages, or whether jurors' private knowledge of the cap might affect their damage awards.

60 We also cannot study how caps affect total payouts in medical malpractice cases, or malpractice insurance premiums. Those effects will depend on the endogenous changes in case selection and handling, which we assume away. Depending on how plaintiffs, defendants, and insurers respond to caps, the effect on total payouts and premiums could be larger or smaller than the simulation results we report.

61 After a sufficient number of post-cap cases have accumulated, we should be able to use the exogenous shock provided by the Texas cap to say something about how the cap has affected claim frequency, claim type, jury awards, and payouts, taking into account cap-induced change. Given typical lags between case inception and closing, plus the lag between claim closing and release of data by the Texas Department of Insurance, we should be able to undertake that follow-up study in about 2012.

4. FINDINGS ON JURY VERDICT CASES

4.1. Summary Statistics

62 Table 1 provides summary statistics on the 326 plaintiff jury verdicts that comprise our primary dataset. As Table 1 documents, non-economic damages were awarded in 83-percent of cases and accounted for 56-percent of compensatory damages (economic + non-economic damages) and 36-percent of the total adjusted verdict. Adjusted verdicts (after winsorization) totaled \$460 million. Actual payouts were \$236 million, or 51-percent of the amount awarded. The percentage of the verdict that was paid varied substantially across categories, ranging from 77-percent of economic damages to 16-percent of interest. The jury award figures in Table 1 are *before* applying any caps; the payouts reflect the impact of other caps.

63 Figure 1 shows, for different ranges of non-economic damage awards, the number of cases and the percentage of total non-economic damages in each range. Almost half (48-percent) of the verdicts fall in the first two ranges,

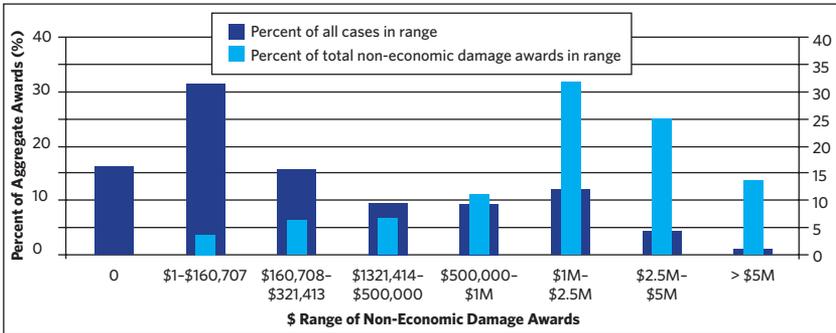
Table 1. Summary Statistics on Pro-Plaintiff Jury Verdicts

Sample: Plaintiff Jury Verdict Cases with Payout > \$25,000	Economic Damages	Non-Econ Damages	Punitive Damages	Interest	Adjusted Verdict
Jury Awards					
Total award (before winsorizing)	\$146,806	\$185,842	\$72,287	\$108,995	\$513,930
Total award (after winsorizing)			\$20,716	\$106,728	\$460,093
Mean	\$542	\$681	\$829	\$327	\$1,411
Median	\$89	\$262	\$453	\$81	\$446
No. of cases with this type of award	270	272	25	326	326
Actual Post-Verdict Payouts					Total Payout
Total amount paid	\$112,451	\$92,267	\$5,957	\$16,706	\$227,382
Mean (median)	\$345 (\$50)	\$283 (\$102)	\$18 (\$0)	\$51 (\$0)	\$697 (\$259)
Percentage of winsorized jury award paid	77%	50%	29%	16%	49%

Summary statistics for adjusted verdicts and payouts in completed jury trials with plaintiff verdicts, included in the BRD_{minus} dataset of nonduplicate medical malpractice claims closed from 1988-2004 with payout > \$25,000 in 1988 dollars. Adjusted verdict = economic + non-economic + punitive damages + interest. Mean and median for each type of damages are for cases with non-zero awards of this type. Two outlier punitive awards are winsorized at level of next highest punitive award (\$2.7 million) in all rows except as indicated. Payout totals exclude \$9.3 million in verdict bonus (amounts paid in excess of adjusted verdict). Amounts in thousands of 1988 dollars.

with non-economic damages that are either zero or below the \$161,000 one-defendant cap level. The bulk of non-economic damages are awarded in the largest cases, which are a small percentage of total cases. Cases with more than \$1 million in awarded non-economic damages accounted for 17-percent (57 of 326) of cases, but 72-percent (\$133 million of \$186 million) of total non-economic damage awards. The four cases with more than \$5 million in non-economic damage awards were only 1.2-percent of all cases, but accounted for 14-percent of total non-economic damage awards.

Table 2 analyzes the factors that are associated with higher non-economic damages. We use logs because non-logged values have a strong positive

Figure 1. Distribution of Awarded Non-Economic Damages (Percentages)

Percent of cases with non-economic damage awards in indicated ranges, and percent of total non-econ awards represented by all cases in each range, for completed jury trials with plaintiff verdicts, included in the BRD_{minus} dataset of nonduplicate medical malpractice claims closed from 1988-2004 with payout > \$25,000 in 1988 dollars. Amounts in 1988 dollars. Cap is assumed to be \$160,707 in all years (this equals \$250,000 in 2003 dollars).

skew.³¹ Regression (1) presents a simple regression of $\ln(\text{non-economic damages})$ against year and a constant term. The coefficient on Year is economically important at 3.2-percent, but is only marginally statistically significant. Regression (2) limits the sample to cases with positive awards of both econ and non-economic damages, and adds $\ln(\text{economic damages})$ as an additional independent variable. The coefficient on Year drops to 0.3-percent and loses significance. Consistent with prior research, economic damages are a strong predictor of non-economic awards.³² Regression (3) adds dummy variables for the type of plaintiff (infant or not, employed or not) and the type of harm (death, brain damage). Death cases have higher non-economic damages, but the other dummy variables are insignificant.³³ Regression (4) is limited to cases with babies (age 0–1 month old). The sample size is small (19 cases), but economic damages predict higher

31 With logged values, the regression residuals still violate normality under standard tests but not severely, and visually look close to normal. Regressions using nonlogged dependent variables are similar to the results using logged variables that we report.

32 Viscusi (1988).

33 In unreported regressions, a variety of other plaintiff-type and harm-type dummy variables are also not significant, but sample sizes are often small.

Table 2. Factors Predicting Non-Economic Damage Awards

Dependent variable	ln (Non-Economic Damages)			
	All			Babies
Cases	(1)	(2)	(3)	(4)
Regression				
Year	0.0	0.003	0.0003	-0.041
	(1.86)*	(0.22)	(0.02)	(-0.58)
ln(econ damages)		0.42	0.42	0.63
		(10.06)***	(8.12)***	(3.29)***
Employed plaintiff dummy			-0.29	
			(-1.56)*	
Death dummy			0.74	
			(3.78)***	
Brain damage dummy			0.48	-0.68
			(1.65)	(1.17)
Baby dummy			-0.33	
			(-1.07)	
Constant	12.19	7.58	7.61	5.38
	67.06	(15.20)	(13.56)	(2.00)
Number of cases	273	218	218	19
Adjusted R ²	0.015	0.294	0.351	0.350

Factors predicting non-economic damage awards in completed jury trials with plaintiff verdicts and awards of non-economic damages, included in the BRD_{minus} dataset of nonduplicate medical malpractice claims closed from 1988-2004 with payout > \$25,000 in 1988 dollars. Regressions (2)-(3) are limited to cases with positive economic damages; regression (4) is further limited to baby cases (plaintiffs aged 0-1 month). Amounts in 1988 dollars. t-statistics, based on White's heteroskedasticity-consistent standard errors, are in parentheses. *, *** indicates significance at the 5-percent, 1-percent level (significance suppressed for constant term). Significant results, at 5-percent level or better, are in **boldface**.

non-econ awards. Death dummy drops out because none of the baby cases involve death.

4.2. The Effect of the Non-Econ Cap on Jury Awards

Table 3 shows the predicted effect of the Texas non-econ cap on jury awards. The first panel is taken from Table 1 and shows actual jury awards.

Table 3: Effect of the Non-Econ Cap on Jury Verdicts

	Economic Damages	Non-Econ Damages	Punitive Damages	Interest	Adjusted Verdict
Jury Awards					
Total	\$146,806	\$185,842	\$20,716	\$106,728	\$460,093
Mean (median)	\$542 (\$89)	\$681 (\$262)	\$829 (\$453)	\$327 (\$81)	\$1,411 (\$446)
Allowed Awards (After Other Caps; Before Non-Econ Cap)					
Total	\$146,008	\$162,481	\$14,972	\$93,932	\$417,393
Mean (median)	\$541 (\$90)	\$597 (\$242)	\$599 (\$230)	\$290 (\$74)	\$1,280 (\$411)
Allowed Awards (After All Caps)					
Total	Same as above	\$43,066	Same as above	\$56,780	\$260,826
Mean (median)		\$158 (\$161)		\$175 (\$50)	\$800 (\$265)
Decline due to non-econ cap (%)		-		73%	-

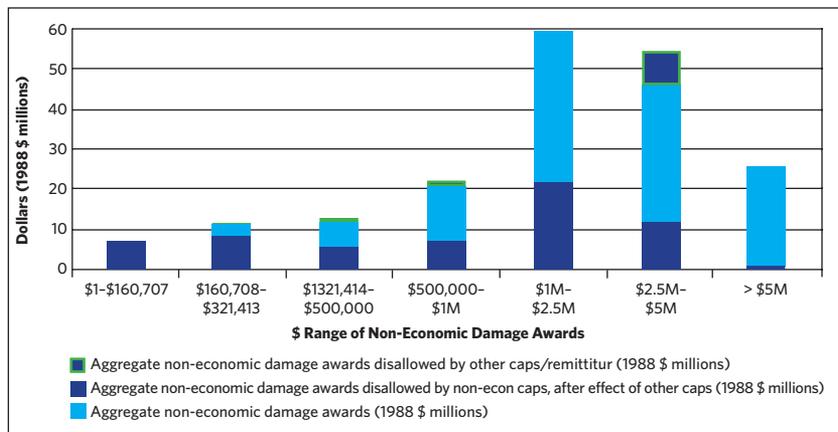
Effect of remittitur and damages caps on allowed awards in completed jury trials with plaintiff verdicts, included in the BRD_{minus} dataset of nonduplicate medical malpractice claims closed from 1988–2004 with payout > \$25,000 in 1988 dollars. Adjusted verdict = economic + non-economic + punitive damages + interest. Mean and median for each type of damages are for cases with non-zero awards of this type. Two outlier punitive awards are winsorized at level of next highest punitive award (\$2.7 million). Amounts in thousands of 1988 dollars.

