

# Assessing the Impact of Tort Reforms on Physician Supply Trends in Texas

By

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Applied Research Project

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## **ABSTRACT**

*Purpose.* The purpose of this study is to assess the trends in physician supply following the 2003 enactment of tort reforms in the state of Texas. *Methods.* The data used in this study are from the Texas Department of State Health Services. Interrupted time-series analysis evaluates the data for trends in regards to the number of physicians per 100,000 residents in the state of Texas as a whole and also the physician trends for the five most populated Texas counties. *Results.* The results show that tort reforms have not had an effect on physician supply in Texas. *Conclusions.* The promise of more physicians coming to Texas after tort reforms were enacted has not been met. There is a strong likelihood that the underserved areas of the state that were supposed to benefit from tort reform continue to face shortages of physicians in their respective area.

## **About the Author**

Jeremy Garrett is an entrepreneur with a strong passion about issues regarding the public interest. Jeremy's professional career began in the radio and television broadcasting industries, but he has been self-employed for the last decade. He founded Milestone Legal Media in 2004 after moving to San Marcos, Texas, from Houston. Milestone Legal Media specializes in legal video, and through this experience Jeremy has gained a deep insight into many of the legal issues that everyday Texans encounter in their day-to-day lives. Jeremy believes that a key component of effective public administration is educating the public on how changes in law or policy will impact the lives of citizens. In the future, Jeremy hopes to use his broadcasting experience and public administration education to improve the base of knowledge needed for all citizens to make informed, non-partisan decisions regarding the future of America. Jeremy lives in San Marcos, Texas, with his wife and son.

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## **Introduction**

Over the last half century, lawsuits have become the central catalyst for wrongly injured parties to receive restitution for injuries caused by the negligence of others. As the number of lawsuits filed has grown over time, critics of using the court system to redress these injuries have become more vocal and better organized in using public opinion to pressure lawmakers to slow or halt the practice. These critics of tort law, known as tort reformers, claim torts are clogging the court system with an overwhelming number of frivolous lawsuits that result in millions of dollars in wasted money and manpower for those defending the sued parties.

The tort reform battle has been fought across the U.S. on both the federal and state levels. Attempts have been made to address the tort reform issue by various states, but often times these reforms have been found to be a violation of the respective states' Constitutions. The state of Texas passed a comprehensive tort reform bill, known as House Bill 4 (HB4), during the 2003 legislative session. Debate over the bill was contentious. Following the bill becoming law, this issue was added to a special general election to amend the state Constitution and protect HB4 from legal challenge. Publicly, the debate was framed as a doctors versus attorneys issue. The final election results showed that the public overwhelmingly supported doctors. The state Constitution was amended and the possibility of HB4 being found unconstitutional was no longer an issue.

The 2014 election cycle is the first time since HB4 took effect that Texas will elect a new governor. The assumed Republican candidate is a supporter of tort reform, and has often spoken of HB4's positive effect on the Texas economy. However, he also used the tort system to receive a multimillion dollar payout after being injured in an accident while attending law school in the

1980s (Roth 2014). This contradiction between the candidate's words and his practices has again brought HB4's effects to the public's and media's attention.

While the governor's race has again raised the prominence of the tort reform debate into the news cycle, HB4's ten year anniversary marked a good time to assess the practical effects the bill has had on physician supply in Texas. HB4's reforms have had profound impacts on long-standing legal rights of U.S. citizens. For the citizens of Texas to willingly give up the right to a fair trial, the resulting effects of HB4 must strongly benefit the overall public interest.

### **Research Purpose**

It has been just over ten years since HB4 became permanent law in Texas. The supporters of the bill have made strong proclamations of HB4's positive effects on bringing physicians into the state of Texas to practice. These supporters proclaim that previously underserved areas of the state are now seeing the benefits of HB4 and more physicians are moving into these regions (Armedariz 2013, Nixon 2013). This research paper will look into these claims to discover if the results match the rhetoric.

In order to test these claims, existing data from the Texas Department of State Health Services (TDSHS) on physician supplies for the state of Texas overall and also for the five most populated Texas counties will be analyzed. The two questions this research paper attempts to answer is whether HB4 has had a significant impact on physician supply in the state of Texas and on physician supply in the five most populated counties in Texas.

This applied research project will use empirical research in the attempt to find conclusive evidence of HB4's impact on physician supply in Texas. The first chapter has been an introduction to the topic and explains the research purpose. The second chapter will take an in-

depth look at the history of tort reform, from both the national and Texas perspectives. Chapter two will also delve into the academic research over tort reform and some of the most common solutions proposed to curb torts. The chapter will conclude with the research purpose stated, the presentation of the conceptual framework, and the statement of hypotheses. Chapter three will explain the methodology of the study, along with information regarding data source and the research design employed. Chapter four discusses the findings of the data analysis. Chapter five concludes the research paper with a discussion of the findings, a look at the limitations of the study, suggestions for future research, and some final thoughts on this research topic.

## **Chapter 2- Literature Review**

### **Chapter Purpose**

This chapter reviews the ongoing debate over tort reform and the theories supporting or criticizing the efficacy of these reforms on physician supply in the state of Texas. A brief discussion is provided on the Texas political history of tort reform, the business and the medical industries' stance on tort reform within Texas, the battle over Texas House Bill 4 (HB4), and the current claims of HB4 supporters and critics ten years after the Constitutional amendment making it permanent law in the state of Texas.

The next section of this literature review takes a broad look at the tort reform battles and the scholarly literature supporting or criticizing various reforms that have been proposed or adopted by leaders in the tort reform movement. In order to help fully understand the tort reform issue a history of torts in the United States is discussed. Following this history, the literature review explores several dynamics of tort reform. The dynamics discussed are cap theory, both economic and non-economic; the practice of defensive medicine and its link to cap theory; the meaning of periodic payment of future damages, the use of collateral source payments; and finally a query into whether tort reforms are working as intended.

Finally, the literature review ends with the research purpose statement, the presentation of the conceptual framework, and the statement of hypotheses. This will lead into the methodology section that is Chapter Three.

## **Tort Reform in Texas from the 1970s Through Today**

Tort reform was a hot topic leading up to the 2003 Texas Legislative session. A solid Republican majority had swept into office the previous November and Governor Rick Perry was calling tort reform his number one priority for the session (Nixon 2013). Insurance premiums had been rising sharply across the state, and the American Medical Association (AMA) had once again mobilized its constituency to demand action from their state legislators (Hoffman 2009). Tort reform and the certainty that damage caps impose on monetary jury awards was much-desired by insurance companies, hospitals, and physicians across the state.

The state of Texas had previous experience in the tort reform battles. Texas was among the first states to call for reforms in the 1970s, commissioning a study headed by The University of Texas law professor Page Keeton to investigate the causes and remedies of the rising insurance premiums of the time (Nixon 2013). The study recommended Texas follow California's Medical Insurance Compensation Reform Act (MICRA) style reforms to reign in lawsuits and give certainty to the insurance industry (Keeton 1976).

Texas had previously adopted some reforms in the late 1970s, but these reforms were soon found unconstitutional by the Texas Supreme Court (Nixon 2013). The overturning of the reforms cooled the tort reform movement in Texas for more than a decade. However, as the year 2000 was coming to an end, rising insurance rates again brought the topic to the public's and legislature's attention.

The legislative fight was bitter, with days of hearings and testimony from experts in many different fields (Capitol Research Services 2005). After weeks of debate, House Bill 4 was passed and signed into law during the 2003 Texas Legislative Session.

HB4 combines several of the most popular approaches to tort reform. The reforms adopted by HB4 are as follows:

- A \$250,000 hard cap on non-economic damages.
- Limits on attorney contingency fees
- Allow periodic payment of future damages
- Allow evidence of collateral source payments
- Lawsuit immunity for charity and indigent health care providers

The proponents of tort reform were not going to allow the Supreme Court to jeopardize their legislative victory. Even with a solid Republican bench, the possibility of HB4 being overturned as unconstitutional was too big a risk. Seizing the momentum of their legislative victory, tort reform proponents pushed to get a non-economic damages cap put on the general election ballot to permanently amend the state constitution. All that was needed was a simple majority of voters to endorse the constitutional amendment, and the tort reforms would be unassailable in Texas. The turnout for the election was low, but the constitutional amendment passed with a solid majority (Lucy Burns Institute 2013). The tort reforms were now a permanent fixture in the Texas judicial system.

