Bad Faith Litigation in First Party Automobile Insurance: An Empirical Study

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Introduction

Tort law, one of the foundations of the American legal system, is the means by which plaintiffs recover damages from companies after being harmed in ways that are not explicitly covered in a contract between the two parties. One of the fiercest debates in consumer policy in recent years has been over tort reform, the argument that frivolous lawsuits and unlimited punitive damages associated with tort cases have stifled product innovation in business and created extra-Congressional regulation. The focus of the debate has been on medical malpractice cases and high-publicity product liability cases in which, for example, customers have recovered large sums for receiving unsanitary food at fast food restaurants.

An active area of state policymaking as it relates to tort law is insurance "bad faith" law. Legal "bad faith" refers to insurance companies ("insurers") in any industry who abuse their relationship with their client ("insured") by, for example, failing to adequately reimburse the insured when insurance payments are warranted. Most U.S. states recognize bad faith: they allow insureds to legally sue insurers on bad faith grounds alone. Of those that do, some states allow insureds to sue via tort; others do not. Since the movement's start in the 1970's, states such as California and Wisconsin have established precedents that subject insureds who are guilty of "oppression, fraud or malice" to potentially high tort lawsuits (Tennyson and Warfel 2008). Others, such as Connecticut, have explicitly established that such violations *cannot* lead to a tort suit, citing tort law's "potential for unforeseen consequences" (Tennyson and Warfel 2008). Insurance bad faith liability therefore can also be viewed from a tort reform paradigm: is the tort system in insurance bad faith operating as it should? What has the bad faith tort system's effect been on insurance markets in states that use it?

I seek to answer these questions empirically, focusing on the automobile insurance industry exclusively. It is clear that the bad faith tort system fundamentally alters the long-term bargaining environment between insurance companies and their clients. Measuring the effects of bad faith tort law with different econometric approaches and different variables, I intend to find its impact on average claims payments.

Background

It is common practice for insurance companies and insureds to haggle over how much money is owed to the insured following an accident that the company has agreed to protect against in the contract between the two parties. When insureds are unhappy with their insurer's reimbursement offer or the time it takes him to pay it, bad faith liability gives consumers the power to sue their insurer on the grounds that the insurer has "…not attempt[ed] in good faith to effectuate prompt, fair and equitable settlement of submitted claims in which liability has become reasonably clear" (1972 amendment to the Model Unfair Trade Practices Act). As of 2008, 48 of 51 states (including the District of Columbia) had ruled to allow private actions on bad faith grounds alone. States vary based on the rule of law that they apply to these actions: some apply tort law, others contract law, and still others a statute relevant to bad faith. The tort classification interprets bad faith as harming the insured in extra-contractual ways; the contract and statute classifications interpret it as a specific violation of a clause in either the contract between the insured and the insurer or the clause in the statute that applies to bad faith insurance, respectively.

Companies found guilty of tort violation may be liable for damages in excess of those for a contractual or statutory violation. Both types of law award successful plaintiffs the monetary difference between the insurer's awarded claim and the insured's demanded claim—call it "x." However, tort awards can include emotional anxiety resulting from the loss of "x;" interest that the plaintiff would have earned on "x" during the length of litigation ("prejudgment interest"); compensation for attorney's fees (unless there is no statute allowing it); and all additional economic harm suffered when the loss of "x" prevented the plaintiff from, for example, operating his business in the same way (Sykes 1996). Although many states do possess allowances in contractual lawsuits for prejudgment interest, generally states with contract/statute bad faith litigation do not allow all of these additional expenses to be granted (Sykes 1996) and hence can be seen as distinct from tort states.

Several states have adopted policies since the 1970s that allow for tort litigation on bad faith insurance claims. As with states allowing contractual bad faith litigation, this has occurred through the precedent of common law rulings or via specific legislation. Prior to such states allowing tort litigation, insureds could only pursue the aforementioned additional damages by establishing that a traditional tort had been committed: either fraud or "intentional affliction of emotional distress." The bad faith doctrine existed and insureds could sue on its basis, but it was not a tort claim in and of itself. Alternative tort allegations such as fraud, moreover, are extremely difficult to prove in a routine claims dispute (Sykes 1996). The advent of bad faith tort litigation therefore held insurers tortuously liable for bad faith for essentially the first time.

Many of the states that allowed such bad faith tort litigation extended that right to third party cases—those in which accident victims of one insurer are harmed by insureds belonging to a different company, and the harmed victims themselves seek damages from the negligent insured's company. Tort liability seems particularly necessary in such cases because no contract has been agreed to between the company and the third party. However, this study focuses exclusively on first party cases, where the tort application is more controversial. There *is* a contract in force between insured and insurer in the first party case, so the logic of a tort classification for violating the terms of this contract is disputed.

Theory holds that it is necessary to curb insurer incentives to opportunistically "low-ball" insureds (Sykes 1996). The most obvious way to do so is to impose financial penalties on insurers so that guilty firms pay more than the true value of the payments owed. Tort, because of the range of damages that it allows compensation for, could be a particularly good way to impose such a penalty. Prior to individual states granting insureds the private right of action to sue on bad faith grounds—through tort, contract, or statute—harmed insureds could only file a complaint with their state insurance department. But without possessing the legal power to sue on bad faith alone, they could not collect monetary damages. Hence insureds would be effectively unable hire attorneys and prove that bad faith had taken place, leaving companies vulnerable to the violation only when an abundance of such claims were filed against them over time. Thus the theory predicts that without a private right to sue for bad faith, insurers will face a low probability of being punished for bad faith and they will engage in bad faith to extract profits from their consumers. A right to sue for bad faith through tort, contract, or statute should curb those incentives by deterring opportunistic behavior by insurers.

What is less clear, however, is which legal option to select to carry out the bad faith litigation. Some legal case studies suggest that tort liability may go too far in trying to prevent insurers from engaging in bad faith via large damages (Sykes 1996, Powers 1994). This view holds that bad faith tort claims too often fail to prove intentional wrongdoing on the part of the insurer—which is usually required for torts—and consequently penalize insurers who did not engage in bad faith. Insurers, then, not only give up bad faith tactics but also pass increased costs on to consumers in the form of higher insurance premiums. Contractual laws, where penalties are more clearly defined, then bring the market closer to optimality than tort laws do. Increasing the standards of insurer bad faith in tort situations or independent arbitration are other possible solutions (Sykes 1996). Others maintain that because of the increased vulnerability of insureds unfairly denied high-cost claims—they often do not have the means to wait for the lengthy litigation process to play out—non-economic damages like those awarded in tort cases are necessary to protect insureds (Abraham 1986).

Literature Review

Only a few studies have empirically attempted to gauge the impact of bad faith law on insurance market efficiencies. To my knowledge, no empirical study exists documenting the extent to which automobile insurers took advantage of insureds (if at all) prior to bad faith private rights of action. Browne, Pryor and Puelz (2004) find that average claims payments— the amount that insurers pay insureds when they file a claim —are higher in states that allow tort law, controlling for other claims characteristics.

