The American Way: Tort Limits and Health Care Spending in the United States

Nicholas Falcone
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Advised by:
Michele Naples, Ph.D.
The College of New Jersey
School of Business: Department of Economics

Introduction

The United States spends more on health care – one-sixth of its economy – than does any other country in the world. In the domestic economic conditions of recent years, we have been reminded of the significance of our exorbitant health care spending and its place in the international landscape. Reduction of spending and costs has become a priority, but there is much dissonance concerning what constitutes an effective policy. As the political debate over reform intensifies, it is important that arguments being flung from both sides of the aisle be analyzed. This paper focuses on one such argument regarding one piece of the domestic health care puzzle: medical malpractice insurance.

It is argued that rising malpractice insurance premiums, said to be at historical highs and amounting to what is often deemed a "medical malpractice crisis," are a root cause of rising health care spending. Malpractice premium levels are supposedly climbing due in no small part to what is said to be excessive litigiousness, another uniquely American phenomenon. If unduly high malpractice premiums are abetting the aggregate spending problem, the argument follows, policies aimed at reducing them will alleviate it. Lawmakers in many states have made concerted efforts in this vein to reduce malpractice premiums, often via reform of the tort system. Proponents argue that capping possible damages payouts in malpractice litigation will reduce malpractice premiums and ultimately put downward pressure on the costs of medical care borne by consumers. This paper attempts to determine the extent to which these reforms achieve their stated goals by modeling the effect of damages caps in malpractice litigation on personal health care spending as a share of GDP. In other words, it attempts to answer the question of whether putting checks on one phenomenon supposedly unique to the United States can effectively alleviate another.

The United States Health Care Market and the Medical Malpractice Crisis

The first half of “The American Way” is the fact that the United States spends 18.2 percent of its GDP on health care – a significantly larger share than that seen in any other country. Health insurance costs have been rising in recent years; the cost of family coverage has about doubled since 2001 and the average annual premium for family coverage through an employer reached $15,073 in 2011 – 9 percent higher than in 2010 (Abelson and Bernstein, 2011). President Obama’s Affordable Care Act (2010), intended in part to reduce the final costs of care, has had ambiguous effects and has caused speculation that rising premiums are due in part to anticipatory efforts by insurance companies to maximize earnings before they are required to justify increases above 10 percent (Abelson and Bernstein, 2011).

The upward trend in premiums seems somewhat out of place considering that many consumers postpone doctor and hospital visits during recessions and uncertain economic climates to avoid co-payments and higher deductibles. The fact that premiums increased nationally during the recession and continue to increase during the recovery makes the question of aggregate health care costs even more pressing. Baicker et al. (2006) found that a 10 percent increase in health insurance premiums (1) reduces the aggregate probability of being employed by 1.2 percentage points; (2) reduces hours worked by 2.4 percent; and (3) increases the likelihood that a worker is employed only part time by 1.9 percentage points. These findings are of particular importance when considering the current pair of rising health care costs and the United States’ stubborn labor market.

This labor market includes physicians and health care providers, who are affected not only by rising health insurance premiums but by a “medical malpractice crisis.” Rising malpractice premiums, the second half of “The American Way,” affect the costs of providing care and are said to be a partial cause of rising health insurance premiums. D'Arcy (1986) delineates the common and unique aspects of medical malpractice insurance, which are important to understand fully in the context of a policy discussion. Malpractice insurance is typical of liability insurance in that it suffers from "an increasingly litigious society, rapidly escalating claim and defense costs, unpredictable jury verdicts and awards, uncertain legal interpretations, excessive discovery processes and interminable trial delays" (p. 538). Holders of liability insurance often respond by partially self insuring and, of most interest to this discussion, passing costs on to consumers. Malpractice insurance is unique in that it is largely purchased by individual physicians who make up a "well organized, articulate, sympathetic, and well financed interest group at both the national and state levels" (p. 538) and therefore have more influence than other liability policyholders. Furthermore, malpractice insurance is tied to the health care industry where, as mentioned, rising costs are a key issue.

While physician groups have long bemoaned the effects of each liability ailment mentioned above and what are said to be crippling increases in premiums, recent data paints a less dire picture. A 2009 report by Americans for Insurance Reform (AIR) makes a number of interesting findings. It notes that inflation-adjusted malpractice premiums are nearly the lowest they have been in over 30 years and that they are less than one-half of one percent of the United States' overall health care costs (p. 2). Further, addressing the sentiment that rising premiums are attributable to an increasingly litigious society and a rising frequency of claims, the report notes that inflation-adjusted medical malpractice claims are down 45 percent since 2000 and that periodic premium spikes experienced by physicians are not related to claims but rather to the economic cycle of insurers and to drops in investment income (p. 2).