The second panel applies the “other caps” (remittitur, the death cap, and the punitives cap), which were in effect during our sample period, and shows their combined effect on allowed damages and the overall allowed verdict. In the third panel, we simulate the effect of the Texas non-econ cap by applying it to each case.

66 In total, the non-econ cap would have eliminated approximately \$119 million in non-economic damages, or 73-percent of allowed non-economic damages after other caps. Including its effect on interest, the non-econ cap would have eliminated approximately \$157 million (38-percent) of the allowed verdict after other caps.

67 Figure 2 shows how the non-econ cap would have affected jury awards with different levels of non-economic damages. Each bar shows the total

Figure 2. Impact of Non-Economic Damages Cap: Amounts Allowed and Disallowed



Allowed non-economic damage awards in indicated range, amount disallowed by other caps, and amount disallowed by non-econ cap for completed jury trials with plaintiff verdicts, included in the BRD_{minus} dataset of nonduplicate medical malpractice claims closed from 1988–2004 with payout > \$25,000 in 1988 dollars. Amounts in 1988 dollars. Top dotted segment of each bar shows amount disallowed by other caps. Middle cross-hatched segment shows amount disallowed by non-econ cap. Solid bottom segment shows amount allowed after all caps.

non-economic damages awarded in a particular range, as well as (1) the amount disallowed by other caps (top dotted segment of each bar); (2) the amount disallowed by the non-econ cap (middle cross-hatched segment); and (3) the remaining allowed amount (solid bottom segment). Not surprisingly, most of the effect of the non-econ cap comes in cases with large non-economic damage awards.

4.3. How Does the Non-Econ Cap Affect Payout?

If defendants paid what juries award, caps would have the same effect on payouts as they did on jury awards. However, as Figure 2 shows, the non-econ cap mostly affects larger awards, and we know from prior work that defendants often pay less than the full adjusted verdict— and the larger the verdict, the more likely and larger the unpaid portion or “haircut.”³⁴ Because a non-econ cap will in part disallow damages that would have gone

34 Hyman et al. (2007). The percentages shown as paid in the second panel of Table 4 are higher than those reported in this prior study because Table 4 is computed after winsorizing two outlier punitive damage awards; and because the first panel is computed after applying other caps.

Table 4: Effect of Non-Econ Cap on Payouts

	Economic Damages	Non-Economic Damages	Punitive Damages	Interest	Total (Before Payout Bonus)*
Actual Payout (After Other Caps)					
Total	\$112,451	\$92,267	\$5,957	\$16,706	\$227,382
Mean (median)	\$345 (\$50)	\$283 (\$102)	\$18 (\$0)	\$51 (\$0)	\$697 (\$259)
% of adjusted verdict paid	77%	50%	29%	16%	49%
Predicted Payout (After All Caps)					
Total	Same as above	\$35,117	Same as above	\$13,569	\$167,095
Mean (median)		\$108 (\$100)		\$42 (\$0)	\$513 (\$200)
% of adjusted verdict paid	77%	19%	29%	13%	36%
% of <i>allowed award</i> (after all caps) paid	77%	82%	40%	24%	64%
Decline due to non-econ cap (%)	-	62%	-	19%	27%

Actual payout (after other caps) and predicted payout (after all caps) for completed jury trials with plaintiff verdicts, included in the BRD_{minus} dataset of nonduplicate medical malpractice claims closed from 1988–2004 with payout > \$25,000 in 1988 dollars. Mean and median for each type of damages are for cases with non-zero awards of this type. Two outlier punitive awards are winsorized at level of next highest punitive award (\$2.7 million). Amounts in thousands of 1988 dollars. * Because we are uncertain of how the non-econ cap would affect the payout bonus (amount paid in excess of adjusted verdict), we exclude \$9.3 million in payout bonus from this table and subsequent analysis.

unpaid in the first instance, we expect its effect on payouts to be smaller than its effect on allowed verdicts.

69 Table 4 shows how the non-econ cap affects payouts. The first panel is based on the bottom panel of Table 1 and shows actual payouts, using the assumed order of payment and cap application described in Part 3. Plaintiffs receive, on average, 77-percent of economic damages, 50-percent of non-economic damages, 29-percent of punitive damages, 16-percent of interest, and 49-percent of the verdict (after other caps).

70 The second panel shows predicted payouts after applying the non-econ cap. Payout drops \$60M, from \$227 million to \$167M. This is

substantially less than the \$157 million predicted decline in allowed verdict (see Table 3). The remaining \$97 million reflects adjusted verdict dollars that were not paid to begin with. Stated differently, the non-econ cap produces a 38-percent decline in the allowed verdict, but only a 27-percent decline in payout, even though the denominator is far larger for the former than the latter. Overall payouts decline from 49-percent to 36-percent of the adjusted verdict.

4.4. How Does the Non-Econ Cap Affect Different Plaintiff Groups?

Critics have argued that non-econ caps discriminate against women, the young, the old, and the deceased.³⁵ The logic of this claim is that awards to such plaintiffs have a relatively large non-economic component—so they might be disproportionately affected by a non-econ cap.

Our data enables us to directly test most of these claims. We cannot test whether caps differentially affect women, because the TCCD does not include the claimant's sex. However, the TCCD does indicate age and employment status, and at least some of the potential disparate effect is likely attributable to the fact that women claimants are less likely to be employed than men, and more likely to be elderly.³⁶

Table 5, Panel A shows how the non-econ cap affects allowed verdicts and payouts across these plaintiff categories. As Table 5 reflects, although the non-econ cap has a larger impact on verdicts than payouts across all plaintiff categories, its impact varies quite a bit, depending on the demographic group and the type of harm (death versus other harms). For example, the non-econ cap reduces elderly plaintiffs' aggregate (per claim mean) allowed verdicts by 51-percent (23-percent), compared to 37-percent (19-percent) for adult non-elderly plaintiffs. Deceased

35 Costello (2007) ("Critics say [non-econ caps] are preventing victims and their families from getting their day in court, especially low-income workers, children, and the elderly . . . 'It has the effect of making an infant who is severely injured more valuable than those who don't make it . . . most attorneys I know won't take a dead-baby case.'"); Zimmerman & Hallinan (2004) ("Lawyers are turning away cases involving victims that don't represent big economic losses—most notably retired people, children and housewives. . . 'When you put a cap on noneconomic damages,' says NOW President Kim Gandy, 'quite literally [women's] lives are valued lower.'"); Finley (2004).

36 Even if employed, women typically are paid less than men, and hence will have lower damages for lost wages. Our dataset does not enable us to address this source of differential impact.

Table 5: Effect of Non-Econ Cap: Death, Employment, and Age

Panel A. Broad Categories

Case Type	Age	No. of Cases	Percent Reduction in Aggregate:		Mean of Per-Case Percentage Reductions			
			Allowed Verdict	Payout	Allowed Verdict	t-Stat	Payout	t-Stat
Death	All	80	38%	34%	30%	3.51***	23%	3.80***
Non-Death	All	246	37%	25%	18%		12%	
Unemployed	Non-baby	141	47%	37%	24%	1.78*	19%	2.76***
Employed	All	158	32%	17%	18%	11%		
All	Elderly	48	51%	38%	23%	0.85	19%	1.45
	Adult non-elderly	223	37%	22%	19%		14%	
	Children	29	43%	37%	28%	1.07	21%	1.76
	Baby	26	28%	22%	20%		10%	
	All	326	38%	27%	21%	15%		

Percentage reduction in aggregate allowed verdicts and payouts, and means of per-case percentage reductions in allowed verdict and payout, attributable to non-econ cap for 326 completed jury trials with plaintiff verdicts, included in the BRD_{minus} dataset of nonduplicate medical malpractice claims closed from 1988–2004 with payout > \$25,000 in 1988 dollars. Baby is age 1 month or less. Children is age 2 months to 18 years. Adult non-elderly is age 19–64. Elderly is age 65+. Two outlier punitive awards are winsorized at level of next highest punitive award (\$2.7 million). t-statistic is for test of differences in means. *, **, *** indicates significance at the 10-percent, 5-percent, and 1-percent level. Significant differences, at 5-percent level or better, are in **boldface**.

plaintiffs saw their aggregate (per claim mean) allowed verdict drop by 38-percent (30-percent), compared to 37-percent (18-percent) for living plaintiffs. Payouts also varied across groups; for example, aggregate (per-claim mean) payouts declined by 38-percent (19-percent) for elderly plaintiffs, compared to 22-percent (10-percent) for babies.