They use sample claims data from the Insurance Research Council (IRC), which collects claims settlements from over 60 insurance companies in all 50 states along with associated characteristics such as use of an attorney, severity of the injury, etc. They hypothesize that the threat of insureds going to court in bad faith states causes claims to settle for more on average. The authors focus on the 1992 sample, a time period in which a majority of states allowed bad faith tort liability but a significant minority did not. They compare states with bad faith liability—through tort, contract or statute—to states without it in 1992, controlling for the severity of the injury suffered by the insured, the rigidity of the standard applied to the tort/contract cases in the state and the presence/absence of an attorney on behalf of the insured. Their results indicate that insurers settle with insureds in claims disputes at higher dollar values when the state allows any kind of the three kinds of bad faith liability. They find additionally that this higher cost of settlement includes both economic and non-economic damages, non-economic damages such as mental anguish being compensated only in tort cases.

This study is incomplete on two grounds. First, it compares states with and without bad faith insurance liability cross-sectionally rather than over time. Although it tries to control for characteristics that would differentiate the damages environment in one state from another, such as particular types of reforms made to the general tort law of each state in the survey, it is impossible to guarantee that the states in the two groups are equal in every other respect. Therefore it may be informative to observe the insurer behavior trends within the same state over time, provided that the state changes from disallowing bad faith liability to allowing it, or vice versa.

Second, the study compares laws between bad faith states and non-bad faith states, but does not differentiate between legal avenues in bad faith environments themselves. Do claims costs rise more in bad faith tort states as opposed to bad faith contractual or statutory states? Most scholars agree that some type of bad faith litigation-based remedy is needed, but they differ on the legal standard that is appropriate.

In general, more information about the insurance market with tort claims as opposed to contract/statute claims would help to better understand the benefits and costs of bad faith litigation. Tennyson and Warfel (2008) use the IRC claims data for 1997 to address this point. In a methodologically equivalent manner to Browne et al., they compare states with and without bad faith liability, controlling for the relevant claim characteristics but adding several dependent variables in addition to claims costs. They find that insurance companies in states with bad faith policies carry out fewer medical audits and independent medical examinations, tools that allow insurers to assess the validity of claims made against them. Such a decrease in claims auditing is surprising given Tennyson and Salsas-Forn (2002), who suggest that audit frequency rises with the expected value of a claim and with the potential for fraud from the insured. The authors also extend the conclusions of Brown et al. (2004) that states with bad faith liability produce higher claims settlements: they find that within bad faith states, average settlements in tort states are higher than settlements in contract/statute states. Their findings are consistent with the qualitative and case-based evidence from Sykes (1996) that bad faith tort liability is associated with significant costs that must be compared to its benefits.

Studying third party bad faith claims data may also shed light on the first party bad faith environment. In this vein, Hawken et al. (2001) study the effects of bad faith tort liability for the third party case, those instances in which the innocent party in an automobile accident appeals to the guilty party's insurance company (not his own) for claims payments. They compare California (the hallmark state for automobile tort liability) to other states and confirm that the legislation led to higher claims settlements in claims disputes.[1]

To fully understand the study's implication on the first party case, however, a better understanding of the comparison between California and other states must be made. The Hawken et al. study focuses on the particular effects of California's Royal Global Doctrine, which was in effect from 1979 to 1988. It compares California's insurance market behavior to that of all other states that did not have a "no-fault" legal regime for insurance during the period, excluding Montana and West Virginia. No-fault systems of insurance law put aside the question of who was at fault in an accident for compensation purposes, paying the economic—but not non-economic—damage costs. Montana and West Virginia, meanwhile, are two tort-eligible states that adopted a less stringent third party bad faith liability policy during the period. Hence the study attempts to compare California to states that are similar to it in every respect other than tort liability for insurer bad faith. It isolates the effects of bad faith tort liability, so we would expect its results to hold for *first party* bad faith tort states relative to *first party* contract/statute states, the subject of this paper.

[1] The study uses the IRC data to find that much of the average claims increase was due to the effects of bad faith liability on increasing attorney representation and on increasing the amount of compensation claimed (asked for) by the insured. The positive relationship between attorney representation and settlement amounts is at odds with the finding of Brown et al. (2004).

The Hawken et al. third party study also attempts to measure possible costs to bad faith tort liability in California with aggregate state-level data. Using the National Association of Independent Insurers' Fast Track Monitoring System, it finds positive effects of California's bad faith remedy on the frequency and the severity of auto injury claims. In addition, using data from the Statistical Analysis Bureau of the California Department of Insurance, it finds positive effects on automobile insurance premiums at large. These latter finding were unmeasured in the previous two studies and represent the chief long-term cost to insureds of bad faith remedies.

The rising long-term premiums cost to insureds is corroborated by Hamm (1999), who finds that automobile insurance premiums are higher in states with bad faith liability laws, controlling for the relevant claims features. The findings suggest that bad faith liability indirectly raises the costs to insurance companies and that they pass on at least a portion of these costs to consumers in the form of premium increases.

Hypotheses and Empirical Methods

I seek to measure the effect of state bad faith tort law (tort law states vs. all other states) on the size of average insurance claim settlements, controlling for the severity of the injury, the presence/absence of a police report and an attorney, the claimant's age and sex, the amount claimed, the number of vehicles in the accident and the type of violation committed by the claimant, if any. I hypothesize based on Browne (2004) and Tennyson and Warfel (2008) that claims in states that allow bad faith tort litigation will settle for higher, on average, than claims in states that allow bad faith litigation through contracts or statutes or do not allow bad faith at all.

I first test this hypothesis cross-sectionally, using three different datasets: one for claims settled in 1987, another for claims settled in 1997, and an aggregated 1987-1997 dataset. In each of the three datasets, I compare states with bad faith tort systems in that year to those without it. Cross-sectionally, I do so using Ordinary Least Squares (OLS) and General Linear Model (GLM) regressions with the controls described above.

Secondly, I measure the left-hand variable (claim amount) across time in the same state when the bad faith tort law was changed between 1987 and 1997 with a difference-in-differences regression approach. I measure the change in claims payments in the state before the law was changed to the state after the law was changed, and compare this “first difference” to the change in a control group of all other states with any bad faith policy during the same period (24 in total). Subtracting the “first difference” from the “second,” I isolate the change in any given state, controlling for endogenous litigation or insurance developments that other states also experienced.

Data

The Insurance Research Council (IRC) took a random sample of uninsured motorist (UM) and underinsured motorist (UIM) claims in 1987 and 1997, including several thousand claims from each of the 50 states and several U.S. territories for each year. The variables in the dataset were collected directly from insurers themselves. The observations exclusively contain “closed” claims, those that have been settled and paid, and include how much the claim eventually settled for.

