"I Went to Medical School to Run an Insurance Company?"
Information Advantages of Doctor-owned and Operated Medical Malpractice Insurers

ABSTRACT

Adverse medical outcomes resulting from medical procedures often result in a malpractice claim against the doctor. In most cases, it is difficult to determine if malpractice actually occurred. In this paper, we examine medical malpractice insurers, specifically Doctor-owned and Operated (DO&O) medical malpractice insurers. Guided by prior literature, we postulate that the unique informational advantages associated with the medical training of physician owners/managers enable them to determine more accurately whether medical malpractice actually occurred. This results in unique claims settlement practices of DO&O firms. We develop a theoretical model that generates several testable hypotheses relating to the claims settlement practices of DO&O firms. Using a dataset of closed medical malpractice claims in the state of Florida, we provide empirical support for our theoretical predictions. In particular, we find that, relative to other types of medical malpractice insurers, DO&O firms are 1) less likely to pay "questionable" claims, 2) less likely to settle claims and therefore more likely to go to court, and for those claims they do settle, 3) they settle more quickly and 4) for a lower total cost. Our findings suggest the medical expertise of physician owners/managers have non-trivial implications for influencing the degree of the economic costs borne by the physician and thus ultimately the patients.

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Introduction

Academic literature considers various aspects of physicians' behaviors in the context of medical malpractice risk. The overwhelming majority of this literature considers the extent to which malpractice pressure impacts physicians' interactions with patients and the associated consequences for medical errors, procedures, or healthcare costs (e.g. Kessler and McClellan, 1996; Currie and MacLeod, 2008; Iizuka, 2013; Shurtz, 2014). One area that has not garnered as much academic attention is the behavior of physicians in the medical malpractice insurance market. In particular, the role of physicians as medical malpractice insurance providers is one of the most underdeveloped areas of the literature pertaining to medical malpractice liability pressure.

One unique aspect of the medical malpractice insurance market is that medical professionals have the opportunity to join together to form their own insuring entity to protect against the cost of medical malpractice risk. Often taking the form of a Risk Retention Group (RRG), these doctor owned and operated (DO&O) insuring arrangements have gained considerable market share in recent years and appear to play an increasingly important role in helping to ensure a smooth-functioning medical malpractice market. However, while many DO&O insurers are formed as RRGs, not all are[1]and many physicians create insuring arrangements which take the form of stock insurers, mutual insurers, insurance exchanges, as well as RRGs.

There is no clear consensus as to why physicians would elect to form their own medical malpractice insurance firm. Market theory would suggest that, relative to non-physician owned insurers, DO&O insurers are associated with unique operational characteristics that result in some comparative advantage in the marketplace. After all, if physicians only wanted to access the profits of medical malpractice insurers, they could simply invest as equity owners, thereby avoiding the risk and expense associated with forming their own insurance firm.

One potential reason that physicians would form their own insuring arrangement is to make coverage available to themselves and other physicians in a market where it is otherwise not.[2] This theory implies that the risk/reward profile of DO&O insurers is different than other types of insurers. This may be partially attributable to

[1] From 2002 to 2010 the number of RRGs in medical malpractice in the United States increased from 261 to 922 organizations.

[2] For example, in markets experiencing extremely hard markets or in markets where high-risk physicians cannot obtain coverage, DO&O insurers may be willing to offer coverage that no other insurer was willing to offer.

altruism on the part of the physicians. However, if providing coverages were solely associated with altruism, DO&O insurers would eventually become insolvent or lose market share to other types of insurers when market conditions improved, both of which are inconsistent with trends in the medical malpractice marketplace. As a result, DO&O firms entering marketplaces to make coverage available would likely have to possess some operational difference, outside of altruism motives, that positively impact the risk/reward profile.

Another potential explanation for the formation of DO&O insurers is to provide more affordable medical malpractice insurance coverage. The validity of this explanation seems to hinge on the existence of operational differences in DO&O insurers that result in marketplace advantages. For example, if non-physician owned insurers were extracting large rents due to concentrated marketplaces, then all types of insurers, not just DO&O firms, would enter the marketplace. This is inconsistent with marketplace trends that document larger increases in DO&O entrants relative to other types of firms (Karl and Nyce, 2015). The ability to offer more affordable insurance, therefore, would also likely require DO&O insurers to possess some unique operating characteristic in the marketplace.

One important distinguishing feature of DO&O insurers is that the organizational structure better aligns the incentives of owners and policyholders, both of whom are physicians. Agency theory would suggest that the improved incentive alignments would result in unique operating characteristics relative to other type of insurers. This supposition is consistent with Choi and Liang (2007), who argue that DO&O insurers better internalize the personal costs of malpractice claims to physician policyholders. The authors' evidence then suggests that DO&O insurers settle medical malpractice claims differently than other types of insurers, which they assert is due to differences in incentive alignment. In this view, differences in claims settlement practices of DO&O insurers are therefore a by-product of improved incentive alignments.

Our paper takes a different and novel view of the claims settlement process of DO&O insurers. We assert that differences in the claims settlement processes of DO&O insurers are the result of the physician owners and managers informational advantages with regard to their medical training. We therefore believe that DO&O firms are likely better able to distinguish when medical malpractice has actually occurred (given that an adverse medical outcome results in a claim against an insured). In this view, physician owners and operators actively leverage their

medical expertise to create a comparative advantage borne out in the claims settlement process. This may be one reason that physicians elect to form their own insuring arrangements and potentially explains the existences, and increasing importance, of DO&O insurers.

Our paper develops a theoretical model that provides insight into the claims settlement practices of DO&O insurers that generates testable hypotheses. The theoretical model predicts that, due to informational advantages of physician owners/managers regarding medical expertise, DO&O firms, relative to other types of insurers, will be better able to identify whether medical malpractice actually occurred in cases. Given this more accurate identification, DO&O insurers 1) are less likely to pay "questionable" claims[3], 2) are less likely to settle "questionable" claims and therefore may be more likely to go to court, 3) settle claims where medical malpractice did occur more quickly, and therefore 4) settle those cases for lower total cost. We then test these theoretical predictions utilizing physician-level data pertaining to closed medical malpractice insurance claims in Florida from 2000 – 2009.

The results of our empirical analysis largely confirm the theoretical predictions. We find the likelihood that a given claim is dropped when a DO&O insurer is involved is higher by a factor of approximately 2.3, relative to non-DO&O insurers. DO&O insurers are also about 19 % less likely to settle a case relative to other types of insurers and they also settle claims approximately 26 % faster than other non-DO&O insurers. In addition, we also find that the total cost of claims settled by DO&O insurers is approximately 10 % lower than the total cost of claims settled by other types of insurers. Taken in their entirety, our results suggest significant and non-trivial differences in the disposition of medical malpractice claims handled by DO&O insurers and non-DO&O insurers.

Our study advances the understanding of why physicians might chose to create an insurance firm of their own. Our theoretical and empirical analysis suggests one important factor is that physicians can utilize their medical expertise to generate distinct operational characteristics in the marketplace. While the evidence in our study does not refute the notion that owner and policyholder incentives may be better aligned or negate the

[3] We define questionable claims as claims where it is less likely that an adverse medical outcome is due to a malpractice error committed by the physician.

influence of altruistic motives, it does indicate that the medical expertise of owners/managers of DO&O firms plays a key role in the disposition of medical malpractice insurance claims.

The importance of our study is also highlighted by the fact that there exist many economic costs associated with the settlement and defense of medical malpractice claims, including a loss of reputation, suspension/revocation of a medical license, or higher costs of liability insurance. Our findings suggest the medical expertise of physician owners/managers have non-trivial implications for influencing the degree of these economic costs borne by the physician. Similarly, since several studies suggest that medical malpractice risk influences physician behavior (e.g. Kessler and McCllelan, 1996), the claims settlement practices of DO&O insurers may have non-trivial implications for healthcare costs. To the extent that the length of the claims litigation process adds associated costs to the legal system, our analysis further suggests that the information advantages of physician owners/managers may also have public policy implications pertaining to the cost of the tort liability system.

The remainder of this paper is organized as follows. In the next section, we discuss the relevant literature. The following section then details our theoretical model and hypotheses. We then describe the data we use to test the theoretical predictions as well as our methods and results. The last section provides concluding remarks.

Background

As it relates specifically to insurance markets, research indicates that different organization forms are associated with different operational characteristics, most notably by documenting differences in operations between insurers organized as mutuals and those organized as stocks (e.g. Lamm-Tennant and Starks, 1993).[4] Evidence in the medical malpractice literature is consistent with this finding and suggests that physician insuring arrangements, such as DO&O insurers or RRGs, are associated with unique and distinct operating characteristics. For example, Lei and Schmidt (2010) find that physician-directed medical malpractice insurers demand less

[4] Researchers in this area posit that the degree of separation between managers, owners/risk bearers, and customers/policyholders is associated with differences in the ability to control agency problems (e.g. Mayers and Smith, 1981; Fama and Jensen, 1983), leading to the expectation that different organization forms should be associated with different operational characteristics.

reinsurance and exhibit differences in loss volatility and leverage. Similarly, Karl and Nyce (2015) find evidence that physicians respond to adverse conditions in the medical malpractice insurance market by forming RRGs to compete with traditional insurers and provide physicians with an alternative source of professional liability insurance. Born and Boyer (2011) also find evidence that RRGs have a non-trivial role in the market for claims-made reported professional liability policies.

A relatively less well-developed area of the literature suggests that, because the incentives of physician policyholders are better aligned with physician owners/managers, DO&O firms should exhibit unique characteristics related to claims settlement practices. However, studies in this area of the literature largely do not address the role of owner/manager medical expertise when providing anecdotal and theoretical predictions of differences in the claims settlement process. Sloan and Hsieh (1990) posit that noncommercial medical malpractice insurers place more value on physician reputation relative to commercial insures, therefore resulting in differences in the disposition of a medical malpractice claim. Using a sample of closed claims from 1985 to 1988, the authors find some evidence of differences in the disposition of claims among commercial and noncommercial insurers, though they do not specifically distinguish between DO&O insurers and other insurer types.

