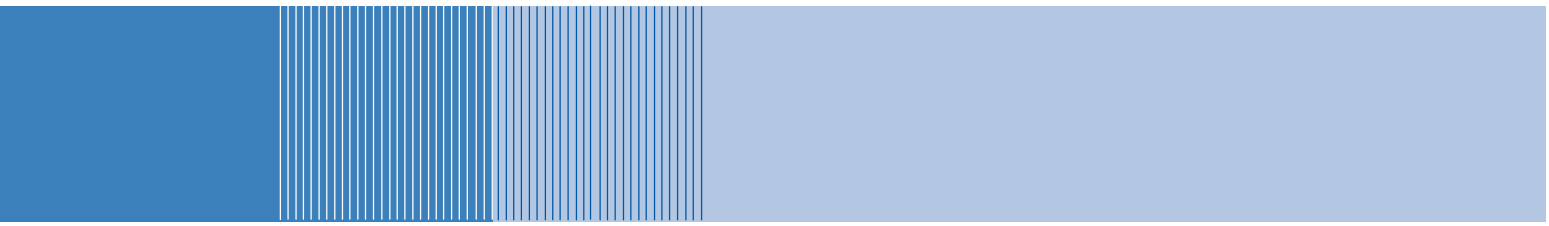
October 26, 2011

CREATING CONDITIONS FOR ECONOMIC GROWTH:
The role of the legal environment

A study for the U.S. Chamber Institute for Legal Reform



NERA
Economic Consulting

Working Paper

NERA Economic Consulting
1166 Avenue of the Americas
New York, New York 10036
Tel: +1 212 345 3000
Fax: +1 212 345 4650
www.nera.com

CREATING CONDITIONS FOR ECONOMIC GROWTH: THE ROLE OF LEGAL ENVIRONMENT

How improving the legal environment in individual states could reduce tort costs and promote business activity and employment

By Paul J. Hinton and David L. McKnight[1]

Executive Summary

It is widely recognized that the cost of the U.S. tort system is excessive relative to other countries. It is also excessive when examined in absolute terms based on its high transaction costs as well as some of its unique features, such as punitive damages and civil jury trials that can lead to excessive outcomes.

This study is based on a data set of state liability costs never before made available to public policy researchers, which provides an excellent basis for a reliable state-by-state comparison of costs. We analyzed that data and developed an econometric model that effectively uses the data to tell the full story: how liability costs vary by state and how great potential cost savings could be from incremental improvements in the legal environment in individual states. Some states are perceived to be much less fair and reasonable than others, having much higher levels of tort filings in relation to their size, which consistently produces a greater proportion of the most extreme verdict awards and, based on our analysis in this study, higher tort costs overall. In this study, we show that by simply raising the bar in the states with the costliest legal environments, and achieving savings that some states have already been able to achieve, tort costs in individual states could be reduced by up to 26%.

The Model and Legal Environment Benchmark

The econometric model consists of economic, demographic, and legal environment variables used to explain variation in commercial liability costs from state to state in 2009. We used two separate measures of the legal environment: the perception of in-house counsel reported in the Harris State Liability Systems Ranking Study and an index we developed of tort activity for each state. We developed tort activity index values for each state based on the estimated annual number of tort claims filed, frequency of top verdict awards, and the concentration of lawyers practicing in the state. The state perceived to have the most fair and reasonable legal environment and the state with the lowest tort activity together provided a "Legal Environment Benchmark" against which to measure the effect of the legal environment on tort costs. Potential cost savings were estimated by determining how much higher the costs attributed to the legal environment were in each state compared to the Legal Environment Benchmark. We used these estimates of savings in businesses' tort costs to estimate savings that could also be realized in medical malpractice and personal liability costs in each state.

Impact on Business Activity and Employment

At a time when states are making every effort to stimulate economic activity, improvements in the legal environment offer a potential win-win state economic development strategy. Lower tort

costs can provide an economic stimulus without loss in tax receipts or an increase in spending. The challenge for states is to effect a change in the legal environment quickly so that liability risk is immediately reduced and cost savings are realized in the short term.

While this study does not provide a guide for the specific legal reforms that would bring the more expensive states in line with the less expensive states, we do quantify how much costlier the tort environment is in each state compared to the Legal Environment Benchmark. We provide empirical economic support for the proposition that improving a state's legal environment provides the equivalent of "relief" from the "tort tax" and results in an economic stimulus to business activity and employment. Using the response of business to tax savings measured in prior studies, we estimate that the stimulus resulting from improvements in an individual state with the costliest legal environment could increase employment by as much as 1.0% or even 2.8%. In a large state such as New York or California, this could add hundreds of thousands of jobs.

Our key findings are summarized in Appendix B, reproduced below:

Effects of Legal Environment on State Tort Costs and Business Activity

	State Tort Costs						
State	Commercial Tort Costs[1] ($1,000,000)	Medical Malpractice Tort Costs[2] ($1,000,000)	Personal Tort Costs[3] ($1,000,000)	Total Tort Costs ($1,000,000)	Effect of Legal Environment on Tort Costs[4]	Potential Tort Cost Reduction ($1,000,000)	Potential Increase in Employment[5]
AK	$353	$68	$196	$618	12.7%	$78	0.50% - 1.36%
AL	$1,594	$371	$1,536	$3,502	24.8%	$869	0.98% - 2.66%
AR	$963	$189	$757	$1,908	16.6%	$316	0.65% - 1.77%
AZ	$1,787	$502	$1,777	$4,065	9.5%	$386	0.38% - 1.02%
CA	$14,940	$3,860	$13,244	$32,043	16.4%	$5,267	0.65% - 1.76%
CO	$2,248	$470	$1,644	$4,362	12.4%	$539	0.49% - 1.32%
CT	$1,950	$606	$1,330	$3,887	17.7%	$688	0.70% - 1.90%
DE	$510	$144	$373	$1,027	7.1%	$73	0.28% - 0.76%
FL	$7,136	$1,837	$6,367	$15,340	18.5%	$2,833	0.73% - 1.98%
GA	$3,294	$744	$3,013	$7,051	12.2%	$858	0.48% - 1.30%
HI	$589	$149	$494	$1,232	12.8%	$157	0.50% - 1.37%
IA	$1,257	$229	$799	$2,286	7.4%	$170	0.29% - 0.80%
ID	$465	$122	$491	$1,079	10.0%	$108	0.40% - 1.07%
IL	$5,888	$1,103	$3,455	$10,446	23.3%	$2,435	0.92% - 2.50%
IN	$2,038	$753	$2,520	$5,311	8.3%	$440	0.33% - 0.89%
KS	$1,003	$226	$749	$1,978	13.8%	$272	0.54% - 1.47%
KY	$1,284	$285	$1,022	$2,591	17.4%	$451	0.69% - 1.86%
LA	$2,198	$372	$1,341	$3,912	26.0%	$1,018	1.03% - 2.79%
MA	$3,612	$948	$1,894	$6,454	14.8%	$955	0.58% - 1.58%
MD	$1,992	$585	$1,629	$4,206	11.8%	$496	0.47% - 1.26%
ME	$451	$217	$538	$1,205	6.0%	$73	0.24% - 0.64%

Effects of Legal Environment on State Tort Costs and Business Activity

State	State Tort Costs: Commercial Tort Costs[1] ($1,000,000)	State Tort Costs: Medical Malpractice Tort Costs[2] ($1,000,000)	State Tort Costs: Personal Tort Costs[3] ($1,000,000)	State Tort Costs: Total Tort Costs ($1,000,000)	Effect of Legal Environment on Tort Costs[4]	Potential Tort Cost Reduction ($1,000,000)	Potential Increase in Employment[5]
MI	$3,182	$977	$3,365	$7,524	13.9%	$1,049	0.55% - 1.49%
MN	$2,176	$694	$1,703	$4,573	11.3%	$516	0.45% - 1.21%
MO	$2,358	$554	$1,755	$4,667	22.0%	$1,027	0.87% - 2.35%
MS[6]	$965	$220	$1,034	$2,219	27.0%	$599	1.07% - 2.89%
MT	$428	$94	$293	$815	18.1%	$148	0.72% - 1.94%
NC	$2,671	$572	$2,088	$5,332	6.7%	$356	0.26% - 0.72%
ND	$294	$131	$344	$770	2.8%	$22	0.11% - 0.30%
NE	$746	$143	$435	$1,324	6.2%	$82	0.25% - 0.66%
NH	$510	$154	$397	$1,061	5.9%	$62	0.23% - 0.63%
NJ	$5,236	$1,075	$2,801	$9,112	21.5%	$1,960	0.85% - 2.30%
NM	$598	$257	$982	$1,837	18.5%	$340	0.73% - 1.98%
NV	$927	$150	$651	$1,728	16.3%	$282	0.64% - 1.74%
NY	$12,513	$2,205	$5,621	$20,339	21.2%	$4,320	0.84% - 2.27%
OH	$3,759	$1,233	$3,740	$8,732	12.3%	$1,070	0.48% - 1.31%
OK	$1,395	$243	$996	$2,634	15.8%	$415	0.62% - 1.69%
OR	$1,199	$343	$1,062	$2,604	11.0%	$288	0.44% - 1.18%
PA	$5,376	$1,865	$4,749	$11,991	14.3%	$1,719	0.57% - 1.53%
RI	$470	$183	$449	$1,102	19.5%	$214	0.77% - 2.08%
SC	$1,224	$223	$1,080	$2,527	18.0%	$455	0.71% - 1.93%
SD	$299	$81	$215	$595	8.7%	$52	0.34% - 0.93%
TN	$2,033	$581	$1,655	$4,269	9.4%	$402	0.37% - 1.01%
TX	$9,867	$1,787	$6,764	$18,418	13.6%	$2,509	0.54% - 1.46%
UT	$947	$157	$706	$1,810	8.3%	$151	0.33% - 0.89%
VA	$2,519	$746	$2,708	$5,973	7.6%	$453	0.30% - 0.81%
VT	$277	$62	$161	$499	9.9%	$50	0.39% - 1.06%
WA	$2,227	$585	$1,863	$4,675	13.4%	$628	0.53% - 1.44%
WI	$2,061	$646	$1,836	$4,542	12.4%	$565	0.49% - 1.33%
WV	$642	$180	$612	$1,434	22.3%	$320	0.88% - 2.39%
WY	$284	$32	$131	$447	12.9%	$58	0.51% - 1.38%

Notes and Sources:

[1] Commercial tort costs based on 2009 estimates from MarketStance using data from insurance companies' regulatory Schedule T filings.

[2] Medical Malpractice tort costs are estimated for individual states based on the relative price of commercial liability insurance (after controlling for the size and industry mix of businesses in each state) scaled by 2009 healthcare GDP.

(continued on next page)

[3] Personal liability tort costs are estimated for individual states based on the relative price of commercial liability insurance (after controlling for the size and industry mix of businesses in each state) scaled by 2009 population.

[4] The effect of the legal environment is based on an econometric model of the effect of the perception of the legal environment and the amount of tort activity in each state on the cost of commercial liability insurance. The percent impact represents the reduction in cost that could be realized if each state improved the perception and tort activity to match the state perceived to be the most fair and reasonable and the state with the lowest tort activity.