A Public Citizen report echoes this sentiment, finding that "measures such as the number, and total value, of malpractice payouts to patients have been flat since 1991 and show a significant decline since 2001," (p. 1, 2005) when the most recent "malpractice crisis" began. Furthermore, between 1991 and 2003, increases in the average payout are consistent with increases in the cost of health care, highlighting that a "preoccupation with data on judgments…results in an incomplete understanding of the growth of physician malpractice payments" (Chandra et al., 2005, p. 1).

Despite these findings, physician groups and some policymakers have argued for limiting malpractice payouts. They argue that caps on possible damages in malpractice cases will reduce malpractice premiums and the cost of providing care and that these savings seen by physicians will be passed on to consumers. In this vein, *Forbes* reports that tort reform could eliminate an estimated 27 percent of medical costs – in other words, that 27 cents of every health care dollar goes toward litigation (Kibbe, 2012). The American Medical Association (AMA) argues that liability costs cause doctors to practice defensive medicine and thereby increase health system costs by between $85 and $151 billion per year (2010, p. 1). The argument continues that because liability concerns affect the provision of care, limiting liability costs will benefit not only doctors but patients by increasing access to appropriate health care and reducing its price. The AMA is an active proponent of state tort limits on malpractice liability and is pressing for a federal tort reforms. Republican Senator Phil Gingrey of Georgia has introduced a malpractice reform bill that aims both to make malpractice insurance more affordable and to reduce health care costs for United States patients by capping noneconomic damages in malpractice suits at $250,000 nationally (Daly, 2011, p.1). At issue is whether these caps have significant effects on health care costs.

Literature Review

The Congressional Budget Office (CBO) released a report in 2006 detailing the relationship between medical malpractice tort limits and health care spending. The report notes that tort limits reduce both claims paid in malpractice cases and premiums for malpractice insurance but beyond these effects, the existing literature “does not present consistent results, which is not surprising given the diversity of specific research questions and methodologies used” (p. 9).

The multitude of relevant variables examined in the literature is mapped in Figure 1. Some authors, for instance, focus on issues of concern or importance within the insurance market. In the case of no-fault automobile insurance laws, the probability of adopting caps on damages was found to be higher in states with more rapid growth in auto liability insurance costs and greater numbers of physicians per capita, and lower in states with greater numbers of attorneys per capita (Harrington, 1994, p. 276). Nye and Hoddlander (1987) explore a previous malpractice insurance crisis and argue that it was the result of the “inherent oligopolistic structure of the medical malpractice insurance market” (p. 502) rather than external factors or lobbying by physicians, lawyers, or insurers. More recently, Viscusi and Born (2005) explore the market for malpractice insurance and conclude in part that tort reforms enhanced insurer profitability during the studied years (p. 23). The possibility that insurers see increased profits from tort reform begs the question of whether savings created in the courtroom by limiting awards are seen in any significant way by end consumers or if they are derailed at some point on the supply chain. Insurance market relationships and outcomes provide an interesting backdrop for studying the relationship between tort limits and health care costs.

There is much existing literature that focuses directly on the effects of tort reform and damages caps. Guirguis-Blake et al. (2006) aggregated data on malpractice payouts and awards by state in order to paint a comprehensive picture of the malpractice insurance system. The authors calculated the number of malpractice payments, total amount paid, and average payment and found wide variations in payments among states. Though the payment variations must be studied further, they are interesting when considering the array of policy approaches pursued by state. Waters et al. (2007) examined the impact of state tort reforms on physician malpractice payments. The authors conclude that “(1) the size and number of medical malpractice payments are affected by only some tort reforms; and (2) the pattern of reforms differs between states with high versus low levels of claims or payments” (p. 500). Existing literature has weighed in on the potential of reforms with one author arguing that “reforms have the potential to reduce healthcare spending significantly with no adverse impact on patient health income” (Kessler, 2011, p. 93). Avraham et al. (2010) evaluate the effect of tort reform on employer-sponsored health insurance premiums and find the “first direct evidence that tort reform reduces healthcare costs in aggregate” (p. 1). This paper examines the effects of tort limits on health care spending, not alone, but as a share of gross domestic product.

Model and Data

This paper tests the effects of damages caps in malpractice litigation on personal health care spending as a percentage of GDP. To do so, it employs an econometric model with a spending-to-GDP proportion as its dependent variable that aims to quantify the extent to which health care spending by end consumers (patients) is present in the economy at large. This dependent variable represents a source of concern in the United States, which can lay claim to the largest percentage in the world. Summary statistics for the dependent variable are presented in Table 1 and definitions and sources for each variable are presented in Table 2. The model ultimately is testing whether tort reforms have an impact sufficient to reduce this percentage and ease these concerns.