The geographic vastness of Texas makes it a unique case study in applying one solution to a problem as dynamic as tort reform. Being the second largest state, Texas comprises 268, 820 square miles (696, 241 sq. kms.). The state's booming population boasts six cities in the top twenty most populous American cities (info.com 2014). Yet a large majority of the state's territory is rural and sparsely populated, meaning that much of the state population is clustered among the largest metropolitan areas. The diversity of the state's terrain, ecology, wildlife, and

inhabitants can be quite broad from one region of the state to the other regions. As such, there is also a strong likelihood that reasons vary for certain regions of the state to lack the adequate physician supplies needed to treat all Texas residents.

It is likely the regional costs of medical malpractice insurance are a factor in where a physician chooses to practice medicine. However, it is also very likely there are other factors at play in such a decision. Several obvious factors such as personal preference of rural versus urban living, the quality of medical facilities in an area, competition from other doctors in an area, the availability of quality public education, or the pay scale in certain regions likely play a role in where a physician may pick to practice medicine. Also, there is no denying that urban settings present more opportunities for advancement than most rural settings, especially the most isolated rural areas of far north, east, and west Texas.

The five most populated counties in Texas have numerous things in common that could be considered strong draws for potential residents of an area. The five most populated counties of Harris, Bexar, Dallas, Tarrant, and El Paso have international airports, strong economies, a collection of the best hospitals in the state, large populations of people to supply the workforce needed to drive strong economies, world class universities, and the security of the currently booming Eagle Ford shale that is creating jobs and feeding the overall statewide economy. These counties have long histories of being the regional hubs of energy, commerce, international trade, and transportation (Col 2001; The U.S. 50 2014). These five counties were able to weather the recession of 2009, and the industries that call these cities home are part of the reason Texas outperformed the rest of the nation in holding down unemployment and holding up property values (Texas Comptroller of Public Accounts 2013). The statewide averages of low unemployment rates and strong property values are major components of the “Texas Miracle”

rhetoric being bandied about by many state legislators (Federal Reserve of St. Louis 2014; Nixon 2013).

However, as many similarities as these five counties share, there are differences between each of them. All five of these counties, except Dallas and Tarrant Counties, are separated from each other by hundreds of miles. Each of these counties, along with the metropolis that sits inside of the county lines, has a long relationship with a few cornerstone industries that help differentiate each region from its fellow sister counties. The differences between the counties are what make each a unique location with different factors that must be weighed by all potential newcomers.

It has been ten years since HB4 became the ‘law of the land’ in Texas. For the first time since HB4’s tort reforms, there will be an election to name a new governor. As such, this issue has again come up in headlines across the state (Root 2013). Critics of tort reform contend that it is time to repeal some of the reforms due to the unfulfilled promises of consumer savings and more access to doctors (Potter 2011). Supporters claim that the tort reforms have protected Texas doctors and businesses from frivolous lawsuits and have played a huge part in the “Texas Miracle” that has driven a strong Texas economy despite the nationwide recession of the last several years (Armendariz 2013; Nixon 2013; Office of the Governor 2013).

Political rhetoric aside, the issue of tort reform has deep-reaching impacts on all Texas citizens. The availability of physicians is of the utmost importance to citizens of the state. However, an open court system and the ability to get fair compensation for injuries caused by another’s negligence has long been ingrained in the American judicial system. This applied

research project will attempt to provide some useful information to the current tort reform debates, without the bias and emotions that too often work to cloud the tort reform issue.

The next section of this applied research project will discuss the broader contexts of tort reform. This will include a short history of torts in the United States judicial system, a discussion over several of the most commonly used tactics to rein in frivolous lawsuits within the tort system, and the effects of these tactics on those who have been most impacted, both positively and negatively, by state legislated tort reforms.

### **A Brief History of Torts and Tort Reform in America**

Calls for tort reform first began cropping up in the 1970s (Koenig and Rustad 2001). This is the time of the first of three insurance “crises” to hit the U.S. market, leading to sudden and drastic increases in premiums across many market segments. All three crises follow a similar pattern of sudden and sharp rises in malpractice insurance costs coupled with insurance companies refusing to provide coverage for doctors in certain “high risk” states (Baker 2005). Cause and effect principles apply, and the high costs or unavailability of malpractice insurance then lead some doctors to leave certain regions or to close their practices entirely. This all ultimately leads to a dearth of quality physicians in the affected regions or states.

Following the 1970s crisis, subsequent crises arose again in the 1980s and early 2000s (Thorpe 2004). In the two years leading up to 2003, medical malpractice liability insurance premiums sharply increased for medical doctors (Zeiler, et al. 2007). These increases again led many in the medical, business, and political communities to call for reforms to the tort system. Tort reform is a passion for those on the frontlines of the fight, and bias and emotion can cloud the judgment of the decision-makers attempting to find workable solutions to the problem. While

many scholars were able to take a measured look at the issue and believed the premium increases were due to insurance business practices and the appropriate and necessary market corrections, politicians and private industry saw an out-of-balance tort system as the trigger causing the higher costs (Baker 2005; Boumil and Hattis 2011).

Tort is a term that is often heard, but not always understood, by those outside of the court system. A tort is “an injury to someone’s person, reputation, or feelings or damage to real property” (Garner 1999, 1496-1497). Indeed, tort law has a long history in the justice system, and has been used to compensate injured parties since the 1930s (White 2003). Tort law was traditionally used to cover injury accidents between strangers, or parties with no previous relationship (Hellen and Tabarrok 2006; Koenig and Rustad 2001). Under this traditional standard, the courts’ job “was to find whether the defendant was at fault and decide on the compensation scheme the parties *would have* agreed to if anonymity had not made that impossible” (Hellen and Tabarrok 2006, 8). In other words, what would both sides have possibly agreed to as fair compensation before the injury occurred had the danger been known and acknowledged?

This standard, known as the negligence standard, was used prior to the 1960s. The negligence standard looked for one answer: Did the defendant exercise a reasonable care under the circumstances? Most medical malpractice tort cases still use the negligence standard (Hellen and Taborrak 2006).

Negligence is broadly defined as “the failure to observe, for the protection of the interest of another, that degree of care, precaution and vigilance which the circumstances demand” (Paul 1915, 157). In Texas, for an attorney to successfully prove negligence they must show willful

harm due to disregarding risk or a “conscious indifference to the rights, safety, or welfare of others” (Texas Legislative Council 2014). The strict Texas definition of negligence requires proving an actor blatantly disregarded or has a conscious indifference to risk, making medical malpractice lawsuits a potentially expensive gamble for an attorney to pursue in the state.

The tort system in the United States expanded in the 1960s, and that expansion increased significantly in the 1970s and 1980s. This expansion of tort law has its roots planted in the 1960s and 1970s, when tort law “began to move from a negligence standard to a strict liability standard as a means of increasing compensation for the injured” (Priest 1991, 36). Under the strict liability standard, “defendants are held responsible for any product related injuries caused by a product defect, regardless of negligence” (Hellen and Tabarrak 2006, 9). Moving toward a strict liability standard and away from the negligence standard has brought more injuries into the tort system (Viscusi, et al. 1993).

As the use of tort law to redress negligence and wrongdoing has led to the expansion of lawsuits, large monetary awards have become much more commonplace in the judicial system. This rise in dollar amounts awarded by juries has been matched with a rise in critics of the system. These critics cite large jury awards that have been based more on emotions and bias than hard facts. These critics believe tort reforms are necessary to keep the defendants’ costs down and juries focused not on the emotions brought about by the injured plaintiffs, but on the facts of a case (Hellen and Tabarrak 2006). Too often, the tort reformers contend, the jury wrongly punishes a faceless company or a wealthy individual because of perception bias.

The proponents of tort reform were keenly aware of the public’s bias against large companies and wealthy individuals. The reform movement needed a public-friendly accomplice

to help its cause, and few American professions are held in higher esteem than physicians. The American Medical Association (AMA) and its members from the medical profession have become the public face of the tort reform movement. Over the last several decades, the tort reform movement has used its relationship with the AMA to publicly frame the issue of tort reform into a doctors versus trial lawyers narrative (Koenig and Rustad 2001).