[5] The percent change in employment is computed using the median elasticity estimates from different groups of academic studies on the effect of taxes on business activity reported in Wasylenko, Michael J., "Taxation and economic development: the state of the economic literature," New England Economic Review, March 1997, p. 37-52. The tax elasticities are translated into elasticities with respect to tort costs to account for the fact that a percentage change in taxes represents a greater dollar amount than a percentage change in tort costs. Estimates are for individual states based on the assumption that the legal environments of the other states remain unchanged. These values cannot be added to produce reliable estimates for multiple states.

[6] In the case of Mississippi, the frequency of top 100 verdicts dropped from 12 in 2002 to zero in each of the years from 2006 to 2008. Incorporating this recent improvement into our estimates would reduce the estimated tort costs attributable to the legal environment in Mississippi by seven percentage points.

I. Introduction

Slow economic growth and high levels of unemployment have plagued the U.S. economy since the 2008 financial crisis. The result has been a recession that many economists have identified as the worst economic downturn since the Great Depression.[2] Federal Reserve Chairman Ben Bernanke called the poor performance of the job market, which has been troubled with unemployment rates near 9% since April 2009,[3] "the most significant factor depressing consumer confidence," which in turn has contributed to the slow pace of recovery.[4] Given this economic climate, it is not surprising that politicians and policymakers have made economic growth and job creation the centerpiece of their policy agendas. Federal, state, and local governments have many tools at their disposal to encourage economic growth, including fiscal policy and government spending programs, but policies aimed at reforming rules and regulations that burden businesses can also be a source of economic stimulus. This has prompted state and federal governments to review their existing policies pertaining to labor markets, housing, trade, taxation, and regulation, but one additional issue that deserves attention is the cost imposed by a state's legal environment and the corresponding effect on employment.

We begin by providing background on the costs of the tort system and its effects on business through summaries of prior studies and surveys. Then we explain how we constructed state-by-state estimates of the costs of the tort system and performed analysis to determine which characteristics of the legal environment explain variations in costs. Finally, we use the results of our analysis and studies on the response of businesses to taxes to estimate the potential increase in employment that could result from improvements in the legal environment.

II. Background

III. The costs of the tort system

The direct costs imposed by the tort system are extensive and are borne by individuals, businesses, non-profits, and governmental entities as parties to litigation. The direct costs of resolving tort claims, whether in or outside a courtroom, are partly insured and partly not insured. Whereas large companies may formally self-insure, many individuals and small businesses may choose to be either uninsured or underinsured and therefore have to cover at least a fraction of their costs out of pocket. This wide distribution of responsibility for the costs of liability claims makes research difficult because there is no comprehensive or consistent source of data on these costs. However, it is estimated that the majority of commercial tort costs are covered by insurance,[5] and therefore data on liability insurance premiums and losses provide a good foundation for estimating the overall direct costs of litigation.

This is the approach used by the actuarial firm Towers Watson (and its predecessor firms Tillinghast and Towers Perrin) in its annual report on U.S. tort costs.[6] Its estimates have become a widely quoted benchmark in public policy analysis.[7] Towers Watson relies on liability insurance premiums and loss ratios[8] published by A.M. Best and SNL Financial.[9] Multiplying premiums by loss ratios provides an estimate of the amounts paid out by insurers in 2009. Towers Watson supplements these data with its own estimates of the proportion of costs that are self-insured or uninsured.

This methodology captures the cost of damages paid to third parties either as settlements or verdicts, the litigation costs associated with defending those claims, and the insurers' administrative costs associated with managing these claims. It does not include the cost incurred by the court system or any indirect cost of the tort system, such as litigation avoidance. (The risk of tort liability can cause parties to act in economically non-optimal ways. For example, the risk of liability has led to the practice of defensive medicine by many doctors, which leads to unnecessary and costly tests and procedures.)[10]

The Towers Watson estimate of the cost of the U.S. tort system in 2009 is $248.1 billion. This is 1.74% of the U.S. gross national product and represents a total of $808 per person. Commercial liability costs borne by businesses, excluding medical malpractice, account for $122.7 billion of that figure. These estimates include insured, self-insured, and uninsured costs.[11]

Data on liability insurance costs have been used by academics to estimate the effect on costs of different features of the tort system by comparing costs before and after tort reform in different states.[12] These studies have measured substantial changes in insurance costs and insurer profitability resulting from tort reforms but are not useful in estimating the cost of the entire system.[13] Other studies of the effects of tort reforms have measured resulting changes in the number of lawsuits filed and the value of damage awards.[14]

The transaction costs (i.e., the costs of prosecuting or defending lawsuits) for companies that are parties to lawsuits are extraordinarily high. According to a 2009 survey of Fortune 200 companies, which was led by Lawyers for Civil Justice (LCJ) to inform the deliberations of the Committee on Rules of Practice and Procedure of the U.S. Judicial Conference,[15] litigation transaction costs continue to rise and are consuming an increasing percentage of corporate revenue. For the 20 companies that participated in the relevant part of the survey, average outside litigation costs were $140 million in 2008, an increase of 112% from $66 million in 2000. In that same time frame, average annual litigation costs as a percentage of revenues increased 78% for the 14 companies that provided data.[16]

High transaction costs are not confined to Fortune 200 companies. They are also found, for example, in claims across several types of liability insurance coverage held by companies of all sizes. Professors Joni Hersch and Kip Viscusi of Vanderbilt University School of Law conducted a study of closed commercial claims in Texas from 1988 to 2004 in which $10,000 or more was paid by an insurance company to a plaintiff for a personal injury claim.[17] They found that for every $1.00 that was received by the claimant, an average of $0.75 was paid in legal and administrative costs over all claims, and $0.83 in legal and administrative costs when the plaintiff had retained an attorney and filed suit.[18]

Tort costs for small businesses are particularly high in proportion to revenues. In 2008, the tort liability price tag for small businesses in the U.S. with less than $10 million in revenue was $105.4 billion. This includes both dollars paid pursuing and defending lawsuits as well as dollars paid to plaintiffs. Small businesses bore 81% of business tort liability costs but took in only 22% of revenue. A large portion of these costs ($35.6 billion) was paid out of pocket as opposed to through insurance.[19]

A. The economic impact of the tort system

Leading academics and research groups have been studying various economic consequences of tort liability for more than two decades. The challenge of developing accurate measures of liability costs has meant that researchers have had to be creative in their research designs, using surveys, event studies, and other natural experiments to quantify economic effects, including risk mitigation behavior by small businesses, reduced incentives for innovation, lower U.S. competitiveness, lower foreign direct investment, loss of market capitalization of firms that are sued, and the effect on employment.

1. The impact on small business operations

One approach to understanding the influence of the liability system on businesses is to ask companies' management about its response to litigation. Two surveys of the leaders of small businesses, conducted in recent years, are noteworthy: one conducted by Public Opinion Strategies and Douglas Schoen (the "POS/Schoen poll"), and the other by the independent polling firm Harris Interactive (the "Harris Small Business poll"). Both were conducted on behalf of the U.S. Chamber Institute for Legal Reform.

The more recent, the POS/Schoen poll, was fielded in August 2010.[20] Online and telephone interviews were conducted with 1,000 individuals who identified themselves as the owner, president, partner, chief executive officer, chief financial officer, or vice president/senior manager at a private company with fewer than 500 employees, in a broad range of industries.

The POS/Schoen poll revealed that frivolous lawsuits are considered an extremely serious problem by small business owners (with 65% calling the problem "very serious," 29% "somewhat serious," 6% "not so serious," and 1% "not at all serious").[21] Seventy-three percent said that a lawsuit could affect a small business's ability to get credit, and 71% said a lawsuit could increase the cost of doing business, leading them to delay or curtail hiring new employees.[22]

The Harris Small Business poll was fielded from November 2006 through February 2007.[23] Telephone interviews were conducted with a random sample of 1,009 owners and managers of businesses with revenues up to $10 million and at least one employee in addition to the business owner. The companies were selected nationally from Dun & Bradstreet data and covered a representative range of industries. The survey was conducted with only those owners and managers who reported being very or somewhat concerned about the liability system in their states. Harris found that the threat of frivolous or unfair lawsuits had caused almost two-thirds of those concerned business owners or managers interviewed (62%) to make business decisions specifically for the purpose of avoiding such suits. These avoidance decisions were reported to have had detrimental effects for customers and employees:

- Made products and services more expensive: 61%;
- Made a product or service unavailable to customers: 45%;
- Forced the business owner to cut employee benefits: 23%; and

- Forced business owners to lay off employees: 11%.[24]

Harris Small Business poll respondents also reported that 46% had been threatened with a lawsuit, and more than a third had a lawsuit filed against them in the prior ten years. Those that had a lawsuit filed against them reported significant direct and indirect costs of the litigation:

- Companies suffered because litigation was very time consuming: 73%;
- Companies suffered because litigation was very expensive: 64%;
- Felt more constrained in making business decisions generally: 61%;
- Made a business decision they would not otherwise have made: 54%; and
- Changed business practices in ways that did not benefit customers: 45%.

The POS/Schoen poll found that 35% of respondents had either been sued or threatened with a lawsuit in the prior two to three years.[25]

2. The impact on innovation

The liability system affects all sizes of businesses in many different ways. The manufacturing sector bears a significant burden. As Michael Porter, a Harvard Business School professor and expert on competition and competition policy, has said: "In the United States, however, product liability is so extreme and uncertain as to retard innovation. The legal and regulatory environment places firms in constant jeopardy of costly and, as importantly, lengthy product liability suits."[26] He adds that the "risk of lawsuits is so great, and the consequences so potentially disastrous, that the inevitable result is for more caution in product innovation than [there is] in other advanced nations."[27]

Few studies of the relationship between tort law and innovation have been published,[28] although some important work was done during the 1990s. Quantifying—or even giving detailed examples of—the impact the liability system has had on innovation is difficult. As stated in a well-known Brookings publication, *The Liability Maze: The Impact of Liability Law on Safety and Innovation*, "[t]he biggest problem in making any empirical assessment of the effects of the U.S. liability law lies in the nature of what must be measured. The entire debate—on both sides of the issue—revolves around things that don't happen….The challenge, in effect, is to count the dogs that don't bark in the night."[29]

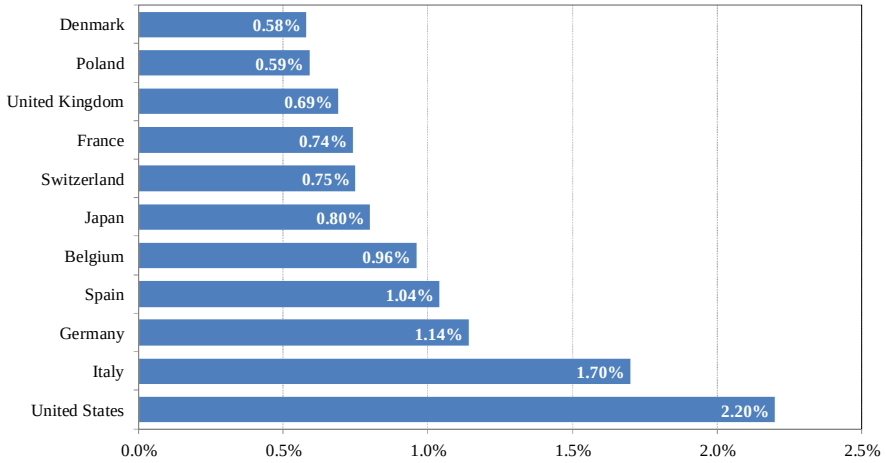
The Brookings book does contain some case studies identifying concrete instances of the liability system's negative impact on innovation.