The model uses 2009 state data in order to capitalize on the broad variety of policies in place across the country. The primary explanatory variables are measures of these policies; in order to test the effects of tort reforms on health care spending, the model quantifies the extent to which states limit malpractice awards. Therefore, the first three independent variables are the numerical limits, by state, on noneconomic (*NEcap*), punitive (*Pcap*), and total damages (*TTLcap*). If the effect of tort limits is profound, these variables should positively and significantly relate to the share of GDP that is personal health care spending. The lower the cap – that is, the stricter the limit on damages awards – the less present personal health care spending should be in the state economy. The author expects these variables to be insignificant predictors.

Of course, not all states limit each above category of damages; there are many cases in which states have not limited one, two, or all three categories. The issue of defining these cases in the data is an important one, as it has implications for the analysis. Associating "no cap" with a value of zero would imply that the state in question places a maximum of zero on the awarding of that particular type of damages. This is not the case. Rather, states that have not capped are placing no limit at all. The model represents this infinity quantitatively with a proxy value of $200 million, the highest medical malpractice award encountered in the research process, for points that otherwise would be described as "no cap." Also included is a binary dummy variable (*capdummy*) that takes a value of one when a particular state as any cap on any category of damages and aims to test whether the presence of caps, not their magnitudes, affects personal health care spending. The expected sign of this variable is negative; proponents expect the presence of a cap to put downward pressure on personal health care spending. The author expects this variable to be insignificant.

The remaining explanatory variables can be divided into two groups based on the nature of their effects on health care spending: interest groups and health. The first set of variables measures the presence of doctors and lawyers, two interest groups with opposite stakes in the medical malpractice tort reform policy debate. The variables measure the mean annual physician wage (*drwage*) and median annual lawyer wage (*lwyrwage*), respectively, with higher income presumed to imply greater power for a particular interest group. To the extent that tort limits are effective and that the interest groups have relatively significant influence, doctors and lawyers may be able to put downward or upward pressure on personal health care spending.

Lawyers would presumably lobby against tort reform and thus put upward pressure on health care spending. Therefore, because higher salaries imply higher lobbying power, the expected sign of *lwyrwage* is positive. It is expected, however, that this variable will be insignificant because it relies on the significance of tort limits, which is unlikely to appear in the model. Physicians are likely to lobby for tort reform and thus put downward pressure on health care spending, implying a negative expected sign. Table 2 displays this negative expected sign for *drwage* as the complement to *lwyrwage*'s positive expected sign to highlight the lobbying power mechanism as the reason for which these variables were included in the model. However, if doctors are paid more, health care costs and spending are likely to be high as well, implying a positive sign. It is expected that the second effect will ultimately outweigh the first, however, especially considering the low probability that tort limits significantly affect the personal health care spending proportion.

The last set variables – the percentage of the population over the age of 65 (*pct65*) and the age-adjusted death rate (*deathrate*) – seek to explain the dependent variable from the health side. The logic is that a state in which there is either a larger proportion of the population above 65 years old or a higher rate of death will see relatively worse health outcomes, higher costs, and personal health expenditures that comprise a larger percentage of GDP. It is expected that these two health controls will significantly and positively relate to the share of GDP spent on health care.

With these regressors, the model can be written as follows:

$$PHCS/GDP = \beta_1 NEcap + \beta_2 Pcap + \beta_3 TTLcap + \beta_4 capdummy + \beta_5 pct65 + \beta_6 drwage + \beta_7 lwyrwage + \beta_8 deathrate$$

That personal health care spending as a percentage of GDP is a proportion implies it may be wise, in an effort to glean the most precise results, to transform the dependent variable. A logit transformation of the dependent variable yields the following equation:

$$Logit(PHCS/GDP) = \beta_1 NEcap + \beta_2 Pcap + \beta_3 TTLcap + \beta_4 capdummy + \beta_5 pct65 + \beta_6 drwage + \beta_7 lwyrwage + \beta_8 deathrate,$$ where

$$\text{Logit(PHCS/GDP)} = \ln\left(\frac{(\text{PHCS/GDP})}{1 - (\text{PHCS/GDP})}\right)$$

Results

The results of the OLS regression of the transformed dependent variable are presented in Table 4. As shown, the regressors explain 60 percent of the variation in the personal health care spending as a share of GDP and both *pct65* and *lwyrwage* are significant at the 99% level. The coefficients for the two variables are positive and negative, respectively. It is not surprising that the larger the proportion of elderly in a given population, the more that population spends on health care relative to its whole economy. The negative and significant correlation between *lwyrwage* and the dependent variable is difficult to explain and is examined more closely further in this section. These results provide no reason to believe that tort limits – whether their magnitude or mere presence – reduce the share of GDP composed of personal health care spending.