Medical malpractice suits have been referred to as “the tabloid celebrity of health policy” (Hyman and Sage 2011, 5). The public views the medical profession as being unfairly targeted by trial lawyers looking for big payouts, and it is not difficult to find headlines across the nation trumpeting the negative effects of frivolous lawsuits driving doctors out of the health care industry due to the undue burdens of unaffordable insurance premiums (CNN 2011; FoxNews 2011; Koenig and Rustad 2001). This public perception, whether accurate or not, results in “virtually all of the medical malpractice reforms enacted and proposed over the past 30 or more years hav[ing] been designed to reduce the scope of liability or damages payable for medical malpractice, and thereby to reduce medical malpractice liability insurance premiums” (Abraham 2008, 105). The legislated reforms such as damages caps, periodic payment of future damages, and collateral source payments, have been shown to work in regards to keeping insurance premium costs down, but it is debatable whether these efforts have resulted in lower costs to consumers or better care for patients (Thorpe 2004).

As previously mentioned, the U.S. has been hit with three insurance crises since the 1970s. The medical profession, politicians, and the public at-large place most of the blame for these crises squarely on the shoulders of trial lawyers (Nixon 2013; Office of the Governor 2013).

The accuracy of those claims have been questioned, with academics pointing out that “medical malpractice insurance premiums are cyclical, and that it is not frivolous litigation or runaway juries that drive that cycle. The sharp spikes in malpractice premiums in the 1970s, 1980s and the early 2000s are the result of financial trends and competitive behavior in the insurance industry, not sudden changes in the litigation environment” (Baker 2005, 3). Like all free-market industries, the insurance industry is susceptible to boom and bust cycles. These cycles have created the three medical malpractice insurance crises that have driven up costs to customers (Abraham 2006; Baker 2005). By looking at the historical trends of the insurance industry and the overall economy since the 1970s, there are many credible indicators it is the free-market system and its cycle of market corrections that have driven up the costs of insurance premiums (Abraham 2006). Scholars and trial lawyers proclaim it is the insurance industry’s practice of keeping irrationally low insurance premiums too long before making the necessary market corrections (Baker 2005). These “tort supporters” believe these market corrections and its boom-and-bust cycle lead to the higher physicians’ costs; not lawyers, judges or juries rewarding frivolous lawsuits (Baker 2005; Thorpe 2004).

This boom-and-bust cycle infuriates doctors who, despite the historical precedents, are caught mostly unprepared for the drastic premium price increases. Most private medical practices do not have the cash reserves on-hand to offset the rise in premiums. After years of nominal premium growth, a sharp increase in premiums can quickly make an annual operations budget obsolete. For most physicians, any money shortfalls in business operations are covered from their salaries or their private accounts. In addition, health insurance companies are often slow to consider the rising costs of premiums and the premiums’ trickle down impact on overall health care provider costs (Willingham 2014). This disconnect between the health insurance

companies and the increase in costs results “in a lag between increase[d] costs and [a] higher rate of pay” (Abraham 2006, 122). When the premiums unexpectedly rise and the physicians are forced to cover the extra costs, the inflationary hit to the profession causes most to look for a scapegoat to blame. The doctors, the AMA, and their allies blame the tort system, demanding reforms (Abraham 2006).

Those in the tort liability industry, specifically trial lawyers, have also defended their industry, claiming the system works and that “the intent of tort law is to provide incentives for providers to deliver optimally efficient care” (Morrisey 2008, 2126). These legal practitioners argue that the formal rules of tort law, especially medical malpractice liability, are “strongly pro-defendant” (Abraham 2008, 105). These critics of tort reform point out “the evidence is clear that relatively few injured patients demand compensation” and that claims of high numbers of frivolous lawsuits are simply untrue (Hyman and Sage 2011, 11).

Because tort law is based primarily on common law, meaning trial judges develop judicial rules on a case-by-case basis, legislation before the 1970s that affected tort law was rare (CBO 2004; White 2003). As the wheels of justice turned throughout the history of the U.S. judicial system, tort evolved to the point of being “not only a part of our system of social welfare, it is also a part of the extensive system of health and safety regulation that emerged in the U.S. at the same time as our social welfare system” (Abraham 2008, 3). The interconnectedness of tort law with workers’ safety, health care reform, environmental regulations, consumer protections, etc., have, over the last four decades, led the topic of tort reform to become a political hot potato. Unfortunately, politicized issues often become too divisive for bipartisan solutions and thus suffer the effects of more rhetorical solutions than the practical solutions that result in meaningful and beneficial changes.

The participants in the tort reform battles of the last forty years have proposed many solutions to correct or protect the tort liability system. The next section of this literature review is an in-depth analysis of the most common legislative approaches to tort reform.

### **Legislated Reforms from the 1970s Until Today**

The following is an in-depth look at the more common tort reforms introduced by state legislatures since the initial insurance crisis of the 1970s. Many of these reforms have gone through numerous attempts at being passed into law, often passing through the legislative process only to be found unconstitutional by their respective state courts (Boumil and Hattis 2008). Despite these court room setbacks, supporters of tort reform have continued their fight to limit the number of lawsuits filed and the associated costs of defending a lawsuit in the statehouse, public opinion and court room battlefields.

### **Damages Caps**

The most common tort reform, and most contentious, is the application of damages awards caps in a malpractice lawsuit (Budetti and Waters 2005; Nixon 2013). There are two types of caps that serve to restrain the amount of awards: Non-economic damages caps and punitive damages caps. Damages caps are commonly used by state legislatures. Damages caps have been particularly effective at negating many of the pain-and-suffering influenced verdicts that commonly result in the largest monetary awards. The damages caps have strongly influenced punitive damages and non-economic damages awards, which have the highest incidence of large payouts. The large payouts are often based on juries' subjective feelings and not the hard, objective facts that economic damages awards are based (Helland and Tabarrok 2006; Moller, et

al.1997). Legislated damages caps provide a hard-line that limits damages awards to a set sum of money.

Punitive damages are based on defendants' willful acts of wrongdoing or malice. The intent is to punish the defendant in an attempt to deter the bad behavior in the future (White 2003). Punitive damages are often assessed in product liability and financial wrongdoing cases, but rarely in medical malpractice lawsuits (Gaughan 2000). The negligence standard that applies in medical malpractice cases does not often warrant the award of punitive damages.

However, the cap on non-economic damages does apply to medical malpractice lawsuits. By capping these damages, legislators hope to achieve several theoretical objectives. These objectives and the interconnectedness of competing interests will be highlighted below.

### **Non-Economics Cap Theory**

Theory behind the effectiveness of a non-economic damages cap is multi-layered. Advocates of non-economic caps theorize that by "limiting the expected size of malpractice damages recoverable, legislatures hope to reduce directly the impact of large awards on insurance costs as well as to inhibit the filing of marginally meritorious claims" (Weiler 1991, 31). These limits provide "certainty" to the insurance industry. The certainty allows more accurate predictions of market activity and acts as a stabilizing force for insurance premium costs (Hyman, et al. 2009). As time passes, the projected savings from fewer lawsuits and smaller payouts should result in lower insurance premiums to doctors and hospitals, leading to higher incomes for area doctors and, ultimately, lowering costs to consumers (CBO 2004). Finally, as net income increases for an area's physicians, additional doctors are drawn to the market, increasing the number of physicians (Baicker and Chandra 2005; Matsa 2007).

## **Defensive Medicine and Its Relationship With Cap Theory**

A huge tangential benefit of the savings and security that the lower premiums and capped damages bring is a reduction in defensive medicine. Defensive medicine is the hypothetical term given for the overtreatment of care done by doctors in an attempt to ward off potential medical malpractice lawsuits (Morrissey, et al. 2008). Sending patients for excessive tests in an attempt to ward off potential future liability is an example of defensive medicine (Kachalia and Mello 2011). These unnecessary tests are a costly burden to our overall healthcare system, and a reduction in the practice of defensive medicine would greatly benefit the public interest by reducing the overall costs of healthcare that all in society bear (Hyman and Sage 2011; CBO 2009).

The existence of defensive medicine is debatable, but there seems to be a consensus among experts that physicians do practice defensive medicine (Baker 2005). Defensive medicine is a regrettable consequence of tort law. After all, the intent of medical malpractice tort law is to “provide incentives for providers to deliver optimally efficient care” (Morrissey, et al. 2008, 2126). Defensive medicine is an unfortunate side effect created along the way in the process of finding the most efficient way of delivering healthcare.