"General aviation appears to have suffered broad systemic effects; some segments of the industry have almost folded, apparently in large part because of the pressure of liability. In several industries—most notably some types of pharmaceuticals and small aircraft—the combined effects of uncertainty and high awards seem to have discouraged the research, development, and marketing of entire categories of products."[30]

3. The impact on U.S. competitiveness

Critics of the liability system often argue that high tort costs adversely affect U.S. competitiveness. Another study by Tillinghast (a predecessor firm of Towers Watson) revealed that the U.S. tort system is more than twice as expensive as those in 10 countries with which it competes, when measured as a percentage of GDP (see Figure 1). With the exception of Italy, other countries generally have tort costs (relative to economic output) that are comparable to the levels observed in the U.S. in the 1960s and 1970s.

Figure 1: Tort Costs as a Percentage of GDP in 2003[31]



According to the 2010 Conference on Civil Litigation ("LCJ") survey of large multi-national corporations, a disproportionate amount is spent on litigation conducted in the U.S. relative to what is spent in foreign jurisdictions. [32] Depending on the year, U.S. costs were between four and nine times higher than foreign costs, as a percentage of corporate revenue.[33]

A 2003 report prepared for the National Association of Manufacturers estimates that, based on their share of asbestos related litigation alone, U.S. manufacturers' "[t]ort costs reduce manufacturing cost competitiveness by at least 3.2%."[34]

In a 2005 NERA study, we used the manufacturing industries affected by U.S. asbestos litigation since the 1980s as a case study on the potential effects of high liability costs on productivity growth.[35] We constructed a database of industry-level labor productivity (measured as output per employee) for the U.S. and 10 other industrialized countries.[36] For each industry, in each country, we calculated the average rate of annual productivity growth over 1987 to 2000 and compared this to the U.S. rate. We compared the performance of affected U.S. industries over 14 years with the same industries in the comparison countries and used the non-asbestos-affected industries to control for country-specific growth.[37] We found that productivity growth in the U.S. industries affected by asbestos litigation was 0.5% per year slower than their counterparts in other countries. Over the period of study from 1987 to 2000, the lower growth in U.S. productivity amounted to a loss in GDP of over $300 billion, with $51 billion of that loss realized in 2000.

4. The impact on the value of firms sued

One study by published in the American Law and Economics Review examined the effects of product liability litigation on the value of firms.[38] Using an event study methodology and focusing on the automobile and pharmaceutical industries, the study found that filing a lawsuit or publishing news stories that subsequently led to filing a lawsuit were associated with significant losses in value of the firms involved. It also found that in the automobile industry competitors lose when one firm is sued, but in the pharmaceutical industry a lawsuit against one firm leads to an increase in value of other firms.[39]

5. The impact on foreign direct investment

Foreign direct investment (FDI) is a key driver of the U.S. economy and an important source of innovation, exports, and jobs. However, FDI is discouraged when there are worries about liability risks.[40] The United States is competitive in attracting high levels of FDI (close to the European Union level as a percent of GDP in 2010), yet according to a U.S. Department of Commerce Report there is an "international perception that the pervasive nature of litigation in the United States, and other related aspects of the legal system, increase the costs of doing business and add uncertainty."[41] As of 2007, the net book value of cumulative FDI in the U.S. was $2.4 trillion, equivalent to 17% of U.S. GDP. Foreign firms employed more than 5.3 million workers through their U.S. affiliates and indirectly created millions of additional jobs. More than 30% of the jobs directly created through FDI were in manufacturing, accounting for 12% of all manufacturing in the U.S. Finally, FDI accounted for 11% of U.S. private-sector capital investment, nearly 15% of annual U.S. research and development, and almost 20% of U.S. exports.[42]

Notwithstanding the strengths of the U.S. legal system, such as its commitment to the rule of law, which are important to foreign companies who conduct business in this country, a number of recent surveys and reports indicate two concerns: (1) the comparatively high legal cost of doing business in the U.S. market, and (2) the unpredictable and unfamiliar nature of liability in the United States.[43]

Not enough research exists to determine the size of the litigation environment's full effect on FDI; whether differences in the effects depend on factors such as type of investment, industry, or size of firm; and what aspects of the litigation environment are most important in deterring FDI.[44] There is a good deal of anecdotal information, however, indicating that the U.S. tort system may be a deterrent to FDI, and surveys show that litigation is a concern for companies operating in the U.S.[45] While these studies do not conclusively prove that the tort system in the U.S. deters investment, the Commerce Department report indicates that "investment capital goes and so stays where it is well treated," and the concerns expressed in this report are potentially serious.

6. The impact on workers

In 1995, two Stanford University academics, Tom Campbell and Daniel Kessler, published a study in which they estimated the effect of tort reforms on productivity and employment.[46] Using

annual state-level data on 17 industries' output and employment, the authors found that liability-reducing reforms are associated with higher levels of output per worker and higher employment across a broad range of industries. In contrast, the adoption of liability-increasing reforms is associated with lower productivity and employment. The magnitude of the estimated impact on productivity is substantial. The authors give as an example a state with an average level of liability where a reform that decreases liability is passed. In this scenario worker output is increased by 3.1% in the retail trade industry, 7.6% in the miscellaneous repair service sector, and 8.9% in amusement and recreation. The impacts of laws that increase liability were equal or greater, although in the opposite direction. The estimated impact on employment follows the same pattern as the impact on productivity, so that "[s]tates that adopt [liability] decreas[ing] reforms experience higher levels of employment than states that do not; and states that adopt [liability] increas[ing] reforms experience lower levels of employment than states that do not."[47]

When mass tort litigation leads to bankruptcy, the potential impact of the tort system on workers is evident in the resulting job losses and related costs. Two studies produced in 2002 examined the impact of asbestos litigation on workers in bankrupt firms. The first, authored by Nobel Prize winner Joseph Stiglitz with Peter Orszag and Jonathan Orszag, concluded that:

- The 61 asbestos bankruptcies studied led to a loss of an estimated 52,000 to 60,000 jobs, a quarter of the original workforce;

- Each displaced worker at the bankrupt firms would lose, on average, an estimated $25,000 to $50,000 in wages over his or her career because of periods of unemployment and the likelihood of having to take a new job paying a lower salary; and

- The average worker at an asbestos-related bankrupt firm with a 401(k) plan suffered roughly $8,300 in pension losses, which represented, on average, a roughly 25% reduction in the value of the 401(k) account. [48]

The other 2010 study of the impact of the same asbestos bankruptcies on the companies' workers, conducted by NERA, concluded that:

- The costs of retraining workers displaced by asbestos bankruptcies was $2,000 to $3,000 per worker, totaling $44 to $76 million (assuming a 42% participation rate based on a 1997 study of manufacturing workers in New England);

- Monetary costs resulting from the loss of group health care plans totaled about $30 million; and

- The resulting cost to taxpayers of unemployment insurance to displaced workers from asbestos-related bankruptcies was approximately $80 million. [49]

IV. Variation in tort costs by state

The Towers Watson annual tort costs report provides a national estimate of the costs of the tort system but does not report the costs state by state. We worked closely with MarketStance—a

leading provider of information and analytics to the insurance industry—to develop data that would allow us to quantify the cost of the liability systems in each state. We requested a customized extract of the data needed for our analysis from its proprietary database compiled from insurers' Schedule T filings in which insurers report premiums earned in the state where liabilities are incurred.[50]

To account for the variation in liability insurance premiums as a result of differences in the mix of businesses, MarketStance allocated the liability insurance premiums to individual businesses operating in each state.[51] MarketStance used U.S. Census data identifying the size, industry sector, and location of individual business establishments[52] and reported the establishment data to NERA, aggregated for each major industry and size of business category in each state. These data included the liability premiums, business revenues, and estimated tort costs after accounting for uninsured or out-of-pocket costs.

The average amount of liability insurance premiums per thousand dollars of revenue for businesses in each state is reported in Figure 2. States are sorted into 10 groups (deciles) by this measure of premium cost. The variation in costs from state to state in this chart reflects the local pricing of insurance and the mix of businesses by size and industry, which influences their risk profiles.

Figure 2: Commercial Liability Premiums by State

Grouping of States	Number of States	Business Revenue ($1,000,000s)	2009 Commercial Liability Premiums ($1,000s)	Average Premiums per $1,000 Revenue
1st Decile	5	$3,999,200	$11,279,128	2.82
2nd Decile	5	$3,246,000	$9,572,606	2.95
3rd Decile	5	$2,018,100	$6,219,096	3.08
4th Decile	5	$4,011,125	$12,448,913	3.10
5th Decile	5	$2,958,500	$9,541,694	3.23
6th Decile	5	$5,272,668	$17,593,212	3.34
7th Decile	5	$2,535,000	$8,958,571	3.53
8th Decile	5	$3,735,714	$13,505,000	3.62
9th Decile	5	$2,269,615	$8,849,469	3.90
10th Decile	5	$4,607,827	$20,586,799	4.47

Businesses in states in the first decile have the lowest liability premiums of $2.82 per thousand dollars of business revenue. In contrast, businesses in the most expensive states, the 10th decile, pay $4.47 in liability premiums per thousand dollars of revenue. We scaled the corresponding tort cost estimates for each state based on data from MarketStance to match the Towers Watson U.S. tort cost estimate for commercial liability, excluding medical malpractice.[53]

In addition to the effect on average insurance premiums of differences in the mix of businesses in each state, other factors are important to consider, including economic and demographic differences between states, e.g., cost of living, average wage, income distribution, cost of health care, age, and education level. Without accounting for all these factors, no reliable inference can

be made about the merits of each state's legal environment based on the deciles in Figure 2. States have higher or lower liability insurance premiums per thousand dollars of revenue for many reasons other than just the characteristics of their legal environment.

Other studies have sought to use insurance data to estimate the cost of the liability system in different states. We have improved on these studies by both accounting for the size of the purchasing entities and allocating the insurance costs to the individual establishments in which the risks are born. The end result is a dataset of 7,377 separate observations of liability insurance premiums per $1,000 of revenue for businesses by size and industry category within each state that provides a basis for detailed econometric analysis.

V. Factors that explain the variation in tort costs

We perform econometric analysis to simultaneously control for variation in liability insurance premiums among businesses of different sizes and in different industries; to account for different economic and demographic characteristics of the states; and to test whether measures of the legal environment explain any residual variation we observe. This use of an econometric model of liability insurance premiums by state to estimate the proportion of liability costs attributable to differences in the legal environment across states is novel. Drawing on the existing body of empirical law and economic studies, we have included control variables previously found to be important in explaining tort costs. In addition, we developed our own metrics of the legal environment in each state. These variables are described below.

1. Economic factors

Economic differences between states can have a profound impact on the cost of liability insurance. Liability insurance will be more expensive in some states for reasons unrelated to the legal environment. Some of these economic factors include:

- **Income and wages** within each state are an element of damages in most tort claims. We included several measures of income and wages, specifically average wages, median income, and a measure of the distribution of income within each state.[54] In our analysis, median income is a significant factor in explaining the cost of liability insurance (at the 95% confidence level).[55]

- **Per capita health expenditures** within each state affect tort costs through claims for medical costs. In our analysis, per capita health expenditures are a significant factor in explaining the cost of liability insurance (at the 99% confidence level).