Similar results are found when the model is run with robust errors to correct existing heteroskedasticity (Table 5). Again, the regressors explain 60 percent of the variation in the personal health care spending as a share of GDP. *Pct65* is still significant at the 1% level, but *lwyrwage* is less significant this time – at the 5% level. Again, the results do not indicate that tort limits, measured in any way, are significant predictors of personal health care spending as a share of GDP.

Multicollinearity and Altered Models

That each of the above model's first four explanatory variables is a slightly varied metric of damages caps begs the question of whether they are collinear. Table 6 presents a full correlation matrix, which does not imply the existence of simple correlation between any two regressors. Strong multicollinearity does exist among the four measures of caps, however, as shown in Tables 7(a) through 7(d). In each of the four regressions, the remaining three measures of damages caps are significant at the 99% level in all but one case (caps on punitive damages are significant at the 95% level when predicting caps on noneconomic damages).

We separate them for this reason. Tables 8(a) through 8(d) present results of four regressions that test whether each measure, when present alone, significantly affects personal health care spending as a percentage of GDP. Each model explains about 60 percent of the variation in the personal health care spending proportion. And unsurprisingly, in each case, the variable used to represent caps on damages in malpractice litigation is not a significant predictor of PHCS/GDP. The percentage of people in a state's population who are over the age of 65 is significant at the 99% level and lawyer's median annual wage is significant at the 95% level in each set of results. *Pct65* reflects its expected sign, but *lwyrwage* does not. The variable for lawyer pay was included to test whether with lobbying power, reflected in pay, lawyers are able to impact the extent to which states cap damages. Because one would expect lawyers to lobby against the institution of tort reforms, their lobbying power should put upward pressure on health care spending.

This mechanism relies on tort limits (or their absence) affecting health care spending, a relationship for which this paper has not yet found support. However, including the results presented in Table 8, the *lwyrwage* variable is consistently both significant and negatively correlated with personal health care spending as a percentage of GDP. This pattern is difficult to explain; the negative relationship between the lawyers' annual wages and the dependent variable seems spurious. There is no reason to believe that there is reverse causation – that higher personal health care spending negatively affects lawyer pay. Considering the possibility that the variable is disrupting other significant relationships, we eliminate the variable from the model.

NEcap and *capdummy* are significant when *lwywage* is not present in the equation. Tables 9(a) and 9(b) present the results, in which the measures of damages caps remain separated. In both runs, *pct65* and *deathrate* are significant and positive predictors of the personal health care spending proportion. Caps on noneconomic damages and the dummy variable for whether a state has any caps are significant at the 95% and 90% levels, respectively.

That the sign of the *NEcap* coefficient is negative is problematic. Recall that the expected sign for this variable is positive; the mechanism espoused by advocates for tort reform dictates that tort limits affect heath care spending because savings seen in the courtroom travel down the supply chain to the end user of medical care. If more savings are seen in the court room, the ultimate reduction in health care spending will be larger. The implication here is that lower monetary caps on damages will affect health care spending to a larger extent. A cap of $250,000 on noneconomic damages, for example, will reduce spending more than a cap of $1 million because the cost of awards will be lower. For this reason, limits on noneconomic damages, measured by the numerical value of the cap in each state, should have a positive relationship with the personal health care spending proportion. As the argument goes, lower caps mean lower spending and vice versa.

The negative coefficient in this case is at odds with this theory. *NEcap* is not affecting the dependent variable in the way it is claimed to. Rather, the significance is likely a sign of reverse causation from the personal health care spending proportion to caps on noneconomic damages. It is probable that the more a state's residents spend relative to GDP on health care, the more likely that state is to pass tort reform. The negative coefficient is intuitive as well; the more a state spends on health care, the lower the cap will be which they are likely to institute.

A similar issue arises when interpreting the significance of *capdummy*. The variable is a binary dummy variable for whether a state has caps on noneconomic, punitive, or total damages. Therefore, while *NEcap* tests the significance of the magnitude of a cap on noneconomic damages, *capdummy* tests the significance of the presence of a cap on any type of damages. Recall that the expected sign for this variable is negative. If tort limits are effective, states with limits will see lower health care spending than will those states without. Just as *NEcap*'s negative sign, *capdummy*'s positive sign likely reflects reverse causation. A state whose health care spending is a larger share of GDP will be more likely to implement a cap. This correlation is positive because the variable in question is a dummy.