Each individual observation is an insurance claim. Data reported for each claim includes variables for the dollar amount of damages asked for and granted to the insured, the injuries suffered by the insured and their severity, the insurer’s investigation of the injuries through independent medical examiners, and characteristics of the claim filed by the insured including representation by an attorney and police reports of the accident and injuries. The data is provided directly from the insurers, with many different firms participating. With this dataset I can observe the effect, controlling for all the individual claim characteristics, of bad faith tort law on the size of claims payments

The observations themselves are a subset of first-party automobile insurance claims (UM/UIM observations) in which the party-at-fault between two parties in an accident either does not carry insurance or is not covered to the degree required to pay the claimant, so the claimaint appeals to her own insurance company to provide the damages that the party-at-fault cannot finance. Because standard insurance contracts include provisions for insureds to obtain damages in such cases, UM/UIM claims are not significantly different from any other type of first-party insurance claims. However, they are not a representative sample of first party claims broadly: it is possible that claimants in accidents with UM/UIM drivers are faced with systematically different damages costs than other first party damages claimants because uninsured and underinsured drivers may have different risk characteristics than other drivers. Uninsured motorists may inherently be riskier drivers; alternatively, moral hazard effects could lead insured motorists to drive in a more high-risk manner. No literature is known which addresses the topic, but subsets restricted to states with mandatory auto insurance were included in the regression framework. States differ in whether they allow motorists to drive uninsured, and some of the states in the sample have changed this law within the 1987-1997 time period. Accordingly, I include the compulsory insurance law in place at the time of the accident in my dataset and run versions of my regression models with and without states that had compulsory insurance laws.

It was necessary to construct a table[2] documenting the type of bad faith law (tort vs. contract/statute), if any, in effect for 1987 and 1997. The table is based on the classification used by Tennyson and Warfel (2008), which is in turn based on a GenRe Insurance Report that describes first- and third-party bad faith law policy in all 50 states and lists the seminal cases or statues contributing to the policy in each state. In specific instances, the classification of a state was not entirely clear: when statutes were passed much later than the first relevant ruling on a first party bad faith case, I exercised judgment in deciding which case (in which year) was the first that advocated the policy that the statute eventually legitimized. Such states include Florida, Georgia, Illinois, Louisiana and Montana. Overall, the process of synthesizing the Tennyson and Warfel analysis was straightforward and most states appear to have a clear demarcation of changes in bad faith law treatment.

The data from 1997 and from 1987 contains a sample of claims that were settled in those years; oftentimes, the claims that were settled actually began years earlier. Hence the 1997 data contains claims from accidents dating back to 1986 that were settled in 1997. The handful of accidents that occurred in the 1980's were excluded from the 1997 dataset; likewise for the 1970's observations in the 1987 dataset. Most of the observations occurred within two years of the settlement date: in the 1997 data, almost 84% of the claims originated in 1995 or later. But the state law may have changed from 1995 to 1997, and there remain a percentage of observations from previous years. To accurately merge the table of state laws onto the IRC dataset, then, it was necessary to chart state

[2] Appendix A

bad faith laws for *each* year from approximately 1980 to 1997. The type of bad faith law was attached to the year in which the claim was filed, not settled. The regressions were run with a variable for the year in which the claim was filed, controlling for the confounding effect of claims observations that operated under different bad faith laws during their appeals process.

The dataset has sufficient variance in the type of state laws to conduct the cross-sectional and the time-series analyses. In 1997, 29 states allowed bad faith tort litigation and 16 allowed bad faith contract/statute litigation, with the remainder not ruling on bad faith litigation. In 1987, 18 states allowed tort litigation and 7 states allowed contract/statute litigation. On the following page is a table delineating the number of *observations* that fall into these categories in the synthesized dataset. Furthermore, a sufficient number of states changed their bad faith litigation policy between 1987 and 1997 to enable difference-in-differences estimation, most of these being states that changed from having no bad faith litigation policy in 1987 to a bad faith tort policy in 1997. In total, 12 states changed to tort policy and only one (Delaware) switched to contract/statute policy.

Number of Observations by Accident Year: 1997				
Year	***# Obs.***	***Tort***	***Contract/Statute***	***None***
1990	22	4	0	12
1991	23	3	0	13
1992	61	21	8	22
1993	120	39	14	55
1994	319	155	41	66
1995	837	412	111	162
1996	2633	1535	212	455
1997	1745	964	119	388

Number of Observations by Accident Year: 1987				
Year	***# Obs.***	***Tort***	***Contract/Statute***	***None***
1980	22	0	0	5
1981	23	2	0	10
1982	61	4	0	23
1983	120	26	0	38
1984	319	40	0	123
1985	837	133	9	224
1986	2633	779	102	580
1987	1745	486	59	236

Empirical Analysis

The 1987 dataset contains a total 3,115 observations and the 1997 dataset 5,471 observations.

I. Descriptive Statistics

Descriptive Statistics: 1987 Survey Year		
Variable	**Mean (BF Tort States)**	**Mean (Other States)**
A. Claims Payment Awarded	5272.9	7932.2
B. Vehicles Involved	2.2	2.2
C. Age of Claimant	34.0	34.3
D. Payment Claimed (Requested)	4892.5	10611.4
	Percentage (BF Tort States)	**Percentage (Other States)**
E. Attorney Representation	50.0%	61.7%
F. Employed Full-Time	48.1%	51.6%
G. Emergency Room Used	39.0%	49.4%

Descriptive Statistics: 1997 Survey Year		
Variable	**Mean (BF Tort States)**	**Mean (Other States)**
A. Claims Payment Awarded	7527.2	10975.0
B. Vehicles Involved	2.2	2.1
C. Age of Claimant	35.4	35.5
D. Payment Claimed (Requested)	4746.8	8622.8
	Percentage (BF Tort States)	**Percentage (Other States)**
E. Attorney Representation	44.3%	63.4%
F. Employed Full-Time	40.7%	43.0%
G. Emergency Room Used	41.0%	52.5%

Noting the differences between claims payment amounts, amounts claimed, and attorney representation in bad faith tort states versus in other states, the preliminary evidence would not suggest that payments are actually higher in tort states. Dividing row A by row D, however, insurers in bad faith tort states pay out more relative to amounts claimed in both the 1987 and 1997 survey years, implying a positive effect of the tort laws on claims awards. To better isolate the effect it is necessary to control for the unique characteristics of each claim by using a regression framework.

II. Regression Analysis: Cross-Sectional Model

The cross-sectional OLS and GLM models in 1987 and 1997 regress the log of the total amount of the claim paid on a vector of accident characteristics variables: the bad faith tort law status (variable of interest), gender, age, marital status, location, severity (in terms of injury and hospital stay), and the accident year, which provides a loose control for the inflation rate. The binary right-hand side variables control for characteristics of the subsequent insurance interaction: tort threshold (whether or not the policy has a maximum limit for tort damages), a loss exceeding policy limits, and for the presence of an attorney. The causal relationship in each of these two types of explanatory variables is clear: the particular characteristics of the accident and of the awards process contribute to the amount that claimants eventually receive. Models were also run with and without a variable for the log of the amount claimed by the policyholder and a binary variable for the enlistment of an attorney; it is unclear from theory whether positive relationships between these two variables and the total paid variable are due to former explaining the latter or the latter explaining the former. Their inclusion dramatically increased the explanatory power of the regressions.

The cross-sectional data was then pooled into an aggregated dataset of observations from 1987 and 1997, and the right-hand variables in the aggregated regression model were restricted slightly to account for variables in the 1997 dataset that were not present in the 1987 one. These include dummy variables for payment amounts in excess of another policy, the severity of the accident to the car, and variations on the particular types of injuries that the claimant suffered. The aggregated model also includes a binary variable for the dataset that the observation came from (1997 or 1987).

The basic regression equation in the aggregated dataset is:

$$Ln(Claim\ Payment) = \alpha + \beta(bad\ faith\ tort) + \gamma(claims\ char.) + \delta(binary\ variables) + \varepsilon,$$

where γ is the vector of coefficients on the set of claims characteristics described above and δ is the vector of coefficients on the set of binary variables described above.