74

We can test the statistical significance of differences in mean *per-case* reductions in payout, but not aggregate reductions. The power of statistical tests is also limited due to the modest number of cases in some groups—for example, 48 cases involving elderly plaintiffs and 26 cases involving babies. Table 5, Panel A provides *t*-statistics for selected difference

Panel B: Breakdowns for Adult Non-Elderly Plaintiffs

Case Type	Status	No. of Cases	Percent Reduction in Aggregate		Mean of Per-Case Percentage Reductions			
			Allowed Verdict	Payout	Allowed Verdict	t-Stat	Payout	t-Stat
Death	Unemployed	24	65%	53%	35%	0.83	31%	1.31
	Employed	25	18%	17%	27%		20%	
Non-Death	Unemployed	48	41%	24%	20%	1.22	14%	1.38
	Employed	126	37%	15%	15%		9%	
Death	Unemployed	24	65%	53%	35%	3.33***	31%	4.29***
Non-Death	Employed	126	37%	15%	15%		9%	

Percentage reduction in aggregate allowed verdicts and payouts, and means of per-case percentage reductions in allowed verdict and payout, attributable to non-econ cap for 223 completed jury trials with adult, non-elderly plaintiffs (age 19–64) and plaintiff jury verdicts, included in the BRD_{minus} dataset of nonduplicate medical malpractice claims closed from 1988–2004 with payout > \$25,000 in 1988 dollars. Two outlier punitive awards are winsorized at level of next highest punitive award (\$2.7 million). t-statistic is for test of differences in means. *, **, *** indicates significance at the 10-percent, 5-percent, and 1-percent level. Significant differences, at 5-percent level or better, are in **boldface**.

in means tests for per-case mean reduction in verdicts and payouts. These reductions are significantly larger for death cases than for non-death cases, and for unemployed non-baby plaintiffs than for employed plaintiffs. For elderly plaintiffs versus adult non-elderly plaintiffs, the point estimates for aggregate allowed verdicts and payouts are quite different, but the differences in per-case means are not statistically significant.

Panel B provides a finer breakdown for adult, non-elderly plaintiffs. There is a striking gap between the 53-percent aggregate reduction in payout for unemployed deceased plaintiffs versus 17-percent for employed deceased plaintiffs or 15-percent for employed non-deceased plaintiffs. The gap for unemployed non-deceased plaintiffs versus employed non-deceased plaintiffs is more modest (24-percent versus 15-percent). Within the death and non-death groups, the differences are not significant—perhaps due to small sample size, but they become so in the last comparison between unemployed deceased plaintiffs and employed non-deceased plaintiffs.

5. APPLYING THE NON-ECON CAP TO SETTLED CASES

76 We turn next to how the non-econ cap affects payouts in settled cases. Settled cases make up the overwhelming majority of cases (97.5-percent) and dollars (95-percent) in our dataset. For these cases, we do not have a jury award that we can use to allocate the settlement among economic, non-economic, and punitive damages and interest. We, therefore, use jury verdict allocations in tried cases to predict payout allocation in settled cases, and then simulate the effect of the non-econ cap on these cases. Part 3 describes our allocation procedure.

5.1. Basic Estimates for Settled Cases

77 Table 6 shows the allocation of payout in settled cases before and after the non-econ cap. The non-econ cap reduces payouts in 18-percent of settled cases, compared to 47-percent of tried cases. The mean per-case percentage reduction in payout is 5-percent, compared to 15-percent in tried cases. Overall, the non-econ cap reduces payout in settled cases by 18-percent, compared to 27-percent in tried cases.

Table 6: Effect of Non-Econ Cap on Payouts in Settled Cases

	Economic Damages	Non-Economic Damages	Punitive Damages	Interest	Total Payout
Actual Payout (After Other Caps; Before Non-Econ Cap)					
Total	\$2,012,921	\$1,876,273	\$116,471	\$331,175	\$4,336,840
Mean (median)	\$145 (\$47)	\$135 (\$57)	\$8 (\$3)	\$24 (\$10)	\$313 (\$132)
Predicted Payout (After All Caps)					
Total	Same as above	\$1,156,851	Same as above	\$268,999	\$3,555,242
Mean (median)		\$83 (\$57)		\$19 (\$8)	\$257 (\$130)
Decline due to non-econ cap (%)	—	38%	—	19%	18%

Estimated actual payout (after other caps), and predicted payout (after all caps) for economic, non-economic, and punitive damages and interest, for 13,857 settled cases included in the BRD_{minus} dataset of nonduplicate medical malpractice claims closed from 1988–2004 with payout > \$25,000 in 1988 dollars. Non-econ cap level is assumed to be \$202,000 for all cases. Estimated actual payout is based on damages allocation in jury verdict cases. Predicted payout is estimated by applying the cap to estimated pre-cap non-economic damages. See Part 3 for details of allocation procedure. Amounts in thousands of 1988 dollars.

Table 7: Different Probabilities of Winning at Trial and Non-Econ Cap Impact

Probability of plaintiff prevailing	Paid non-econ damages disallowed by non-econ cap	Effect of Non-Econ Cap on:	
		Total Payout (%)	Mean per-case payout (%)
25%	1,327	32.1%	17.4%
50%	1,037	25.4%	10.2%
75%	850	21.1%	7.1%
100%	716	18.0%	5.4%

Amount of disallowed non-economic damages, percentage reduction in total payout in all settled cases, and mean per-case reduction in payout, due to non-econ cap, for different assumed probabilities of plaintiff prevailing if the case had gone to trial, for 13,857 *settled* cases included in the BRD^{minus} dataset of nonduplicate medical malpractice claims closed from 1988–2004 with payout > \$25,000 in 1988 dollars. Non-econ cap level is assumed to be \$202,000 for all cases. See Part 3 for procedure for allocating settlements among economic, non-economic, and punitive damages and interest. Amounts in millions of 1988 dollars.

5.2. Sensitivity Analysis: Probability of Winning at Trial

The smaller impact of the non-econ cap in settled cases arises partly because settled cases have smaller payouts and partly because our estimation procedure underestimates the effect of the cap, for reasons discussed in Part 3. One reason is that we ignore the risk that the plaintiff's claim will fail at trial.³⁷ In Table 7, we address the impact of this underestimation by assuming different probabilities of success at trial. For example, for the 75-percent probability row, if a settlement involves \$300,000 in paid non-economic damages, we assume that this reflects a 75-percent chance of winning \$400,000 at trial. We apply the non-econ cap to the \$400,000, and then multiply the post-cap amount by 75-percent to obtain the estimated post-cap payout. We do not, of course, know the actual probability of prevailing in any particular case, and that probability surely varies across cases.

We expect that the effect of the non-econ cap on payouts in settled cases should be (1) smaller than the 27-percent predicted effect in jury

37 Our estimation procedure implicitly incorporates post-trial risks, because we rely on the percentage of paid non-economic damages in tried cases to estimate the amount of paid non-economic damages in settled cases.

cases, because settled cases are smaller on average and (2) greater than the 18-percent shown in Table 6 and repeated in the last row of Table 7. The results in Table 7 suggests that the average settled case, with damages large enough to be affected by the non-econ cap, involves a 50-percent to 75-percent chance of the plaintiff prevailing, and thus a predicted aggregate payout reduction of 21–25-percent. Strictly speaking, what matters is not the per-case probability of winning, but instead the probability weighted by the settlement amount. Cases with large settlements are likely to be disproportionately “strong” cases for the plaintiff, and the larger the settlement, the larger the likely probability of winning at trial. If so, a 50-percent to 75-percent chance of prevailing might be reasonable when estimating the effect of the non-econ cap in settled cases, even though it might well be too high on average across all cases.

5.3. Sensitivity Analysis: Ratio of Non-Econ to Total Damages

80 The estimates in Table 6 of the effect of the non-econ cap on settled cases assume that within each subsample, settled cases have the same ratio of non-econ to total damages as tried cases. We cannot directly test this assumption with our dataset and are not aware of evidence from other studies on how the fractional contribution of non-economic damages to pre-trial settlements differs from their contribution to post-trial payouts.

81 Our approach of extrapolating from trials to settlements within subsamples does allow the proportions of tried and settled cases to differ across subsamples. We find that subsamples with higher proportions of non-econ to total damages are a larger fraction of settled than of tried cases. As a result, we estimate an overall ratio of paid non-economic damages to total payout of 0.45 in settled cases, compared to 0.41 in tried cases.

82 In Table 8, we present the results of a sensitivity analysis, in which we allow this ratio to vary within each subsample. We show results if the ratio is 10-percent higher than in tried cases, 5-percent higher, the same, 5-percent less, and 10-percent less. Thus, the mean ratio of non-econ/total damages in tried cases was 36-percent for adult, non-elderly, employed plaintiffs. The first row of Table 8 reduces this to 26-percent; the last row increases it to 46-percent and similarly for other subsamples.

Table 8: Different Ratios of Non-Econ to Total Damages and Non-Econ Cap Effect

Ratio of non-econ/ total damages (relative to jury verdict cases)	Paid non-econ damages	Paid non-econ damages/total payout (%)	Non-econ damages disallowed by non-econ cap	Effect of Cap on:	
				Paid non-econ damages (%)	Total payout (%)
Minus 10%	1,443	33%	473	33%	12%
Minus 5%	1,659	38%	592	36%	15%
Same as tried cases	1,876	43%	719	38%	18%
Plus 5%	2,093	48%	855	41%	21%
Plus 10%	2,310	53%	998	43%	24%

Amount of paid non-economic damages, and amount of disallowed non-economic damages, and percentage reduction in paid non-economic damages and percentage reduction in total payout, due to non-econ cap, for different assumed proportions of non-economic damages/total damages, for 13,857 *settled* cases included in the BRD_{minus} dataset of nonduplicate medical malpractice claims closed from 1988–2004 with payout > \$25,000 in 1988 dollars. See Part 3 for procedure for allocating settlements among economic, non-economic, and punitive damages, and interest. Amounts in millions of 1988 dollars.

A lower assumed ratio of paid non-economic damages/total paid damages affects both the fractional reduction in paid non-economic damages due to the non-econ cap, and the amount of paid non-economic damages to which this fractional reduction applies. The fractional reduction in non-economic damages varies from 33-percent to 43-percent under the assumptions in Table 8, and the fractional reduction in predicted total payout varies from 12-percent to 24-percent.