While the costs associated with defensive medicine are high, it is worth noting that the practice of defensive medicine also has its benefits. American Medical Association surveys show that physicians “maintain more detailed patient records, [spend] more time with patients, [and refer] more cases to specialists for consultation” in an attempt to cut out errors and misdiagnoses (Baker 2005, 121). These types of actions by doctors show proof that torts are working as an intended deterrence to physician error.

In the future, perhaps a more efficient system will be available to encourage thorough diagnoses by physicians and fewer medical accidents without the use of defensive medicine. Until that time, “a well-functioning liability system should encourage...[institutional] investments result[ing] in fewer adverse events and higher-quality care” (Kachalia and Mello 2011, 1565). The current tort system is an imperfect solution to these “adverse events” and the driving force behind many health care improvements. The current liability based system means defensive medicine may be a necessary evil until a more efficient way is realized.

### **Caps on Non-Economic Damages**

Of all the reforms proposed by the various state legislatures, caps on non-economic damages have been the most popular, and divisive, approach to lowering costs and the number of lawsuits (Weiler 1991; Abraham 2008; Budetti and Waters 2005). The caps are “intended to reduce the number of very large awards and the high degree of variation in ‘pain and suffering’ awards,” thus enabling insurance providers to better predict liabilities and set premium prices (Kachalia and Mello 2011). The proponents of non-economic caps view caps as “a silver bullet, simultaneously targeting frivolous lawsuits, excessive damage awards, run away juries, and high medical malpractice premiums” (Hyman, et al. 2009, 356). These tort reform supporters contend that caps give the insurance industry “certainty,” with the predictability provided “help[ing] to stabilize insurance markets and malpractice premiums” (Hyman, et al. 2009, 402).

Beginning with California’s Medical Injury Compensation Reform Act (MICRA) passage in 1975, tort reform advocates have attempted to cap non-economic damages at a set level (Pace, et al. 2004). California’s cap is set at \$250,000 for non-economic damages, with no change adjustment for inflation. Many states have the same cap. However, non-economic caps

vary from state-to-state, with differences and similarities fluctuating from one state to another (CBO 2004; Boumil and Hattis 2011). There are currently 30 states that have some version of a non-economic damages cap (American Tort Reform Association 2013).

Large jury awards in medical malpractice claims are often based on pain-and-suffering. A non-economic damages cap effectively negates pain-and-suffering awards over a certain legislated monetary limit. These pain and suffering damages are often a large percentage of the overall award, and deal with emotional topics as opposed to the hard facts of which the courts and juries are supposed to focus when deciding cases (Abraham 2008; Helland and Tabarrak 2006; Pace, et al. 2004). Pain and suffering awards can be highly subjective, and adding parameters to how much compensation can be awarded to a victim of disfigurement or chronic pain does instill some order across an often wide array of political and geographic regions that fall under the same state laws.

In the legal sense, pain and suffering deals with a person or spouse's loss of consortium, plus the "conscious pain, suffering and mental distress of the injured patient" in day-to-day life (Boumil and Hattis 2011, 164). Juries tasked with placing value on a plaintiff's quality of life consistently award large payouts based on emotional testimony that departs from facts and hard numbers, and instead give monetary value to intangible assets that have been lost due to alleged misconducts of the defendant (Budetti and Waters 2005). Empirical research strongly show that caps reduce jury awards by significant amounts in regards to non-economic damages (Browne and Puelz 1999; Pace, et al. 2004). For the states that do not adjust for inflation the cap becomes prohibitively more binding for the injured, and the savings more beneficial to defendants, as time passes and the cost of living increases (Weiler 1991).

The inflationary effects on capped jury awards are evident when looking at the state of California's tort reform measures. In 1975, California's legislature passed MICRA, the country's first non-economic damages cap. MICRA set a hard cap of \$250,000 for non-economic damages, with no mandate to ever adjust for inflation. At the time the bill took effect, MICRA blocked 35 percent of California's non-economic damages and 8-percent of the total payouts. The total payouts are the sum of economic, non-economic, and punitive damages by which a jury bases award compensation. In 2003 the non-inflation adjusted MICRA cap was responsible for blocking 79-percent of non-econ damages and 29-percent of payouts (Hyman, et al. 2009, 5). Had MICRA's cap been periodically adjusted for inflation, the \$250,000 cap would have been valued at \$970,000 in 2007 (Hyman, et al. 2009). To look at the caps effects in the opposite way, \$250,000 in 2007 was worth roughly \$66,741 in 1975 dollars. For those injured and in need of long-term care, the lost dollars are likely a significant impediment to getting the care that is necessary to improving lives.

Hard caps have been shown to more deeply impact those groups most in need. Findings show non-econ caps have "a disparate impact across plaintiff demographic groups, with larger percentage reductions borne by deceased, unemployed, and (likely) elderly patients, relative to non-deceased, employed, and non-elderly patients" (Hyman, et al. 2009, 358; Pace, et al. 2004). These marginalized groups, along with women, often have a large non-economic component to their awards due to being less likely to be employed than men of working age. With no wages to base lost income, and a cap on non-economic damages, these groups lose a greater percentage of a jury's total payout (Finley 2004; Hyman, et al. 2009).

The biggest benefit of tort reform has been on the costs of medical malpractice insurance premiums for physicians and hospitals. This has been a long-term goal of tort reform proponents.

Historically, legislatures' goals for "liability reform [have] largely been aimed at reducing insurance costs for health care providers" (Kachalia and Mello 2011, 1654). While the initial results of caps appeared disappointing, "there is growing empirical evidence that malpractice damage caps have resulted in lower malpractice insurance premiums" that has resulted in savings to doctors (Morrisey, et al. 2008, 2127).

Whether these savings can hold in the long-term is questionable. The problem is that "malpractice insurance companies have to project medical malpractice litigation *and* the investment market for five years or more," and it is hard to accurately project that far into the future (Baker 2005, 48; Silver 2012). The previous three crises have shown that there is generally a little more than a decade between crises. Until enough time passes it is impossible to truly know whether tort reforms have stabilized the medical malpractice industry against steep premium increases. It is quite possible the insurance market is stable and the savings are permanent, or perhaps this is another "soft market" cycle waiting for another round of "hard market" adjustments to bring more stringent policy terms, hard to obtain coverage and sharp premium price spikes to the medical profession (Abraham 2008; Hyman and Sage 2011).

These insurance premium savings that legislated tort reforms have brought about, whether permanent or not, have been good for the medical industry. However, what about the benefits to consumers and taxpayers? Medical malpractice insurance premiums account for under one-percent of total healthcare costs (Abraham 2008). The savings and benefits to the public interest should be much larger as "[l]iability risks and costs are often cited as drivers of higher health care spending, poorer access to care, and lower quality of care" (Kachalia and Mello 2011, 1564). However, researchers show a mixed-bag of results in regards to benefits to consumers and taxpayers.

Damages caps theoretically provide three benefits: lower premium prices for physicians; health-care savings to consumers; and more doctors and specialists to formerly neglected regions. It is known that physicians have seen lower premium prices since the latest round of reforms (Texas Medical Association 2014). However, tort reforms' ability to give savings to consumers and an increase in the number of physicians is not quite as clear-cut. Increases in the supply of physicians has been shown to be positively correlated to lower malpractice premiums (Baicker and Chandra 2004; Hofmann 2009). However, other than rural physicians and those in high-risk specialties, there is little evidence that “changes in the physician workforce in response to reduced malpractice liability is... a mechanism through which state-level tort reform is likely to affect the practice of medicine” (Baicker and Chandra 2004, 24).

### **Periodic Payment of Future Damages**

Defendants that are found to be negligent usually have to pay one large lump sum at the end of the legal proceedings (Weiler 1991; Thorpe 2004). Included in these damage awards are compensation for future pain and suffering, lost income, future medical expenses, and other future losses (Budetti and Waters, 2005). Critics of this lump-sum practice decry the unfairness of forcing a defendant to pay all the expenses at once, and point out that some future damages never materialize in the plaintiff. The very real possibility that someone dies earlier than expected, leaving the subsequent loss-years payments to become a “windfall” for the heirs, raises fair legal questions over the intentions of compensatory damages awarded in medical malpractice trials. As such, some states now allow for periodic future payments of damages (Budetti and Water 2005; CBO 2004; Weiler 1991). By allowing for future payments, a court can reassess the situation of the plaintiff and alter the payments as necessary (CBO 2004).