To relax assumptions of heteroskedasticty, autocorrelation and/or other irregularities in the data, identical regressions were run with a generalized linear model. This version of the model took into account the change in the "tort action" law variable along states by clustering observations by state.

III. Regression Analysis: Difference- in-Differences Model

The second, more interesting regression framework used both datasets not just to add to the sample size but to analyze the change in average claims output in states which changed to a tort law environment in the years between the datasets.

Three difference-in-differences models attempted to measure this change. The first form is as follows:

$$Ln(Claim\ Payment) = \alpha + \beta(\text{bad faith tort}) + \delta(bad\ faith\ tort\ ever) + \gamma(claims\ .) + \eta(binary\ variables) + \zeta(1997\ Tort) + \varepsilon$$

where the binary variable "bad faith tort ever" is added to the model to denote observations from states that had bad faith tort laws in effect at any time in their history (in contrast to at the time of the accident, which is the specification for the "bad faith tort" variable). In this model, the control group is defined as states which have had any bad faith tort history. Accordingly, the coefficient of the β variable measures not just the first difference—the effect of bad faith states on claims payments—as it did in the previous model, but the first difference subtracted from the second difference—the coefficient of δ, defined as the control group.

The second difference-in-differences model is:

$$Ln(Claim\ Payment) = \alpha + \beta(\text{bad faith tort}) + \delta(state\ variables) + \gamma(claims\ char.) + \eta(binary\ variables) + \zeta\,(1997\ Tort) + \varepsilon$$

where a vector of binary state variables (each state except the last has a dummy variable) is added to the cross-sectional model to provide a broader comparison group to bad faith tort states. The previous specification may be inadequate because of the small number of observations from states which have a bad faith tort history but did not have the law in effect during the time of the accident. The set of binary state variables control for changes in claims payments over time in all states, not just states with a bad faith history. The β variable accounts for the changes over time and captures only those changes above the changes in this control group.

The final difference-in-difference model is:

$$Ln(Claim\ Payment) = \alpha + \beta(BF\ tort\ by\ 1987) + \delta(BF\ tort\ after\ 1987) + \theta(Dataset\ 1997) + \varphi(BF\ tort\ by\ 1987*Dataset\ 1997) + \rho(\text{BF tort after 1987*Dataset 1997}) + \gamma(claims\ char.) + \eta(binary\ variables) + \varepsilon$$

where tort variables for before/after the 1987 dataset are added. In this model, the ρ coefficient measures the change in claims payments for states switching to bad faith tort after 1987 by controlling for states that activated bad faith tort prior to 1987.

Results

The results from the OLS models from the 1987, 1997, and aggregated datasets can be summarized with the relevant coefficients as follows.[3]

[3] Complete Coefficeint Tables for GLM regressions found in Appendix B

Cross-Sectional OLS Models						
Variable	**Coefficeint 1987**	**P-Value 1987**	**Coefficient 1997**	**P-Value 1997**	**Coefficient Aggregate**	**P-value Aggregate**
Intercept	3.12	<.01	2.92	<.01	2.93	<.01
BF Tort Law	*.07*	*.02*	*.13*	*<.01*	*.1*	*<.01*
Attorney	.58	<.01	.46	<.01	.5	<.01
Ln(Claimed)	.61	<.01	.61	<.01	.61	<.01
[Other controls]	R^2 1987=.77		R^2 1997=.75		R^2 Aggregate=.75	

The results from the GLM models from the 1987, 1997, and aggregated datasets are very similar and can be summarized as follows::

Cross-Sectional GLM Models						
Variable	**Coefficeint 1987**	**P-Value 1987**	**Coefficient 1997**	**P-Value 1997**	**Coefficient Aggregate**	**P-value Aggregate**
Intercept	3.45	<.01	2.92	<.01	2.93	<.01
BF Tort Law	*.07*	*.23*	*.13*	*<.01*	*.1*	*<.01*
Attorney	.55	<.01	.46	<.01	.5	.01
Ln(Claimed)	.64	<.01	.61	<.01	.61	<.01
[Other controls]						

The "*BF Tort Law*" variable indicates whether the claim observation belongs to a state that had bad faith tort law at the time of the accident. Except for the GLM version of the 1987 cross-sectional results, all three of the dataset versions (GLM as well as OLS regressions) are positive and significant for this variable at 95%. This finding replicates the earlier studies, which suggest that bad faith tort regimes lead to higher claims settlement payments, on average. The OLS versions of these three regressions all have R^2 values of at least .7, indicating that the right-hand side variables explain a significant portion of the variation in the data.

The "attorney" and "ln(amount claimed)" variables are also significant and positive in all models. Excluding these two variables from the data lowers the R^2 to under .6. Although separate regressions using these two variables as independent variables instead of explanatory ones were not run, their highly significant coefficients do not contradict the Browne et al. paper, which found attorney use to be a significant predictor of claims awarded. Excluding them from the regression produced similar coefficients for the variables of interest.

The three GLM versions of the difference-in-differences models are summarized below with the relevant coefficients. The OLS counterparts, which again have R^2 values greater than .7, are nearly identical.[4]

[4] Complete GLM coefficient tables found in Appendix C

GLM Difference Model I		
Variable	**Coefficient**	**P-Value**
Intercept	2.94	<.01
BF Tort Law	*0.03*	*0.57*
BF Tort (Ever)	0.09	0.15
Attorney	0.5	<.01
Ln(Claimed)	0.61	<.01

GLM Difference Model II		
Variable	**Coefficient**	**P-Value**
Intercept	3.48	<.01
BF Tort Law	*<.01*	*>.99*
Attorney	0.5	<.01
Ln(Claimed)	0.61	<.01
[State Dummy's]		

GLM Difference Model III		
Variable	**Coefficient**	**P-Value**
Intercept	2.96	<.01
BF Tort Law	-0.14	0.02
BF Tort (Pre-87)	0.2	0.04
BF Tort (Post-87)	0.01	0.87
Dummy 1997	0.26	0.53
BF-Pre87*Dummy97	0.12	0.23
*BF-Post87*Dummy97*	*0.19*	*0.09*
Attorney	0.5	<.01
Ln(Claimed)	0.61	<.01

All specifications—particularly the second—are insignificant for the variable of interest even though they should all pick up the effect of states switching to tort law between 1987 and 1997. Only the third specification approaches significance (note: in OLS [without clustering] it is significant at the 95% level). Note also that the coefficients are much smaller than in the cross-sectional model, being nearly 0 in the second difference-in-differences model. The p-values are high not because of high standard errors, but because the coefficients themselves are reliably non-significant. These results suggest that after taking into account changes in a control group of states, bad faith tort regimes *do not* significantly alter the claims that insurers and insureds settle on.

Robustness Analysis

Chow tests were conducted to test the hypothesis that states with compulsory auto insurance and/or states with non-no-fault laws differ systematically from states without them. After finding significant p-values for the associated F-tests, the OLS regressions were run again for each large subset of the data: exclusively states with compulsory insurance laws, exclusively states with non-no-fault law systems, and exclusively states with both. For the second difference model, the tort change variable remained at 0 when the dataset was restricted to states with compulsory insurance laws, and showed an insignificantly negative relationship when the dataset was restricted to states with non-no-fault laws. In the reduced dataset containing only states with compulsory and non-no-fault laws, the *B* coefficient was again significantly 0. The first difference model showed similar results, with negative or insignificant *B* coefficients in each of the three reduced form datasets.