5.4. Effect on Different Plaintiff Groups

In Table 9, we return to our base assumption of a 100-percent probability of plaintiff success, and estimate how the non-econ cap affects different plaintiff groups in settled cases. The inter-group differences in payout in settled cases are generally comparable to what we observe in the tried cases. For example, the aggregate reduction in payout in verdict cases is 33-percent for death versus 24-percent for non-death (9-percent difference). In settled cases, this gap decreases slightly to 22-percent versus 16-percent (6-percent difference). The aggregate reduction in payout in verdict cases is 36-percent for unemployed non-baby plaintiffs versus 17-percent for employed plaintiffs (19-percent difference); this gap decreases in settled cases to 26-percent

Table 9: Effect of Non-Econ Cap in Settled Cases: Death, Employment, and Age

Plaintiff and Claim Status	Age	No. of Settled Cases	Reduction in Aggregate Payout	Reduction in Mean Per-Case Payout
Death	All	4,940	22%	8%
Non-Death	All	8,917	16%	4%
Unemployed	Non-baby	7,133	26%	8%
Employed	All	5,425	11%	2%
All	Elderly	2,923	31%	8%
	Adult, non-elderly	8,275	16%	5%
	Child	1,356	22%	5%
	Baby	1,303	14%	4%
	All	13,857	18%	5%

Percentage reduction in aggregate payout, and mean per-case reduction in payout, attributable to non-econ cap, for 13,857 settled cases included in the BRD_{minus} dataset of nonduplicate medical malpractice claims closed from 1988–2004 with payout > \$25,000 in 1988 dollars. Baby is age 1 month or less. Children is age 2 months to 18 years. Adult non-elderly is age 19–64. Elderly is age 65+. Non-econ cap level is assumed to be \$202,000 for all cases. See Part 3 for procedure for allocating settlements among economic, non-economic, and punitive damages and interest.

versus 11-percent (15-percent difference). Across all plaintiff categories, the mean per-case percentage reduction is higher in verdict cases than in settled cases.³⁸

6. CAP DESIGN

85

We have thus far focused on the actual non-econ cap, which Texas adopted in 2003. Our simulation approach, however, also enables us to study how different cap designs affect predicted post-cap verdicts and payouts.

38 The estimates for settled cases in Table 8 are based on the same within-subsample damages allocation to economic, non-economic, and punitive damages and interest that we used in Table 5. The smaller the number of verdicts in a particular subsample, the less precise this allocation will be, as a measure of the unknown actual allocation in settled cases, even if the proportional allocation is the same in verdict cases and settled cases. We do not report *t*-statistics for differences between subsamples for settled cases because we do not have a good way to assess the combined effect of uncertainty about allocation percentages in tried cases and uncertainty about how settled cases differ from tried cases.

6.1. Cap Level

We first consider the effect of varying the level of the Texas non-econ cap, while retaining its other elements, including the potential for a higher cap if more than one type of defendant is liable. Table 10 shows how different cap levels affect allowed verdicts and payouts. We vary the assumed cap level from \$0 to \$2 million (nominal), in multiples of \$250,000.

Table 10. Effect of Different Caps on Allowed Verdicts and Payouts

Nominal single-defendant cap	\$0	\$250	\$500	\$750	\$1,000	\$1,250	\$1,500	\$1,750	\$2,000
Real single-defendant cap	\$0	\$161	\$321	\$482	\$643	\$804	\$964	\$1,125	\$1,286
Mean (Median) Adjusted Verdict	\$1411 (\$446)								
Mean (median) allowed verdict (after other caps, before non-econ cap)	\$1280 (\$411)								
Percent of cases affected by the cap	83%	47%	32%	21%	15%	13%	11%	8%	6%
Mean (median) allowed verdict (after all caps)	\$628 (\$83)	\$800 (\$265)	\$908 (\$388)	\$985 (\$411)	\$1034 (\$411)	\$1072 (\$411)	\$1107 (\$411)	\$1132 (\$411)	\$1155 (\$411)
% reduction in mean allowed verdict	51%	43%	29%	18%	14%	11%	8%	6%	4%
Mean (median) actual payout (after other caps, without payout bonus)	\$696 (\$259)								
Mean (median) predicted payout (after all caps)	\$392 (\$66)	\$512 (\$200)	\$574 (\$259)	\$611 (\$259)	\$631 (\$259)	\$643 (\$259)	\$654 (\$259)	\$661 (\$259)	\$668 (\$259)
% reduction in mean payout	44%	26%	18%	12%	9%	8%	6%	5%	4%

Predicted effect of "Texas-style" non-econ cap (which can be higher for multiple liable defendants) at different multiples of the actual Texas cap level, for 326 completed jury trials with plaintiff verdicts, included in the BRD_{minus} dataset of nonduplicate medical malpractice claims closed from 1988-2004 with payout > \$25,000 in 1988 dollars. Two outlier punitive awards are winsorized at level of next highest punitive award (\$2.7 million). Amounts are in thousands, top row is in nominal dollars, other rows are in 1988 dollars.

87 A nominal non-econ cap of \$0 reduces the mean allowed verdict by 51-percent, compared to 38-percent for the actual \$250,000 Texas cap, 29-percent for a \$500,000 Texas-style cap, and 18-percent for a \$750,000 Texas-style cap. As we discuss in the following most state non-econ caps are equivalent in overall effect to a simple cap, independent of the number of defendants, of between \$250,000 (equivalent to roughly \$200,000 for a Texas-style cap) and \$750,000.³⁹ Amounts in this paragraph are in nominal dollars.

88 Varying the non-econ cap level has a substantial effect on mean allowed verdicts and an even larger effect on *median* allowed verdicts. With a \$0 non-econ cap, median allowed verdict drops 80-percent, from \$411,000 to \$83,000. In contrast, caps of \$250,000 or higher do not affect median allowed awards. Payouts are also strongly affected by cap level. With a zero non-econ cap, mean (median) payout drops 44-percent (75-percent). In contrast, a \$500,000 non-econ cap reduces mean payout by 18-percent and does not affect median payout.

89 Table 10 illustrates two important aspects of caps: First, at all levels, the cap has a larger effect on mean allowed verdicts than on mean payouts. Second, there are large differences between the mean and median effect of a non-econ cap. These differences arise because outcomes in medical malpractice cases are highly skewed, and the cap only affects cases with awards above the cap level.

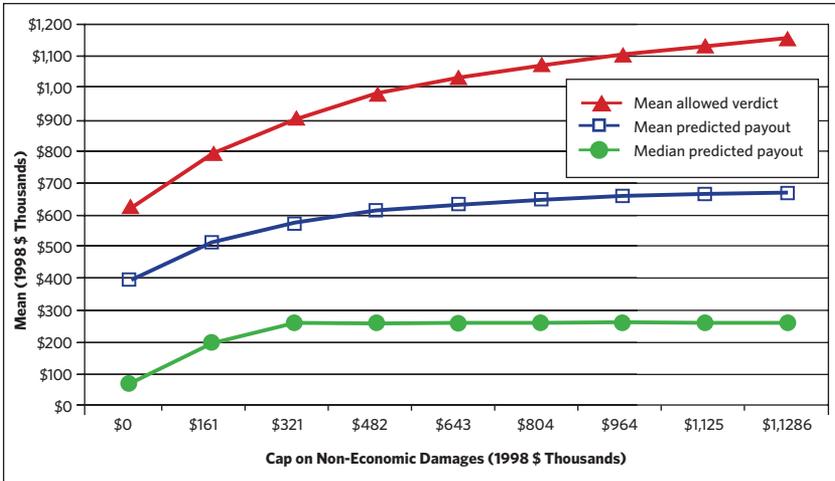
90 Figure 3 shows this point visually. We plot how different non-econ cap levels affect mean allowed verdict and mean and median predicted payout. Median predicted payout quickly converges on actual median payout without the non-econ cap (\$259,000). Mean predicted payout and mean allowed verdict also converge on their pre-cap levels (\$696,000 and \$1,280,000) as the cap level increases, but do so much more gradually.

91 In Figure 4, we show how a non-econ cap affects the allowed and blocked fraction of non-economic damages. Obviously, a non-econ cap of \$0 blocks 100-percent of non-economic damages. The percentage of blocked damages predictably drops as the cap increases but remains above 50-percent until the cap level exceeds \$700,000.⁴⁰

39 Avraham (2006) and Sharkey (2005) provide recent overviews of state damages caps.

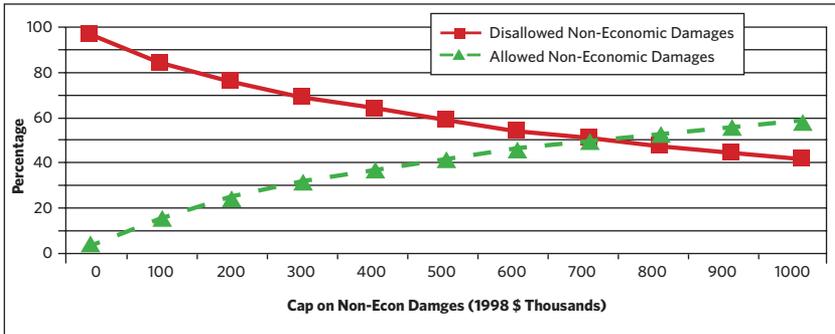
40 The Texas cap varies depending on the number and type of liable defendants. In Figure 4, we use a simple flat cap, independent of the number of defendants.

Figure 3. Impact of Non-Econ Cap on Awards and Payouts



Predicted effect of “Texas style” (which can be higher for multiple defendants) non-econ cap at different levels on mean (median) predicted payout and mean allowed verdict, for 326 completed jury trials with plaintiff verdicts, included in the BRD_{minus} dataset of nonduplicate medical malpractice claims closed from 1988–2004 with payout > \$25,000 in 1988 dollars. Two outlier punitive awards are winsorized at level of next highest punitive award (\$2.7 million). Amounts in thousands of 1988 dollars.