The periodic payment of future damages does not benefit only the defendants. The economic costs of future medical expenses and lost wages “appear to be rising slightly faster than overall indemnity payments,” and these higher costs have the potential to be catastrophic to a wrongfully injured person (Thorpe 2004, W4-23). These rising costs can disrupt or even eliminate the ability to get the rehabilitative care needed to get on with a normal life. The reassessment of any periodic payments works as a peg to any inflationary or market changes, and holds the value of any awards at a fair market level.

In addition to a fairer rate of awards distribution, research also show reforms that require periodic payments of awards are “associated with a decreased probability to file” by plaintiffs (Browne and Puelz 1999, 191). This decrease in litigation is likely due to plaintiffs’ preferences for lump sum settlements over periodic payments. Fewer lawsuits are among the goals of most legislatures’ attempts at tort reform, and it appears that the periodic payment of future damages achieves that particular goal.

### **Collateral Source Payments**

Critics of the large monetary awards in medical malpractice cases also point out that many plaintiffs receive compensation for medical bills and injuries from outside sources such as private health insurance or worker’s compensation. These outside sources, known as “collateral sources,” are often left unknown to the juries making the decisions on damage award amounts, and tort reform supporters believe the omission of that information drives up the dollar amounts to more than is fair to either side of a lawsuit (Budetti and Water 2005). By not allowing the disclosure of collateral source payments, some plaintiffs are getting a double benefit of being paid twice for the same injury.

There is evidence that collateral source payments result in large savings for physicians. Offsetting the damage awards by deducting collateral source payments has been shown to help hold back rising insurance premiums by fifteen to twenty percent (Weiler 1991).

For the wrongfully injured, collateral source offset is seen as much fairer to the innocent victims than hard caps (Weiler 1991). The collateral sources provide secure compensation for the particular losses suffered, ensuring a baseline amount available for the treatment and rehabilitation of injuries. Hard caps are a set amount that does not necessarily guarantee enough compensation for complete treatment and rehabilitation.

There are two tactics that legislatures use in regards to collateral source payments. A few states automatically deduct the collateral source payments from the damage awards. Other states do not deduct the payments, but do allow juries to see evidence of collateral source payments before deciding award amounts (Browne and Puelz 1999; Budetti and Waters 2005; CBO 2004; Thorpe 2004; Weiler 1991).

### **Are Tort Reforms Working As Intended?**

The effectiveness of tort reforms depends on which side of the debate you ask. Tort reform supporters among the medical industry, legislators, and the insurance industry see the reforms as a win-win for all sides. Insurance premiums are lower, medical malpractice lawsuits are down, and there is certainty and stability for doctors in regards to business costs.

Critics of HB4 question its benefits, pointing out that Texas families saw the average costs of healthcare premiums increase by fifty-one percent between 2003 and 2010. At the same time, these critics claim the increase in doctors has not kept up with the population growth in the state and that the practice of defensive medicine is still prevalent (Egerton 2010). These issues of

higher prices to consumers and fewer doctors to serve a burgeoning population lead tort reform opponents to ask if the public's "accept[ance of] restrictions in their legal rights" is a fair trade-off for what they receive in return (Morrissey 2008, 2125; Thorpe 2004).

The following section introduces the research purpose, states the hypotheses, and presents the conceptual framework. A chapter summary will follow.

### **Research Purpose**

The purpose of this research is to evaluate the effect of tort reform on the number of doctors in the state of Texas. One of the intended purposes of HB4's non-economic damages cap was to stem the tide of licensed physicians leaving the state or leaving their practices because of high medical malpractice insurance premiums. In theory, physician supply is directly influenced by medical malpractice insurance premiums. As the insurance costs and liability risks rise among doctors, "social inefficiencies ... cause competent physicians to stop practicing medicine, reduce their scope of practice, or avoid high-risk locations or patient groups" (Kachalia and Mello 2011, 1565). This study will attempt to evaluate HB4's effect on physician supply following HB4's enactment in 2003.

### **Conceptual Framework<sup>1</sup>**

This research is explanatory. Social and policy sciences rely on explanatory research and formal hypothesis as fundamental pillars of inquiry and discovery (Shields and Tajalli 2006). The use of formal hypothesis provides the organizing engine needed to propel explanatory research (Shields and Tajalli 2006).

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<sup>1</sup> For more information on the application of conceptual frameworks in empirical research see Shields, 1998 and Shields and Rangarajan, 2013.

Passage of Texas’s HB4 has led to insurance premiums stabilizing, and medical malpractice insurance premiums have come down in cost (Viscusi and Born, 2005). As such, it is hypothesized there is a positive relationship between HB4 becoming law in 2003 and the number of licensed physicians in the state of Texas. Table 2.1 illustrates the hypotheses and includes the sources utilized to defend each hypothesis. Each hypothesis is summarized and linked to the corresponding literature in their respective Tables below.

**Table 2.1-Hypothesis and Supporting Literature**

<b>Hypothesis</b>	<b>Supporting Literature</b>
<p>H<sub>1</sub>. Implementation of Texas HB4 has significantly increased the number of licensed physicians in Texas.</p> <p>H<sub>2</sub>. Implementation of Texas HB4 has significantly increased the number of licensed physicians in the five most populated Texas counties.</p>	<p>(Abraham 2008) (Armendariz 2013) (Baicker and Chandra 2005) (Baker 2005) (Boumil and Hattis 2008) (Browne and Puelz 1999) (Budetti and Waters 2005) (CBO 2004) (CBO 2009) (Finley 2004) (Gaughan 2000) (Helland and Tabarrok 2006) (Hoffman 2009) (Hyman, et al. 2009) (Hyman and Sage 2011) (Kachalia and Mello 2011) (Keeton 1976) (Koenig and Rustad 2001) (Matsa 2007) (Nixon 2013) (Pace, et al. 2004) (Priest 1991) (Viscusi and Born 2005) (Viscusi, et al. 1993) (Weiler 1991) (Zeiler, et al. 2007)</p>

## **Chapter Summary**

This chapter presented a broad overview of the tort reform debate. It began with the situation in Texas, where a decades-long fight eventually culminated in House Bill 4 becoming law during the 2003 legislative session. It then examined the national tort reform debates, taking an in-depth look at the most commonly legislated tort reforms along with a review of the academic literature on the subject of tort reform.

Finally, the chapter described the conceptual framework used in advancing this study. The use of exploratory research to frame the two research hypotheses and link these hypotheses to the supporting literature has been presented. The two research hypotheses have been proposed to properly evaluate the effects of House Bill 4 and the legislated goal of increasing physician supply to the citizens of Texas.

## **Chapter 3: Methodology**

### **Chapter Purpose**

The purpose of this chapter is to describe the methods used to evaluate HB4's impact on physician supply across the state of Texas. The operationalization of the conceptual framework, a discussion of data collection methods, an explanation of this study's research design, and the human subjects data restrictions will make up the content of this chapter.

This explanatory research paper uses archival data analysis to test two hypotheses. Existing data available from the Texas Department of State Health Services (TDSHS) was used in this evaluation. The data can be found on the TDSHS website.

The research hypotheses state that the passage of HB4 will have a positive impact on the number of licensed physicians in the state of Texas. In order to test the hypotheses, the trends in respect to this issue will be identified and compared.

H<sub>1</sub>: Implementation of Texas HB4 has significantly increased the number of licensed physicians in Texas.

H<sub>2</sub>: Implementation of Texas HB4 has significantly increased the number of licensed physicians in the five most populated Texas counties.

The dependent variables in this study are, respectively, the number of licensed physicians per 100,000 residents in the state of Texas and the number of licensed physicians per 100,000 residents in the five most populated Texas counties. The dependent variables and the independent variables are listed in Table 3.1 along with their method of operationalization. The units of measure are also defined and the data sources identified.