- **Insurance market concentration.** Competition in insurance markets has an effect on the price of liability insurance. In theory, states with a less competitive insurance market will have higher costs of insurance than states with more competition. The Herfindahl–Hirschman Index (HHI) is a standard measure of competitive conditions in each state.[56] HHI measures how much choice there is between insurance providers in a market in terms of market share concentration. The fewer insurance providers there are with significant operations in a state, the more concentrated it is. We constructed an HHI measure using the market share of the

top 10 providers of commercial liability insurance in each state ("Insurance Market Concentration").[57] The HHI of the commercial liability insurance market in each state is significantly correlated with the cost of liability insurance (at the 99% confidence level).

- **The labor regulation climate** within states could also affect liability costs for reasons unrelated to the legal environment. We added a control for the labor regulation climate. This is one way to control for the possibility that states could have similarly high liability costs and adverse legal environments, not because the legal environment affects costs, but because the regulatory climate influences both. We incorporated the grades developed in the U.S. Chamber of Commerce's 2011 study, "The Impact of State Employment Policies on Job Growth." This study ranks states' labor regulations on a three-tier scale, and we have created an index based on these rankings (the "Labor Regulation Index").[58] The Labor Regulation Index is positive in our analysis, implying that a labor regulatory environment that raises business costs is also associated with higher tort costs but is only significant at the 90% confidence level.

2. Demographic factors

Demographics can affect tort costs by influencing claiming behavior, jury pools, or the value of damage claims. For example, if litigiousness is more prominent in a particular demographic group that is over-represented, liability costs could be higher as a result. Demographics also influence potential verdicts and awards, since the harm incurred can depend on characteristics of particular claimants. Finally, demographic factors also influence the jury pool, which may lead to certain states having different costs for otherwise identical tort cases. The demographic factors that we controlled for in our model include:

- **Age demographics** within each state have the potential to affect tort costs through medical expenses—an element of economic damages which increases with age. In addition, injuries are likely to be more severe in older populations.[59] Conversely, future lost wages tend to be larger for younger plaintiffs with more working years ahead of them, and the propensity to file lawsuits tends to decline with age.[60] The percentage of the population over 60 years old is positively correlated with the cost of liability insurance in our analysis but is not statistically significant.

- **The unemployment rate** within each state may affect liability costs by increasing the propensity to bring tort claims.[61] The unemployment rate is not a statistically significant factor in explaining the cost of liability insurance in our analysis.

- **Education level** may influence liability costs, because plaintiffs with more education would likely have higher lost wages. Education can potentially influence jury pools and differences in education could make juries more or less friendly to businesses. We added controls to our model for the percent of state residents that have a high school diploma and the percent of state residents that have a college degree. The percent of state residents with a college degree is positively correlated with tort costs in our analysis (perhaps due to increased wage and earning potential) but is only significant at the 90% confidence level. The percent of state residents with a high school diploma is not a significant factor in explaining liability insurance costs in our analysis.

3. Legal environment

We measure the legal environment using a metric of the perception of the fairness and reasonableness of each state's legal system and three objective measures of the tort activity in each state. Perception measures, while subjective, may reveal a consistent collective view on whether there is a plaintiff bias in a jurisdiction. Measures of the tort activity in each state may explain variation in liability insurance costs simply by reflecting higher awards and more litigation. We used a score ("Harris score") reflecting the perceived fairness and reasonableness of the tort system in each state developed by Harris Interactive in the Harris State Liability Systems Ranking Study conducted on behalf of the U.S. Chamber Institute for Legal Reform. We combined three measures of the level of tort activity in each state into a "Tort Activity Index" that is higher for states with more tort suits, more lawyers, and more large tort verdicts per person. The construction of this index is described below. These measures of the legal environment are reported by state in Appendix A.

Measures of the perception of the legal environment and levels of tort activity for individual states give different impressions of each state's legal environment. Some states are perceived to have a legal environment that is more fair and reasonable than most other states, but have levels of tort activity that are relatively higher. On the contrary, in some states the opposite is the case: the perception of the legal environment is worse than the statistics on the levels of tort activity would suggest. The state perceived to have the most fair and reasonable legal environment and the state with the lowest tort activity are used together as a "Legal Environment Benchmark" against which to measure all the other states. We determined the relative importance of these two metrics of the legal environment in terms of their influence on the costs of commercial liability insurance using the econometric analysis described below.

The individual variables that are used to define the Legal Environment Benchmark are:

- **Harris score.** The Harris State Liability Systems Ranking Study was a survey last conducted in 2010 among a nationally representative sample of 1,482 in-house general counsel, senior litigators or attorneys, and other senior executives who are knowledgeable about litigation matters at companies with revenues of at least $100 million. Respondents were asked how fair and reasonable each state liability system is based on:

  - Overall treatment of tort and contract litigation;
  - Having and enforcing meaningful venue requirements;
  - Treatment of class action suits and mass consolidation suits;
  - Damages;
  - Timeline of summary judgment or dismissal;
  - Discovery;
  - Scientific and technical evidence;
  - Judges' competence; and
  - Juries' fairness.

States were given a grade (A, B, C, D, or F) by respondents for each of the key elements of their liability systems.[62] The overall ranking of the states' liability systems was developed by creating an index using the grades given on each of the key elements plus the overall performance grade. The final grades were scaled from 0 to 100, with a score of 100 being all A's. In the 2010 survey, used in this study, Delaware has the highest Harris score of 77.2 and West Virginia has the lowest Harris score of 35.1.

In our analysis the Harris score is a significant factor in explaining the cost of liability insurance (at the 95% confidence level), meaning that the perceptions of the corporate counsel interviewed are closely correlated with actual liability insurance costs in the states.

- **Tort Activity.** Our Tort Activity Index is the average of three different measures of tort activity: the concentration of lawyers admitted to the bar in each state, the number of the largest tort verdicts that occur in each state, and the number of tort filings in each state.[63]

  The concentration of lawyers in each state is a reflection of the legal environment and may affect the liability costs as a result of greater litigation activity or through their influence on the political process as advocates for policies that would expand the role of civil litigation.[64] The greater the number of lawyers involved in litigation in a state, the greater their influence as potential opponents of reforms that would discourage litigation. The number of lawyers in each state will also depend greatly on factors that are not related to the legal environment, such as the amount of economic activity within certain industries in which commercial lawyers are in heavy demand. In particular, states with a relatively large amount of work within the financial services industry may have more demand for legal services for reasons that are not directly related to the legal environment. NERA has developed a measure of "lawyer concentration" as a way of characterizing the legal environment. We estimate the number of lawyers per capita that would be expected to be admitted in each state based on the amount of economic activity as measured by total state GDP per capita less professional services, and the GDP in the financial services, health care, and manufacturing industries per capita.[65] This measure of lawyer concentration shows that large states (New York in particular) have a disproportionately higher lawyer concentration than the smaller states. In our model, the number of lawyers per capita is not only related to the financial GDP per capita of a state but also to the absolute size of the financial services industry in that state.[66] The difference between the number of lawyers per capita admitted to the bar in each state and the number that would be expected in each state based on economic factors is the "lawyer concentration" variable included in our Tort Activity Index.

  The 100 largest verdicts, nationally in each year (from 2002-2008), are used to identify states with costly legal environments.[67] We counted the top 100 verdicts annually by state and expressed these counts as a percent of state population. We used as many years of data as were available to increase the reliability of our estimates for small states that would be unlikely to report any top 100 verdicts in a single year. The 100 largest personal-injury verdicts were identified in data from the Westlaw Jury Verdict Reporter (JVR) database.[68] The resulting data series provides an estimate of the number of large tort liability personal injury verdicts per capita in each state.

The number of tort cases filed per year is a reflection of the litigiousness of each state. The Court Statistics Project, a joint project of the Conference of State Court Administrators and the National Center for State Courts (NCSC), provides data on the annual number of cases filed within each state in 2008[69] as well as detailed information about how each state's courts are organized.[70] The number of tort suits is also reported, but not for every state. Careful analysis of these data allows for consistent estimation of the number of tort cases filed in each state, controlling for differences in the way that courts are structured and data are reported. Counts of tort filings in courts of "general jurisdiction" are available for 40 states; however, these data are not consistently reported in each state.[71] Moreover, in some states small claims are heard in courts of general jurisdiction, whereas in other states they are handled in courts of "limited jurisdiction."[72] In order to make the data comparable across states we developed an econometric model of the number of tort suits per capita in courts of general jurisdiction as a function of the number of civil cases per capita in the same courts. We exclude from this model any states for which the number of tort cases were over- or under-reported (according to NCSC), and control for reporting inconsistencies[73] and the inclusion of small claims in the count of civil lawsuits.[74] Based on the civil suit caseload in courts of general jurisdiction, which is available for all 50 states, we estimated the number of tort lawsuits per capita that were filed in 2008 for the 10 states that did not report tort caseload statistics, for the seven states that either over or under reported tort filings, and for the nine states that included small claims with the tort filings. The resulting data series provides a consistently reported estimate of the number of tort filings per capita, excluding small claims.

The values of the three measures of tort activity described above are reported for each state in Appendix A. Note that several states had no verdicts reported in JVR that were high enough to be classified within the top 100 in any year between 2002 and 2008. These activity measures vary greatly from state to state. We use an econometric model to determine whether states with lower court costs have lower levels of tort activity than states with higher tort costs.

We combined these three measures of tort activity into a single index based on a principal-components analysis (PCA). PCA is an econometric method that combines different variables together in a way that best captures the different sources of distinct variation in the underlying data. Combining these three measures together into a single variable has the advantage of making it easier to interpret the joint effects of tort activity on tort costs.[75] The resulting Tort Activity Index values for each state are reported in Appendix A.

VI. Econometric results

The econometric model is able to explain much of the variation in liability insurance costs between states. This model shows that, in addition to specific characteristics of the business establishments located in a particular state, the local economy and demographics are important factors in explaining differences in tort costs. The results of our tests of the perception and activity measures of the legal environment show that these measures are valid and that differences in the legal environment are correlated with differences in commercial liability insurance costs.

The results of the econometric analysis are shown in Figure 3. The coefficients measure the magnitude of the influence of each variable in the model. The t-statistics ("t-stats") indicate the degree of statistical significance of these estimates.[76] A t-stat greater than 1.96 indicates that there is less than a one in 20 chance (i.e., 5%) that the relationships of the magnitude reported could have been observed if in fact no true underlying correlation exists. The R-squared, a number between zero and one, indicates the proportion of the variation in liability insurance costs that is explained by the variables included in the model.[77] Some of the variables listed in Figure 3 appear with the prefix "ln of." This indicates that we express the values of these variables in natural logarithms, which has the effect of giving equal importance in the analysis to similar percentage increases. For example, an increase from 10 to 20 would be given equal weight as an increase from 100 to 200 and so on.