Choi and Liang (2007) propose the existence of reverse moral hazard in medical malpractice insurance claims settlement, whereby the misalignment of incentives between owners/managers and the insured leads to a lower level of legal defense than desired by the doctor. In their theoretical model of settling a case versus going to trial, the authors incorporate the doctor's private costs in terms of reputational damage which can arise from losing a case or settling a claim. Including the doctor's private costs results in the carrier having higher stakes in the case, thereby decreasing the likelihood of settling out-of-court and increasing the amount spent on legal defenses. The authors hypothesize that doctor-sponsored insurers are more likely to include the doctor's private costs into the decision-making, thereby reducing the reverse moral hazard problem. Using a sample of claims for only four insurers from 1985 – 1990, the authors find some evidence that a doctor-sponsored insurer had difference claims settlement practices relative to the three insurers not sponsored by doctors. That is, for their

sample, they find that doctor-sponsored insurers tend to spend more on legal defense and are less likely to settle out-of-court.

This paper differs from Choi and Liang (2007) in that we hypothesize DO&O insurers have an informational advantage and therefore DO&O insurers are better able to ascertain whether medical malpractice actually occurred. Choi and Liang (2007) assume DO&O insurers incorporate the doctor's private costs into decisions regarding settlement. As detailed in a later section, our set-up allows us to determine that DO&O insurers are less likely to settle as Choi and Liang (2007) find, but also enables us to better distinguish other dynamics of claims-settlement practices for DO&O insurers relative to other types of insurers. Our model predicts that when a DO&O insurer believes that medical malpractice has actually occurred, a settlement is more likely and the settlement will occur more quickly and for a lower total cost. While our ensuing empirical analysis supports these hypotheses, the set-up of Choi and Liang (2007) would not support this result.[5] Thus, our theoretical and empirical investigation into the role physicians' information advantages play in the claims settlement practices of DO&O insurers represents a novel departure from the work presented in previous studies.

A variety of other studies, while not directly addressing claims settlement practices of insurers, help to provide important insight into medical malpractice insurance market operations. Much of this literature suggests that the liability climate of a given malpractice market, namely the enactment of tort-liability reforms, has a non-trivial influence on the losses incurred by medical malpractice insurance firms (e.g. Viscusi and Born, 2005; Born, Viscusi, and Baker, 2009; Grace and Leverty, 2013). Similarly, some studies find evidence that the liability climate of a malpractice market influences the time to settlement (e.g. Friedson and Kniesner, 2012) , but the focus of these studies is more on the effects of tort reforms and less on the practices of DO&O insurers. A large body of literature also provides evidence that malpractice risk is associated with a variety of economic costs stemming from changes in physician behavior (e.g. Kessler and McClellan, 1996; Currie and MacLeod, 2006; Lieber 2014) though, again, less is known regarding how the cost of malpractice risk is reflected in claims settlement practices of physician-directed insurers.

[5] In their work, because DO&O insurers incorporate the doctor's private costs into the settlement decision, legal expenditures are always higher whether settlement occurs or not.

Theoretical Predictions and Hypotheses

We propose that physician owners/managers, relative to non-physicians, are better able to distinguish whether or not a medical malpractice event actually occurred when an adverse outcome is reported to the insurer. The source of this information advantage is the physician's medical training and experience. To the extent this information advantage influences decisions such as willingness to settle, amount spent on defense cost, or vigor of defense, we would expect DO&O insurers to have different claims settlement practices than non-DO&O insurers.

We note that the decision processes in the claim settlement procedure are multifaceted and both plaintiffs and insurance companies play an important role in the ultimate disposition of the claim. First, the plaintiff notifies the insurer (either directly or indirectly through the physician) of a claim for damages. After some fact gathering by both parties, if a quick resolution cannot be reached, the plaintiff is the main decision maker if the case is going to continue to move forward given the defendant/insurer actions. At this point, if the plaintiff has decided not to pursue the case, the insurer can close the claim with no payment made which, in our sample (described in an ensuing section), occurs approximately 35% of the time. Otherwise the case moves forward. Once the case moves forward, for a case to reach settlement, both parties have to agree to the settlement. If either party disagrees, a court resolution may occur.[6]

To formalize our predictions regarding the nature of DO&O settlement practices, we propose the following model, which is a modification of the Cooter and Rubinfeld (1989) model for legal disputes. Resolution of legal disputes in or out of court will depend on each side's (plaintiff, defendant) expected payoff if the case goes to trial. Let the subjective expected trial payoff for the plaintiff (damage award) be denoted by T_p and the expected trial payoff (loss) to the defendant be denoted by T_d. Following Cooter and Rubinfeld (1989) and Choi and Liang (2007) we assume risk neutrality for the parties, which implies the subjective value of the possible damage award at trial for the plaintiff, T_p, is equal to the monetary value of expected damages awarded by the court, D_p, times the subjective value that the plaintiff wins at trial, denoted p_p. That is, $T_p = p_p D_p$.

[6] This stage of the decision process has non-trivial implications for our ensuing empirical analysis. In particular, because the plaintiff ultimately decides (given defendant/insurer responses) whether a case moves forward to be either settled or litigated, it would be incorrect to utilize a multi-stage model that considers all aspects of the claims settlement process as sequential decisions made by the insurer.

Meanwhile, the expected payoff/payout for the defendant at trial is equal to the expected damages awarded by the court, D_d, times the defendant's estimate of the probability that the plaintiff wins at trail.

In the model we put forth, we compare defendants represented by either a DO&O insurer or some other commercial insurer. The medical expertise of managers/owners of DO&O insurers allow them to better assess the probability that medical malpractice occurred when a claim is submitted relative to another insurer. Let β represent the probability that medical malpractice occurred. Each type of insurer is somewhat unsure of this estimate so we define $\sigma_{\beta,DO}$ and $\sigma_{\beta,CI}$ as the variance on the estimate of β for a DO&O insurer and non-DO&O insurer respectively. The defendant's subjective probability that the plaintiff wins at trial will be dependent on their estimate of whether medical malpractice occurred and the variance of this estimate. That is, let $P_{d,DO}(\beta, \sigma_{\beta,DO})$ and $P_{d,CI}(\beta, \sigma_{\beta,CI})$, denote the subjective value that the plaintiff wins at trial made by a DO&O insurer and non-DO&O insurer respectively. Then, the subjective expected payoff/payout at trial made by DO&O insurer and non-DO&O insurer can be written as:

$$T_{d,DO} = P_{d,DO}(\beta, \sigma_{\beta,DO})D_d \quad (1)$$

$$T_{d,CI} = P_{d,CI}(\beta, \sigma_{\beta,CI})D_d. \quad (2)$$

In deciding whether to take the case to trial or settle out-of-court, each party needs to first assess their expected payoff from going to trial, which is a function of the effort each party puts forth at trial. The effort of each party at trial can be represented by the party's expenditures at trial, denoted by c_{tp} for the plaintiff and c_{td} for the defendant. Therefore, the plaintiff's expected payoff from trial, net of trial costs is given by: $T_p(c_{tp}, c_{td}) - c_{tp}$. Similarly the defendant's expected loss from trial, including trial costs, is given by: $T_d(c_{tp}, c_{td}) + c_{td}$. These expected gains and losses represent the threat values of each party. Any change which increases the party's threat value increases their gain from bargaining with the other side, if settlement is possible. The sum of subjective threat values is therefore the non-cooperative value of the game between the two sides. This non-cooperative value is given by

$$Noncooperative\ Value = (T_p - c_{tp}) - (T_d + c_{td}) = (T_p - T_d) - (c_{tp} + c_{td}).$$

If a trial can be avoided, there are transactions costs such as legal fees associated with settlement, which we denote c_{sp} and c_{sd} for the plaintiff and defendant. In a settlement, by definition, the net transfer between the parties equals zero, and the cooperative value of the game between the two sides equals this net transfer (zero) minus the transaction costs incurred:

$$Cooperative\ Value = -(c_{sp} + c_{sd}).$$

In models of legal dispute, the surplus of the game is the difference between the cooperative and non-cooperative values:

$$Surplus = [(c_{tp} + c_{td}) - (c_{sp} + c_{sd})] + [T_d - T_p] \quad (3)$$

The surplus from cooperation is equal to the potential gains in terms of costs (trial costs versus settlement costs) as show in the first bracket and differences in subjective expectations about the damages awarded at trial as shown by the term in the second bracket. Typically, transaction costs are lower when a case is settled rather than going to trial which implies

$$(c_{tp} + c_{td}) - (c_{sp} + c_{sd}) > 0. \quad (4)$$

A case will be settled if the surplus is positive. For a DO&O insurer the surplus associated with settling the case is given by:

$$\begin{aligned} Surplus_{DO} &= [(c_{tp} + c_{td}) - (c_{sp} + c_{sd})] + [T_d - T_p] \\ &= [(c_{tp} + c_{td}) - (c_{sp} + c_{sd})] + [P_{d,DO}(\beta, \sigma_{\beta,DO})D_d - p_p D_p]. \end{aligned} \quad (5)$$

Similarly, the surplus associated with settling the case for a non-DO&O insurer is given by:

$$Surplus_{CI} = [(c_{tp} + c_{td}) - (c_{sp} + c_{sd})] + [P_{d,CI}(\beta, \sigma_{\beta,CI})D_d - p_p D_p]. \quad (6)$$

Looking at equation (5) above and knowing a case settles when the surplus is positive, a case with a DO&O insurer will settle if

$$P_{d,DO}(\beta, \sigma_{\beta,DO}) > \left\{\frac{p_p D_p - [(c_{tp} + c_{td}) - (c_{sp} + c_{sd})]}{D_d}\right\} \quad (7)$$

Looking at equation (6), a case involving a non-DO&O insurer will settle if

$$P_{d,CI}(\beta, \sigma_{\beta,CI}) > \left\{\frac{p_p D_p - [(c_{tp} + c_{td}) - (c_{sp} + c_{sd})]}{D_d}\right\} \quad (8)$$