**Table 3.1**  
**Operationalization of Variables**

<b>Variables</b>	<b>Definition</b>	<b>Unit of Measure</b>	<b>Data Source</b>
<b>Dependent</b>			
Number of Licensed Physicians/ 100,000 residents in the State of Texas	Physicians Whose Licenses are in Good Standing with the Texas Medical Board	Doctors per 100,000 residents in the state of Texas	Texas Department of State Health Services
Number of Licensed Physicians / 100,000 residents of the five most populated counties in Texas	Physicians Whose Licenses are in Good Standing with the Texas Medical Board	Doctors per 100,000 residents in the five most populated counties in Texas	Texas Department of State Health Services
<b>Independent</b>			
Slope before the passage of HB4	A counter-variable which measures the presence of trends	Coded as 1-20	
Immediate impact of the passage of HB4	A variable which measures the magnitude of the abrupt change in the slope after the passage of HB4	Years 1993-2002=0 Years 2004-2013=1	
Change since the passage of HB4	A variable that measures changes in slope since the passage of HB4	Years 1993-2002=0 Years 2004-2013=1-10	

**Data**

The data collection instrument for this study is the use of existing statistics. The data source is the Texas Department of State Health Services (TDSHS), which provides an annual

record of physicians located in Texas. The records are reported per county and also for the overall state numbers. The available data provides the number of physicians per 100,000 residents in Texas and also in each Texas county before and after HB4's enactment.

The yearly average of physicians working in the five most populated Texas counties was used to supply the numbers needed to assess hypothesis 2. The actual numbers of the individual counties will be included in the appendix of this research paper.

TDSHS's data collection methodology utilizes the Texas Medical Board's (TMB) annual licensing database, which the TMB provides to the agency. This database is purged of all retired physicians, inactive physicians, or those physicians who reside within the state but practice in other states. The remaining data are then classified into Direct Patient Care Physicians or Direct Primary Care Physicians. The data used to test this research paper's hypotheses are actively licensed, direct patient care physicians in the state of Texas.

TDSHS defines direct patient care physicians as those physicians who actually treat patients in a facility that is accessible to the general public. Therefore, all military and Veteran's Affairs physicians are omitted from the direct patient care classification. Physicians who are still employed by a qualifying medical facility yet no longer treat patients are also omitted from the TDSHS data.

The data provides a ratio of direct patient care physicians per 100,000 residents. TDSHS uses facility location, and not home address, as the determining factor when determining which county to classify a physician's location of practice.

TDSHS does acknowledge errors within their county classification system. The agency posits the errors occur due to some doctors not differentiating between home or practice address

when filling out questions pertaining to residency. The agency makes every reasonable attempt to correctly classify physician location, but there are inevitable errors to the process.

## **Design**

The research design used to evaluate the data is an interrupted time series. This quasi-experimental design allows trends to be evaluated before and after an event. Quasi-experimental designs differ from “true” experiments because of the “lack of random assignment of subjects to an experimental and a control group. In evaluation research, it’s often impossible to achieve such an assignment of subjects” (Babbie 2004, 349). Time series analysis is useful in observing trends and forecasting future movements, and is “a great value to...many industries and government agencies vitally concerned” with policy and procedure changes (Speigel 1961, 284). Interrupted times series analysis will provide an effective assessment of House Bill 4’s impact on the dependent variables in regards to physician supply in the state of Texas.

This research uses regression analysis to test the hypotheses using the existing data. This form of analysis is often used to “examine time-series data, representing changes in one or more variables over time” (Babbie 2004, 454). Regression analysis can assess the impact an independent variable has on the dependent variable. Regression analysis can determine if there is a relationship between the passage of HB4 and physician supply in Texas. Regression analysis will be used to support the hypotheses of this research paper.

## **Human Subjects Protection**

No human subjects have been used for this applied research project. As a result, this project was not submitted to the Institutional Review Board.

## **Chapter Summary**

This chapter presents the methodology used in this study to evaluate HB4's effect on physician supply in Texas. Existing data is presented to provide the fuel needed to accurately reflect the impact HB4 has had on physician supply across Texas. Interrupted time series is the research design utilized to evaluate the existing data. Regression analysis is used to test the hypotheses. The following chapter discusses the results.

## Chapter 4- Results

The purpose of this chapter is to present the findings of the regression analysis performed on the data testing the two hypotheses of this research. Interrupted time series analysis was run using SPSS software and the results will show HB4's impacts on both the physician supply in Texas and the five most populated Texas counties.

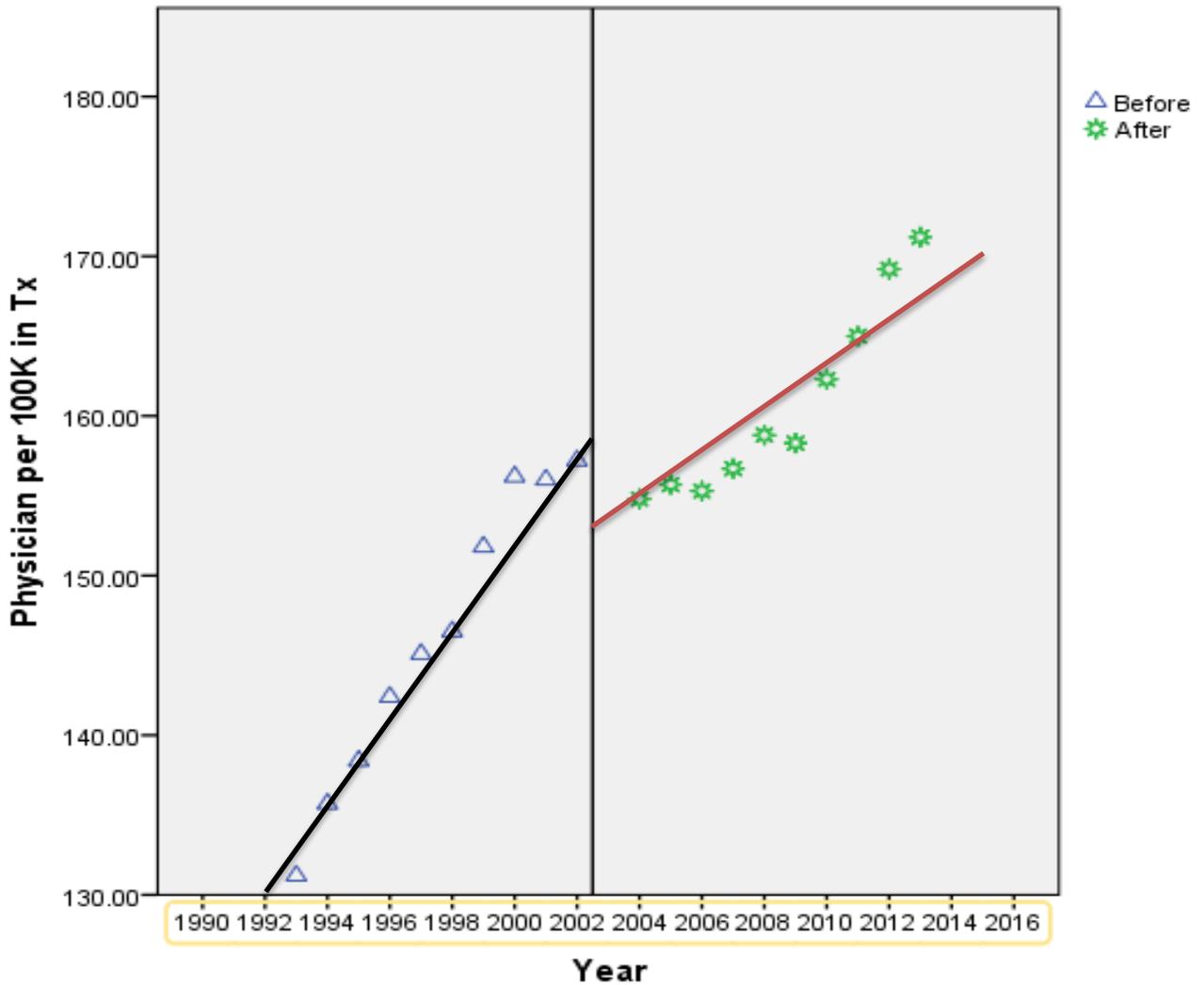
The regression analyses for the interrupted time series are presented below. Table 4.1, and Figures 4.1 and 4.2 show the results of the analysis testing the two hypotheses of this study.