Figure 3: The Econometric Model of Liability Insurance Costs per Thousand Dollars in Revenue

	Harris Score		**Harris & Activity**	
	Coefficient	**t-Stat**	**Coefficient**	**t-Stat**
Business Size Categories	Not shown		Not shown	
Business Industry Groups	Not shown		Not shown	
Economic Effects				
ln of Average Wage	0.1784	(0.44)	0.0302	(0.09)
ln of Median Income	2.4439	(1.81)	2.5346	(2.13)
Income Distribution 1	0.1431	(1.85)	0.1427	(1.97)
Income Distribution 2	0.0169	(0.54)	0.0222	(0.72)
ln of Health Expenditures	0.4783	(2.76)	0.4642	(2.87)
Demographic Effects				
% of Population Over 60	0.9475	(0.99)	0.9657	(1.04)
Unemployment	-0.0003	(-0.03)	-0.0024	(-0.23)
% with HS Diploma	-0.0092	(-0.85)	-0.0110	(-0.97)
% with College Degree	0.0164	(1.83)	0.0162	(1.90)
Labor Regulation Index	0.0507	(1.60)	0.0517	(1.73)
Insurance Market Concentration	0.0003	(2.95)	0.0003	(3.09)
Legal Climate Effects				
Harris Score	-0.0064	(-2.30)	-0.0046	(-1.81)
Tort Activity Index (lawyers, top verdicts, tort filings)			0.033	(2.23)
R-Squared	**0.91**		**0.91**	
Number of Observations	**7,377**		**7,377**	

The first two columns of Figure 3 report the results for a model that includes only the Harris score as a measure of the legal environment in each state. These results show that the Harris score on its own is a significant factor in explaining variation in liability insurance costs across the states, at the 95% confidence level. The last two columns report the results of a model that includes both the Harris score and the Tort Activity Index. In this model, the Tort Activity Index is significant at the 95% level and when tested together with the Harris score these two variables,

which used to define the Legal Environment Benchmark, are jointly significant at the 99.9% confidence level.

The results of this econometric analysis show that a state with a legal environment that is perceived to be less fair and reasonable has statistically significantly higher liability insurance costs, and a state with more tort claims, more lawyers, or a greater share of the largest verdicts (all components of our Tort Activity Index) also has statistically significantly higher tort costs.

The model results show that controlling for economic and demographic differences between states is very important. This analysis allows us to determine how much of the variation in liability insurance costs is attributable to economic factors, demographics, or the legal environment.

We estimate the contribution of the legal environment to the cost imposed on businesses by the tort system by comparing costs across states. We use the results of the econometric model to predict what the tort costs would have been in each state had it matched the Legal Environment Benchmark Harris score and Tort Activity Index values. This hypothetical cost for each state is then expressed as a percentage decrease relative to its actual cost. These estimates of the impact of the legal environment on costs in each state are reported in Appendix B. We assume that the factors that influence commercial liability insurance costs have a proportional influence on tort costs overall, including self-insured and uninsured costs, medical malpractice costs, and personal liability.[78]

The state perceived to have the most fair and reasonable legal environment is Delaware (see Figure 2), and so we use the Harris score of 77.2 as a Legal Environment Benchmark for estimating potential tort cost savings from changes in perception of the legal environment. Maine, North Carolina, North Dakota, and New Hampshire have similarly low Tort Activity Index values. The value is lowest in North Dakota, and so we use this value of the Tort Activity Index as a Legal Environment Benchmark for estimating potential tort cost savings from changes in the level of the Tort Activity Index.

We estimate the reduction in tort costs that would result in each state from changing the perception of the state's legal environment and the level of tort activity to match the Legal Environment Benchmark (i.e. the perception of Delaware and the level of tort activity of North Dakota). We do not assume that all the features of the legal systems in Delaware and North Dakota are transferable or even provide a model for other states. We simply compute the cost savings that would result if states could improve the perception of their legal environment to match the score received by Delaware in the Harris survey and could also reduce the level of tort activity to match the value of our Tort Activity Index computed for North Dakota. Even greater tort cost savings would be expected if individual states could improve the perception of their legal environments or reduce their level of tort activity compared to the Legal Environment Benchmark.

The tort costs attributed to the legal environment is partially determined by lagging measures of the legal environment, including the perception of the legal environment and the number of large verdicts filed in each state from 2002 to 2008. In the case of Mississippi, for example, the

frequency of large verdicts dropped from 12 in 2002 to zero from 2006 to 2008. The effect of this change on the Tort Activity Index for Mississippi would be to reduce the estimated tort costs attributable to the legal environment by 7%. This reflects an apparent improvement in the legal environment in Mississippi since 2002.

The results of this analysis quantify the contribution of a state's legal or economic environment to its total tort costs. We can use the regression results to estimate what would happen to tort costs if the legal environment of states were improved. We estimate what the effect would be on the costs of changing just the legal environment variables and leaving everything else unchanged. The reduction in businesses' tort costs in each state ranges from 3% to 27% (3% to 26% after accounting for recent improvements in the legal environment in Mississippi),[79] and the average is 16%. These estimates are derived from analysis of commercial liability costs excluding medical malpractice, but the legal environment no doubt affects medical malpractice liability and personal liability costs as well.[80]

This estimate of the impact of the legal environment on the cost of insurance is of similar magnitude to the effects measured in past studies that evaluated the impact of tort reforms on liability costs. A study on the effect of the 1985-1987 tort reforms on the cost of liability insurance found that the reforms reduced premiums by between 4.3% and 9.1%.[81] Using National Association of Insurance Commissioners data on the trend in medical malpractice insurance premiums from 1995 to 2001, Kenneth Thorpe, the Chair of the Department of Health Policy and Management at the Emory University School of Public Health, found that states with tort reforms had insurance premiums that were 17.1% lower than the states without reforms.[82]

VII. The potential for improvements in the legal environment to promote economic activity and employment

The effect on business operations of improvements of the legal environment could be more significant than the direct cost savings alone. Tort cost savings would provide a direct stimulus to business activity, and the indirect effects of an improved legal environment could provide additional stimulus. Furthermore, just as tort costs fall disproportionately on small businesses, it is likely that cost reductions would do the same, resulting in a relatively greater increase in business activity among small businesses.

The effect of state and local taxes on business activity, and employment in particular, provide a basis for benchmarking the potential impact of reduced tort costs, assuming that businesses would be equally sensitive to a dollar in tax savings as to a dollar in tort cost reductions. Businesses make expansion and start-up decisions based primarily on the prospects for their businesses and availability of finance, but may also be influenced by local taxes and incentives. Differences in the local costs of the liability system may have a similar influence on these decisions.

Many prior economic studies have estimated the impact of changes in state and local taxes and business incentives on employment, investment, revenues, and birth or location decisions. States may lower taxes or offer business incentives to attract businesses and encourage economic growth. Decreases in state or local taxes impact business activity both by allowing businesses to

retain more of their earnings, which they can reinvest, and by enticing businesses to locate or relocate to avoid more expensive taxation elsewhere. As a result of businesses choosing between states with similar costs, small changes in costs can have a relatively large impact on business activity.

While some studies specifically focus on the sensitivity of business location decisions to differences in taxes, in general there is no practical way to differentiate between the number of new jobs created by the expansion of existing indigenous businesses and the number of jobs created as a result of businesses relocating from one state to another. For this reason, studies of the effect of taxation on business activity in particular states do not provide good estimates of the aggregate effect of changes in local conditions on jobs nationally because jobs counted as a result of competition between states net out at the national level. Consequently, we only benchmark the potential impact of costs due to the legal environment on employment and business activity in individual states and not for the U.S. as a whole.

The sensitivity of business activity to taxes is routinely reported as an elasticity, which expresses the percent change in business activity in comparison to a 1% change in tax expenses. We rely on a survey of the empirical research into the estimated effect of taxes on business activity by Bartik published in 1989 and later updated by Wasylenko in 1997 to provide a range of elasticity estimates.[83] Bartik attempts to summarize all studies, published and unpublished, of the effect of taxes on business activity undertaken since 1979 and finds that "[t]he long-run elasticity of business taxes appears to lie in the range of -0.1 to -0.6 for inter-metropolitan or interstate business location decisions."[84] He concludes that "a state and local business tax reduction of ten percent, without reducing public services to business, probably increases business activity in a state and metropolitan area in the long run by 2.5 percent."[85] Wasylenko groups the various studies into categories based on the types of business responses to the taxes being studied. Figure 4 summarizes the range of elasticity estimates for interstate changes in state and local taxes posited by Bartik as well as for two categories of studies identified by Wasylenko.[86] For each category of studies, the median elasticity estimate is reported in the first row; the range of elasticity estimates is reported in the second row; and the total number of studies is reported in the third row.

The largest category consists of all 48 interstate studies reviewed by Bartik of the effects on business activity of state and local taxes that report long-run tax elasticity estimates. The large number of studies considered arguably makes this estimate the most reliable; however, the individual studies measured the effect on business activity in different ways, including aggregate investment and state gross domestic product, which are only indirect measures of potential employment effects. The second category of six studies examined the effect of taxes on employment directly, and although one study measured an effect greater than the upper bound posited by Bartik, another measured no employment effect at all. Most of the studies in these two categories measured the variation in business activity in relation to aggregate taxes on individuals as well as businesses. This study design reflects the expectation that businesses are indirectly affected by the tax burden on the general population, not just their own tax expenses. A third category of nineteen studies specifically examined plant location decisions or "births" of manufacturing operations in response to commercial taxes and incentives in different locations. The range of estimates measured in these studies was very wide. Since these studies focus only

on the manufacturing industry, they are less representative of the broader effect of taxes on business activity in general.

Figure 4: Range of Elasticity Estimates of the Sensitivity of Business Activity to Taxes

	Plant Location or Birth	Employment	Business Activity
Business and Personal Taxes		-0.58 [0 , -0.85] 6 studies	-0.25 [-0.1 , -0.6] 48 studies
Business Taxes Only	-0.2 [0.6 , -15.7] 19 studies		
Equivalent Tort Cost Elasticity	-0.04 [0.12 , -3.1] 19 studies	-0.11 [0 , -0.15] 6 studies	-0.05 [-0.02 , -0.11] 48 studies

The elasticity of business activity with respect to changes in state and local taxes measured across all these studies is between -0.2 and -0.58. An elasticity of -0.2 means that a 10% decrease in business taxes would be expected to result in a 2% increase in business activity. Similarly, an elasticity of -0.58 means that a 10% decrease in commercial and personal taxes would increase employment by 5.8%.

The cost of the tort system is small relative to the taxes paid by businesses and individuals. This must be taken into account when predicting the response to changes in tort costs based on the observed response to taxes. Using Ernst & Young's estimates of the size of the tax system,[87] we estimate that state and local tax liabilities are about five times larger than the direct cost of the tort system. We adjusted the elasticities in the last rows of Figure 4 to account for the fact that a five-times larger percent change in tort costs would be needed to produce the same percent change in business activity. The result of this adjustment is a range of equivalent elasticities of employment or business activity generally to tort costs of -0.04 to -0.11.

We translate the estimated potential reductions in tort costs in each state into corresponding potential increases in business employment using this range of elasticity estimates. For states with the highest costs attributable to the legal environment, tort costs borne by businesses could be reduced by up to 26% (see Appendix B)[88] if the legal environment were improved to match the perception and tort activity in the benchmark states. We estimate this could translate into an increase in employment of between 1.0% and 2.8%. The potential effects for individual states with less costly legal environments would be less. It should be noted that, to the extent that businesses are less averse to tax exposure than to liability risk, which has a greater downside, the sensitivity of business activity to taxes may underestimate the effect of improvements in the legal environment. However, it is also possible that under current economic conditions businesses would be less responsive than in the past to a stimulus of this kind.