Future research efforts could focus on the variety of factors that may affect whether states implement tort limits. The measures of damages caps used in this paper would be useful in examining multiple questions, including what affects state decisions to implement *any* caps and what affects the dollar amount of the cap on noneconomic, punitive, and total damages.

Conclusions and Implications

These results do not provide compelling evidence that tort limits are *not* predictive of personal health care spending as a percentage of GDP. Rather, they imply by the absence of meaningful significance of the damages caps regressors that the relationship may be less strong or possibly more complex than initially believed. The supply chain that delivers medical care is comprised of a number of actors and various moving parts, the interactions among which complicate the business of predicting the path of savings within the system. Existing research has verified that some connections do exist in practice, namely that limiting damages in malpractice litigation will put downward pressure on malpractice insurance premiums.

Even so, we must question whether these effects are sufficient cause to implement these policies. That reforms seem to save physicians some of their cost of malpractice insurance and could be associated with other cost savings should not be the only factors in considering whether they are appropriate. It would be wise to consider and possibly empirically study the effects of tort limits on doctors' incentives to provide appropriate medical services and take due care in their dealings with patients. Physicians argue that the threat of liability causes them to practice defensive medicine, which can certainly cost the health care system and harm patients physically and financially. A myopic focus on the evils of liability is not enough, however. A question remains: does reducing physicians' financial liability indirectly through tort reform affect their behavior?

Physician negligence is costly to the system as well, and to the extent that limiting damages in malpractice litigation alters incentives for doctors, this becomes a problem. Of course, doctors do not face full liability for negligence and other harms because of malpractice insurance. However, we must ask whether lower malpractice insurance premiums which result from tort limits significantly reduce doctors' incentives to meet the standard of care. Examining this dynamic empirically, while beyond the scope of this paper, would improve the understanding of the complex relationship between the tort and health care delivery systems.

While this relationship is complex, this paper demonstrates that the effects of damages caps in malpractice litigation on personal health care spending are tenuous. While the evidence presented here should be considered among a wide range of other relationships when determining appropriate policy, tort reforms do not seem to be of much use in the effort to correct the United States' unique health care spending habits.