**Table 4.1: Results of Interrupted Time Series for Testing the Hypotheses**

	<b>Texas</b>	<b>Texas Corrected for AutoCorrelation</b>	<b>Five Most Populated Texas Counties</b>	<b>Five Most Populated Counties Corrected for AutoCorrelation</b>
<b>Year</b>	2.988**	2.782**	1.59**	1.089**
<b>Short-Term Changes</b>	-9.043**	-7.312**	.205	1.529
<b>Program Impact</b>	-1.138**	-.565*	.903*	1.078*
<b>Constant</b>	129.560**	98.250**	145.044**	122.117**
<b>R<sup>2</sup></b>	.976	.962	.967	.956
<b>F</b>	220.649**	126.307**	155.078**	107.541**
<b>Durbin-Watson</b>	1.42	1.67	1.36	1.70

\*significant at  $\alpha$  .05    \*\*significant at  $\alpha$  .01

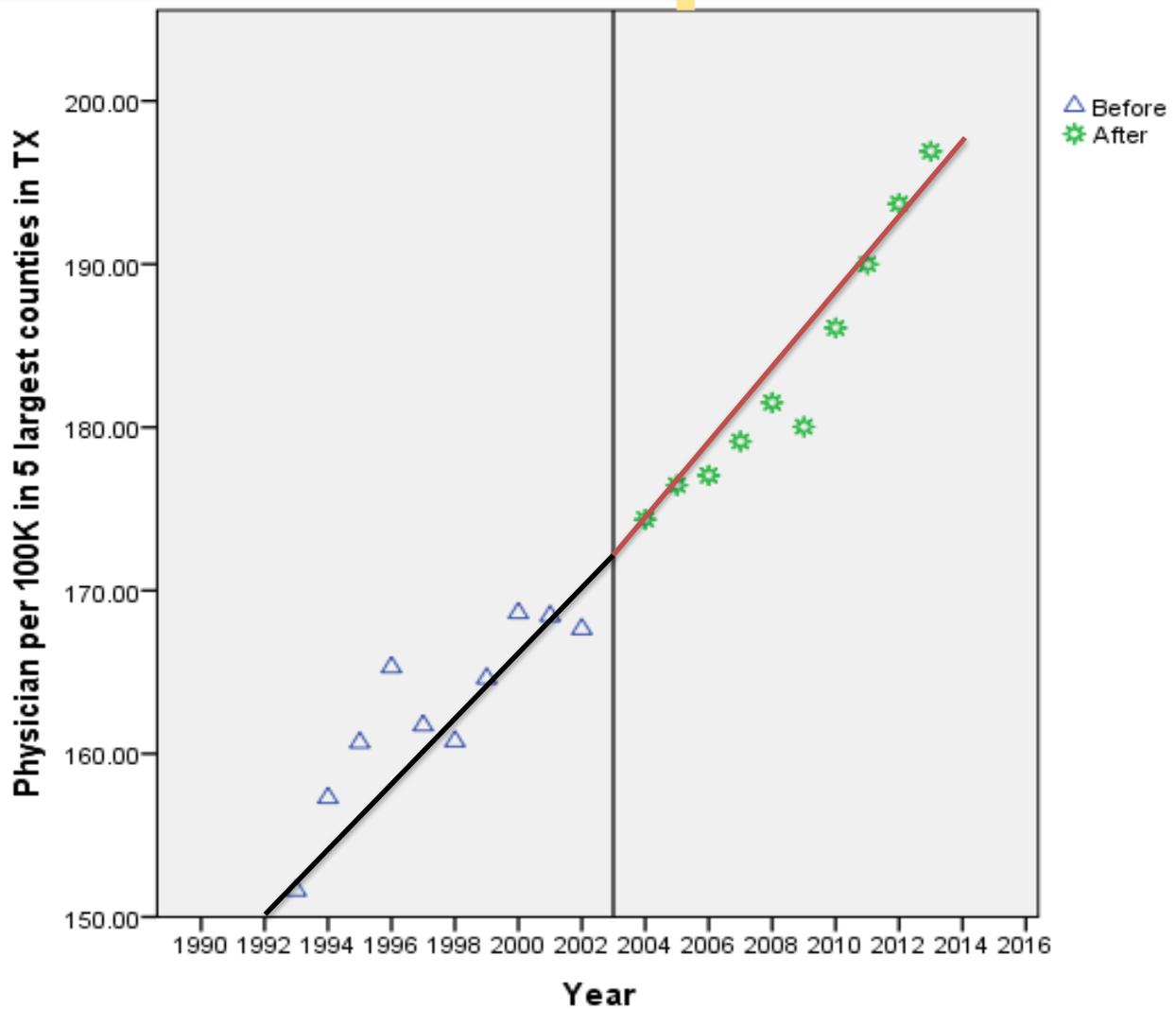
**Figure 4.1-Physician Trends in Texas Overall**



Our first set of analyses dealt with the trend of medical doctors in the entire state of Texas. Two regression results are presented for the examination of this trend before and after the introduction of HB4. The presence of autocorrelation was inconclusive in the first run of our regression (DW=1.42). The analysis was corrected for autocorrelation. Results of both regressions are presented in Table 4.1. The results in both regressions are fundamentally the same. The trend shows an overall yearly increase in physicians per 100,000 Texas residents until

HB4 became law. Following HB4's implementation the trend shows the number of physicians dropped by a rate of .565 doctors per year per 100,000 state residents. These findings contradict the expected results, therefore, the findings are unable to support the hypothesis that implementation of HB4 has significantly increased the number of licensed physicians in Texas. The findings of this regression analysis contradict the claims of tort reform proponents that HB4 has had a positive influence on the number of physicians choosing to practice in Texas. The findings fall in line with other research that show tort reforms often have little overall benefit to the larger society (Abraham 2008; Thorpe 2004). The findings also show since HB4 took effect in 2003, the growth in the overall number of physicians in Texas has not kept pace with the growth of the overall population.

**Figure 4.2- Physicians Trends in The Five Most Populated Texas Counties**



Our second hypothesis tests the changes of trend in the number of medical doctors in the five most populated Texas counties. Results of this analysis are shown in Table 4.1. The original results for this regression was inconclusive with regard to autocorrelation (DW=1.361). Therefore, the findings are corrected for the presence of autocorrelation. The original regression, along with the corrected one, are shown on the last two columns of Table 4.1. As can be seen, both regressions have produced similar results. The results of our corrected regression indicate that every year since the passage of HB4, the five largest counties in Texas have added about one

doctor per year to the ongoing trend that existed before the 2003 reforms. The trend before HB4 shows physicians were increasing at an annual average rate of more than 1.089 per 100,000 residents in the five most populated Texas counties. Following HB4 becoming law, the average rate of physicians per 100,000 increased by just over one more doctor (1.078) per 100,000 residents per year. Although this is a statistically significant number, it is not enough of an impact to make a difference. Therefore, the findings are unable to support the hypothesis that the passage of HB4 has had a noticeable impact on the number of licensed physicians in the five most populated Texas counties.

## **Chapter 5- Conclusions**

The purpose of this research paper is to evaluate the effects House Bill 4 has had on physician supply in Texas and in the five most populated Texas counties. Chapter 2 began with an exploration of the tort reform debate in Texas, where after nearly forty years of rancorous debate HB4 was written into law and a voter supported state referendum passed to change the Texas Constitution and make tort reforms permanent. The chapter then assessed the national tort reform debate, followed by an evaluation of the scholarly literature studying effects of various tort reform methods. At the end of chapter 2, two predictions were made regarding the effects of HB4 on physician supply in Texas and its effect on physician supply in the five most populated Texas counties. These predictions were based on statements from many state politicians and the American Medical Association proclaiming HB4 had worked to make Texas a more attractive place for physicians to practice medicine, thus bringing in more doctors to the state (Armendariz 2013; Egerton 2010; Nixon 2013; Root 2013)

Chapter 3 described the methodology employed in this study. In the chapter, hypotheses were operationalized, the data collection methods discussed, and the research design presented. The results of the statistical analyses were presented in Chapter 4, and the results used to assess the veracity of hypotheses presented in Chapter 2.

### **Assessments of Findings**

Two hypotheses were presented in an effort to assess the effects of HB4 on the number of physicians in Texas. Table 5.1 shows the results of the analyses and summarizes the effects HB4 has had on the physician supply in Texas.

**Table 5.1-Summary of Test Results**

<b>Dependent Variable</b>	<b>Slope Before HB4</b>	<b>Impact of HB4</b>	<b>Change After HB4</b>
Physicians/100k Texas Residents	Upwards	Drop	(-)
Physicians/100k Residents in Five Most Populated Texas Counties	Upwards	Slight Increase	(+)

The findings show HB4 had a negative effect on the overall number of physicians in Texas. A significant drop in the overall number of licensed physicians coincided with the implementation of HB4. This drop precipitated a negative trend in the number of physicians per 100,000 Texas residents per year over the subsequent ten years of data.