Improving the legal environment in a particular state would have a greater effect on employment for states with the highest costs attributable to the legal environment than for others because larger tort cost savings could be realized in states that currently have the most expensive legal environment. However, the same percentage employment effect results in the potential for more

jobs to be created in larger states than smaller ones. The effect of improving the legal environment in individual states is reported in Appendix B.[89] The potential employment effects are estimated for individual states assuming that the legal environment in all other states would remain unchanged. Consequently, although increases in employment would be expected to result from improvements in the legal environment in multiple states, these estimates of potential employment effects cannot be added to produce a reliable estimate of such combined effects.

Increases in employment would likely reduce national unemployment levels, although the effect would be smaller because some new jobs would be relocated from neighboring states and job additions in one state would be partially offset by job losses elsewhere. However, the percentage increases in the number employed can be expressed as a percentage of the labor force for comparison with unemployment rates. The labor force consists of both persons who are employed and those who are unemployed and so the equivalent percent of the labor force would be slightly lower than the percentage of those employed.

VIII. Conclusion

We have been able to measure the effect that the legal environment has on the tort costs incurred by businesses in the United States. By improving their legal environment to match the performance other states have already achieved, individual states could lower commercial tort costs by up to 26%.[90] We assume medical malpractice costs and personal liability costs could be lowered by similar amounts.

We have also illustrated the range of potential employment effects that commercial tort cost savings could have in individual states, assuming that businesses are as sensitive to tort costs as they were observed to be to taxes in prior studies. In the states with the most costly legal environments, improving the legal environment could stimulate private sector employment by 1.0% to 2.8%. In New York, for example, improvements to the legal environment could create between 74,000 and 202,000 jobs.

We do not assess the ability of tort reforms to improve the legal environment, nor what features of the legal environment in each state are responsible for the perception of the legal system or the level of tort activity in that state. We do not attempt to quantify the full extent of excess costs in the U.S. tort system. However, we do estimate the scope for saving in the direct costs of the tort system if the legal environments in particular states could be improved incrementally to match the environment in the state perceived to be the most fair and reasonable—and the state with the lowest level of tort activity. Changes in the legal environment may be hard to achieve and may only be realized over many years; however, the results of this study show that improving the legal environment would lower tort costs and could materially increase employment.

End Notes

[1] Paul Hinton is a Vice President and David McKnight a Consultant at NERA Economic Consulting. We would like to thank Judyth Pendell, whose numerous contributions have made this paper possible; Dr. Paul Oyer, Professor of Economics at Stanford Graduate School of Business, for his helpful comments; and Dr. Ronald Miller and Dr. Jonathan Falk at NERA Economic Consulting, who commented on preliminary analysis and drafts of this report. The U.S. Chamber Institute for Legal Reform funded a NERA proposal for this study.

[2] Robin Harding, "Downturn longest since Great Depression," Financial Times, 20 September 2010, FT.com.

[3] U.S. Bureau of Labor Statistics: http://data.bls.gov/timeseries/LNS14000000.

[4] "Statement by Ben S. Bernanke Chairman Board of Governors of the Federal Reserve System before the Joint Economic Committee U.S. Congress," 4 October 2011.

[5] Towers Watson, "U.S. Tort Cost Trends: 2010 Update," 2010.

[6] Id.

[7] See, e.g., the Congressional Budget Office, in its report "The Economics of Tort Liability: A Primer," which relies on these annual cost estimates and describes them as "the most comprehensive."

[8] Separate data for commercial liability, personal liability, and medical malpractice are used to produce the aggregate estimates. Towers Watson developed its own estimates of medical malpractice liability costs, since a large portion of these costs are covered by non-traditional forms of insurance. For instance, doctors will group together to form their own insurance vehicles that fall outside of the traditional insurance industry. Towers Watson separately estimates medical malpractice costs by estimating medical malpractice costs per physician and per hospital bed in each state and then multiplying these costs by the total number of practicing physicians and hospital beds in each state.

[9] A.M. Best is a rating agency, focusing on insurance, designated as a Nationally Recognized Statistical Rating Organization by the United States Securities and Exchange Commission. SNL Financial is a financial information firm that collects and publishes financial and market data on public and private companies. Insurance companies must disclose these data to regulators, so it provides the most comprehensive source of data on the cost of the liability system. Furthermore, these data are subject to audit and are reviewed by state insurance regulators, making the data highly reliable.

[10] See, e.g., Studdert, David M. et al. "Defensive Medicine among High-Risk Specialist Physicians in a Volatile Malpractice Environment," Journal of the American Medical Association, 2005.

[11] Towers Watson (2010). The President's Council of Economic Advisors has also relied on these cost estimates. See Counsel of Economic Advisors, "Who Pays for Tort Liability Claims? An Economic Analysis of the U.S. Tort Liability System," April 2002.

[12] In 2004, the Congressional Budget Office published a report assessing the effects of many of these reforms. ("The Effects of Tort Reform: Evidence from the States." Congressional Budget Office, June 2004). The studies it examined found that state-level reforms have decreased the number of lawsuits filed, lowered the value of insurance claims and damage awards, and increased insurers' profitability as measured by payouts relative to premiums in the short run. The report suggested interpreting these findings with some caution, because in the studies that were cited, the data were limited, the findings were not sufficiently consistent to be conclusive, only certain types of torts were included, and the reforms were often enacted in packages, making distinguishing among the effects of different types of reforms difficult. The most consistent finding was that caps on damage awards reduced the number of lawsuits filed, the value of awards, and insurance costs. Only two of the seven studies reported in detail in the CBO paper examined the impact of the reforms on commercial liability insurance, or the number of lawsuits filed against businesses. The others focused solely on medical malpractice or automobile bodily injury.

End Notes

[13] A 1993 study led by then Harvard Professor W. Kip Viscusi used similar data (developed for many consecutive years) to assess the effect of various tort reforms on liability costs. Viscusi, Kip et al., "The Effects of the 1980s Tort Reform Legislation on General Liability and Medical Malpractice Insurance," Journal of Risk and Uncertainty, vol. 6 (1993), pp. 165-186.

[14] "The Effects of Tort Reform: Evidence from the States." Congressional Budget Office, June 2004.

[15] 2010 Conference on Civil Litigation, "Litigation Cost Survey of Major Companies.", May 10-11, 2010. This survey was submitted by Lawyers for Civil Justice, Civil Justice Reform Group, and the U.S. Chamber Institute for Legal Reform ("LCJ Survey").

[16] Id.

[17] This study looked at claims against several types of business liability insurance coverage, including mono-general liability, commercial auto liability, commercial multi-peril liability, medical professional liability, and professional liability.

[18] Hersch, Joni; Viscusi, Kip, "Tort Liability Litigation Costs for Commercial Claims, Working Paper 07-16," Vanderbilt University Law School, Law and Economics, 2007, p. 27.

[19] "Tort Liability Costs for Small Business," U.S. Chamber Institute for Legal Reform, July 2010.

[20] Public Opinion Strategy and Douglas E Schoen LLC., "Survey of Small Businesses," 19-31 August 2010. Available from: http://www.instituteforlegalreform.com/.

[21] Id.

[22] Id.

[23] Harris Interactive, "Small Businesses: How the Legal Environment Has Impacted Their Operations," Conducted for U.S. Chamber Institute for Legal Reform, 2007.

[24] Id.

[25] Id.

[26] Porter, Michael E., The Competitive Advantage of Nations: with a New Introduction, New York: Free Press, 1998, p. 649.

[27] Id. at p. 525.

[28] Dari-Mattiacci, Giuseppe and Franzoni, Luigi A., "Innovation and Liability Law," 2011.

[29] Huber, Peter W. and Litan, Robert E., The Liability Maze: The Impact of Liability Law on Safety and Innovation, Brookings Inst. Press, (1991), p. 10.

[30] Id. at p.16.

[31] Tillinghast, "U.S. Tort Costs and Cross Border Perspectives," (2005).

[32] LCJ Survey, (2010).

[33] Id.

[34] Leonard, Jeremy A., "How Structural Costs Imposed on U.S. Manufacturers Harm Workers and Threaten Competitiveness," Prepared for The Manufacturing Institute of the National Association of Manufacturers, 2003, p. 16.

[35] "Proposed Asbestos Trust Fund Legislation Would Save At Least $71 Billion; Boost U.S. Competitiveness," 26 April 2005, http://www.nera.com/83_media1.htm.

[36] The source of the data is the Organization of Economic Cooperation and Development's (OECD) "STAN" database. The OECD is the leading source of internationally comparable economic data from developed countries. The 10 industrial countries used as a comparison are those that had OECD

End Notes

data available from 1987 to 2000: Austria, Denmark, Finland, France, Germany, Italy, Japan, Korea, Luxembourg, and Norway.

[37] It would be incorrect to simply compare the productivity growth across different countries because growth may be slower in some countries for other reasons, including local economic or regulatory conditions. To control for country-specific differences in growth, we use the productivity growth in the non-asbestos industries.

[38] Prince, David W. and Rubin, Paul H., "The Effects of Product Liability Litigation on the Value of Firms," 2002.

[39] Id.

[40] US Department of Commerce, "The U.S. Litigation Environment and Foreign Direct Investment: Supporting U.S. Competitiveness by Reducing Legal Costs and Uncertainty," October 2008.

[41] Id. at p. 2.

[42] US Department of Commerce, (2008).

[43] E.g., McKinsey & Company, "Sustaining New York's and the US' Global Financial Services Leadership," 2007. Eurochambres and U.S. Chamber of Commerce, "Obstacles to Transatlantic Trade and Investment," 2004.

[44] US Department of Commerce, (2008).

[45] Id.

[46] Campbell, Kessler, Shepherd, "The Causes and Effects of Liability Reform: Some Empirical Evidence," NBER Working Paper No. 4989, 1995.

[47] In most instances the results vary by industry.

[48] Joseph E. Stiglitz, Jonathan M. Orszag, and Peter R. Orszag, "The Impact of Asbestos Liabilities on Workers in Bankrupt Firm," Sebago Associates, December 2002.

[49] Testimony of Dr. Fredrick C. Dunbar, United States Senate Committee on the Judiciary, The Fairness in Asbestos Injury Resolution Act of 2003, 4 June 2003.

[50] MarketStance makes some adjustments to the Schedule T data to correct for instances where insurers have not appropriately allocated premiums. For example, in Delaware, Nuclear Electric Insurance Limited (NEIL) reported that it wrote $179 million of Commercial Multi-Peril (Non-Liability) policies in 2009. No nuclear power plants have ever operated in Delaware. MarketStance adjusts the premiums and incurred losses in 30 states based on reported megawatts of nuclear generating capacity in each of the states.

[51] MarketStance estimates the total cost of risk by first estimating the cost of carrier-written insurance coverage given a business's size, based on annual revenues, and exposure, based on the industry and geographical location of the business. Next, MarketStance estimates the percent of liability costs that are uninsured based in part on a survey they have conducted of the insurance behavior of firms of different sizes in the US. Costs are allocated to individual establishments in proportion to payroll, but the cost of insurance and insurance buying behavior is imputed at the enterprise level. For instance, for a large national retailer of electronics, premiums and losses would be allocated to individual retail locations based on payroll, but the cost of insurance would be based on the total sales across all locations. This is important because larger companies will purchase a single policy to insure many locations at a significantly lower cost than small businesses. This same methodology applied to firms with large manufacturing or research and development operations, such as pharmaceutical companies would have tort costs allocated to individual states in proportion to payroll. Thus, some costs would

End Notes

be attributed to manufacturing plants, R&D facilities, and others to sales and distribution operations in each state.