Because DO&O insurers have owners/managers with medical expertise, they are better able to assess whether medical malpractice occurred or not. Therefore, the variance on their estimate of β is lower relative to the variance on this estimate made by commercial insurers. That is, $\sigma_{\beta,DO} < \sigma_{\beta,CI}$.[7] The impact of this difference on the probability that the plaintiff wins at trial will depend on whether the probability medical malpractice occurred is low or high. When the probability medical malpractice occurred is low (β is low), a DO&O insurer will have a better estimate that medical malpractice did not occur and therefore will assess that the probability that the plaintiff would win if the case goes to trial is lower, relative to a non-DO&O insurer. That is, since β is low and $\sigma_{\beta,DO} < \sigma_{\beta,CI}$, then $P_{d,DO}(\beta, \sigma_{\beta,DO}) < P_{d,CI}(\beta, \sigma_{\beta,CI})$. Looking at equations (1) and (2), if $P_{d,DO}(\beta, \sigma_{\beta,DO}) < P_{d,CI}(\beta, \sigma_{\beta,CI})$ then $T_{d,DO} < T_{d,CI}$. When it is likely medical malpractice did not occur, a DO&O insurer will estimate the probability that the plaintiff would win at trial is lower than a non-DO&O insurer, and therefore the expected payoff or loss for the DO&O insurer is lower, relative to that estimated by a non-DO&O insurer. Because DO&O insurers can better assess "questionable" claims (claims when β is low), we expect that DO&O insurers are less likely to pay claims overall compared to non-DO&O insurers. Thus, we arrive at our first testable hypothesis:

H1: Relative to other insurer types, DO&O insurers are less likely to pay a medical malpractice claim when an adverse event is reported to the insurer.

Looking at equations (7) and (8), which give the conditions needed for DO&O insurers and non-DO&O insurers to settle a case, the right-hand side of each equation is the same. If the probability medical malpractice occurred is low (β low) and therefore, the subjective probability the plaintiff wins a trial is lower for DO&O insurers relative to other insurer types ($P_{d,DO}(\beta, \sigma_{\beta,DO}) < P_{d,CI}(\beta, \sigma_{\beta,CI})$), as explained above, then it is more likely that equation (8) holds relative to equation (7). That is, it is more likely the surplus is higher for a non-DO&O insurer and a non-DO&O insurer is more likely to settle the case out-of-court than a DO&O insurer.

[7] A non-DO&O insurer could pay to obtain information which would lower sigma to the same level as it is for DO&O insurers. Doing so would cause $T_{d,DO} = T_{d,CI}$. The cost for such information would proportionally increase costs for both trial and settlement though. As such, the surplus value associated with settling for DO&O insurers would still be lower than for non-DO&O insurers and DO&O insurers will be less likely to settle relative to non-DO&O insurers. That is, operational differences in claims-settlement practices for DO&O insurers compared to non-DO&O insurers still exist.

Intuitively, because DO&O insures are better able to distinguish cases where a malpractice event did not occur, DO&O insurers know the probability the plaintiff will win at trial is lower and will more vigorously pursue the defense of cases where they know the insured to be innocent. This implies that for the subset of claims that are not dropped/withdrawn/closed with no payment, DO&O firms are more likely to take claims to court. Thus we arrive at our second testable hypothesis:

H2: For claims not otherwise dropped or withdrawn, DO&O insurers, relative to other insurer types, are more likely to resolve a medical malpractice claim in court when an adverse event is reported to the insurer.

Our theoretical model also captures how the informational advantage of physician owners/managers influences the time to settlement and total cost of the claim when it is more likely that medical malpractice did occur. Suppose it is more likely that medical malpractice did occur. Therefore, β is high. Since DO&O insurers have lower variance on their estimate of the probability that medical malpractice occurred, they will have a better estimate that medical malpractice occurred and will assess the probability that the plaintiff wins at trial is higher, relative to other insurer types. Because other insurer types have a higher error on the probability that malpractice occurred, they are more likely to think malpractice didn't occur relative to DO&O insurers and will have a lower estimate that the plaintiff will win the case if it goes to trial. That is, when β is high, since $\sigma_{\beta,DO} < \sigma_{\beta,CI}$, then $P_{d,DO}(\beta, \sigma_{\beta,DO}) > P_{d,CI}(\beta, \sigma_{\beta,CI})$. From equations (7) and (8), this implies that it is more likely the surplus is positive for a DO&O insurer relative to other insurer types. Therefore a DO&O insurer is more likely to settle the case out-of-court when it is likely medical malpractice did occur.

When β is high, as explained above then $P_{d,DO}(\beta, \sigma_{\beta,DO}) > P_{d,CI}(\beta, \sigma_{\beta,CI})$ which from equations (1) and (2) also implies $T_{d,DO} > T_{d,CI}$. That is, when it is likely medical malpractice occurred, the expected payoff/loss for the defendant at trial is estimated to be higher by a DO&O insurer than other insurer types. Because DO&O insurers have informational advantages, when it is likely medical malpractice occurred, DO&O insurers will have a higher subjective value that the plaintiff will win the case and will estimate the expected loss if they did go to trial is higher. As such they will look to minimize the damages that need to be paid. In this instance, because $P_{d,DO}(\beta, \sigma_{\beta,DO}) > P_{d,CI}(\beta, \sigma_{\beta,CI})$, the surplus is more likely to be positive for a DO&O insurer relative to other

insurer types and therefore DO&O insurers are more likely to settle. This can partly be achieved by settling the case more quickly which will reduce the costs associated with settlement, c_{sd}. Expecting that costs will be higher if the case goes to trial and deciding to settle when it is likely the medical malpractice claim is legitimate, DO&O insurers will look to minimize total costs associated with the claim. Therefore we expect DO&O insurers to have lower total costs and a shorter settlement time compared to non-DO&O insurers when it is likely medical malpractice occurred. This results in our final two testable hypotheses:

H3: Relative to other insurer types, DO&O insurers settle medical malpractice claims more quickly.

H4: Relative to other insurer types, DO&O insurers will have lower total costs for settled medical malpractice claims.

Data

The primary data that we use to test the validity of our hypotheses comes from the state of Florida Professional Liability Claims Reporting database (PLCR). While this dataset extends through 2014, we utilize data through 2009 to allow time for all the cases to close. Given that the average settlement takes more than 860 days, using more recent years may introduce a bias since only cases that closed quickly would be included. Thus our sample runs for the years 2000 through 2009 and allows us to capture cases that take longer to reach resolution[8]. The PLCR database contains closed claims data for medical professional liability that includes the insured, the specialty area of practice, the insurer, the date of injury, the date the injury was reported, the county, the severity of injury, the final method of disposition of the case, the total award paid, the loss adjustment expenses (includes defense costs) and any non-economic damages paid. This database provides more detail than others, such as the Texas Closed Claims Database, and has been used in studies by Choi and Liang (2007) and Sloan and Hsieh (1990) to examine topics related to malpractice insurance claims settlement.

The PLCR dataset was merged with National Association of Insurance Commissioner (NAIC) data (2000-2009) to identify the insurers writing medical malpractice insurance in the state of Florida during our

[8] The PLCR database goes back beyond 2000, however, some of the demographic data (e.g. county of claim, etc…) is missing or may not be correctly reported prior to 2000. This is noted in the database and is the reason we begin our analysis with the 2000 year data.

sample.[9] Each insurance company was then hand classified as to whether they were DO&O for each year they appear in the sample. This was done with information provided by the Physician Insurers Association of America (PIAA), the trade organization that represents medical malpractice insurers in the United States, along with information gathered from SNL Financial company reports and information from the individual insurer websites. The final dataset contains 10,813 closed claims and all monetary values are in 2012 dollars.

Table 1, Panel A contains the descriptive statistics of all the variables utilized in this analysis. Total award is the sum of the indemnity and non-economic loss variables and represents the amount paid to the insured for both economic and non-economic losses suffered. More than half of the 10,813 cases reach a resolution with no award payment being made (median Total Award = $0), while the mean total award is just over $221,000. Most of the total award are indemnity payments (mean = $140,507) with a smaller percentage being non-economic loss payments (mean = $80,410). Loss adjustment expenses are incurred even if the ultimate resolution of the case ends with no payments being made to the plaintiff. The mean (median) loss adjustment expenses are over $49,000 ($20,500) and are in addition to any award payment.

The methods of resolution of a claim are classified into three categories: no payment made, settled, and disposition by court. More than 35% of claims are dropped (prior to action being filed) or result in no payment being made to the plaintiff (mean of no payment made = .3538).[10] These cases we classified as no payment made. These cases never reached a court resolution nor were they settled by the parties involved. No payment was ever made to the plaintiff, however some loss adjustment expenses may have been incurred. Since there was no settlement or court resolution, it is possible that these cases could be reopened in the future. More than 50% of claims reach settlement (mean of settlement = .5012). Of these 5,419 claims, 619 of them settle for a total award of $0. These are cases that did reach a settlement, often to ensure that the case cannot be reopened at a later date, even though no award payment was made. Most of these cases incurred loss adjustment expenses. The final

[9] For each claim handled by an insurance company, the PCLR database gives the associated NAIC company code, allowing us to match the PCLR data to the NAIC data.

[10] The data in the PLCR database is reported to the Florida Office of Insurance Regulation by insurers. The no payment made category is made up of claims that were dropped before any action was filed in the court system or claims files of the insurer that were closed without a settlement or court resolution.

category of resolution is disposition by the court. Less than 15% of cases are resolved in this manner (mean of court = .143).

In 2002, Florida enacted a law that placed a limit on non-economic damages that could be awarded in medical malpractice cases. As a result more than 66% of our sample (mean of non-economic damage cap = .660) are claims that were subject to this cap on non-economic damages. That law was overturned by the Florida Supreme Court in 2014. The overturn has no influence on our sample period. Consistent with prior literature, a univariate analysis confirms that the cap on noneconomic damages in Florida lowered malpractice award sizes and shortened the length of the litigation process, and therefore needs to be controlled for in our analysis.