It was predicted that HB4 would have a significant impact on the number of physicians in Texas. Although this hypothesis was not supported, the findings bring to light several important questions citizens and leaders of Texas must ask themselves. For instance, with the desired effects of tort reform in regards to doctor supplies so far being unmet, is the trade-off in legal rights worth the bargain? What cost savings or benefits are residents of Texas receiving for the more stringent legal rules that discourage lawsuits?

If the trend continues and the number of physicians drops, this will have long-term effects on the Texas economy. Currently Texas has a burgeoning population and one of the nation's strongest economies, but the state cannot afford to suffer the consequences from long-term shortages of qualified doctors (Texas Comptroller of Public Accounts 2013). These shortages lead to higher health care costs and a less healthy workforce, two major obstacles to recruiting new business to the state.

On the other hand, the findings were significant in regards to HB4 having a positive impact on the number of physicians per 100,000 residents in the five most populated Texas counties. A slight bump upwards coincided with the implementation of HB4. This bump began a positive trend that continued for the subsequent ten years. However, the upwards trend is not enough of an impact to make a difference, so the desired effects of HB4 on physician supply has not been met in the five most populated Texas counties. These findings did not support hypothesis 2's prediction that HB4 would have a significant impact on the number of licensed physicians in the five largest Texas counties.

While an increase in the number of physicians in any area of Texas can be seen as a positive, the growth in the metropolitan areas could be bad news for the overall numbers of the state's physician supply. Taken together, the findings of the two analyses suggests the numbers of physicians in the lesser populated regions of the state are not keeping pace with the growth of physicians in the larger urban areas. These findings raise the possibility faster growth in metropolitan doctor supply is due to the siphoning of physicians from the lesser populated, more remote regions of the state. Because the overall trend is negative, then this increase represents a migration of doctors from smaller towns to the larger cities. More likely this faster urban growth can be attributed to a continuation of the century long trend of more Americans leaving rural areas to live in the more thriving urban environments, but an awareness of the discrepancy between the two may lead lawmakers to address the issue and work to get doctors located in regions most in need of licensed physicians.

This study's findings contradict HB4's supporters' claims that underserved areas of the state now have the availability of physicians they previously lacked. The findings instead point to a continued lack of quality healthcare availability to many residents of the state. The limitations of

this study prevent a more in-depth look at physician supply, but the findings do infer that areas previously in need of doctors before HB4 are still needing quality physicians ten years after its enactment into law.

### **Limitations of This Study**

There were two major limitations to this study. The first limitation is in the data collected from TDSHS. As previously noted in the methodology chapter, the agency's data includes only practicing physicians at hospitals open to the public at-large. The data's omission of all VA and military physicians, combined with some survey errors in regards to physician practice location, creates holes in the findings. This limitation keeps the study from painting a truly accurate picture of physician supply across Texas.

The second major limitation of this study is the breadth of the study. Texas is too diverse geographically and has too broad of a population to attempt to reach many concrete conclusions by looking at the overall numbers of Texas physicians. Ways to address this breadth and other suggestions for future study are listed below.

### **Recommendations for Future Study**

Tort reform is a topic that will be debated well into the future. On the political front, any talk of healthcare reform seems to include calls for tort reforms. Many legislators across the U.S., at both the state and federal levels, will look at HB4's effects in Texas for potential answers to the tort reform debate. In order to provide adequate answers, future research should be focused on a county or regional level. The issues causing a shortage of physicians in Starr County, Texas, are likely much different than the issues causing a shortage in Polk County, Texas. Even though these counties have similar population counts, the two counties are hundreds

of miles apart and have decidedly different demographics, economies, and cultural histories. It is unlikely that one solution can fix both counties problems. Starr and Polk counties are just two counties among the 254 that make up the state of Texas. By looking at the data on a smaller scale, it is possible that regional issues may become apparent. This can lead to customized solutions that meet the needs of a particular area.

Another recommendation for future research is to look into the numbers of specialists in the state. This study was generic and counted all physicians, regardless of specialty. By looking at the numbers of specialists, research can find those professionals that are in short supply. This type of research is useful in helping hospital recruiters and city officials know how to best serve their communities.

### **Final Thoughts**

The study's findings contribute knowledge to the overall debate of tort reform and the reforms' effectiveness in improving physician supply. This debate has raged for nearly half a century, so it is doubtful that there will ever be a true consensus on the effectiveness and necessity of tort reforms. However, well-designed studies that are free of researcher bias or agenda can lead to a greater understanding of the dynamics of torts and tort reforms. This greater understanding will lead to the customized solutions needed to improve different avenues of the tort reform issue, and of healthcare overall.

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**Appendix A-Physicians Per 100,000 Texas Residents**

Year	Physicians / 100k Residents
1993	131.2
1994	135.7
1995	138.4
1996	142.4
1997	145.1
1998	146.5
1999	151.8
2000	156.2
2001	156.0
2002	157.2
2003	157.7
2004	154.8
2005	155.7
2006	155.3
2007	156.7
2008	158.8
2009	158.3
2010	162.3
2011	165.0
2012	169.2
2013	171.2

**Appendix B-Physicians per 100,000 Texans in Five Most Populated Texas Counties**

Year	Physicians / 100k Residents
1993	151.62
1994	157.30
1995	160.68
1996	165.30
1997	161.74
1998	160.76
1999	164.62
2000	168.62
2001	168.44
2002	167.64
2003	176.46
2004	174.36
2005	176.46
2006	177.06
2007	179.14
2008	181.52
2009	180.04
2010	186.10
2011	190.00
2012	193.70
2013	196.92

**Appendix C- Physicians per 100,000 Residents in Most Populated Texas County-Harris**

Year	Physicians / 100k Residents
1993	172.2
1994	178.6
1995	182.9
1996	185.3
1997	186.9
1998	185.2
1999	191.5
2000	198.7
2001	199.8
2002	197.2
2003	199.0
2004	199.0
2005	200.7
2006	200.6
2007	198.7
2008	198.8
2009	195.6
2010	202.7
2011	207.0
2012	212.8
2013	218.3

**Appendix D- Physicians per 100,000 Residents in 2<sup>nd</sup> Most Populated Texas County- Dallas**

Year	Physicians / 100k Residents
1993	184.5
1994	190.5
1995	192.3
1996	197.6
1997	192.4
1998	195.0
1999	203.2
2000	210.5
2001	208.1
2002	205.3
2003	212.2
2004	207.2
2005	210.2
2006	208.7
2007	215.5
2008	218.1
2009	215.7
2010	222.8
2011	231.0
2012	243.1
2013	244.5

**Appendix E-Physicians per 100,000 Residents in 3<sup>rd</sup> Most Populated Texas County-Tarrant**

Year	Physicians / 100k Residents
1993	149.3
1994	154.8
1995	157.7
1996	160.6
1997	147.4
1998	144.9
1999	146.4
2000	148.7
2001	148.6
2002	152.7
2003	170.0
2004	168.2
2005	168.7
2006	170.1
2007	168.5
2008	174.2
2009	173.9
2010	178.6
2011	180.2
2012	186.1
2013	187.8

**Appendix F-Physicians per 100,000 Residents in 4<sup>th</sup> Most Populated Texas County-Bexar**

Year	Physicians / 100k Residents
1993	157.9
1994	163.2
1995	168.1
1996	175.0
1997	177.9
1998	178.3
1999	184.3
2000	187.5
2001	190.3
2002	189.8
2003	193.9
2004	191.2
2005	196.8
2006	199.1
2007	203.6
2008	207.4
2009	204.5
2010	209.9
2011	214.6
2012	207.2
2013	212.5

**Appendix G-Physicians per 100,000 Residents in 5<sup>th</sup> Largest Texas County- El Paso**

Year	Physicians / 100k Residents
1993	94.2
1994	99.4
1995	102.4
1996	108.0
1997	104.1
1998	100.4
1999	97.7
2000	97.7
2001	95.4
2002	93.2
2003	107.2
2004	106.2
2005	105.9
2006	106.8
2007	109.4
2008	109.1
2009	110.5
2010	116.5
2011	117.2
2012	119.3
2013	121.5