[52] Business establishments are defined to be the entities that bear the risks associated with the tort system in a way that is consistent with how insurance companies report the earned premiums. Business establishment cohorts are developed using County Business Patterns and Economic Census data from the U.S. Census Bureau and are grouped into cohorts based on the following characteristics: state of operation, annual revenues of the parent company, industry, and employment status (i.e., employee or non-employee firm).

[53] This scaling procedure incorporates the scaling of premium estimates by the average loss ratio performed in the annual Towers Watson analysis.

[54] Measures of income distribution were computed using principal components analysis of the following variables: percent of population with annual income less than $10k, $10-15k, $15-25k, $25-35k, $35-50k, $50-75k, $75-100k, $100-150k, $150-200k, and percent of population with annual income greater than $200k. We included the first two principal components as variables in the model.

[55] The confidence level for each factor is a statistical property derived from our econometric analysis and indicates the certainty with which we can rule out the possibility that the relationships estimated by our model between each factor and the liability insurance costs in each state could have been observed by chance if in truth there were no underlying relationship.

[56] The HHI is computed as the sum of the squared market shares for the top 10 insurance companies within each state and ranges between 0 and 10,000. A larger number signifies a less competitive insurance market.

[57] NAIC, "2009 Market Share Report for Property/Casualty Insurance Groups and Companies, Top 10 By Line By State, Top 125 By Line Countrywide." National Association of Insurance Commissioners, 2010.

[58] U.S. Chamber of Commerce, "The Impact of State Employment Policies on Job Growth: A 50-State Review," 2011. We construct a Labor Regulation Index by assigning a value to each of the tiers in the study: good = 1, fair = 2, poor = 3.

[59] Brown, Mark J., Pryor, Ellen S., and Puelz, Robert, "The Effect of Bad Faith Laws on First Party Insurance Claim Decisions," The Journal of Legal Studies, University of Chicago Press, vol. 33(2), 2004.

[60] Danzon, Patricia Munch, "The Frequency and Severity of Medical Malpractice Claims," Rand Institute for Civil Justice, 1983, p. 26.

[61] Cummins, David J. and Tennyson, Sharon, "Moral Hazard in Insurance Claiming: Evidence from Automobile Insurance," Journal of Risk and Uncertainty, vol. 12, 1996, p. 38.

[62] The 11 underlying factors are highly correlated with the Harris score. Principal components analysis shows that over 92% of the overall variation between states is captured in the first principal component of the underlying factors, and that the first principal component is nearly identical to the Harris score, explaining 99.7% of the variation in the Harris score.

[63] The legal environment metrics used to define the Legal Environment Benchmark are displayed for each state in Appendix A. Appendix A shows that states with a more expensive legal environment have more tort activity and lower Harris scores, and that the components of the Tort Activity Index are associated with higher costs.

[64] Campbell, Kessler, Shepherd, "The Link between Liability Reforms and Productivity," Brookings Papers: Microeconomics (1998), p. 120.

End Notes

[65] GDP for professional services is excluded because it includes contributions to GDP of lawyers and is not exogenous to the number of lawyers in the state.

[66] We also included financial GDP (not per capita) in the regression and found that it is highly significant and explains a large part of the higher concentration of lawyers in New York. "Financial services" is a proxy for the amount of business activity within a state, and states with large economies have proportionally more lawyers per capita.

[67] Only verdicts pertaining to the following subjects were included: automobile and other vehicle liability, business and personal negligence, medical malpractice, premises liability, and product liability. We classified verdicts from the Settlement Summaries using information such as case type, state where a case was tried, alleged injury, factual information about the case, and verdict amount.

[68] The 100 largest verdicts are identified for each of the years 2002-2008 for a total of 700 verdicts across all 50 states, excluding Washington, DC. Even if the frequency of large verdicts was proportional to population in every state, states with small populations relative to the rest of the U.S. would not be expected to have one of the 100 largest verdicts in any given year. For this reason, we look at a seven-year period to measure the frequency of large verdicts relative to population more precisely.

[69] "State Court Caseload Statistics: An Analysis of 2008 State Court Caseloads," Court Statistics Project, 2010.

[70] Court Statistics Project of The National Center for State Courts "Understanding the Court Structure Charts": http://www.ncsconline.org/D_Research/Ct_Struct/.

[71] According to Black's Law Dictionary, courts of general jurisdiction are "having unlimited or nearly unlimited trial jurisdiction in both civil and criminal cases."

[72] Courts of limited jurisdictions are defined as those that hear only cases of a specific type, e.g., claims for less than $10,000 in damages.

[73] California, Delaware, Michigan, New Hampshire, Pennsylvania, and West Virginia are all identified as having incomplete data; Maine does not have data on the number of tort filings in one of its courts of general jurisdiction (the District court); and Delaware includes some contract and all real property cases in the reported number of tort cases. These seven states are excluded from the model.

[74] We include additional variables to indicate whether the civil lawsuit filings are identified as being over-inclusive or under-inclusive. We also include a variable to indicate whether the tort lawsuit filings include small claims.

[75] It also solves the problem that the individual components of the Tort Activity Index are highly correlated with each other, making each separate relationship difficult to estimate reliably.

[76] T-statistics in this model are estimated using a standard econometric procedure of clustering the standard errors of the regression to account for the expectation that the effect of the size of business and industry variables that differ for each observation may be correlated within each state.

[77] In this case, because there are multiple observations in each state, the high R-squared in part reflects that fact that most of the variation in liability insurance costs within each state is explained by the model.

[78] Medical malpractice liability costs and personal liability tort costs are estimated for individual states based on the level of health care GDP and population in each state respectively and the relative price of commercial liability insurance (after controlling for the size and industry mix of businesses in each state). These estimates are calibrated to match the Towers Watson national estimates for 2009 and are reported in Appendix B.

End Notes

[79] Twenty-six percent is the effect of the legal environment on tort costs measured for Louisiana reported in Appendix B. The state identified as having the highest tort costs attributable to the legal environment is Mississippi, with a value of 27%. However, we estimate that recent improvements in the legal environment would reduce the estimated tort costs attributable to the legal environment in Mississippi by seven percentage points. The effect of this recent improvement is reflected in the drop in the annual frequency of top 100 verdicts from 12 in 2002 to zero in each of the years from 2006 to 2008.

[80] See e.g. Viscusi, Kip et al. (1993), pp. 180-181.

[81] Id. at p. 179.

[82] Thorpe, Kenneth E., "The Medical Malpractice 'Crisis': Recent Trends and the Impact of State Tort Reforms," Health Affairs, 21 January 2004.

[83] Wasylenko, Michael J., "Taxation and economic development: the state of the economic literature," New England Economic Review, March 1997, pp. 37-52.

[84] Bartik, Timothy J., "Who Benefits from State and Local Economic Development Policy," W.E. Upjohn Institute for Employment Research, 1991, p. 43.

[85] Id. at p. 205.

[86] Wasylenko identifies six studies of aggregate employment effects of business and personal taxes, and three that measure the effects of business taxes only. We use the results of the larger group as a benchmark for the effect of changes in the legal environment on employment. Wasylenko also identifies 19 studies of the effect of business taxes on birth or location decisions of manufacturing operations, and three similar studies of the effect of business and personal taxes. Again, we use the results of the larger group as a benchmark for the effect of changes in the legal environment on employment. Studies of aggregate levels of investment and gross domestic product are also summarized by Wasylenko. We do not separately use the results of these categories of studies as benchmarks since their implications for employment are less direct.

[87] "Total State and Local Business Taxes: State-by-State Estimates for Fiscal Year 2010," Ernst & Young, July 2011. Available from http://www.ey.com/US/en/Services/Tax/State-and-Local-Tax.

[88] Twenty-six percent is the effect of the legal environment on tort costs measured for Louisiana reported in Appendix B. The state identified as having the highest tort costs attributable to the legal environment is Mississippi, with a value of 27%. However, we estimate that recent improvements in the legal environment would reduce the estimated tort costs attributable to the legal environment in Mississippi by seven percentage points. The effect of this recent improvement is reflected in the drop in the annual frequency of top 100 verdicts from 12 in 2002 to zero in each of the years from 2006 to 2008.

[89] If more than one state were to improve its legal environment, the effects on employment in each state would likely be smaller than the effects we estimate for individual states.

[90] Twenty-six percent is the effect of the legal environment on tort costs measured for Louisiana reported in Appendix B. The state identified as having the highest tort costs attributable to the legal environment is Mississippi, with a value of 27%. However, we estimate that recent improvements in the legal environment would reduce the estimated tort costs attributable to the legal environment in Mississippi by seven percentage points. The effect of this recent improvement is reflected in the drop in the annual frequency of top 100 verdicts from 12 in 2002 to zero in each of the years from 2006 to 2008.

Appendix A

Metrics of the Legal Environment

State	Harris Score[1]	Tort Activity Measures[2]: Tort Suits per 10,000 People[3]	Lawyer Concentration per 1,000 People[4]	Top 100 Verdicts per 10,000,000 People[5]	Tort Activity Index[6]
AK	56.6	11.9	(0.45)	14.3	-0.93
AL	45.5	25.6	0.75	36.1	2.01
AR	48.7	16.1	(0.18)	10.4	-0.66
AZ	65.0	16.8	(0.82)	18.2	-0.83
CA	47.2	16.0	(1.10)	22.5	-0.92
CO	65.8	9.9	0.92	13.9	0.24
CT	62.1	22.0	1.09	25.6	1.61
DE	77.2	17.6	(0.14)	22.6	0.08
FL	53.9	23.7	(0.28)	32.4	0.75
GA	60.9	14.6	0.13	9.2	-0.51
HI	56.4	10.4	(0.01)	7.7	-0.92
IA	69.4	25.5	(0.36)	0.0	-0.89
ID	63.9	6.0	0.06	12.9	-0.82
IL	47.9	19.9	0.47	41.8	1.75
IN	69.6	16.2	(0.56)	18.7	-0.59
KS	64.6	29.4	0.00	17.7	0.56
KY	54.4	11.8	0.40	25.5	0.44
LA	39.6	21.2	1.37	22.3	1.67
MA	65.6	12.0	1.52	16.7	1.06
MD	63.2	17.7	0.19	8.8	-0.31
ME	65.2	11.6	(0.72)	0.0	-1.93
MI	59.5	10.9	0.35	17.1	-0.09
MN	65.3	17.5	0.18	11.4	-0.20
MO	56.1	21.5	1.05	41.8	2.38
MS	40.0	14.0	0.51	54.2	2.12
MT	52.4	20.3	0.19	20.5	0.42
NC	64.0	9.2	(0.95)	7.5	-1.89
ND	71.1	21.0	(1.41)	0.0	-2.11
NE	69.7	15.3	(0.19)	0.0	-1.25
NH	64.2	11.1	(0.90)	0.0	-2.12
NJ	57.8	46.7	0.22	33.3	2.43
NM	53.9	20.8	0.29	24.9	0.76
NV	59.8	29.5	(0.03)	22.7	0.78
NY	62.5	29.2	0.93	48.1	2.98
OH	59.7	19.5	(0.44)	12.1	-0.64
OK	59.0	23.3	0.77	8.1	0.48
OR	63.0	16.0	0.18	5.2	-0.59
PA	56.6	13.0	(0.63)	27.8	-0.35
RI	55.2	28.2	0.27	28.5	1.30
SC	55.1	18.6	0.20	28.5	0.74

Metrics of the Legal Environment (cont.)