The cross-sectional as well as the difference regressions were run in OLS form without clustering by state prior to running them as GLM models with a cluster, rendering them solutions to a Generalized Estimating Equation (GEE). Although clustering by state ensures that artificially low invariability is not imposed on the independent variables, many of which vary on the state level as opposed to the claim level, the OLS cross-sectional models were significant and positive in the tort change variable, as well as most other variables, just like the GLM regressions. Likewise, OLS regressions for the difference-in-difference models yielded inconclusive and insignificant results for the variable of interest. The GLM models, which have total claims paid as the only dependent variable, compute coefficients using maximum likelihood estimation. In replicating the findings of the OLS models, they rule out the possibility that non-constant variance (heteroskedasticity) or systematic correlation (autocorrelation) in the error terms influenced the direction or significance of explanatory variable coefficients.

The coefficient values of the primary explanatory variables remained significant when the1997 OLS and GLM regressions were run with only the variables in the aggregated dataset. As described in Section II of Empirical Analysis, the aggregated cross-sectional model contained slightly fewer independent variables than the 1997 model, as only the variables in common between the 1987 and 1997 survey years were retained. To ensure that the significant results in the aggregated OLS model were not a function of omitted variable bias due to the exclusion of the minor variables, the 1997 survey year results were replicated using only those controls from the aggregated dataset. For the fully specified regression (the model including variables for attorney and amount claimed), the Adjusted R^2 is only reduced from .747 to .726 while the major coefficients remain significant and equal in direction to those in the individual 1997 regression. The fully specified 1987 OLS regression (with identical independent variables used for the aggregated model) had a comparable Adjusted R^2 of .767.

Discussion

The cross-sectional regressions reflect all previous literature on first-party bad faith tort law by showing a significant positive relationship between bad faith tort law regimes and average claims payments, after controlling for a number of claims characteristics and associated variables. However, after using the difference-in-differences framework only applied by Hawken et al. (2001) in a limited dataset, these effects largely disappear. The insignificant findings are robust for a variety of different datasets and regression specifications. Based on the results, it would appear that the presumption in the literature that bad faith tort laws lead to a “shadow effect” in claims payments and other characteristics is in need of more empirical support.

This study demonstrates the importance of testing the legal and economic rationale of bad faith law in an empirical way. Only by analyzing how insurers and insureds actually react to different legal regimes can the merits of such policies be evaluated. To get a fuller picture of the way that bad faith tort alters their behavior, future work should try to assess the relationship between the law and other important dependent variables in insurance: the lag time between accident to payment and the likelihood of insured fraud are two such variables found in the dataset. It may also be informative to gauge through the data how much and through what means insurers took advantage of insureds prior to states granting the bad faith private right of action. A number of states have begun to reconsider bad faith tort policy in recent years. As more states change their stance on the issue over time, by using newer data the difference-in-differences approach to measuring the positive and negative effects of the law will become even more powerful and such studies more conclusive.

Appendix A
Bad Faith Tort Law in Effect by State in 1987 and 1997

State	1987 BF Tort	1997 BF Tort
Alabama	Y	Y
Alaska	N	Y
Arizona	Y	Y
Arkansas	Y	Y
California	Y	Y
Colorado	N	Y
Connecticut	Y	Y
Delaware	Y	N
District of Columbia	N	N
Florida	N	N
Georgia	N	N
Hawaii	N	Y
Idaho	Y	Y
Illinois	N	N
Indiana	N	Y
Iowa	N	Y
Kansas	N	N
Kentucky	Y	Y
Louisiana	N	N
Maine	N	N
Maryland	N	N

Massachusetts	N	N
Michigan	N	N
Minnesota	N	N
Mississippi	N	Y
Missouri	N	N
Montana	Y	Y
Nebraska	N	Y
Nevada	N	Y
New Hampshire	N	N
New Jersey	N	N
New Mexico	Y	Y
New York	N	N
North Carolina	Y	Y
North Dakota	Y	Y
Ohio	Y	Y
Oklahoma	Y	Y
Oregon	N	N
Pennsylvania	N	Y
Rhode Island	Y	Y
South Carolina	Y	Y
South Dakota	N	N
Tennessee	N	N
Texas	N	Y
Utah	N	N
Vermont	N	Y

Virginia	N	N
Washington	Y	Y
West Virginia	N	N
Wisconsin	Y	Y
Wyoming	N	Y

Appendix B
Cross-Sectional GLM Coefficient Tables

Regression Coefficients: 1987 Cross-Sectional GLM Model				
Parameter	**Estimate**	**Standard Error**	**Z**	**Pr > |Z|**
Intercept	3.45	0.46	7.42	<.01
BF Tort Law	0.07	0.06	1.19	0.23
Attorney	0.55	0.06	9.05	<.01
Ln(amount claimed)	0.64	0.02	30.30	<.01
torthres	-0.15	0.05	-3.02	<.01
lossexpl	-0.52	0.17	-2.98	<.01
clmage	<.01	<.01	0.03	0.98
clmage2	0.00	0.00	0.27	0.79
clmsex_m	-0.05	0.02	-2.12	0.03
marital_m	0.05	0.03	1.69	0.09
marital_s	0.02	0.03	0.49	0.62
marital_d	0.05	0.09	0.61	0.54
emplstat_f	0.02	0.04	0.46	0.64
emplstat_p	-0.07	0.09	-0.74	0.46
emplstat_un	0.05	0.07	0.80	0.43
location_bigc	0.01	0.09	0.16	0.87
location_sub	0.07	0.10	0.63	0.53
location_medc	<.01	0.10	0.04	0.97
location_smt	0.10	0.10	0.99	0.32
vehicles	-0.02	<.01	-1.79	0.07
high_mi_lac	-0.01	0.05	-0.29	0.77
high_ma_lac	0.32	0.11	3.00	<.01
high_scar	0.48	0.07	7.12	<.01
high_neck_sp	0.03	0.03	1.18	0.24
high_back_sp	0.11	0.05	2.40	0.02
high_oth_sp	<.01	0.06	0.03	0.98
high_fr_weightb	0.26	0.10	2.62	<.01
high_oth_fr	0.27	0.07	4.11	<.01
high_int_org	0.37	0.13	2.89	<.01
high_conc	-<.01	0.05	-0.02	0.99
high_perm_br	-0.12	0.47	-0.25	0.80
high_loss_bodyp	-0.94	0.40	-2.34	0.02
high_paral	-0.51	0.50	-1.03	0.30
high_tmj_dys	-0.01	0.17	-0.09	0.93
high_a_sense	0.61	0.28	2.20	0.03
high_fat	-0.92	0.43	-2.12	0.03
high_other	0.25	0.05	5.06	<.01
hsptltx_er	0.05	0.04	1.31	0.19
hsptltx_ovnt	0.28	0.10	2.84	<.01
hsptltx_week	0.19	0.08	2.19	0.03
hsptltx_more	0.21	0.10	1.99	0.05
accyear_80	-0.39	0.82	-0.48	0.63
accyear_81	-0.30	0.41	-0.72	0.47
accyear_82	-0.22	0.43	-0.52	0.60

accyear_83	-0.45	0.37	-1.21	0.23
accyear_84	-0.14	0.37	-0.37	0.71
accyear_85	-0.32	0.34	-0.95	0.34
accyear_86	-0.33	0.39	-0.85	0.40
accyear_87	-0.73	0.40	-1.85	0.06