Table 1 Panel A also shows that more than 42% of the claims in our sample were insured by DO&O insurers (mean of DO&O = .4252). In addition, the Florida medical malpractice insurance market is dominated by a few large insurers (67% of claims are insured by the top 5 insurers). Four of the top 5 insurers in Florida during our sample were DO&O.

Additional control variables are listed in Table 1 Panel A. Gender (female) is included to account for differences in malpractice risk associated with medical procedure types available to females. Age is included to account for the fact that judgment amounts are often based on income potential. We control for counties with large populations (metrocounty) because they may have better access to legal counsel. We also include a measure of delay in claim filing because more time between the occurrence date of an adverse medical outcome and the filing date of the claim may indicate higher information asymmetry or more complex cases. Statistics on the specialty involved in the claim are also reported. The PLCR databased contains coding for over 90 medical specialties and many of these specialties have few if any claims. As such, we aggregated these 90 specialties and control for higher risk specialties (surgery, anesthesia, and OB/GYN) where, according to previous literature (e.g. Choi and Lang, 2007), we may see more frequent or severe cases.

Table 1 Panel A also contains statistics on the dummy variables representing the nine different injury categories contained in the claims database. Clearly, the level of injury sustained will influence a variety of the measures utilized in our analysis (payment amounts, likelihood of settling, etc.) and it is therefore used as a control variable. Table 1, Panel B contains additional detailed information pertaining to how payment amounts

and the likelihood to settle vary with injury severity. As the severity of the injury increases, both indemnity and non-economic loss payments, the likelihood of settling, and the time to settlement all increase.

Table 2, Panel A contains more detailed descriptive statistics and some univariate analysis of the full sample (N = 10,813). T-tests on the non-economic damage cap dummy show that the cap may have reduced the total award amount (significant at the 10% level), but had a more significant impact on the non-economic awards, loss adjustment expenses, and the number of days it took to reach a settlement (all significant at the 1% level). In addition, it increased the number of cases where no payment was made (30% pre-cap vs. 38% post-cap), also significant at the 1% level. Table 2, Panel A also shows that in our full sample DO&O insurers were far more likely to have claims in which no payment was made (45.89% DO&O vs. 27.61% non-DO&O, 1% level) which is consistent with our first hypothesis.

Table 2, Panel B contains the detailed descriptive statistics and univariate analysis of only the cases that reach a settlement (N = 5,419). In those cases, the non-economic damage cap is consistent with what was shown in Panel A. Total award amount, indemnity, non-economic losses, and loss adjustment expenses are lower in the post-cap claims (5% significance). In addition, the days to settlement is still significantly lower (1% significance). Panel B shows that DO&O companies seem to settle slightly faster (10% significance) which would be consistent with our fourth hypothesis.

Methodology, Analysis and Results

We utilize four distinct model specifications in order to test our four hypotheses. Our first hypothesis states that DO&O medical malpractice insurers, because of their information advantage, will be less likely to pay some claims. We test this hypothesis using a logistic regression model that takes the following general form:

$$NoPay_{it} = DO\&O_{it} + \gamma_{it} + \varepsilon_{it} \qquad (9)$$

where:

$NoPay_{it}$ = the unobserved propensity for claim *i* to be dropped or unpaid in year *t*: In practice, this variable takes on a value of 1 if the claim was dropped before an action was filed or no payment was made to the plaintiff and 0 for all other claims (claims that were resolved via settlement, even if settled for $0, or court disposition).

$DO\&O_{it}$ = an indicator variable equal to 1 if claim *i* was handled by a DO&O insurer in year *t* and 0 otherwise.

γ_{it} = a vector of controls variables for claim *i* in year *t*.

ε_{it} = an error term

The specific variables included as controls in γ_{it} are the injury type, the specialty area, if the county has high population, the time delay between the injury and the date of the claim, and the cap on non-economic damages. More specifically, we believe that more severe injuries are less likely to be dropped (predicted sign: -), claims against specialty physicians are less likely to be dropped (predicted sign: -), claimants in higher population counties have better access to legal services (predicted sign: -), claims with more time between injury date and the reported date are more likely to be dropped (predicted sign: +), and caps on noneconomic damages are more likely to result in dropped claims (predicted sign: +). Also included are year indicator variables to control for intertemporal differences in claims settlement practices.

The results of estimating equation (9) are given in Table 3 and all reported standard errors are robust to the effects of heteroskedasticity. The results reported in the column titled "Model 1" show a positive and significant value for DO&O, suggesting claims that are dropped or not paid are more likely to be handled by DO&O insurers than non-DO&O insurers. This finding provides support for our hypothesis that DO&O insurers are less likely to pay questionable claims. As a robustness check, the premium volume of a given firm is included in "Model 2" to control for the size of the insurer and we find our main result is unaltered even after controlling for size.[11] Additionally, "Model 3" includes a variable that indicates whether a given firm in a given year is a "top 5" insurer, in terms of the number of medical malpractice claims. As noted earlier, the Florida market is fairly concentrated with a few large insurers dominating the market and four of the top 5 insurers are DO&O. However, even after controlling for the dominant insurers, the results are consistent across the three models: DO&O insurers are more likely to have claims dropped or no payment made.

The coefficient estimate from Model 1 suggests that DO&O insurers increase the likelihood of a case being dropped by the log odds of .8322, or the odds of the case being dropped increase by a factor of 2.3. This is

[11] Specifically, this variable is defined as the natural logarithm of direct premiums earned in medical malpractice insurance in Florida for a given firm during a given year.

significantly more than the increase in likelihood of a case being dropped that can be attributed to the cap on non-economic damages. From Model 1, the increase in the likelihood of a case being dropped increased with the cap on non-economic damages by a factor of 1.47 (log odds of .3261).

To test the second hypothesis – that DO&O insurers are less likely to settle claims and more likely to go to court - a two stage approach is used to control for the fact that DO&O have fewer claims that go on to the settlement vs. court decision as noted in our logistic regression results in Table 3.[12] Here, we utilize a Heckman-probit model where the first stage takes the general form of

$$MovesOn_{it} = DO\&O_{it} + \gamma_{it} + \varepsilon_{it}$$

and where the second stage takes the general form of (10)

$$Settled_{it} = DO\&O_{it} + \gamma_{it} + \lambda_{it} + \varepsilon_{it}$$

Here,

$MovesOn_{it}$ = an indicator variable equal to 1 if claim *i* was disposed of in court or settled in year *t* and equal to 0 if the case was withdrawn or if no payment was made.

$Settled_{it}$ = an indicator variable equal to 1 if claim *i* was settled by both parties in year *t* and equal to 0 if the cases was disposed of in court.

$DO\&O_{it}$ = an indicator variable equal to 1 if claim *i* was handled by a DO&O insurer in year *t* and 0 otherwise.

γ_{it} = a vector of controls variables for claim *i* in year *t*.

λ_{it} = the inverse Mills ratio

ε_{it} = an error term

For the reasons previously described, when estimating equation (10), we include the same control variables described in the logit model analysis. We identify the model by excluding the variable Female, an indicator equal to 1 if the claimant is female, from the second stage. In Table 4A, we provide the first stage results of estimating equation (10) and in Table 4B we provide the second stage results.

[12] Since the plaintiff has a larger say in whether a claim moves forward (not dropped) the empirical model is not structured as a multinomial probit (dropped, settled, court).

The first stage results are consistent with the logistic regression reported in Table 3. DO&O companies have fewer claims that proceed to the settlement vs. court decision (opposite sign from Table 3 since we are modeling whether the case moves on (Table 4) versus no payment made (Table 3)). Of greater interest, however, is that the second stage results are consistent with our second hypotheses. In particular, the negative and statistically significant coefficient on DO&O in "Model 1" indicates that, of those claims that do proceed beyond the no payment stage, DO&O companies are less likely to settle (i.e. more likely to go to court). The magnitude of the coefficient estimate from the second stage of Model 1 suggests that DO&O insurers are associated with a decrease in the likelihood of a case being settled by approximately 19%.[13] While "Model 2" and "Model 3" indicate that this result may be driven by the large, top 5 insurers, we note that, since four of the top five insurers are DO&O, this result does not necessarily refute our second hypothesis.

Our third hypothesis posits that DO&O insurers, based on their information advantage, are better able to identify cases where doctors have committed malpractice and are therefore willing to settle these cases more quickly. This hypothesis is also tested using a selection model in which the first stage takes the general form of

$$Settled_{it} = DO\&O_{it} + \gamma_{it} + \varepsilon_{it} \quad (11)$$

and the second stage takes the general form of

$$SettleTime_{it} = DO\&O_{it} + \gamma_{it} + \lambda_{it} + \varepsilon_{it}$$

Here,

$Settled_{it}$ = an indicator variable equal to 1 if claim *i* settled in year *t* and equal to 0 if no payment was made of if the case was settled in court.

$SettleTime_{it}$ = a discrete variable indicating the number of days between when claim *i* was reported and when claim *i* was settled.

$DO\&O_{it}$ = an indicator variable equal to 1 if claim *i* was handled by a DO&O insurer in year *t* and 0 otherwise.

γ_{it} = a vector of controls variables for claim *i* in year *t*.

λ_{it} = the inverse Mills ratio

[13] The coefficient (-.3032) needs to be adjusted since the DO&O variable appears in the selection model as well. Adjusting for the correlation in the error terms yields (-.2868). Since the second stage is a probit model, the cumulative normal distribution is evaluated at the means of the other explanatory variables.

ε_{it} = an error term

Similar to the previous models, we again include the same control variables described in the logit model analysis and the inverse Mills ratio is included in the second stage to control for selection bias. We also identify the model by excluding the variable female in the second stage. The second stage is a Cox proportional hazards regression, following Friedson and Kniesner (2012) and others, and allows us to analyze the time to resolution for settled cases. A positive parameter estimate in the Cox regression indicates a "higher hazard", suggesting that is the claim is more likely to drop out of the sample (i.e. settle) more quickly.