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Figure 1

Line of Causation from Tort Reform to Health Care Spending

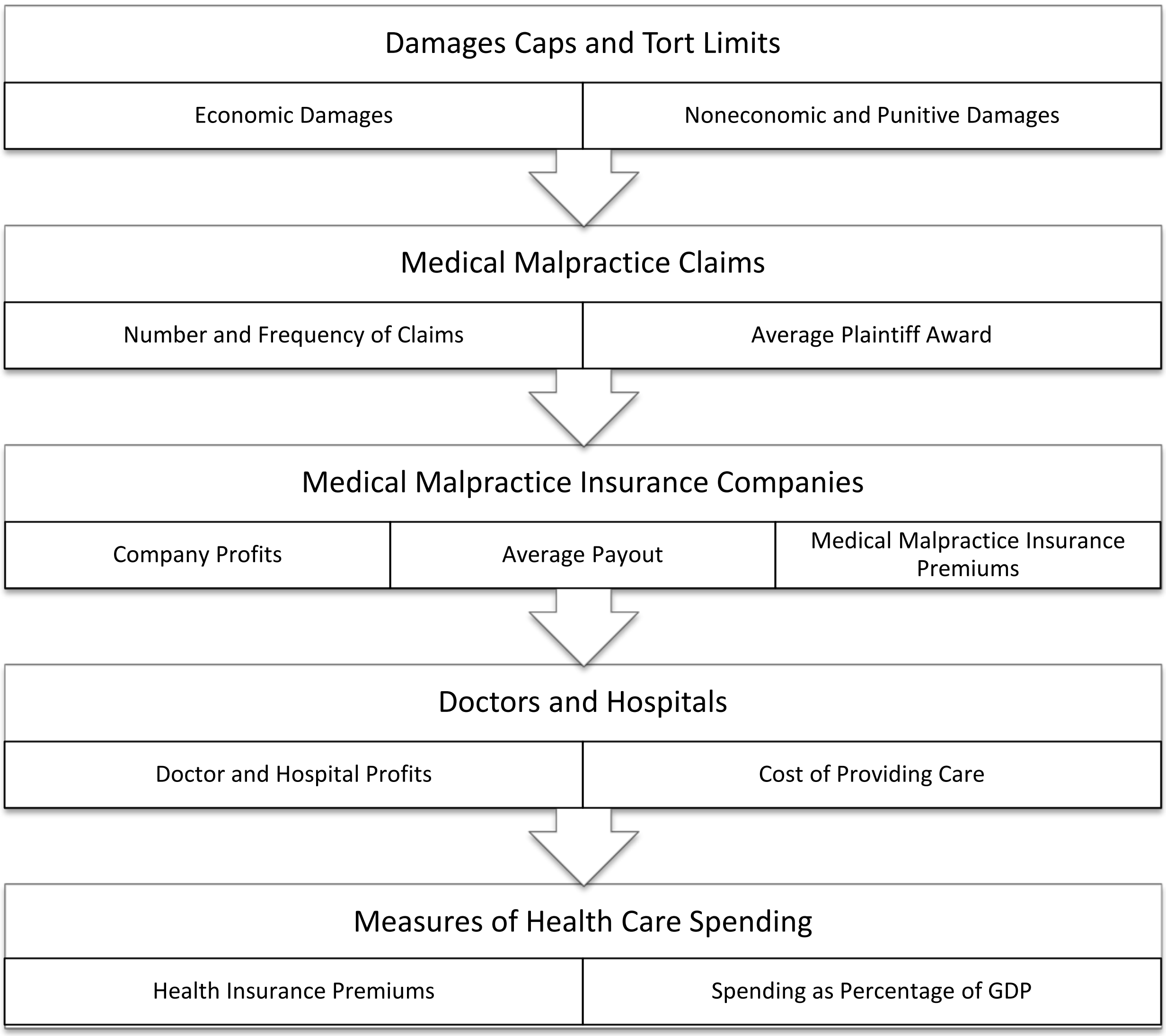

Table 1

Summary Statistics for the Dependent Variable, Personal Health Care Spending as a Share of GDP

2009 PHCS/GDP	
Mean	0.172127831
Standard Error	0.004767357
Median	0.166803963
Standard Deviation	0.034045735
Range	0.19316365
Minimum	0.069954508
Maximum	0.263118158
Count	51

Table 2

Variable Names and Definitions

Variable	Definition	Source(s)	Expected Sign, Expected **Significance** or *Insignificance*
PHCS/GDP	Personal health care spending as a share of GDP	Centers for Medicare and Medicaid Services, Bureau of Economic Analysis	N/A
NEcap	State cap on noneconomic damages, controlled for state median income	Medical Malpractice Directory, US Census Bureau, Current Population Survey	*Positive*
Pcap	State cap on punitive damages, controlled for state median income	Medical Malpractice Directory, US Census Bureau, Current Population Survey	*Positive*
TTLcap	State cap on total damages, controlled for state median income	Medical Malpractice Directory, US Census Bureau, Current Population Survey	*Positive*
capdummy	A binary dummy variable for whether a particular state has any caps on any damages	Medical Malpractice Directory	*Negative*
pct65	Percentage of people in a state's population who are 65 or older	Census Bureau	**Positive**
drwage	Annual mean doctor wage by state	Bureau of Labor Statistics	*Negative*
lwyrwage	Annual median lawyer wage by state	Bureau of Labor Statistics	*Positive*
deathrate	Age-adjusted death rate by state	US National Center for Health Statistics	**Positive**

Table 4
OLS Regression of Logit-Transformed Dependent Variable

4(a) Results of OLS Regression of Logit-Transformed Dependent Variable

Logit(PHCS/GDP)	*Coefficient*	*Std. Err.*	*t*	*P>t*
NEcap	5.82E-06	0.0000195	0.3	0.767
Pcap	0.0000102	0.0000182	0.56	0.58
TTLcap	0.000021	0.0000237	0.88	0.381
capdummy	0.1082983	0.0954771	1.13	0.263
pct65	7.417521	1.694643	4.38	0
drwage	6.14E-07	1.30E-06	0.47	0.639
lwyrwage	-4.44E-06	1.48E-06	-2.99	0.005
deathrate	0.0358502	0.0362583	0.99	0.328
_cons	-2.726193	0.5231084	-5.21	0

Number of obs.	=	51
F(8, 42)	=	7.88
Prob > F	=	0
R-squared	=	0.6002
Adj R-squared	=	0.524
Root MSE	=	0.1760

4(b) Results of Breusch-Pagan/Cook-Weisberg Test for Heteroskedasticity

Ho: Constant variance		
$chi^2(1)$	=	4.19
Prob > chi^2	=	0.0408

Table 5

Results of OLS Regression of Logit-Transformed Dependent Variable with Robust Standard Errors