Regression Coefficients: 1997 Cross-Sectional GLM Model				
Parameter	**Estimate**	**Standard Error**	**Z**	**Pr > |Z|**
Intercept	2.92	0.35	8.30	<.01
Attorney	0.46	0.04	10.66	<.01
Ln(amount claimed)	0.61	0.02	32.38	<.01
BF Tort Law	0.13	0.05	2.82	<.01
torthres	0.19	0.10	1.94	0.05
uimxs	-0.71	0.12	-5.85	<.01
lossexpl	-0.37	0.10	-3.63	<.01
clmage	<.01	<.01	2.43	0.02
clmage2	-<.01	0.00	-1.69	0.09
clmsex_m	<.01	0.02	0.21	0.83
marital_m	-0.01	0.03	-0.35	0.72
marital_s	-0.07	0.06	-1.12	0.26
marital_d	0.13	0.07	1.83	0.07
emplstat_f	0.09	0.03	2.75	<.01
emplstat_p	0.08	0.05	1.48	0.14
emplstat_un	0.06	0.05	1.21	0.23
cl_anycite	0.04	0.02	1.93	0.05
location_bigc	-0.06	0.05	-1.12	0.26
location_sub	-0.03	0.06	-0.46	0.65
location_medc	-0.04	0.05	-0.87	0.39
location_smt	-0.03	0.06	-0.56	0.58
vehicles	-0.03	0.02	-1.90	0.06
impctsev_mi	-0.17	0.06	-2.94	<.01
impctsev_mo	0.04	0.04	0.93	0.35
impctsev_ma	0.15	0.05	2.93	<.01
injsever2	0.07	0.02	3.09	<.01
injsever3	0.13	0.03	3.88	<.01
injsever4	0.25	0.07	3.64	<.01
injsever5	1.21	0.74	1.64	0.10
high_fat	0.63	0.83	0.75	0.45
high_mi_lac	-0.29	0.13	-2.29	0.02
high_ma_lac	0.07	0.17	0.40	0.69
high_scar	0.79	0.13	6.11	<.01
high_neck_sp	-0.10	0.09	-1.06	0.29
high_back_sp	-0.10	0.10	-0.97	0.33
high_oth_sp	-0.12	0.15	-0.85	0.40
high_knee	0.12	0.10	1.26	0.21
high_shou	0.16	0.11	1.46	0.14
high_disc	0.42	0.10	4.11	<.01
high_fr_weightb	0.48	0.13	3.78	<.01
high_oth_fr	0.32	0.11	2.82	<.01
high_int_org	0.25	0.30	0.84	0.40
high_conc	0.06	0.18	0.31	0.75
high_perm_br	0.26	0.24	1.07	0.28
high_loss_bodyp	-0.09	0.14	-0.63	0.53
high_paral	0.10	0.35	0.29	0.78

high_tmj_dys	0.04	0.21	0.16	0.87
high_a_sense	0.00	0.00	.	.
high_emot	-0.11	0.27	-0.39	0.70
high_other	-0.04	0.11	-0.40	0.69
high_head_ac	0.00	0.00	.	.
high_misc_sp	-0.15	0.13	-1.13	0.26
hsptltx_er	0.04	0.03	1.51	0.13
hsptltx_ovnt	0.27	0.07	3.75	<.01
hsptltx_week	0.27	0.11	2.48	0.01
hsptltx_more	0.10	0.14	0.74	0.46
accyear_87	0.15	0.44	0.33	0.74
accyear_88	-0.23	0.31	-0.73	0.46
accyear_89	0.18	0.65	0.28	0.78
accyear_90	-0.29	0.38	-0.77	0.44
accyear_91	0.42	0.33	1.26	0.21
accyear_92	-0.14	0.32	-0.42	0.67
accyear_93	-0.12	0.28	-0.44	0.66
accyear_94	-0.02	0.30	-0.06	0.95
accyear_95	-0.13	0.31	-0.44	0.66
accyear_96	-0.26	0.31	-0.83	0.41
accyear_97	-0.42	0.32	-1.33	0.19

Regression Coefficients: Aggregated 1987-1997 Cross-Sectional GLM Model				
Parameter	**Estimate**	**Standard Error**	**Z**	**Pr > |Z|**
Intercept	2.93	0.19	15.38	<.01
BF Tort Law	0.10	0.04	2.52	0.01
Dummy_97	0.29	0.39	0.75	0.45
Attorney	0.50	0.05	10.98	<.01
Ln(amount claimed)	0.61	0.02	34.92	<.01
torthres	0.02	0.07	0.28	0.78
lossexpl	-0.38	0.11	-3.51	<.01
clmage	<.01	<.01	1.52	0.13
clmage2	0.00	0.00	-0.74	0.46
clmsex_m	-<.01	0.02	-0.23	0.82
marital_m	0.02	0.02	0.99	0.32
marital_s	-0.02	0.05	-0.50	0.61
marital_d	0.07	0.05	1.46	0.14
emplstat_f	0.07	0.02	2.91	<.01
emplstat_p	0.04	0.05	0.73	0.47
emplstat_un	0.07	0.04	2.10	0.04
location_bigc	-0.07	0.06	-1.21	0.23
location_sub	-0.02	0.06	-0.35	0.72
location_medc	-0.06	0.06	-1.02	0.31
location_smt	-<.01	0.07	-0.10	0.92
vehicles	-0.01	<.01	-1.63	0.10
high_mi_lac	-0.03	0.04	-0.59	0.56
high_ma_lac	0.18	0.07	2.56	0.01
high_scar	0.52	0.04	11.81	<.01
high_neck_sp	0.05	0.03	1.82	0.07
high_back_sp	0.05	0.02	2.36	0.02
high_oth_sp	0.03	0.05	0.73	0.46
high_fr_weightb	0.42	0.05	8.09	<.01
high_oth_fr	0.35	0.04	8.25	<.01
high_int_org	0.27	0.11	2.39	0.02
high_conc	0.07	0.03	2.44	0.01
high_perm_br	0.08	0.21	0.38	0.71
high_loss_bodyp	-0.57	0.24	-2.40	0.02
high_paral	-0.31	0.31	-0.98	0.33
high_tmj_dys	-0.10	0.12	-0.84	0.40
high_a_sense	0.49	0.19	2.58	<.01
high_fat	0.26	0.33	0.77	0.44
high_other	0.15	0.04	4.11	<.01
hsptltx_er	0.10	0.02	5.38	<.01
hsptltx_ovnt	0.36	0.06	5.65	<.01
hsptltx_week	0.30	0.07	4.41	<.01
hsptltx_more	0.18	0.09	1.90	0.06

accyear_79	0.01	0.24	0.06	0.96
accyear_80	-0.02	0.69	-0.03	0.98
accyear_81	0.03	0.20	0.17	0.87
accyear_82	0.18	0.19	0.97	0.33
accyear_83	-0.09	0.12	-0.73	0.46
accyear_84	0.26	0.08	3.19	<.01
accyear_85	0.04	0.09	0.41	0.68
accyear_87	-0.49	0.05	-8.99	<.01
accyear_88	-0.49	0.42	-1.16	0.24
accyear_89	0.45	0.65	0.69	0.49
accyear_90	-0.37	0.43	-0.87	0.38
accyear_91	0.30	0.41	0.73	0.46
accyear_92	-0.27	0.40	-0.68	0.50
accyear_93	-0.32	0.37	-0.87	0.39
accyear_94	-0.16	0.36	-0.43	0.67
accyear_95	-0.25	0.38	-0.65	0.51
accyear_96	-0.33	0.38	-0.87	0.38
accyear_97	-0.46	0.39	-1.19	0.23