As given in Table 5A, when we estimate the first stage of this model, we find that DO&O companies are less likely to settle, which is consistent with our earlier analyses.[14] In support of our hypothesis, the estimated coefficients displayed in "Model 1" in Table 5B shows that DO&O insurers are more likely to settle claims quicker. Taking the antilog of the DO&O coefficient to arrive at the hazard ratio of 1.3512 aids in the interpretation of our results and implies that DO&O firms settle claims about 26 % faster than non-DO&O firms. This finding is illustrated by Graph 1, which depicts the differences between DO&O insurers and non-DO&O insurers with regard to settlement speeds.

Additionally, "Model 2" and "Model 3" in Table 5 show that the large insurers and insurers in the top 5 are also more likely to settle claims quicker. However, in both specifications, the controls for size and market share do not negate the positive and statistical significance on the DO&O variable. In addition, the magnitude of the DO&O coefficients are similar to those in "Model 1." This provides additional support for our third hypothesis that DO&O firms settle cases more quickly.

Our final hypothesis posits that DO&O insurers, based on their information advantage, are better able to identify cases where doctors have committed malpractice and are therefore try to settle these cases to minimize total cost. To text this hypothesis, we again utilize a two-stage approach where the first stage takes the general form of

$$Settled_{it} = DO\&O_{it} + \gamma_{it} + \varepsilon_{it}$$

[14] Appendix A contains the descriptive statistics on the settlement stages, where in the legal process the settlement occurred.

and the second stage takes the general form of (12)

$$TotalCost_{it} = DO\&O_{it} + \gamma_{it} + \lambda_{it} + \varepsilon_{it}$$

Here,

$Settled_{it}$ = an indicator variable equal to 1 if claim *i* settled in year *t* and equal to 0 if no payment was made of if the case was settled in court.

$TotalCost_{it}$ = an continuous variable equal the natural logarithm of the award size plus loss adjustment expenses of claim *i* in year *t* .

$DO\&O_{it}$ = an indicator variable equal to 1 if claim *i* was handled by a DO&O insurer in year *t* and 0 otherwise.

γ_{it} = a vector of controls variables for claim *i* in year *t*.

λ_{it} = the inverse Mills ratio

ε_{it} = an error term

When estimating equation (12), we again include the same control variables described in the logit model analysis and the inverse Mills ratio is included in the second stage to control for selection bias. We also identify the model by excluding the variable female, an indicator equal to 1 if the claimant is female, from the second stage. To prevent bias in our estimates, the second stage necessitates the use of a Tobit model because 619 of the 5,419 cases which ended in settlement, were settled for $0, creating a mass point at 0.

The first stage of this model is given in Table 6A. In Table 6B, we provide the second stage results. The dependent variable is the logarithm of the total cost of the claim (i.e. award size + loss adjustment expenses). In support of our hypothesis, "Model 1" shows that DO&O insurers settle for significantly less total cost than non-DO&O insurers. The coefficient estimate from the second stage of "Model 1" suggests that DO&O insurers are associated with a decrease in the total cost (award amount plus loss adjustment expenses) of approximately 10%.[15] Further support for our fourth hypothesis is provided in "Model 2" and "Model 3", which indicate that our main results in "Model 1" remain even when controlling for a firm's size and the top 5 insurers.

[15] The coefficient (-.1248) is subject to two adjustments since this is empirical model is essentially a double selection model. The first selection is whether the case settles or not (first stage probit). The second selection is whether the case settles for a

Conclusion

In this paper, we posit that physician owners and managers of DO&O professional liability insurance companies have an informational advantage over owners and managers of non-DO&O insurers. More specifically, we believe that the unique medical expertise of physician owners and managers suggests that DO&O firms are likely better able to distinguish when a medical malpractice claim has actually occurred when an adverse medical outcome results in a claim against an insured. As a result, we would expect that the claims settlement practices of DO&O insurers to be different than other organizational forms.

To provide insight on whether the claims settlement practices of DO&O insurers are different relative to other insurer types, we develop a theoretical model that generates testable hypotheses. We then use data pertaining to closed medical malpractice insurance claims in the state of Florida to provide empirical evidence on the subject. Our empirical results are largely consistent with the predictions of the theoretical model and suggest that DO&O firms, relative to other types of insurers, are 1) less likely to pay "questionable" claims, 2) less likely to settle claims and therefore more likely to go to court, 3) more willing to settle cases where doctors have actually committed a malpractice injury for a higher award amount, and 4) settle claims more quickly.

We find the likelihood that a given claim is dropped when a DO&O insurer is involved is higher by a factor of approximately 2.3, relative to non-DO&O insurers. DO&O insurers are also about 19 % less likely to settle a case relative to other types of insurers and they also settle claims approximately 26 % faster than other non-DO&O insurers. In addition, we also find that the total cost of claims settled by DO&O insurers is approximately 10 % lower than the total cost of claims settled by other types of insurers. Taken in their entirety, our results suggest significant and non-trivial differences in the disposition of medical malpractice claims handled by DO&O insurers relative to non-DO&O insurers.

Our conclusion is that the medical expertise of physician owners/managers has non-trivial implications for influencing the degree of the economic costs of medical malpractice risk borne by the physician, the tort

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positive value (vs. $0), the second stage tobit model. Adjusting for the first stage selection yields a coefficient estimate of approximately, -.1116. The second stage adjustment yields a coefficient estimate of approximately -.1009.

system, and ultimately the patients. As a result, the possession of superior information regarding medical malpractice claims may, to a degree, explain why physicians would form a DO&O insurance firm. This finding represents a novel contribution to the literature, which has largely focused on the improvements in incentive alignments between owners/managers and insureds in DO&O insurers. Further, while the evidence in our study does not refute the notion that owner and policyholder incentives are better aligned in DO&O firms, it does indicate that the medical expertise of owners/managers of DO&O firms plays a key role in the disposition of a medical malpractice insurance claims. As a result, the evidence presented in this paper is of interest to a variety of parties concerned with the economic consequences of medical malpractice risk.

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Table 1 Panel A: Descriptive Stats (N = 10,813)

Variable	Mean	Median	Min	Max	SD
Total award (000's)	$221.02	$0	$0	$55,100.00	$1,082.86
Indemnity (000's)	$140.61	$0	$0	$55,100.00	$871.08
Non- economic loss (000's)	$80.41	$0	$0	$18,200.00	$395.77
Loss adjustment expenses (000's)	$49.19	$20.70	$0	$21,200.00	$312.01
Days to settlement	867.920	747.000	1.000	4,011.000	608.340
Resolution: No payment made (d)	0.354				
Resolution: Settled (d)	0.501				
Resolution: Court Disposition (d)	0.143				
Doctor Owned & Operated (DO&O) (d)	0.425	0	0	1	0.494
FL Med Mal DPE (000's)	82,184	59,203	0	215690	70,425
Top 5 Insurer (d)	0.677	1	0	1	0.468
Delay between injury and claim (days)	527.000	509.000	0	4,849.000	362.250
Female (d)	0.505	1	0	1	0.500
Age (years)	46.980	49.000	0	128.000	21.170
County Pop > 500K (d)	0.647	1	0	1	0.478
Non-economic Damage Cap (d)	0.660	1	0	1	0.474
Specialty: Surgery (d)	0.338	0	0	1	0.473
Specialty: OB/GYN (d)	0.006	0	0	1	0.080
Specialty: Anesthesia (d)	0.050	0	0	1	0.217
Injury Severity: Emotional (d)	0.050	0	0	1	0.217
Injury Severity: Temporary Slight (d)	0.047	0	0	1	0.211
Injury Severity: Temporary Minor (d)	0.126	0	0	1	0.332
Injury Severity: Temporary Major (d)	0.074	0	0	1	0.262
Injury Severity: Permanent Minor (d)	0.167	0	0	1	0.373
Injury Severity: Permanent Significant (d)	0.097	0	0	1	0.295
Injury Severity: Permanent Major (d)	0.063	0	0	1	0.242
Injury Severity: Permanent Grave (d)	0.041	0	0	1	0.199
Injury Severity: Permanent Death (d)	0.337	0	0	1	0.473

Table 1 – Panel B: Mean Values of Select Characteristics by Severity of Injury

Injury Severity	Total Award	Indemnity	Non-Economic Losses	Loss Adjustment Expenses	Cases with no payment (%)	Cases that settle (%)	Number of days to settlement
Emotional	14,378	8,603	5,775	12,357	57.09	20.15	563
Temporary Slight	25,999	17,624	8,375	13,384	59.80	29.31	623
Temporary Minor	57,807	39,646	18,161	29,031	44.81	43.19	757
Temporary Major	124,328	78,146	46,181	38,601	36.45	46.81	870
Permanent Minor	168,456	105,127	63,329	43,967	31.40	53.32	910
Permanent Significant	354,795	212,287	142,508	51,412	26.65	59.44	899
Permanent Major	390,899	251,708	139,191	131,238	27.07	59.17	950
Permanent Grave	630,671	407,638	233,034	73,282	23.77	66.81	807
Permanent Death	266,752	172,283	94,469	53,232	32.49	52.76	950

Table 2 – Panel A: Descriptive Statistics of All Claims (N = 10,813)