Logit(PHCS/GDP)	*Coefficient*	*Robust Std. Error*	*t*	*P>t*
NEcap	5.82E-06	0.0000161	0.36	0.72
Pcap	0.0000102	0.0000168	0.6	0.549
TTLcap	0.000021	0.0000188	1.11	0.272
capdummy	0.1082983	0.1041947	1.04	0.305
pct65	7.417521	1.71612	4.32	0
drwage	6.14E-07	1.21E-06	0.51	0.616
lwyrwage	-4.44E-07	2.07E-06	-2.14	0.038
deathrate	0.0358502	0.0445931	0.8	0.426
_cons	-2.726193	0.5146525	-5.3	0

Number of obs.	=	51
F(8, 45)	=	7.97
Prob > F	=	0
R-squared	=	0.6002
Root MSE	=	0.17598

Table 6

Correlation Matrix

	Logit(PHCS/GDP)	*NEcap*	*Pcap*	*TTLcap*	*capdummy*	*pct65*	*drwage*	*lwyrwage*	*deathrate*
Logit(PHCS/GDP)	1								
NEcap	-0.0948	1							
Pcap	0.1101	0.1268	1						
TTLcap	0.1909	-0.1701	-0.1270	1					
capdummy	0.1711	-0.6111	-0.3457	-0.2007	1				
pct65	0.6007	0.0726	0.1387	0.1997	-0.1507	1			
drwage	0.0541	-0.0630	-0.0878	0.0319	0.0113	-0.1166	1		
lwyrwage	-0.5995	0.1613	-0.1033	-0.0172	-0.2943	-0.3135	-0.1686	1	
deathrate	0.2778	0.1661	0.1742	0.2273	0.0697	0.0525	0.0426	-0.1992	1

Table 7

Multicollinearity among Explanatory Measures of Damages Caps

Table 7(a): Caps on Noneconomic Damages

NEcap	*Coefficient*	*Robust Std. Err.*	*t*	*P>t*
Pcap	-0.3751013	0.1636127	-2.29	0.027
TTLcap	-0.691444	0.1460092	-4.74	0
capdummy	-3661.992	332.7362	-11.01	0
pct65	4203.849	11308.33	0.37	0.712
drwage	-0.0092373	0.0109019	-0.85	0.402
lwyrwage	-0.0063663	0.0108809	-0.59	0.562
deathrate	932.484	246.2088	3.79	0
_cons	2857.12	3736.469	0.76	0.449

Number of obs.	=	51
F(7, 43)	=	28.26
Prob > F	=	0
R-squared	=	0.6269
Root MSE	=	1374.9

Table 7(b): Caps on Punitive Damages

Pcap	*Coefficient*	*Robust Std. Err.*	*t*	*P>t*
NEcap	-0.4311972	0.1306336	-3.3	0.002
TTLcap	-0.5891274	0.1394003	-4.23	0
capdummy	-3017.656	533.5357	-5.66	0
pct65	4624.624	17802.54	0.26	0.796
drwage	-0.012437	0.0114951	-1.08	0.285
lwyrwage	-0.0181421	0.0124029	-1.46	0.151
deathrate	807.5015	275.1335	2.93	0.005
_cons	5420.291	4896.564	1.11	0.274

Number of obs.	=	51
F(7, 43)	=	5.66
Prob > F	=	0.0001
R-squared	=	0.3954
Root MSE	=	1474.1

Table 7(c): Caps on Total Damages

TTLcap	*Coefficient*	*Robust Std. Err.*	*t*	*P>t*
NEcap	-0.4635155	0.1292009	-3.59	0.001
Pcap	-0.3401102	0.1143375	-2.97	0.005
capdummy	-2295.903	563.0617	-4.08	0
pct65	13081.69	8844.541	1.48	0.146
lwyrwage	-0.0032696	0.007627	-0.43	0.67
deathrate	756.0425	198.2889	3.81	0
_cons	-104.2552	2077.247	-0.05	0.96

Number of obs.	=	51
F(6, 44)	=	4.54
Prob > F	=	0.0012
R-squared	=	0.4594
Root MSE	=	1122.4

Table 7(d): Dummy for Any Caps

capdummy	*Coefficient*	*Robust Std. Err.*	*t*	*P>t*
NEcap	-0.000153	0.0000201	-7.62	0
Pcap	-0.0001097	0.0000272	-4.03	0
TTLcap	-0.000144	0.0000272	-5.29	0
pct65	-1.717335	2.323165	-0.74	0.464
drwage	-2.60E-06	1.98E-06	-1.31	0.196
lwyrwage	-5.10E-06	2.39E-06	-2.14	0.038
deathrate	0.1790612	0.0458892	3.9	0
_cons	1.674271	0.6487642	2.58	0.013