State	Harris Score[1]	Tort Activity Measures[2]: Tort Suits per 10,000 People[3]	Lawyer Concentration per 1,000 People[4]	Top 100 Verdicts per 10,000,000 People[5]	Tort Activity Index[6]
SD	65.6	33.0	(0.89)	0.0	-1.02
TN	63.7	17.8	(0.62)	9.5	-1.04
TX	56.3	10.5	(0.85)	28.6	-0.64
UT	67.8	9.1	0.39	3.6	-0.82
VA	68.1	12.6	(0.37)	10.1	-1.03
VT	61.6	11.4	0.11	0.0	-1.15
WA	61.6	14.8	0.21	18.0	0.03
WI	62.8	34.2	(0.71)	12.4	-0.15
WV	35.1	16.6	0.03	11.0	-0.41
WY	64.5	6.8	(0.16)	36.7	0.24

Notes and Sources:

1 Harris Interactive, "Harris State Liability Systems Ranking Study," conducted for U.S. Chamber Institute for Legal Reform, 2010.

2 Population data are from the U.S. Census Bureau (http://www.census.gov/popest/states/states.html).

3 Data on tort suit caseloads per state are from Court Statistics Project "State Court Caseload Statistics: An Analysis of 2008 State Court Caseloads," National Center for State Courts 2010. Tort suits per capita for states with known reporting issues are estimated in a regression model based on the number of civil lawsuits per capita in those states. These reporting issues encompass missing data, noted under- or over-reporting and the inclusion of small claims in the count of tort suits.

4 The concentration of lawyers in each state is derived from the number of lawyers admitted to the bar less the number expected based on the level of business activity in each state. The expected number is estimated using a regression model that explains variation in the number of lawyers per capita using state GDP statistics. This is a relative measure with an average value of zero across all states.

5 The 100 largest personal injury verdicts, nationally in each year (from 2002-2008), are counted by state, and expressed as a percent of state population. Verdicts are limited to cases involving automobile and other vehicle liability, business and personal negligence, medical malpractice, premises liability, and product liability. Data are from Westlaw Jury Verdict and Settlement Summaries database, LRP Publications.

6 The Tort Activity Index is constructed from the tort activity measures. States with high levels of tort activity have a large index value, and states with low levels of tort activity have small index values. The average index value across the states is zero.

Appendix B

Effects of Legal Environment on State Tort Costs and Business Activity

State	State Tort Costs: Commercial Tort Costs[1] ($1,000,000)	State Tort Costs: Medical Malpractice Tort Costs[2] ($1,000,000)	State Tort Costs: Personal Tort Costs[3] ($1,000,000)	State Tort Costs: Total Tort Costs ($1,000,000)	Effect of Legal Environment on Tort Costs[4]	Potential Tort Cost Reduction ($1,000,000)	Potential Increase in Employment[5]
AK	$353	$68	$196	$618	12.7%	$78	0.50% - 1.36%
AL	$1,594	$371	$1,536	$3,502	24.8%	$869	0.98% - 2.66%
AR	$963	$189	$757	$1,908	16.6%	$316	0.65% - 1.77%
AZ	$1,787	$502	$1,777	$4,065	9.5%	$386	0.38% - 1.02%
CA	$14,940	$3,860	$13,244	$32,043	16.4%	$5,267	0.65% - 1.76%
CO	$2,248	$470	$1,644	$4,362	12.4%	$539	0.49% - 1.32%
CT	$1,950	$606	$1,330	$3,887	17.7%	$688	0.70% - 1.90%
DE	$510	$144	$373	$1,027	7.1%	$73	0.28% - 0.76%
FL	$7,136	$1,837	$6,367	$15,340	18.5%	$2,833	0.73% - 1.98%
GA	$3,294	$744	$3,013	$7,051	12.2%	$858	0.48% - 1.30%
HI	$589	$149	$494	$1,232	12.8%	$157	0.50% - 1.37%
IA	$1,257	$229	$799	$2,286	7.4%	$170	0.29% - 0.80%
ID	$465	$122	$491	$1,079	10.0%	$108	0.40% - 1.07%
IL	$5,888	$1,103	$3,455	$10,446	23.3%	$2,435	0.92% - 2.50%
IN	$2,038	$753	$2,520	$5,311	8.3%	$440	0.33% - 0.89%
KS	$1,003	$226	$749	$1,978	13.8%	$272	0.54% - 1.47%
KY	$1,284	$285	$1,022	$2,591	17.4%	$451	0.69% - 1.86%
LA	$2,198	$372	$1,341	$3,912	26.0%	$1,018	1.03% - 2.79%
MA	$3,612	$948	$1,894	$6,454	14.8%	$955	0.58% - 1.58%
MD	$1,992	$585	$1,629	$4,206	11.8%	$496	0.47% - 1.26%
ME	$451	$217	$538	$1,205	6.0%	$73	0.24% - 0.64%
MI	$3,182	$977	$3,365	$7,524	13.9%	$1,049	0.55% - 1.49%
MN	$2,176	$694	$1,703	$4,573	11.3%	$516	0.45% - 1.21%
MO	$2,358	$554	$1,755	$4,667	22.0%	$1,027	0.87% - 2.35%
MS[6]	$965	$220	$1,034	$2,219	27.0%	$599	1.07% - 2.89%
MT	$428	$94	$293	$815	18.1%	$148	0.72% - 1.94%
NC	$2,671	$572	$2,088	$5,332	6.7%	$356	0.26% - 0.72%
ND	$294	$131	$344	$770	2.8%	$22	0.11% - 0.30%
NE	$746	$143	$435	$1,324	6.2%	$82	0.25% - 0.66%
NH	$510	$154	$397	$1,061	5.9%	$62	0.23% - 0.63%
NJ	$5,236	$1,075	$2,801	$9,112	21.5%	$1,960	0.85% - 2.30%
NM	$598	$257	$982	$1,837	18.5%	$340	0.73% - 1.98%
NV	$927	$150	$651	$1,728	16.3%	$282	0.64% - 1.74%
NY	$12,513	$2,205	$5,621	$20,339	21.2%	$4,320	0.84% - 2.27%
OH	$3,759	$1,233	$3,740	$8,732	12.3%	$1,070	0.48% - 1.31%
OK	$1,395	$243	$996	$2,634	15.8%	$415	0.62% - 1.69%
OR	$1,199	$343	$1,062	$2,604	11.0%	$288	0.44% - 1.18%
PA	$5,376	$1,865	$4,749	$11,991	14.3%	$1,719	0.57% - 1.53%
RI	$470	$183	$449	$1,102	19.5%	$214	0.77% - 2.08%
SC	$1,224	$223	$1,080	$2,527	18.0%	$455	0.71% - 1.93%

Effects of Legal Environment on State Tort Costs and Business Activity

	State Tort Costs						
State	Commercial Tort Costs[1] ($1,000,000)	Medical Malpractice Tort Costs[2] ($1,000,000)	Personal Tort Costs[3] ($1,000,000)	Total Tort Costs ($1,000,000)	Effect of Legal Environment on Tort Costs[4]	Potential Tort Cost Reduction ($1,000,000)	Potential Increase in Employment[5]
SD	$299	$81	$215	$595	8.7%	$52	0.34% - 0.93%
TN	$2,033	$581	$1,655	$4,269	9.4%	$402	0.37% - 1.01%
TX	$9,867	$1,787	$6,764	$18,418	13.6%	$2,509	0.54% - 1.46%
UT	$947	$157	$706	$1,810	8.3%	$151	0.33% - 0.89%
VA	$2,519	$746	$2,708	$5,973	7.6%	$453	0.30% - 0.81%
VT	$277	$62	$161	$499	9.9%	$50	0.39% - 1.06%
WA	$2,227	$585	$1,863	$4,675	13.4%	$628	0.53% - 1.44%
WI	$2,061	$646	$1,836	$4,542	12.4%	$565	0.49% - 1.33%
WV	$642	$180	$612	$1,434	22.3%	$320	0.88% - 2.39%
WY	$284	$32	$131	$447	12.9%	$58	0.51% - 1.38%

Notes and Sources:

[1] Commercial tort costs based on 2009 estimates from MarketStance using data from insurance companies' regulatory Schedule T filings.

[2] Medical Malpractice tort costs are estimated for individual states based on the relative price of commercial liability insurance (after controlling for the size and industry mix of businesses in each state) scaled by 2009 healthcare GDP.

[3] Personal liability tort costs are estimated for individual states based on the relative price of commercial liability insurance (after controlling for the size and industry mix of businesses in each state) scaled by 2009 population.

[4] The effect of the legal environment is based on an econometric model of the effect of the perception of the legal environment and the amount of tort activity in each state on the cost of commercial liability insurance. The percent impact represents the reduction in cost that could be realized if each state improved the perception and tort activity to match the state perceived to be the most fair and reasonable and the state with the lowest tort activity.

[5] The percent change in employment is computed using the median elasticity estimates from different groups of academic studies on the effect of taxes on business activity reported in Wasylenko, Michael J., "Taxation and economic development: the state of the economic literature," New England Economic Review, March 1997, p. 37-52. The tax elasticities are translated into elasticities with respect to tort costs to account for the fact that a percentage change in taxes represents a greater dollar amount than a percentage change in tort costs. Estimates are for individual states based on the assumption that the legal environments of the other states remain unchanged. These values cannot be added to produce reliable estimates for multiple states.

[6] In the case of Mississippi, the frequency of top 100 verdicts dropped from 12 in 2002 to zero in each of the years from 2006 to 2008. Incorporating this recent improvement into our estimates would reduce the estimated tort costs attributable to the legal environment in Mississippi by seven percentage points.

About NERA

NERA Economic Consulting (www.nera.com) is a global firm of experts dedicated to applying economic, finance, and quantitative principles to complex business and legal challenges. For half a century, NERA's economists have been creating strategies, studies, reports, expert testimony, and policy recommendations for government authorities and the world's leading law firms and corporations. We bring academic rigor, objectivity, and real world industry experience to bear on issues arising from competition, regulation, public policy, strategy, finance, and litigation.

NERA's clients value our ability to apply and communicate state-of-the-art approaches clearly and convincingly, our commitment to deliver unbiased findings, and our reputation for quality and independence. Our clients rely on the integrity and skills of our unparalleled team of economists and other experts backed by the resources and reliability of one of the world's largest economic consultancies. With its main office in New York City, NERA serves clients from more than 20 offices across North America, Europe, and Asia Pacific.

Contacts

For further information and questions, please contact:

Paul J. Hinton
Vice President
+1 212 345 5360
+44 20 7659 8576
paul.hinton@nera.com

David L. McKnight
Consultant
+1 212 345 3095
david.mcknight@nera.com

The opinions expressed herein do not necessarily represent the views of NERA Economic Consulting or any other NERA consultant. Please do not cite without explicit permission from the authors.

NERA
Economic Consulting

NERA Economic Consulting
1166 Avenue of the Americas
New York, New York 10036
Tel: +1 212 345 3000
Fax: +1 212 345 4650
www.nera.com