Figure 4: Effect of Different Cap Levels on Allowed Non-Economic Damages



Predicted effect of a non-econ cap on allowed and disallowed fraction of non-economic damages for different cap levels, for 326 completed jury trials with plaintiff verdicts, included in the BRD_{minus} dataset of nonduplicate medical malpractice claims closed from 1988–2004 with payout > \$25,000 in thousands of 1988 dollars. Amounts in thousands of 1988 dollars.

92 In unreported analyses similar to Table 9, we analyzed the extent to which deceased, unemployed, or elderly plaintiffs continue to be hit harder by the non-econ cap as its absolute level increases. The extent of disparate impact fades as the level of the non-econ cap increases. At non-econ cap levels of \$1 million or more, there is no significant difference in the cap's impact on payouts in settled cases, and a small difference in impact on payouts in tried cases (<4-percent). In part, this is because a larger cap affects fewer cases, and in part, because the affected groups (the elderly in particular) are less likely to receive large non-economic damage awards.

6.2. Comparing Different States' Damages Caps

93 In this section, we use our simulation approach to estimate the impact of the caps adopted by other states, as if they had been adopted in Texas and applied to the Texas cases in our dataset. Actual claims in these other states will, of course, be different, perhaps systematically so. But by applying different caps to a common set of claims, we can determine their relative severity. Thirty states, including Texas, have either a non-econ cap, a total damages cap, or both.⁴¹ Twenty-two states have caps on non-economic damages. Five states have caps on total damages. Three states cap both non-economic and total damages. Of these states, Colorado has separate non-econ and total damages caps, Massachusetts has a non-econ cap that applies to all cases and a total damages cap for non-profit hospitals, and Texas has a non-econ cap for all cases and a total damages cap limited to death cases.

94 Table 11 summarizes these caps. Cap amounts are shown in 2003 dollars, for comparability with Texas. Inflation adjusted caps are shown with an * in the first column. For caps that are not inflation-adjusted, we convert the cap level to 2003 dollars, which is the same procedure we used for Texas. This overstates (understates) states the effects of these caps on cases before (after) 2003.

41 We relied principally on a table prepared by Nelson, Morrissey, and Kilgore (2007), available at <http://images.main.uab.edu/isoph/LHC/DamagesCapsTable.pdf> and on communication with Meredith Kilgore about changes since the table was prepared. For Texas, we observe only post-death-cap payouts, and thus lack the data to study how the Texas death cap affects payouts. For all states, Table 11 reflects the impact of the listed cap on verdicts, and the impact of the listed cap on payouts *after* applying the Texas death cap.

Table 11. Effects of State Damages Caps on Allowed Verdicts and Payouts

State (* = infl. adjusted)	Cap Type	Cap Level	% Decline in Mean Allowed Verdict	% Decline in Mean Payout		
				Tried Cases	Settled Cases	All Cases
Louisiana	Total	\$500k plus future medical expenses	75.7%	65.1%	41.2%	42.4%
New Mexico	Total	\$600k plus future medical expenses	72.6%	61.1%	36.9%	38.1%
Colorado	Total Non-econ	\$1M total; \$300k non-econ	70.1%	58.0%	34.8%	36.0%
Indiana	Total	\$1.25M	57.4%	43.6%	25.4%	26.3%
Massachusetts	Total (hospitals), non-econ (all)	\$20k total (non-profit hospitals); \$500k non-econ (all defendants)	52.3%	45.1%	28.9%	29.7%
Nebraska	Total	\$1.75M	49.5%	36.4%	19.6%	20.4%
Virginia*	Total	\$1.95M	47.4%	34.4%	17.8%	18.7%
California Idaho* Kansas Montana	Non-econ	\$250k	40.2%	29.1%	20.4%	20.9%
Oklahoma*	Non-econ	\$300k	38.5%	27.3%	18.3%	18.7%
West Virginia*	Non-econ	\$250k, except \$500k in death cases	37.8%	26.3%	16.4%	16.9%
Missouri	Non-econ	\$330k	37.6%	26.3%	17.1%	17.6%
Texas	Non-econ	\$250 - \$750k, depending on number and type of defendants	37.5%	26.4%	17.9%	18.3%
Nevada	Non-econ	\$350k	37.0%	25.6%	16.4%	16.9%
Ohio	Non-econ	Greater of \$250k (3x economic damages, up to \$500k)	36.6%	25.9%	13.0%	13.7%
Hawaii	Non-econ	\$375k	36.3%	24.7%	15.6%	16.1%
Alaska	Non-econ	\$400k	35.6%	24.0%	14.9%	15.3%
Utah*	Non-econ	\$409k	35.3%	23.7%	14.6%	15.1%
Michigan*	Non-econ	\$641k	34.5%	24.2%	13.2%	13.8%

Downloaded from https://academic.oup.com/jla/article/1/1/355/689926 by Gary Ives user on 23 February 2023

Table 11. (Continued)

State (* = infl. adjusted)	Cap Type	Cap Level	% Decline in Mean Allowed Verdict	% Decline in Mean Payout		
				Tried Cases	Settled Cases	All Cases
Georgia South Carolina	Non-econ	\$350k-\$1.05M, depending on number and type of defendants	34.5%	23%	13.3%	13.8%
Mississippi North Dakota South Dakota	Non-econ	\$500k	33.1%	21.4%	12.4%	12.8%
<i>Maryland*</i>	Non-econ	\$650k	32.8%	21.1%	12.2%	12.6%
Illinois	Non-econ	\$500k, except \$1M for hospitals	31.5%	19.8%	6.7%	7.4%
Florida	Non-econ	\$500k (\$1M in death cases)	30.5%	18.5%	9.2%	9.7%
Wisconsin	Non-econ	\$750k	28.2%	16.4%	8.3%	8.7%

Predicted percentage reduction in mean allowed verdicts and mean payouts in tried and settled cases after applying indicated damages caps to 326 completed jury trials with plaintiff verdicts and 13,857 settled cases, included in the BRD_{minus} dataset of nonduplicate medical malpractice claims closed from 1988–2004 with payout > \$25,000 in 1988 dollars. Cap amounts are in nominal 2003 dollars. Estimated impact on settled cases impact assumes 100-percent probability of plaintiff success. * and italics = cap level is inflation adjusted. Texas row shown in **boldface**.

95 Some states have cap variations that require data that we do not have. The principal variations and how we handle them are as follows:

- Some states have a higher cap for severe misconduct—for example, if the defendant was reckless rather than simply negligent—or if the injury involved disfigurement. We lack data on these elements, so we ignore the potential for a higher cap in some cases.
- The Massachusetts \$500,000 cap on non-economic damages does not apply if “there is a substantial or permanent loss or impairment of a bodily function or substantial disfigurement, or other special circumstances . . . which warrant a finding that imposition of such a limitation would deprive the plaintiff of just compensation for the injuries sustained.”⁴² We assume the cap applies to all cases.

42 Mass. Gen. Laws ch. 231, § 60H.

- The Massachusetts \$20,000 cap on damages applies only to nonprofits, but almost all Massachusetts hospitals are nonprofit. We treat this cap as applying to cases where a hospital is the primary defendant, but not where a hospital is a secondary defendant. We similarly treat the Illinois cap on damages against hospitals as applying only where the hospital is the primary defendant.
- A number of other states have total damages caps for non-profit hospitals and nursing homes, public hospitals, or both. For example, Texas caps damages at \$250,000 for public hospitals. We do not consider these caps.
- For the Louisiana and New Mexico caps on total damages, future medical expenses (after the date of trial) are exempt from the cap. We lack data on what proportion of economic damages are for medical expenses, future or otherwise. We assume: (1) future medical expenses are zero in death cases; (2) in other cases, all (half) of economic damages are medical expenses for unemployed (employed) plaintiffs, and one-third of medical expenses are for future medical care.
- A few states with damages caps that are not adjusted for inflation have occasionally raised their caps (for example, New Mexico and Indiana). We use the current cap level.
- We estimate the effects of the Georgia and South Carolina caps, which are similar to the Texas cap and vary based on number and type of defendant, by estimating what simple cap would produce the same total effect in jury verdict cases (this turns out to be \$473,000 in 2003 dollars), and then applying that simple cap to all cases.

Table 11 lists state caps from most to least strict, based on percentage reduction in mean allowed verdict. It also shows the predicted reduction in mean payout in tried cases, settled cases, and all cases. The ordinal ranking of caps is similar, but not identical, for payout-based measures. As was true for the Texas cap, the predicted impact in verdicts is larger than the predicted impact on payouts in jury cases, and the predicted impact on payouts in jury cases is larger than the predicted impact in settled cases.

As Table 11 reflects, damages caps vary widely in stringency. At the high end, Louisiana's \$500,000 total damages cap reduces mean allowed verdicts by 76-percent, payouts in tried cases by 65-percent, and payouts in settled cases by 41-percent. At the low end, Wisconsin's \$750,000 non-econ cap

reduces verdicts by 28-percent, payouts in tried cases by 16-percent, and payouts in settled cases by 8-percent. The Texas cap, which varies based on number and type of defendants, is equivalent in overall effect to a simple \$336,000 (1988\$) non-econ cap and is thus slightly less stringent than Oklahoma's \$300,000 cap.

98 Total damages caps have an especially large effect on allowed verdicts. The total damages caps in Louisiana (\$500,000), New Mexico (\$600,000), Indiana (\$1.25 million), Nebraska (\$1.75 million), and Virginia (\$1.95 million) have a greater impact on allowed verdicts and (less sharply) post-verdict payouts than any of the non-econ caps, even though the non-econ caps often have much lower levels. However, the Nebraska and Virginia total damages caps are comparable to a \$250,000 non-econ cap in their effect on payouts in settled cases. The lower effect on payouts in tried cases is because the large verdicts that are affected by these total damages caps tend to receive large haircuts. The lower effect on settled cases is because settled cases tend to be smaller than tried cases. The greater stringency of total damages caps is consistent with the bivariate analysis in Guirguis-Blake et al. (2006).