		Non-Economic Cap		Type of Insurer	
		Pre-Cap	*Post-Cap*	*DO&O*	*Non-DO&O*
Variable	Statistic	(3673 obs)	(7139 obs)	(4597 obs)	(6215 obs)
Total Award	Mean	246.732	207.788*	212.76	227.126
(000's)	Med	0	0	0	0
	Min	0	0	0	0
	Max	55100	51200	55100	51200
	SD	1318.004	939.047	1109.296	1062.93
Indemnity	Mean	156.457	132.453	137.499	142.907
(000's)	Med	0	0	0	0
	Min	0	0	0	0
	Max	55100	51200	55100	51200
	SD	1034.161	773.861	906.285	844.168
Non-Economic Loss	Mean	90.275	75.334**	75.26	84.218
(000's)	Med	0	0	0	0
	Min	0	0	0	0
	Max	16600	18200	18200	16600
	SD	488.183	338.453	408.948	385.712
Loss Adjustment Expenses	Mean	61.935	42.636***	46.364	51.284
(000's)	Med	34.897	15.19	22.393	19.585
	Min	0	0	0	0
	Max	6854.09	21200	1863.685	21200
	SD	173.813	363.004	77.058	406.154
Days to Settlement	Mean	1177.2	708.76***	830.093***	895.92
	Med	1073	584	689.5	778
	Min	1	3	1	3
	Max	4011	3608	4011	3928
	SD	659.8	511.84	601.285	612.049
No Payment Made	Mean	0.301851	0.3806***	0.4589***	0.2761
Settled	Mean	0.465	0.52***	.4315***	0.5529

*, **, *** - 10%, 5%, 1% significance: t-test

Table 2 – Panel B: Descriptive Statistics of Claims that Reached a Settlement (N = 5,419)

			Non-Economic Cap		Type of Insurer	
Variable	Statistic	*Settled Claims (5,419 obs)*	*Pre-Cap (1706 obs)*	*Post-Cap (3713 obs)*	*DO&O (1983 obs)*	*Non-DO&O (3436 obs)*
Total Award	Mean	420.397	496.771	385.306**	461.624*	396.604
(000's)	Med	243.081	223.336	249.554	263.218	223.336
	Min	0	0	0	0	0
	Max	55100	55100	51200	55100	51200
	SD	1466.437	1877.29	1231.3	1615.73	1372.59
Indemnity	Mean	268.651	316.966	246.453**	298.423	251.469
(000's)	Med	170.825	155.145	176.577	210.575	152.089
	Min	0	0	0	0	0
	Max	55100	55100	51200	55100	51200
	SD	1202.287	1491.56	1042.3	1342.51	1113.2
Non-Economic Loss	Mean	151.746	179.805	138.854**	163.201	145.135
(000's)	Med	1.754	0	10.664	0	10.67
	Min	0	0	0	0	0
	Max	18200	16600	18200	18200	16600
	SD	526.405	689.216	430.977	590.436	485.593
Loss Adjustment Expenses	Mean	60.785	73.855	54.78**	53.71	64.868
(000's)	Med	28.767	43.363	22.791	32.355	26.233
	Min	0	0	0	0	0
	Max	21200	6854.09	21200	1863.69	21200
	SD	435	239.422	499.746	81.389	542.776
Days to Settlement	Mean	891.34	1218.89	740.75***	876.73*	899.77
	Med	794.5	1105	648	767.5	808.5
	Min	5	13	5	14	5
	Max	3928	3928	3466	3643	3928
	SD	574.208	623.05	480.53	575.75	573.23

*, **, *** - 10%, 5%, 1% significance: t-test

Table 3: Logit Regression (Dependent Variable = No Payment Made (d))

	Model 1		Model 2		Model 3	
Variable	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**
Doctor-owned & Operated (DO&O) (H1)	**0.8322*** **	**[0.043]**	**0.8320*** **	**[0.044]**	**0.8017*** **	**[0.044]**
ln(FL Med Mal DPE)			**-.0108**	**[.0158]**		
Top 5 Insurer					**0.1149** **	**[0.050]**
Time delay (occurrence to claim)	0.0003***	[0.000]	.0003***	[0.000]	0.0003***	[0.000]
Female (d)	-0.0390	[0.043]	-0.0440	[0.043]	-0.0390	[0.043]
Cap on noneconomic damages	0.3831***	[0.113]	0.3836***	[0.114]	0.3969***	[0.114]
Age	0.0055***	[0.001]	0.0054***	[0.001]	0.0054***	[0.001]
Injury Type: Emotional	1.1675***	[0.098]	1.1741***	[0.098]	1.1510***	[0.098]
Injury Type: Temporary Slight	1.3027***	[0.102]	1.3145***	[0.102]	1.2947***	[0.101]
Injury Type: Temporary Minor	0.5963***	[0.068]	0.5956***	[0.069]	0.5927***	[0.068]
Injury Type: Temporary Major	0.3376***	[0.086]	0.3314***	[0.086]	0.3422***	[0.086]
Injury Type: Permanent Minor	0.0036	[0.065]	-0.0010	[0.065]	-0.0007	[0.065]
Injury Type: Permanent Significant	-0.1747**	[0.082]	-0.1785**	[0.083]	-0.1718**	[0.082]
Injury Type: Permanent Major	-0.2165**	[0.099]	-0.2135**	[0.099]	-0.2120**	[0.099]
Injury Type: Permanent Grave	-0.3332***	[0.121]	-0.3120***	[0.122]	-0.3403***	[0.121]
Specialty: Surgery	-0.1261***	[0.047]	-0.1192***	[0.048]	-0.1362***	[0.048]
Specialty: Anesthesia	-0.3432***	[0.105]	-0.3567***	[0.106]	-0.3201***	[0.106]
Specialty: OB/Gyn	-0.0548	[0.273]	-0.0400	[0.275]	-0.0440	[0.273]
County Pop > 500K (d)	0.0474	[0.044]	0.0399	[0.045]	0.0572	[0.044]
Time D Included	Yes		Yes		Yes	
Constant	-1.9399***	[0.117]	-1.8210***	[0.117]	-2.0071***	[0.121]
Obs.	10813		10813		10813	
Pseudo R^2	.0685		.0690		.0689	

Robust standard errors in brackets

*** p<0.01, ** p<0.05, * p<0.1

This table displays the results of a logistic regression where the dependent variable is equal to 1 if no payment was made for a given claim that closed in a given year. The independent variable of interest is "Doctor-owned & Operated (DO&O)" which is equal to 1 if a given claim was handled by a doctor owned and operated insurer. The additional independent variables included in the model serve as control variables and are defined previously in the paper. All models include time dummies and robust standard errors are reported. Note also that *** = p<.01; ** = p<.05; and * = p<.1.

Table 4A: Heckman Probit (Dependent Variable: First Stage – Case Moves On (d))

	Model 1		Model 2		Model 3	
Variable	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**
Doctor-owned & Operated (DO&O)	**-0.5106*** **	**[0.026]**	**-0.5088*** **	**[0.027]**	**-0.4904*** **	**[0.027]**
Ln(FL Med Mal DPE)			**.0066**	**[0095]**		
Top 5 Insurer					**-0.0663** **	**[0.030]**
Time from occurrence to claim	-0.0002***	[0.000]	-0.0002***	[0.000]	-0.0002***	[0.000]
Cap on noneconomic damages	-0.2358***	[0.068]	-0.2346***	[0.068]	-0.2411***	[0.068]
Age	-0.0033***	[0.001]	-0.0032***	[0.001]	-0.0032***	[0.001]
Injury Type: Emotional	-0.7152***	[0.059]	-0.7197***	[0.060]	-0.7046***	[0.061]
Injury Type: Temporary Slight	-0.7899***	[0.063]	-0.8060***	[0.063]	-0.7928***	[0.063]
Injury Type: Temporary Minor	-0.3574***	[0.042]	-0.3632***	[0.042]	-0.3615***	[0.042]
Injury Type: Temporary Major	-0.2184***	[0.051]	-0.2023***	[0.052]	-0.2088***	[0.052]
Injury Type: Permanent Minor	-0.0025	[0.039]	-0.0037	[0.039]	0.0049	[0.039]
Injury Type: Permanent Significant	0.1083**	[0.048]	0.1063**	[0.049]	0.1041**	[0.049]
Injury Type: Permanent Major	0.1238**	[0.058]	0.1193**	[0.059]	0.1178**	[0.058]
Injury Type: Permanent Grave	0.1993***	[0.071]	0.1821***	[0.071]	0.1986***	[0.071]
Specialty: Surgery	0.0793***	[0.028]	0.0727***	[0.029]	0.0837***	[0.029]
Specialty: Anesthesia	0.2105***	[0.062]	0.2218***	[0.063]	0.2008***	[0.063]
Specialty: OB/Gyn	0.0762	[0.166]	0.0366	[0.166]	0.0463	[0.165]
County Pop > 500K (d)	-0.0373	[0.027]	-0.0264	[0.027]	-0.0374	[0.027]
Female (d)	-0.0195	[0.020]	0.0108	[0.034]	0.0024	[0.037]
Constant	1.2135***	[0.069]	1.1215***	[0.067]	1.2335***	[0.075]
Time D Included	Yes		Yes		Yes	
Observations	10,813		10,813		10,813	

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

This table displays the first stage results of a Heckman Probit regression model. Here, in the first stage, the dependent variable is equal to 1 if a given claim, which closed in a given year, moves forward in the settlement process. The independent variable of interest is "Doctor-owned & Operated (DO&O)" which is equal to 1 if a given claim was handled by a doctor owned and operated insurer. The additional independent variables included in the model serve as control variables and are defined previously in the paper. All models include time dummies and robust standard errors are reported. Note also that *** = p<.01; ** = p<.05; and * = p<.1.