Appendix C
Difference-in-Differences GLM Coefficient Tables

GLM Difference Model I				
Parameter	**Estimate**	**Standard Error**	**Z**	**Pr > |Z|**
Intercept	2.94	0.19	15.44	<.01
BF Tort Law	0.03	0.04	0.57	0.57
BF Tort (Ever)	0.09	0.06	1.46	0.15
Ln(amount claimed)	0.61	0.02	34.81	<.01
Attorney	0.50	0.05	10.76	<.01
torthres	<.01	0.07	0.06	0.95
lossexpl	-0.38	0.11	-3.50	<.01
clmage	<.01	<.01	1.56	0.12
clmage2	0.00	0.00	-0.77	0.44
clmsex_m	-<.01	0.01	-0.22	0.83
marital_m	0.02	0.02	0.90	0.37
marital_s	-0.02	0.05	-0.52	0.60
marital_d	0.07	0.05	1.39	0.17
emplstat_f	0.07	0.02	2.90	<.01
emplstat_p	0.04	0.05	0.76	0.45
emplstat_un	0.07	0.04	2.08	0.04
location_bigc	-0.07	0.06	-1.24	0.21
location_sub	-0.02	0.06	-0.34	0.74
location_medc	-0.06	0.06	-1.01	0.31
location_smt	-<.01	0.07	-0.09	0.92
vehicles	-0.01	<.01	-1.55	0.12
high_mi_lac	-0.03	0.04	-0.61	0.54
high_ma_lac	0.18	0.07	2.59	<.01
high_scar	0.52	0.04	11.83	<.01
high_neck_sp	0.04	0.03	1.76	0.08
high_back_sp	0.05	0.02	2.38	0.02
high_oth_sp	0.03	0.05	0.74	0.46
high_fr_weightb	0.42	0.05	8.17	<.01
high_oth_fr	0.35	0.04	8.13	<.01
high_int_org	0.26	0.11	2.35	0.02
high_conc	0.07	0.03	2.40	0.02
high_perm_br	0.07	0.21	0.36	0.72
high_loss_bodyp	-0.58	0.24	-2.41	0.02
high_paral	-0.30	0.31	-0.97	0.33
high_tmj_dys	-0.10	0.12	-0.87	0.38
high_a_sense	0.48	0.19	2.56	0.01
high_fat	0.25	0.34	0.75	0.45
high_other	0.15	0.04	4.08	<.01
hsptltx_er	0.11	0.02	5.58	<.01
hsptltx_ovnt	0.35	0.06	5.61	<.01
hsptltx_week	0.31	0.07	4.68	<.01
hsptltx_more	0.19	0.09	1.96	0.05
accyear_79	0.03	0.25	0.12	0.90
accyear_80	-0.02	0.68	-0.03	0.98

accyear_81	0.02	0.21	0.11	0.91
accyear_82	0.20	0.19	1.02	0.31
accyear_83	-0.09	0.12	-0.71	0.48
accyear_84	0.26	0.08	3.19	<.01
accyear_85	0.04	0.09	0.41	0.68
accyear_87	-0.49	0.05	-9.15	<.01
accyear_88	-0.54	0.44	-1.21	0.23
accyear_89	0.45	0.66	0.69	0.49
accyear_90	-0.38	0.43	-0.88	0.38
accyear_91	0.28	0.41	0.67	0.50
accyear_92	-0.30	0.40	-0.75	0.46
accyear_93	-0.33	0.37	-0.91	0.36
accyear_94	-0.17	0.36	-0.46	0.65
accyear_95	-0.26	0.38	-0.68	0.50
accyear_96	-0.34	0.38	-0.89	0.37
accyear_97	-0.47	0.39	-1.21	0.23
d_97	0.31	0.39	0.80	0.42

GLM Difference Model II				
Parameter	**Estimate**	**Standard Error**	**Z**	**Pr > |Z|**
Intercept	3.48	0.15	23.03	<.01
BF Tort Law	<.01	0.08	0.00	1.00
Ln(amount claimed)	0.61	0.02	36.40	<.01
Attorney	0.50	0.05	10.84	<.01
torthres	-0.10	0.06	-1.69	0.09
lossexpl	-0.39	0.12	-3.31	<.01
clmage	<.01	<.01	1.66	0.10
clmage2	0.00	0.00	-0.62	0.53
clmsex_m	-0.01	0.01	-0.83	0.41
marital_m	0.04	0.02	1.82	0.07
marital_s	<.01	0.04	0.04	0.97
marital_d	0.08	0.04	2.10	0.04
emplstat_f	0.07	0.02	3.09	<.01
emplstat_p	0.02	0.05	0.44	0.66
emplstat_un	0.08	0.03	2.42	0.02
location_bigc	-0.06	0.05	-1.11	0.27
location_sub	-0.02	0.06	-0.27	0.79
location_medc	-0.04	0.06	-0.73	0.46
location_smt	<.01	0.07	0.10	0.92
vehicles	-0.01	<.01	-1.28	0.20
high_mi_lac	-0.03	0.04	-0.61	0.54
high_ma_lac	0.17	0.07	2.44	0.01
high_scar	0.52	0.04	12.59	<.01
high_neck_sp	0.03	0.02	1.16	0.25
high_back_sp	0.05	0.02	2.06	0.04
high_oth_sp	0.03	0.05	0.70	0.48
high_fr_weightb	0.39	0.05	7.76	<.01
high_oth_fr	0.34	0.04	7.88	<.01
high_int_org	0.29	0.11	2.58	<.01
high_conc	0.07	0.03	2.33	0.02
high_perm_br	0.03	0.20	0.15	0.88
high_loss_bodyp	-0.55	0.26	-2.13	0.03
high_paral	-0.32	0.30	-1.06	0.29
high_tmj_dys	-0.11	0.11	-1.01	0.31
high_a_sense	0.46	0.19	2.36	0.02
high_fat	0.30	0.34	0.87	0.39
high_other	0.14	0.04	3.77	<.01
hsptltx_er	0.11	0.02	6.26	<.01
hsptltx_ovnt	0.34	0.06	5.95	<.01
hsptltx_week	0.33	0.06	5.60	<.01
hsptltx_more	0.19	0.10	1.91	0.06
accyear_79	-0.03	0.21	-0.14	0.89
accyear_80	0.09	0.73	0.12	0.91
accyear_81	-<.01	0.21	-0.01	0.99
accyear_82	0.19	0.19	1.00	0.32
accyear_83	-0.13	0.13	-1.01	0.31
accyear_84	0.22	0.08	2.74	<.01
accyear_85	0.03	0.09	0.34	0.73
accyear_87	-0.46	0.05	-9.78	<.01
accyear_88	-0.64	0.50	-1.28	0.20