99 In Table 12, we conduct a more fine-grained analysis of the caps adopted by Colorado, Massachusetts, and Wisconsin. Colorado has both a \$1 million total damages cap and a \$300,000 non-econ cap. Table 12, Panel A shows how each of these caps, separately and then together, affect allowed verdicts and predicted payouts. The total damages cap has a larger impact than the non-econ cap, standing alone, but both caps contribute to the overall impact of the combined cap.

100 Massachusetts has both a \$500,000 non-econ cap and a \$20,000 total damages cap for charitable (nonprofit) hospitals. As noted previously, we treat this cap as applying to all hospitals, because Massachusetts has almost no for-profit hospitals. Table 12, Panel B shows how each of these caps, separately and then together, affect verdicts and payouts. Although the total damages cap is very low, it only applies to hospital defendants, which reduces its impact. However, our simulation approach might overstate its impact. Suppose, for example, that some plaintiffs can show negligence either against a physician or a hospital. In Texas, they might focus on the case against the deeper-pocketed hospital; in Massachusetts, they would seek to show physician negligence. Our simulation approach, however, assumes

Table 12. Effect of Selected Cap Variations on Allowed Verdicts and Payouts

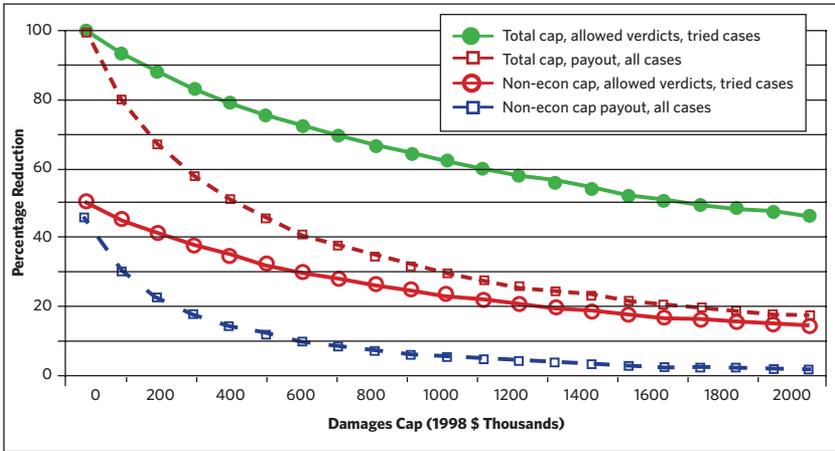
	Percent Decline in Allowed Verdict	Percent Decline in Payout		
		Tried Cases	Settled Cases	All Cases
Panel A. Colorado Cap (\$300k Non-Econ Cap; \$1M Total Damages Cap)				
Total damages only	62.5%	48.8%	29.7%	30.6%
Non-econ only	38.5%	27.3%	18.3%	18.7%
Both caps	70.1%	58.0%	34.8%	36.0%
Panel B. Massachusetts Cap (\$500k Non-Econ Cap; \$20k Total Damages Cap for Hospitals)				
Total damages only	25%	28.3%	19.3%	19.7%
Non-econ only	33.1%	21.4%	12.4%	12.8%
Both caps	52.3%	45.1%	28.9%	29.7%
Panel C. Wisconsin Cap Variations				
Original (\$410k in general; 604k for minors)*	34.3%	24%	10.9%	11.5%
Revised (450k in general, 550k for minors)	34.5%	23.7%	12.3%	12.8%
Final (750k)	28.2%	16.4%	8.3%	8.7%

Predicted percentage reduction in mean allowed verdicts and mean payouts in tried and settled cases after applying indicated variations of state damages caps to 326 completed jury trials with plaintiff verdicts and 13,857 settled cases, included in the BRD_{minus} dataset of nonduplicate medical malpractice claims closed from 1988–2004 with payout > \$25,000 in 1988 dollars. Cap amounts are in nominal 2003 dollars. Estimated impact on settled cases impact assumes 100-percent probability of plaintiff success. * = cap level is inflation adjusted.

that the same cases would be brought in the same way against the same defendants.

Finally, in Table 12, Panel C, we assess three different Wisconsin non-econ caps. The first, adopted in 1995, was an inflation-adjusted cap of \$350,000 (\$500,000 for minors); by 2003, these amounts had risen due to inflation to \$410,000 and \$604,000. The Wisconsin Supreme Court invalidated this cap in 2005.⁴³ The legislature promptly passed a revised, non-inflation-adjusted cap of \$450,000 (\$550,000 for minors), which it

43 *Ferdon v. Wisconsin Patients Compensation Fund*, 2005 WI 125 (2005).

Figure 5. Effect of Different Caps on Mean Allowed Verdicts and Payouts

Predicted percentage reduction in mean allowed verdicts and payouts in tried and settled cases due to total damages and non-econ caps at indicated levels, for 326 jury trials with plaintiff verdicts and 13,857 settled cases, included in the BRD_{minus} dataset of nonduplicate medical malpractice claims closed from 1988–2004 with payout > \$25,000 in 1988 dollars. Cap amounts are in 1988 dollars. Estimated impact on settled cases impact assumes 100-percent probability of plaintiff success.

presumably believed would be constitutional. The governor vetoed this cap on the grounds it was too similar to the prior cap, and thus was probably unconstitutional.⁴⁴ The legislature then passed a \$750,000 non-econ cap in 2006, which the governor signed into law. Our methodology lets us confirm that the governor was right (and the legislature wrong)—the first revision was very similar to the invalidated cap, and therefore likely invalid as well. The second revision was appreciably less stringent.

102

These examples illustrate an important potential use of our simulation methodology. We can assess the relative stringency of different possible caps, both adopted and hypothetical. Figure 5 provides a direct comparison between total damages caps and non-econ caps. It shows, for different cap levels from \$0 to \$2 million, the effect of each type of cap on allowed verdicts and predicted payouts. Reading horizontally across the chart, a total damages cap at \$1.7 million has the same effect on allowed verdicts

44 Ritsche (2006) (discussing Governor Doyle's veto message).

Table 13: Effect of Inflation on Disallowed Non-Economic Damages and Payout Reduction

	Percent of Non-Econ Damages Disallowed		Percent Reduction in Payout	
	2%	4%	2%	4%
California (1975)	35%		8%	
California (1983)	57%		17%	
California (1993)	65%		22%	
Base Year (2003)	79%		29%	
Assumed Inflation Rate (2007 on)	2%	4%	2%	4%
2013	83%	84%	32%	32%
2023	86%	89%	33%	35%
2033	88%	92%	35%	38%
2043	90%	94%	36%	40%

Predicted effect of inflation on disallowed fraction of non-economic damages and reduction in payout due to \$250,000 simple non-econ cap, for 326 jury trials with plaintiff verdicts, included in the BRD_{minus} dataset of nonduplicate medical malpractice claims closed from 1988–2004 with payout > \$25,000 in thousands of 1988 dollars. Inflation level is actual level for 1975–2006 based on Consumer Price Index. Table shows effects of 2-percent or 4-percent inflation thereafter.

(roughly a 50-percent reduction) as a total ban on non-economic damages. For payouts, a total damages cap of \$1.5 million has roughly the same impact (25-percent reduction) as a \$200,000 non-econ cap.

6.3. Inflation

When California adopted the first non-econ cap in 1975, it set the level at \$250,000, without an inflation adjustment. That approach has anchored subsequent debates over non-econ caps.⁴⁵ Most state damages caps are not indexed for inflation, so their impact becomes stricter over time. If the California non-econ cap was inflation adjusted, it would have been \$855,000 in 2003 and \$970,000 today (2007). When it was adopted, the California non-econ cap would have blocked 35-percent of non-economic damages in tried cases and reduced mean payouts in these cases by 8-percent. By our

45 Edwards (2006).

base year of 2003, it blocked 79-percent of non-economic damages in tried cases and reduced mean payout in these cases by 29-percent.

104 Table 13 assesses how inflation affected the California \$250,000 nominal non-econ cap over 1975–2003, and then projects forward for the next 40 years, based on actual inflation from 2003–2006 (based on the Consumer Price Index) and assumed annual inflation of either 2-percent or 4-percent thereafter. If inflation runs at 4-percent and jury awards are constant in real dollars, then by 2043 the non-econ cap will block 94-percent of non-economic damages in tried cases and reduce payout in these cases by 40-percent.

7. DISCUSSION

7.1. Why Does the Non-Econ Cap Reduce Verdicts More than Payouts?

105 The Texas non-econ cap has a substantially larger effect on verdicts than on payouts. What explains the gap? As we discuss in prior work, policy limits often act as de facto caps on payouts.⁴⁶ Moreover, at least in Texas, physicians often purchase policies with relatively low limits; a significant minority of Texas physicians have policy limits of \$100,000 or \$200,000 (nominal).⁴⁷ These de facto caps mute the effect of statutory caps. In jury verdict cases, 62-percent of the money that the Texas cap “takes away” from allowed verdicts wasn’t being paid anyway.

7.2. Cap Design

106 We saw in Part 6 that cap design strongly affects both allowed verdicts and payouts. This effect results from a combination of cap level, whether the cap is on non-economic damages or total damages, whether it affects all or only some cases, and whether it is inflation-adjusted or not. Even a fairly high total damages cap (\$1.75M, as in Nebraska) can have a larger impact than a low non-econ cap (\$250,000, as in California) on payouts in tried cases, and a similar impact on settled cases.

107 Most prior research has ignored the importance of cap design in assessing the economic impact of damages caps. Our simulation approach

46 Hyman et al. (2007).

47 Zeiler et al. (2007).

provides an objective way to quantify how cap design is likely to affect case outcomes.

7.3. Do Non-Econ Caps “Discriminate”?

Finley (2004) has argued that non-econ caps “discriminate” against women, the elderly, and children. Pace, Golinelli, and Zakaras (2004) found that caps were more likely to affect plaintiffs who were deceased, elderly, or infants. Conversely, Studdert, Yang, and Mello (2004) found that caps had a greater impact on plaintiffs with more severe injuries, but found no difference based on gender or age. However, these studies are all based on jury awards, not payouts, and rely on samples that are likely skewed toward large awards (explicitly so for Studdert and coauthors).