Number of obs.	=	51
F(7, 43)	=	22.54
Prob > F	=	0
R-squared	=	0.715
Root MSE	=	0.28108

Table 8

Full Model
Results of OLS Regressions of Logit-Transformed Dependent Variable with:

8(a) Caps on Noneconomic Damages as Sole Tort Limit Measure

Logit(PHCS/GDP)	*Coefficient*	*Robust Std. Error*	*t*	*P>t*
NEcap	-0.0000119	0.0000104	-1.14	0.261
pct65	7.338773	1.46384	5.01	0
drwage	3.70E-07	1.11E-06	0.33	0.74
lwyrwage	-4.91E-06	2.16E-06	-2.27	0.028
deathrate	0.0573175	0.0320433	1.79	0.08
_cons	-2.573557	0.4774153	-5.39	0

Number of obs.	=	51
F(5, 45)	=	13.07
Prob > F	=	0
R-squared	=	0.5869
Root MSE	=	0.17281

8(b) Caps on Punitive Damages as Sole Tort Limit Measure

Logit(PHCS/GDP)	*Coefficient*	*Robust Std. Error*	*t*	*P>t*
Pcap	-3.85E-06	0.000011	-0.35	0.727
pct65	7.177512	1.4904	4.82	0
drwage	3.58E-07	1.08E-06	0.33	0.741
lwyrwage	-5.22E-06	2.11E-06	-2.48	0.017
deathrate	0.0526053	0.0310822	1.69	0.097
_cons	-2.498119	0.4649766	-5.37	0

Number of obs.	=	51
F(5, 45)	=	11.05
Prob > F	=	0
R-squared	=	0.579
Root MSE	=	0.17447

8(c) Caps on Total Damages as Sole Tort Limit Measure

Logit(PHCS/GDP)	*Coefficient*	*Robust Std. Error*	*t*	*P>t*
TTLcap	9.97E-06	0.0000114	0.88	0.386
pct65	6.93736	1.512044	4.59	0
drwage	3.42E-07	1.05E-06	0.32	0.747
lwyrwage	-5.28E-06	2.11E-06	-2.5	0.016
deathrate	0.0474526	0.0319345	1.49	0.144
_cons	-2.46527	0.4622074	-5.33	0

Number of obs.	=	51
F(5, 45)	=	12.14
Prob > F	=	0
R-squared	=	0.5811
Root MSE	=	0.17402

8(d) Dummy for Any Caps as Sole Tort Limit Measure

Logit(PHCS/GDP)	*Coefficient*	*Robust Std. Error*	*t*	*P>t*
capdummy	0.0658024	0.0594983	1.11	0.275
pct65	7.687824	1.666442	4.61	0
drwage	5.32E-07	1.17E-06	0.45	0.652
lwyrwage	-4.58E-06	2.06E-06	-2.22	0.031
deathrate	0.0507076	0.0313918	1.62	0.113
_cons	-2.700121	0.5093859	-5.3	0

Number of obs.	=	51
F(5, 45)	=	11.81
Prob > F	=	0
R-squared	=	0.5916
Root MSE	=	0.17182

Table 9

Altered Model
Results of OLS Regressions of Logit-Transformed Dependent Variable with:

9(a): Caps on Noneconomic Damages as Sole Tort Limit Measure

Logit(PHCS/GDP)	*Coefficient*	*Robust Std. Err.*	*t*	*P>t*
NEcap	-0.0000218	0.0000103	-2.11	0.04
pct65	9.38055	2.081654	4.51	0
drwage	1.29E-06	1.25E-06	1.03	0.307
deathrate	0.080791	0.0276382	2.92	0.005
_cons	-3.65625	0.3629002	-10.08	0

Number of obs.	=	51
F(4, 46)	=	13.27
Prob > F	=	0
R-squared	=	0.4661
Root MSE	=	0.19432

9(b) Dummy for Any Caps as Sole Tort Limit Measure

Logit(PHCS/GDP)	*Coefficient*	*Robust Std. Err.*	*t*	*P>t*
capdummy	0.1304469	0.0704485	1.85	0.07
pct65	9.821113	2.209529	4.44	0
drwage	1.47E-06	1.32E-06	1.12	0.27
deathrate	0.0657802	0.0308758	2.13	0.039
_cons	-3.764011	0.4027868	-9.34	0

Number of obs.	=	51
F(4, 46)	=	11.26
Prob > F	=	0
R-squared	=	0.4958
Root MSE	=	0.18883