accyear_89	0.40	0.65	0.61	0.54
accyear_90	-0.45	0.44	-1.02	0.31
accyear_91	0.09	0.42	0.21	0.83
accyear_92	-0.44	0.42	-1.04	0.30
accyear_93	-0.44	0.39	-1.12	0.26
accyear_94	-0.26	0.39	-0.66	0.51
accyear_95	-0.35	0.40	-0.85	0.39
accyear_96	-0.42	0.41	-1.01	0.31
accyear_97	-0.51	0.42	-1.23	0.22
d_97	0.40	0.42	0.96	0.34
st1	-0.49	0.13	-3.69	<.01
st2	-0.17	0.11	-1.49	0.14
st3	-0.40	0.13	-3.17	<.01
st4	-0.27	0.13	-2.13	0.03
st5	-0.47	0.08	-5.77	<.01
st6	<.01	0.11	0.06	0.95
st7	-0.01	0.10	-0.13	0.90
st8	-0.36	0.07	-4.92	<.01
st9	-0.64	0.04	-18.22	<.01
st10	-0.49	0.07	-7.15	<.01
st11	-0.60	0.12	-4.93	<.01
st12	-0.52	0.08	-6.63	<.01
st13	-0.37	0.11	-3.51	<.01
st14	-0.44	0.11	-4.03	<.01
st15	-0.62	0.03	-17.71	<.01
st16	-0.76	0.12	-6.38	<.01
st17	-0.05	0.08	-0.61	0.54
st18	-0.40	0.08	-5.32	<.01
st19	-0.38	0.07	-5.17	<.01
st20	-0.44	0.05	-9.00	<.01
st21	-0.61	0.04	-13.76	<.01
st22	-0.13	0.06	-2.22	0.03
st23	-0.19	0.11	-1.80	0.07
st24	-0.31	0.08	-3.95	<.01
st25	-0.12	0.13	-0.87	0.38
st26	-0.11	0.11	-1.02	0.31
st27	-0.42	0.10	-4.19	<.01
st28	-0.18	0.07	-2.49	0.01
st29	-0.46	0.04	-10.37	<.01
st30	-0.13	0.12	-1.09	0.28
st31	-0.19	0.04	-4.39	<.01
st32	-0.39	0.12	-3.17	<.01
st33	0.08	0.15	0.55	0.58
st34	-0.36	0.13	-2.87	<.01
st35	-0.31	0.13	-2.45	0.01
st36	-0.27	0.07	-3.72	<.01
st37	-0.21	0.08	-2.51	0.01
st38	0.07	0.14	0.50	0.62
st39	-0.23	0.13	-1.76	0.08
st40	-0.10	0.10	-0.99	0.32
st41	-0.49	0.08	-6.21	<.01
st42	-0.44	0.11	-3.99	<.01
st43	-0.33	0.06	-5.16	<.01
st44	-0.02	0.12	-0.19	0.85
st45	-0.36	0.08	-4.44	<.01

st46	-0.06	0.12	-0.46	0.64
st47	-0.53	0.08	-6.63	<.01
st48	-0.24	0.13	-1.85	0.06
st49	-0.46	0.12	-3.69	<.01
st50	0.17	0.12	1.37	0.17

GLM Difference Model III				
Parameter	**Estimate**	**Standard Error**	**Z**	**Pr > |Z|**
Intercept	2.96	0.18	16.61	<.01
BF Tort Law	-0.14	0.06	-2.27	0.02
BF (Pre-87)	0.20	0.10	2.01	0.04
BF (Post-87)	0.01	0.09	0.16	0.87
Dummy 1997	0.26	0.41	0.64	0.53
BF-Pre87*Dummy97	0.12	0.10	1.21	0.23
BF-Post87*Dummy97	0.19	0.11	1.70	0.09
Ln(amount claimed)	0.61	0.02	36.16	<.01
Attorney	0.50	0.05	10.75	<.01
torthres	<.01	0.07	0.04	0.96
lossexpl	-0.38	0.11	-3.46	<.01
clmage	<.01	<.01	1.58	0.11
clmage2	0.00	0.00	-0.77	0.44
clmsex_m	-<.01	0.02	-0.27	0.78
marital_m	0.02	0.02	0.89	0.37
marital_s	-0.02	0.05	-0.45	0.65
marital_d	0.07	0.05	1.54	0.12
emplstat_f	0.07	0.02	3.06	<.01
emplstat_p	0.03	0.05	0.70	0.48
emplstat_un	0.07	0.04	2.08	0.04
location_bigc	-0.06	0.06	-1.14	0.26
location_sub	-0.02	0.06	-0.35	0.73
location_medc	-0.06	0.06	-0.98	0.33
location_smt	-<.01	0.07	-0.07	0.94
vehicles	-0.01	<.01	-1.66	0.10
high_mi_lac	-0.03	0.04	-0.59	0.55
high_ma_lac	0.19	0.07	2.60	<.01
high_scar	0.51	0.04	11.59	<.01
high_neck_sp	0.04	0.03	1.75	0.08
high_back_sp	0.05	0.02	2.24	0.03
high_oth_sp	0.03	0.05	0.75	0.45
high_fr_weightb	0.42	0.05	8.07	<.01
high_oth_fr	0.35	0.04	8.16	<.01
high_int_org	0.26	0.11	2.31	0.02
high_conc	0.06	0.03	2.27	0.02
high_perm_br	0.06	0.21	0.30	0.76
high_loss_bodyp	-0.57	0.25	-2.32	0.02
high_paral	-0.28	0.31	-0.91	0.36
high_tmj_dys	-0.10	0.12	-0.89	0.37
high_a_sense	0.45	0.19	2.36	0.02
high_fat	0.25	0.34	0.75	0.46
high_other	0.16	0.04	4.34	<.01
hsptltx_er	0.11	0.02	5.61	<.01
hsptltx_ovnt	0.35	0.06	5.75	<.01
hsptltx_week	0.30	0.07	4.66	<.01

hsptltx_more	0.18	0.10	1.83	0.07
accyear_79	0.02	0.24	0.08	0.94
accyear_80	-0.04	0.70	-0.05	0.96
accyear_81	-<.01	0.20	-0.03	0.98
accyear_82	0.17	0.19	0.90	0.37
accyear_83	-0.11	0.12	-0.91	0.36
accyear_84	0.24	0.08	3.05	<.01
accyear_85	0.03	0.09	0.33	0.74
accyear_87	-0.48	0.05	-9.89	<.01
accyear_88	-0.61	0.45	-1.35	0.18
accyear_89	0.43	0.66	0.65	0.51
accyear_90	-0.38	0.42	-0.89	0.37
accyear_91	0.26	0.40	0.64	0.52
accyear_92	-0.33	0.39	-0.83	0.40
accyear_93	-0.34	0.36	-0.95	0.34
accyear_94	-0.17	0.36	-0.48	0.63
accyear_95	-0.26	0.37	-0.70	0.48
accyear_96	-0.35	0.37	-0.93	0.35
accyear_97	-0.47	0.38	-1.23	0.22

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