We use our simulation approach to assess the differential effect of caps on both verdicts and payouts across some of the relevant groups (we cannot directly study gender). We find evidence that the non-econ cap has a more severe impact on deceased plaintiffs, unemployed plaintiffs, and (likely) elderly plaintiffs and has an especially large impact on plaintiffs who are both deceased and unemployed. However, the impact is larger on jury awards than on payouts, and the effect on payouts is larger in tried cases than settled cases. A meaningful difference still exists for settled cases, but the difference is economically smaller than past studies have suggested. Finally, the differential effect fades as the cap level increases.

7.4. Non-Econ Caps and Settlement Multipliers

Our findings cast light on a perennial issue in tort litigation—the “multiple” of economic damages at which cases settle. Although cases are thought to settle in the “shadow” of what will happen at trial, trials are rare and the visible signal of the outcome (the jury award) routinely exceeds the amounts defendants actually pay. How then do parties decide on settlement amounts? Stephen D. Sugarman (2005) describes the conventional wisdom:

In principle, settlement occurs in the shadow of a likely jury verdict in the individual case. In practice, lawyers for victims and lawyers and insurance adjusters for defendants negotiate in more rough and ready ways. It is not true, as sometimes rumored, that in the US pain and suffering awards (general damages) are simply figured as three times the special (or hard, or economic)

damages. Nonetheless, participants in the process report that there is more than a kernel of truth to the idea that the parties start their negotiations with that multiple well in mind, adjusting their demands and offers based upon all sorts of particulars in the case.

111 Past research has suggested that personal injury cases are frequently resolved at a multiple of economic damages, although the average multiple has reportedly declined in recent years from 3.3 to 1.7.⁴⁸ For our sample, the mean ratio of payout to paid economic damages is only 2.0. The non-econ cap lowers this ratio to 1.5 in tried cases, and 1.7 in settled cases.

7.5. Non-Econ Caps and Variance in Awards and Payouts

112 Cap proponents argue that non-econ caps make verdicts and payouts more predictable, which helps to stabilize insurance markets and malpractice premiums. In statistical terms, non-econ caps lower the variance of verdicts and payouts. We can quantify this reduction. The standard deviation of the adjusted verdict (before all caps) is \$3.9M. Applying other caps (all caps) lowers this standard deviation to \$2.62 million (\$1.89 million). The standard deviation of payouts after other caps is \$1.47M; the non-econ cap lowers this to \$1.15M. Thus, non-econ caps do lower verdict and payout variance. However, payout variance is already substantially lower than verdict variance, and the additional effect of the non-econ cap is modest. Thus, most of the “work” of variance reduction is the result of factors other than the non-econ cap.

7.6. Adaptive Responses by Plaintiffs' Counsel

113 We analyze the effect of a non-econ cap by simulating how it would affect cases that were *not* subject to a cap. Plaintiffs' counsel can adapt in several different ways.⁴⁹ Most obviously, counsel will presumably reject some cases that were worth taking in the absence of a non-econ cap. Thus, damages caps are likely to reduce the number of cases that are brought (holding constant the incidence of malpractice).⁵⁰ The cases that remain will tend to have a higher proportion

48 Daniels and Martin (2004).

49 Danzon, Epstein, and Johnson (2004).

50 Daniels and Martin (2006/2007) survey Texas plaintiffs lawyers and find a sharp decline in the number of lawyers willing to accept med mal cases after adoption of the Texas cap.

of economic damages. Counsel may make different judgments about which cases are worth taking to trial and may also change the way they try cases.

Sharkey finds that the existence of a non-econ cap does not predict significantly lower court judgments. She argues that adaptation by counsel might fully offset the impact of a damages cap in reducing allowable awards, for cases that are still brought.⁵¹

Sharkey suggests that a non-econ cap will increase plaintiffs' counsel's incentive to prove economic damages, but does not provide a persuasive explanation as to why they didn't already have sufficient incentives to do so. We can offer one possible explanation.⁵² Recovery is often capped by policy limits. Thus, counsel might devote limited effort to proving above-limits damages. If a non-econ cap is imposed, extra effort devoted to proving economic damages can become cost-justified, because the expected award would otherwise fall short of the policy limits. Yet, full substitution is implausible. To fully offset lower non-economic damages, mean economic awards would have to roughly double (from \$448,000 to \$889,000). Plaintiffs were likely not leaving provable economic damages of this scale on the table before the cap especially given the unpredictability of jury awards of non-economic damages in a particular case and the tendency for juries to award larger non-economic damages in cases with larger economic damages (refer to Table 2).⁵³

Our conversations with plaintiffs' counsel also suggest a post-cap decline in med mal cases, especially for cases with few or no economic damages.

- 51 Sharkey (2005). On the underlying BJS study, see Thomas H. Cohen (2004).
- 52 We put aside cap-induced differences in the amounts juries will award. In Texas and most other states, juries are not told about the cap on non-economic damages. In Massachusetts, defense counsel are permitted to offer this information, but Sharkey reports that they routinely choose not to. Although some jurors learn about the cap outside the courtroom, it seems likely that most juries do not know about the cap. We also put aside Sharkey's suggestion that if non-economic damages are capped, plaintiffs' counsel can invent new categories of "economic" damages, such as hedonic damages. This strategy might work in some states, but not in Texas, which defines by statute which damages are non-economic. Texas Civil Practice and Remedies Code § 41.001.
- 53 Policy limits aside, a non-econ cap could *reduce* counsel's incentive to prove economic damages. Assume that juries often award non-economic damages at a multiple of economic damages. This prospect could induce counsel to devote more effort to proving economic damages than would be justified if non-economic damages were capped.

116 Adaptive response is not limited to plaintiffs. Other things equal, caps might reduce the incentive to provide non-negligent care. Cap proponents argue that caps will increase physician supply and reduce health-care cost, and hence include greater delivery of health care, some of which will be negligent. At the aggregate level, though not the case level, these effects will tend to offset the effect of caps in reducing lawsuit frequency and payout amounts.

7.7. The Merits and Overall Impact of Damages Caps

117 We take no position in this article on the merits of damages caps. Our simulation approach provides an objective basis for estimating the likely effects of specific caps on jury awards and on payouts in both tried and settled cases, both in the aggregate and for particular categories of plaintiffs. It also lets us estimate the impact of “tweaking” various features of a damages cap.

118 To be sure, we cannot control for adaptive responses either by plaintiffs’ counsel or by health-care providers. Some of these responses, such as plaintiffs bringing fewer cases, will likely increase the aggregate impact of the damages cap. Others might decrease its impact.⁵⁴ We cannot assess the impact of damages caps on physician supply, defensive medicine, or quality of care. Nonetheless, we believe our estimation procedure provide a reasonable basis for estimating the likely direct economic impact of damages caps, including but not limited to the specific cap adopted by Texas in 2003.

7.8. Future Research and the Need for Better Claim-Level Data from Multiple States

119 Given better data, the simulation approach developed in this paper could be used to study additional issues. If we had data on claimant gender, we could directly study the differential impact of the non-econ cap on men and women. If we had better data on injury severity, we could study how cap effects vary based on this factor. Claims data from other states would enable us to assess the extent to which Texas is representative. Our estimates of cap effects would be more reliable if we had more complete data on hospitals. Data from different states, both before and after cap adoption,

54 For example, tort reform can decrease the level of care exercised by physicians, or increase their activity level, or both. See Currie and MacLeod (2008), Shepherd and Rubin (2007), and Rubin and Shepherd (2006).

might enable us to assess the extent of adaptive response by plaintiffs' counsel. These potential extensions highlight the need for better data. Texas is unique in providing public access to data on both verdicts and payouts in both tried and settled cases. Most states either do not collect this data or do not make it available to researchers, which is unfortunate.

At this writing, we have been participating in an NAIC effort to develop a model state closed claim reporting law. The current draft provides various options that states can adopt with regard to the confidentiality of the collected information—including barring access to the public and researchers. Insurers and physicians predictably opposed making even de-identified information available to anyone. Policymakers need to resist this pressure. The de-identified Texas data has made possible a series of important investigations of how medical malpractice litigation and insurance actually work. The de-identified Florida data has also generated important research. Over almost two decades, we know of no complaints about misuse of the data. We believe other states should collect similar data and release it to researchers in a timely manner on a de-identified basis.

8. CONCLUSION

Damages caps are the “most controversial aspect of malpractice reform.”⁵⁵ The tort reform debate has featured extravagant claims about their merits and demerits. We use detailed case-level data on payouts in both tried and settled cases and a new simulation methodology to estimate the effect of the 2003 Texas non-econ cap. We find that this cap will have economically significant effects. For tried cases, holding case mix constant, the Texas cap will reduce allowed non-economic damages by an estimated 73-percent, allowed verdicts by 38-percent, and payouts by 27-percent. In settled cases, the estimated decline in payouts is 18-percent. The non-econ cap has a disparate impact on different groups of plaintiffs, with larger effects on unemployed, deceased, and likely on elderly plaintiffs.

We also simulate the effects of different caps and find large variation in cap impact, depending on cap design. Caps on total damages have an especially large impact. For example, even a high (\$1.75 million) total

55 Nelson, Morrissey, and Kilgore (2007).

damages cap has a larger impact on payouts in tried cases than a low (\$250,000) non-econ cap (36-percent versus 29-percent reduction) and a similar impact in settled cases. Strikingly, although public and scholarly attention has focused on non-econ caps, the five states with the strictest damages caps had either a total damages cap (Louisiana, New Mexico, and Indiana) or both types of caps (Colorado and Massachusetts). The reasons why tort reformers focused on getting non-econ caps adopted and why particular states adopted the caps they did are subjects for another day.