Table 4B: Heckman Probit (Dependent Variable: Second Stage – Settlement (d))

	Model 1		Model 2		Model 3	
Variable	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**
Doctor-owned & Operated (DO&O) (H2)	**-0.3032*** **	**[0.042]**	**-.1394**	**[.116]**	**-0.0330**	**[0.175]**
Ln(FL Med Mal DPE)			**-.1098*** **	**[.026]**		
Top 5 Insurer					**-0.4192*** **	**[0.089]**
Time from occurrence to claim	-0.0002***	[0.000]	-0.0002***	[0.000]	-0.0002***	[0.000]
Cap on noneconomic damages	0.3261***	[0.098]	0.6905***	[0.176]	0.6150**	[0.245]
Age	-0.0037***	[0.001]	-0.0035***	[0.001]	-0.0034***	[0.001]
Injury Type: Emotional	-0.9835***	[0.072]	-1.006***	[0.101]	-0.9998***	[0.085]
Injury Type: Temporary Slight	-0.7055***	[0.072]	-0.4837***	[0.183]	-0.5462***	[0.195]
Injury Type: Temporary Minor	-0.2689***	[0.047]	-0.1240	[0.096]	-0.1547	[0.108]
Injury Type: Temporary Major	-0.1926***	[0.051]	-0.1734***	[0.067]	-0.1946***	[0.065]
Injury Type: Permanent Minor	0.0008	[0.038]	0.0149	[0.048]	0.0130	[0.047]
Injury Type: Permanent Significant	0.1084**	[0.047]	0.1042*	[0.061]	0.0976*	[0.059]
Injury Type: Permanent Major	0.1319**	[0.056]	0.1004	[0.072]	0.1188*	[0.069]
Injury Type: Permanent Grave	0.3121***	[0.073]	0.3937***	[0.093]	0.3943***	[0.091]
Specialty: Surgery	0.0053	[0.029]	0.0084	[0.040]	0.0165	[0.041]
Specialty: Anesthesia	-0.0431	[0.063]	-0.2819**	[0.113]	-0.2965**	[0.146]
Specialty: OB/Gyn	0.1478	[0.165]	0.2037	[0.222]	0.1954	[0.213]
County Pop > 500K (d)	-0.0501*	[0.027]	-0.0723**	[0.035]	-0.0936***	[0.035]
Constant	0.4924***	[0.065]	1.796***	[0.374]	0.8074***	[0.179]
atanhrho	2.02***	[.531]	.572	[.462]	.776	[.655]
Rho	.965	[.036]	.516	[.339]	.650	[.378]
Time D Included	Yes		Yes		Yes	
Uncensored Observations	6,987		6,987		6,987	

Robust standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

This table displays the second stage results of a Heckman Probit regression model. Here, in the second stage, the dependent variable is equal to 1 if a given claim is settled. The independent variable of interest is "Doctor-owned & Operated (DO&O)" which is equal to 1 if a given claim was handled by a doctor owned and operated insurer. The additional independent variables included in the model serve as control variables and are defined previously in the paper. All models include time dummies and robust standard errors are reported. Note also that *** = p<.01; ** = p<.05; and * = p<.1.

Table 5A: Duration Selection (Dependent Variable: First Stage – Settlement (d))

	Model 1		Model 2		Model 3	
Variable	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**
Doctor-owned & Operated (DO&O)	**-0.3445*** **	**[0.026]**	**-.3656*** **	**[0.026]**	**-0.2713*** **	**[0.027]**
Ln(FL Med Mal DPE)			**-.0510*** **	**[0.009]**		
Top 5 Insurer					**-0.2713*** **	**[0.029]**
Time from occurrence to claim	-0.0002***	[0.000]	-.0002***	[0.000]	-.0002***	[0.000]
Cap on noneconomic damages	0.2750***	[0.065]	.2620***	[0.065]	.2492***	[0.065]
Age	-0.0037***	[0.001]	-.0035***	[0.001]	-.0035***	[0.001]
Injury Type: Emotional	-1.009***	[0.066]	-.9945***	[0.066]	-.9681***	[0.066]
Injury Type: Temporary Slight	-0.7273***	[0.064]	-.7218***	[0.064]	-.7099***	[0.064]
Injury Type: Temporary Minor	-0.2832***	[0.040]	-.2793***	[0.041]	-.2755***	[0.041]
Injury Type: Temporary Major	-0.2125***	[0.050]	-.2155***	[0.050]	-.2234***	[0.050]
Injury Type: Permanent Minor	-0.0087	[0.037]	.0044	[0.038]	.0037	[0.037]
Injury Type: Permanent Significant	0.1144**	[0.046]	.1170**	[0.046]	.1096**	[0.046]
Injury Type: Permanent Major	0.1463***	[0.053]	.1307**	[0.054]	.1341**	[0.054]
Injury Type: Permanent Grave	0.3070***	[0.066]	.3105***	[0.067]	.3263***	[0.066]
Specialty: Surgery	0.0136	[0.028]	.0279	[0.028]	.0413	[0.028]
Specialty: Anesthesia	-0.0340	[0.058]	-.0547	[0.060]	-.0924	[0.059]
Specialty: OB/Gyn	0.1271	[0.158]	.0965	[0.160]	.1081	[0.159]
County Pop > 500K (d)	-0.0471*	[0.026]	-.0530**	[0.026]	-.0724***	[0.026]
Female (d)	.0583**	[0.025]	.0592**	[0.025]	.0575**	[0.025]
Constant	0.4593***	[0.065]	1.008***	[.113]	.6119***	[0.067]
Time D Included	Yes		Yes		Yes	
Settlement Stage D Included	No		No		No	
Observations	10,813		10,813		10,813	

Standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

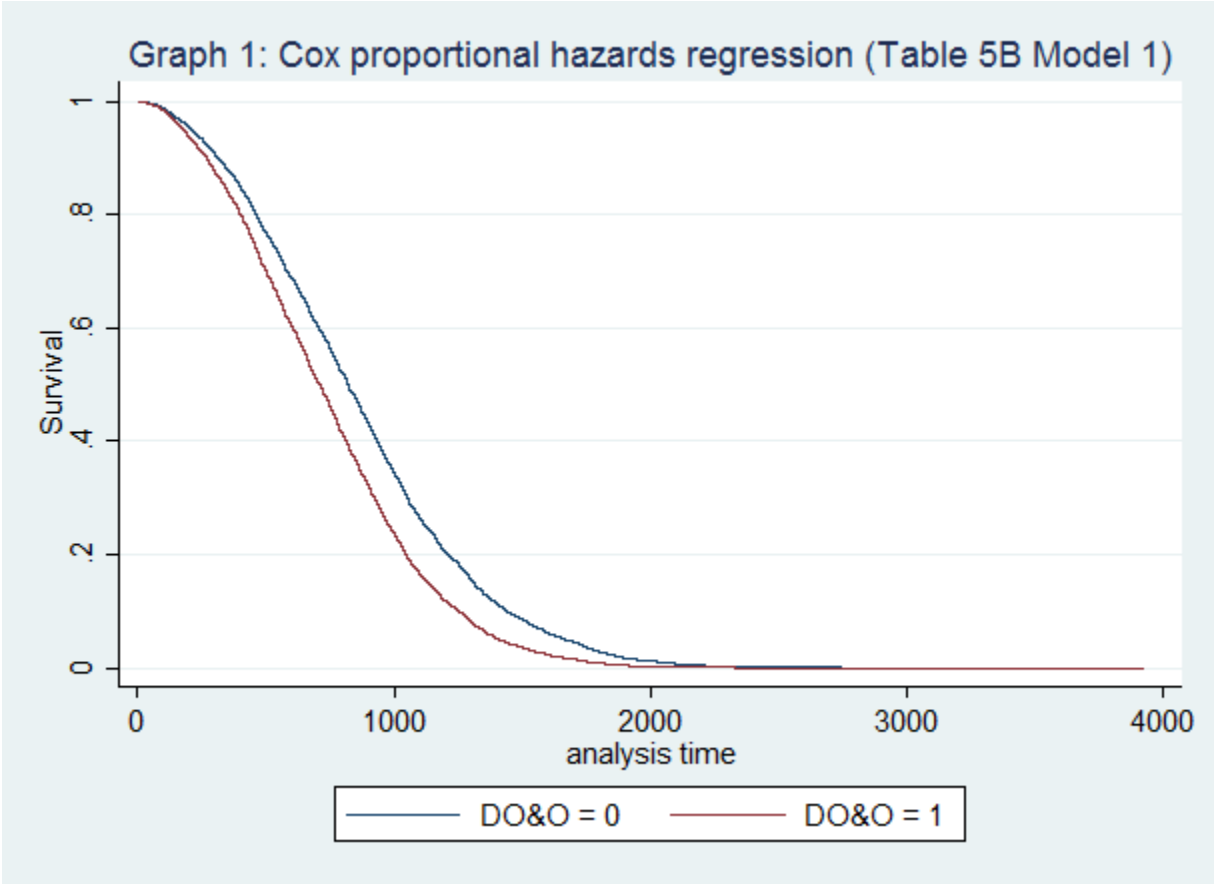
This table displays the first stage results of a Duration Selection regression model. The dependent variable in this stage of the model is equal to 1 if a given claim, which closed in a given year was settled. The independent variable of interest is "Doctor-owned & Operated (DO&O)" which is equal to 1 if a given claim was handled by a doctor owned and operated insurer. The additional independent variables included in the model serve as control variables and are defined previously in the paper. All models include time dummies and robust standard errors are reported. Note also that *** = p<.01; ** = p<.05; and * = p<.1.