REFERENCES

- Avraham, Ronen. 2006a. Database of State Tort Reforms. Working paper. Northwestern L. & Econ. Res. Paper No. 06-08. Available at: <http://ssrn.com/abstract=902711>.
- . 2006b. An Empirical Study of the Impact of Tort Reforms on Medical Malpractice Payouts. Working paper. Northwestern L. & Econ. Res. Paper No. 06-07. Available at: <http://ssrn.com/abstract=912922>.
- Biondi, Richard S., Richard B. Lord, and Sharon Zuch (Milliman Consultants and Actuaries). 2004. Projected Effect of Capping Non-Economic Damages on Physicians and Surgeons Professional Liability Costs. Report to Wyoming Healthcare Commission.
- Black, Bernard, Charles Silver, David A. Hyman, and William M. Sage. 2005. Stability, Not Crisis: Medical Malpractice Claim Outcomes In Texas, 1988-2002, 2 *J. Empirical Legal Stud.* 207-259.
- Black, Bernard, David A. Hyman, Charles Silver, and William Sage. 2008. Defense Costs in Medical Malpractice and Other Personal Injury Cases: Evidence from Texas, 1988–2004. *Am. L. & Econ. Rev.*, forthcoming. Univ. Ill. L. and Econ. Res. Paper No. LE07-012; Univ. of Tex. L. & Econ Res. Paper No. 99. Available at: <http://ssrn.com/abstract=979163>.
- Blackmon, Glenn, and Richard Zeckhauser. 1991. State Tort Reform Legislation: Assessing Our Control of Risks. In *Tort Law and the Public Interest: Competition, Innovation, and Consumer Welfare*. W.W. Norton & Company: New York. 272–300.
- Cohen, Thomas H. 2004. *Medical Malpractice Trials and Verdicts in Large Counties, 2001*. Bureau of Justice Statistics. Available at: www.ojp.usdoj.gov/bjs/abstract/mmics04.htm.
- Costello, Daniel. 2007. Lacking Lawyers, Justice is Denied, *L.A. Times*, Dec. 29.
- Currie, Janet, and W. Bentley MacLeod. 2008. First Do No Harm? Tort Reform and Birth Outcomes, 123 *Q.J. Econ.* 795–830.
- Daniels, Stephen, and Joanne Martin. 2004. The Strange Success of Tort Reform, 53 *Emory L.J.* 1225.
- . 2006/2007. Texas Plaintiffs' Practice in the Age of Tort Reform: Survival of the Fittest—It's Even More True Now, 51 *N.Y. L. Sch. L. Rev.* 285.
- Danzon, Patricia M. 1984. The Frequency and Severity of Malpractice Claims. 27 *J. L. & Econ.* 115–148.
- . 1986. The Frequency and Severity of Medical Malpractice Claims: New Evidence. 49 *L. & Contemp Probs.* 57–84.
- Danzon, Patricia M., Andrew J. Epstein, and Scott J. Johnson. 2004. The Crisis in Medical Malpractice Insurance. In R. Harris and R. Litan, eds., *Brookings-Wharton Papers on Financial Services*. Brookings Institution Press: Washington D.C. 55–96.

- Donohue, John J., III, and Daniel E. Ho. 2007. The Impact of Damage Caps on Malpractice Claims: Randomization Inference with Difference-in-Differences, 4 *J. Empirical Legal Stud.* 69–102.
- Edwards, Amanda. 2006. Medical Malpractice Non-Economic Damages Caps, 43 *Harv. J. on Legis.* 213.
- Finley, Lucinda M. 2004. The Hidden Victims of Tort Reform: Women, Children, and the Elderly, 53 *Emory L.J.* 1253–1314.
- Frech, H.E. III, William G. Hamm, and C. Paul Wazzan. 2006. An Economic Assessment of Damage Caps in Medical Malpractice Litigation Imposed by State Law and the Implications for Federal Policy and Law, 16 *Health Matrix: J.L. Med.* 693–722.
- Gronfein, William P., and Elenor DeArman Kinney. 1991. Controlling Large Malpractice Claims: The Unexpected Impacted of Damage Caps, 16 *J. Health Pol. Pol'y & L.* 441–464.
- Guirguis-Blake, Janelle, George E. Fryer, Robert L. Phillips, Ronald Szabat, and Larry A. Green. 2006. The U.S. Medical Liability System: Evidence for Legislative Reform, 4 *Annals Fam. Med.* 240–246.
- Hersch, Joni, Jeffrey O'Connell, and W. Kip Viscusi. 2007. An Empirical Assessment of Early Offer Reform for Medical Malpractice, 36 *J. Legal Stud.* s231–s259.
- Hyman, David A., Bernard Black, Kathryn Zeiler, Charles Silver, and William Sage. 2007. Do Defendants Pay What Juries Award?: Post-Verdict Haircuts in Texas Medical Malpractice Cases, 1988–2003, 4 *J. Empirical Legal Stud.* 3–68.
- Klick, Jonathan, and Catherine M Sharkey. 2007. *The Fungibility of Damage Awards: Punitive Damage Caps and Substitution*. Working paper 2007. F.S.U. L. and Econ. Res. Paper No. 912256; Columbia L. and Econ. Working Paper No. 298. Available at: <http://ssrn.com/abstract=912256>.
- Mello, Michelle. 2006. Medical Malpractice: Impact of the Crisis and Effect of State Tort Reforms, *Robert Wood Johnson Foundation Research Synthesis Report No. 10*. Available at: <http://rwjf.org/pr/product.jsp?id=15168>.
- Nelson, Leonard J., III, Michael A. Morrissey, and Meredith L. Kilgore. 2007. Damage Caps in Medical Malpractice Cases, 85 *Milbank Q.* 259–286.
- Pace, Nicholas M., Daniella Golinelli, and Laura Zakaras. 2004. Capping Non-Economic Awards in Medical Malpractice Trials: California Jury Verdicts Under MICRA (RAND). Available at: <http://rand.org/pubs/monographs/MG234/>.
- Ritsche, Daniel. 2006. Medical Malpractice Limits: 2005 Wisconsin Act 183, Legislative Brief 06–19. Available at: <http://www.legis.state.wi.us/LRB/pubs/Lb/06Lb19.pdf>.
- Rubin, Paul H., and Joanna M. Shepherd. 2006. Tort Reform and Accidental Deaths. Working paper. Emory L. and Econ. Res. Paper No. 05–17; Emory Pub. L. Res. Paper No. 05–29. Available at: <http://ssrn.com/abstract=781424>.
- Rustad, Michael L. 2006. Neglecting the Neglected: The Impact of Noneconomic Damages Caps on Meritorious Nursing Home Lawsuits, 14 *Elder L.J.* 331.

- Sharkey, Catherine M. 2005. Unintended Consequences of Medical Malpractice Damages Caps, 80 *N.Y.U. L. Rev.* 391–512.
- Shepherd, Joanna M., and Paul H. Rubin. 2007. The Demographics of Tort Reform: Winners and Losers. Working paper. Emory L. and Econ Res. Paper No. 07-17; 2nd Annual Conference on Empirical Legal Stud. Paper. Available at: <http://ssrn.com/abstract=967712>.
- Sloan, Frank A., Paul M. Mergenhausen, and Randall R. Bobbjerg. 1989. Effects of Tort Reforms on the Value of Closed Medical Malpractice Claims: a Microanalysis, 14 *J. Health Pol. Pol'y & L.* 663–669.
- Studdert, David M., Michelle M. Mello, and Troyen A. Brennan. 2004. Medical Malpractice, 350 *New Eng. J. Med.* 283–292.
- Studdert, David M., Y. Tony Yang, and Michelle M. Mello. 2004. Are Damage Caps Regressive? A Study of Malpractice Jury Verdicts in California. *Health Affairs*, July/Aug. 54–67.
- Sugarman, Stephen D. 2005. Tort Reform Through Damages Law Reform: An American Perspective, 27 *Sydney L. Rev.* 507–524.
- Thorpe, Kenneth E. 2005. The Medical Malpractice “Crisis”: Recent Trends And The Impact Of State Tort Reform, *Health Affairs*, May 31. W5-250-W5-258.
- U.S. Congressional Budget Office. 2004. *The Effects of Tort Reform: Evidence From the States*. Washington, D.C.: U.S. Government Printing Office. Available at: <http://www.cbo.gov/ftpdoc.cfm?index=5549&dtype=0&sequence=0>.
- Viscusi, W. Kip. 1988. Pain and Suffering in Product Liability Cases: Systematic Compensation or Capricious Awards? 8 *Int'l Rev. L. & Econ.* 203–220.
- Viscusi, W. Kip, and Patricia H. Born. 2005. Damage Caps, Insurability, and the Performance of Medical Malpractice Insurance, 72 *J. Risk Ins.* 23–43.
- Viscusi, W. Kip, Richard P. Zeckhauser, Patricia Born, and Glenn Blackmon. 1993. The Effects of 1980s Tort Reform Legislation on General Liability and Medical Malpractice Insurance. 72 *J. Risk & Insurance* 165–186.
- Weiss, Martin D., Melissa Gannon, and Stephanie Eakins. 2003. Medical Malpractice Caps: The Impact of Non-Economic Damage Caps on Physician Premiums, Claim Payout Levels, and Availability of Coverage, *Weiss Ratings Inc.* Available at: <http://www.weissratings.com/malpractice.asp>.
- Yoon, Albert. 2001. Damage Caps and Civil Litigation: An Empirical Study of Medical Malpractice Litigation in the South. 3 *Am. L. & Econ. Rev.* 199–227.
- Zeiler, Kathryn, Charles Silver, Bernard Black, David A. Hyman, and William M. Sage. 2007. Physicians' Insurance Limits and Malpractice Payments: Evidence from Texas Closed Claims, 1990–2003, 36 *J. Legal Stud.* s9–s45.
- Zimmerman, Rachel, and Joseph T. Hallinan. 2004. As Malpractice Caps Spread, Lawyers Turn Away Some Cases, *Wall St. J.*, Oct. 8. A1.