Table 5B: Duration Selection (Dependent Variable: Second Stage - Number of Days until Settlement)

	Model 1		Model 2		Model 3	
Variable	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**
Doctor owned & Operated (DO&O) (H3)	**0.3010****	**[0.138]**	**0.3452****	**[0.141]**	**0.3425*****	**[0.105]**
Ln(FL Med Mal DPE)			**0.0450****	**[0.021]**		
Top 5 Insurer					**0.2852*****	**[0.102]**
Time from occurrence to claim	0.0009***	[0.000]	0.0010***	[0.000]	0.0010***	[0.000]
Cap on noneconomic damages	1.5068***	[0.127]	1.5026***	[0.120]	1.4410***	[0.115]
Age	0.0073***	[0.002]	0.0072***	[0.001]	0.0083***	[0.001]
Injury Type: Emotional	1.1292**	[0.450]	1.2141***	[0.434]	1.4909***	[0.416]
Injury Type: Temporary Slight	0.9598***	[0.311]	1.0025***	[0.298]	1.2063***	[0.289]
Injury Type: Temporary Minor	0.3712***	[0.119]	0.3842***	[0.115]	0.4633***	[0.112]
Injury Type: Temporary Major	0.2536***	[0.098]	0.2645***	[0.097]	0.3359***	[0.098]
Injury Type: Permanent Minor	0.0601	[0.041]	0.0457	[0.042]	0.0456	[0.041]
Injury Type: Permanent Significant	-0.0926	[0.064]	-0.0811	[0.064]	-0.1277**	[0.062]
Injury Type: Permanent Major	-0.0985	[0.081]	-0.1078	[0.076]	-0.1369*	[0.076]
Injury Type: Permanent Grave	-0.0556	[0.127]	-0.0842	[0.126]	-0.1708	[0.127]
Specialty: Surgery	-0.0261	[0.031]	-0.0516	[0.033]	-0.0627*	[0.035]
Specialty: Anesthesia	-0.0725	[0.065]	-0.0645	[0.068]	-0.0019	[0.072]
Specialty: OB/Gyn	-0.5207***	[0.171]	-0.5152***	[0.172]	-0.5522***	[0.168]
County Pop > 500K (d)	0.0151	[0.034]	0.0160	[0.035]	0.0596	[0.039]
lambda	-1.4173**	[0.632]	-1.5488***	[0.612]	-1.9946***	[0.601]
Time D Included	Yes		Yes		Yes	
Settlement Stage D Included	Yes		Yes		Yes	
Uncensored Observations	5,419		5,419		5,419	

Standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

This table displays the second stage results of a Duration Selection regression model. This second stage utilizes a hazard model and the dependent variable is the number of days a given claim took to settle. The independent variable of interest is "Doctor-owned & Operated (DO&O)" which is equal to 1 if a given claim was handled by a doctor owned and operated insurer. The additional independent variables included in the model serve as control variables and are defined previously in the paper. All models include time dummies and robust standard errors are reported. Note also that *** = p<.01; ** = p<.05; and * = p<.1.



This graph displays the survival function of medical malpractice cases based on the estimates given in Table 5B, Model 1. The line DO&O = 0 plots the survival function of firms that are not doctor owned and operated. The line DO&O = 1 plots the survival function of firms that are doctor owned and operated.

Table 6A: Heckman Tobit (Dependent Variable: First Stage – Settlement (d))

	Model 1		Model 2		Model 3	
Variable	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**
Doctor-owned & Operated (DO&O)	**-0.3472*** **	**[0.025]**	**-0.3564*** **	**[0.026]**	**-0.2709*** **	**[0.027]**
Ln(FL Med Mal DPE)			**-0.0474*** **	**[0.008]**		
Top 5 Insurer					**-0.2433*** **	**[0.028]**
Time from occurrence to claim	-0.0002***	[0.000]	-0.0002***	[0.000]	-0.0002***	[0.000]
Cap on noneconomic damages	0.2403***	[0.064]	0.2452***	[0.064]	0.2326***	[0.064]
Age	-0.0037***	[0.001]	-0.0035***	[0.001]	-0.0035***	[0.001]
Injury Type: Emotional	-0.9319***	[0.063]	-0.9460***	[0.064]	-0.9220***	[0.063]
Injury Type: Temporary Slight	-0.6905***	[0.062]	-0.6947***	[0.062]	-0.6832***	[0.062]
Injury Type: Temporary Minor	-0.2648***	[0.040]	-0.2662***	[0.040]	-0.2625***	[0.040]
Injury Type: Temporary Major	-0.2027***	[0.050]	-0.2045***	[0.050]	-0.2115***	[0.050]
Injury Type: Permanent Minor	-0.0266	[0.038]	0.0070	[0.038]	0.0077	[0.038]
Injury Type: Permanent Significant	0.0993**	[0.046]	0.1098**	[0.047]	0.1021**	[0.046]
Injury Type: Permanent Major	0.1281**	[0.054]	0.1129**	[0.055]	0.1168**	[0.054]
Injury Type: Permanent Grave	0.3193***	[0.068]	0.3232***	[0.069]	0.3365***	[0.068]
Specialty: Surgery	0.0262	[0.027]	0.0388	[0.028]	0.0506*	[0.028]
Specialty: Anesthesia	0.0066	[0.058]	-0.0060	[0.059]	-0.0381	[0.059]
Specialty: OB/Gyn	0.1274	[0.159]	0.1053	[0.163]	0.1137	[0.162]
County Pop > 500K (d)	-0.0475*	[0.026]	-0.0476*	[0.026]	-0.0646**	[0.026]
Female (d)	.0177	[0.020]	0.0247	[0.021]	0.0230	[0.021]
Constant	0.4888***	[0.064]	0.9793***	[0.111]	0.6049***	[0.066]
Time D Included	Yes		Yes		Yes	
Settlement Stage D Included	No		No		No	
Observations	10,813		10,813		10,813	

Standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

This table displays the first stage results of a Heckman Tobit regression model. The dependent variable in this stage of the model is equal to 1 if a given claim, which closed in a given year was settled. The independent variable of interest is "Doctor-owned & Operated (DO&O)" which is equal to 1 if a given claim was handled by a doctor owned and operated insurer. The additional independent variables included in the model serve as control variables and are defined previously in the paper. All models include time dummies and robust standard errors are reported. Note also that *** = p<.01; ** = p<.05; and * = p<.1.

Table 6B: Heckman Tobit (Dependent Variable: Second Stage – ln(Total Cost))

	Model 1		Model 2		Model 3	
Variable	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**	**Coeff.**	**S.E.**
Doctor-owned & Operated (DO&O) (H4)	**-0.1248*** **	**[0.037]**	**-0.1991*** **	**[0.034]**	**-0.1251*** **	**[0.035]**
Ln(FL Med Mal DPE)			**-0.0246** **	**[0.011]**		
Top 5 Insurer					**-0.2273*** **	**[0.037]**
Time from claim to settlement	0.0010***	[0.000]	0.0006***	[0.000]	0.0006***	[0.000]
Time from occurrence to claim	-0.0001***	[0.000]	-0.0002***	[0.000]	-0.0002***	[0.000]
Cap on noneconomic damages	0.4452***	[0.095]	0.4099***	[0.086]	0.4039***	[0.086]
Age	-0.0045***	[0.001]	-0.0045***	[0.001]	-0.0045***	[0.001]
Injury Type: Emotional	-2.1478***	[0.098]	-1.9089***	[0.089]	-1.8851***	[0.088]
Injury Type: Temporary Slight	-1.9072***	[0.098]	-1.6108***	[0.089]	-1.6026***	[0.089]
Injury Type: Temporary Minor	-1.0416***	[0.061]	-0.9097***	[0.055]	-0.9045***	[0.055]
Injury Type: Temporary Major	-0.5281***	[0.072]	-0.4024***	[0.065]	-0.4119***	[0.065]
Injury Type: Permanent Minor	-0.1901***	[0.054]	-0.2023***	[0.049]	-0.1974***	[0.048]
Injury Type: Permanent Significant	0.2927***	[0.065]	0.2380***	[0.058]	0.2335***	[0.058]
Injury Type: Permanent Major	0.4429***	[0.076]	0.4145***	[0.069]	0.4150***	[0.068]
Injury Type: Permanent Grave	0.8038***	[0.091]	0.7612***	[0.082]	0.7755***	[0.081]
Specialty: Surgery	0.0865**	[0.040]	0.1028***	[0.036]	0.1171***	[0.035]
Specialty: Anesthesia	-0.0056	[0.085]	-0.0095	[0.077]	-0.5577	[0.076]
Specialty: OB/Gyn	0.0585	[0.225]	0.0634	[0.205]	0.0365	[0.201]
County Pop > 500K (d)	0.0098	[0.038]	0.0288	[0.034	1.45***	[.012]
Constant	10.593***	[0.103]	10.719***	[0.152]	10.560***	[.100]
Ln (sigma)	.5719***	[.007]	.4618***	[.007]	.4590***	[.008]
atanhrho	1.01***	[.014]	.9580***	[.016]	.9576***	[.016]
Sigma	1.77***	[.013]	1.587***	[.012]	1.583***	[.012]
rho	.764***	[.005]	.743***	[.005]	.743***	[.007]
Time D Included	Yes		Yes		Yes	
Settlement Stage D Included	Yes		Yes		Yes	
Uncensored Observations[16]	5419		5419		5419	

Standard errors in brackets
*** p<0.01, ** p<0.05, * p<0.1

This table displays the second stage results of a Heckman Tobit regression model. The second stage utilizes a Tobit regression model and the dependent variable the natural logarithm of the total cost of a given claim. The independent variable of interest is "Doctor-owned & Operated (DO&O)" which is equal to 1 if a given claim was handled by a doctor owned and operated insurer. The additional independent variables included in the model serve as control variables and are defined previously in the paper. All models include time dummies and robust standard errors are reported. Note also that *** = p<.01; ** = p<.05; and * = p<.1.

[16] There are 5,419 observations that settled, of those 5,419 observations, 619 settled for $0.

APPENDIX A: Stages of Settlement

Stages of Settlement Descriptive Stats

Stage Settlement Occurs	N	Total Award	Loss Adjustment Expenses	# of days to settlement
After Appeal	15	4,678,339	249,928	1,701
After arbitration is initiated or prior to suit being filed	110	288,156	14,320	390
After court verdict and prior to filing of notice of appeal	34	953,528	144,869	1,422
After notice of appeal is filed or post judgment relief of action is required for recovery	11	1,886,003	255,237	1,520
Claim or suit abandoned	262	4,799	11,782	706
During appeal	12	7,175,083	221,299	1,566
During trial, but before court verdict	80	651,831	97,596	1,284
More than 90 days, after suit filed and prior to or during the course of mandatory settlement conference	3956	415,431	72,047	1,011
Settlement Reached Prior to Pre-Suit Period	99	145,943	15,322	350
Within 90 days of suit being filed	167	486,739	29,136	597
Within the pre-suit period as set forth in 766.106 (more than 90 days before suit is filed)	673	363,169	16,916	378