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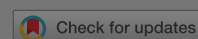
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Original Articles

# The relationship between the markets for health insurance and medical malpractice insurance

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## ABSTRACT

This article evaluates the interdependence of medical malpractice insurance markets and health insurance markets. Prior research has addressed the performance of these markets, individually, without specifically quantifying the extent to which they are linked. Increasing levels of health insurance losses could increase the scale of potential malprac

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KEYWORDS: health insurance medical malpractice health reform Affordable Care Act health care

## Disclosure statement

No potential conflict of interest was reported by the authors.

## Notes

<sup>1</sup> Kessler ([2011](#)) provides an overview of the malpractice system that includes statistics on payouts and a discussion of the intent of tort reform laws.

<sup>2</sup> Medical malpractice refers to the legal liability incurred by physicians and other medical professionals when patients sustain injuries while receiving medical care. More specifically, if a physician deviates from normal standards of care, as determined by the prevailing tort laws of a state, and injures a patient, the medical professional is said to have committed medical malpractice.

<sup>3</sup> A tort reform measure places restrictions on the amount of damages a victim can collect for injuries arising out of a tort, such a medical malpractice. There are several types tort reform measures enacted in various states and the four most common measures considered in the insurance economics literature are caps on noneconomic damages, caps on punitive damages, reforms to joint and several liability rules, and reforms to collateral source rules (e.g. Viscusi and Born [2005](#); Born, Viscusi, and Baker [2009](#)).

<sup>4</sup> See Robinson ([2001](#)) for a review of the various forms of physician payment and analysis

and malpractice litigation. The literature on physician payment and malpractice litigation is extensive and ongoing. For a discussion of physician payment and malpractice litigation, see Robinson ([2001](#)).

<sup>5</sup> Under the new rules, physicians will be able to receive a percentage of the total bill for services rendered. This is a change from the current system where physicians are paid a fixed fee per service. This change is intended to encourage physicians to provide more services and to reduce the number of lawsuits filed against them.

<sup>6</sup> From the perspective of the patient, the new rules are well equipped to take on capitation contracts and partly in response to this concern, the new rules will allow physicians to receive a percentage of the total bill for services rendered.

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providers continue to form larger groups and unite with other health care organizations, in order to increase their capital base and ability to bear risk (Simon and Emmons [1997](#)).

<sup>7</sup> To the extent that time spent interacting with health insurance plans leads to less time spent with patients, this evidence further suggests that health insurance markets have a meaningful influence on the way that medical professionals interact with patients.

<sup>8</sup> The authors evaluated changes in the total number of physicians, and the change in those practising in obstetrics/gynaecology, surgery, and internal medicine.

<sup>9</sup> Changes in physician behaviour in response to malpractice risk are often referred to as 'positive defensive medicine' (actions taken to improve the quality of care) and 'negative defensive medicine' (actions taken that are unnecessary, or withdrawal of actions that are necessary). See Kachalia, Choudhry, and Studdert ([2005](#)).

<sup>10</sup> For example, all states have varying types of mandated health insurance benefits which, in many cases, affect the contract design and claims levels of health insurers (The Center for Affordable Health Insurance Report, 2010).

<sup>11</sup> All medical errors do not necessarily result in a malpractice lawsuit and all medical malpractice lawsuits do not necessarily involve medical errors (or adverse events). A recent article by Sohn ([2013](#)) provides an analysis and discussion of the characteristics of malpractice cases in the US tort system.

<sup>12</sup> According to TowersWatson, US tort costs grew 8.7% per year, on average, between 1951 and 2010 (Towers Watson [2012](#)).

<sup>13</sup> The health insurance market data utilized in our analysis are acquired from the by-

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<sup>14</sup> We filter all observations at the firm level before aggregating the data to the state level. In particular, we delete observations of insurers with assets, surplus, premiums, losses, and enrolment of less than 1000, and also of those insurers with loss ratios less than 1% and greater than 500%, in order to ensure that our sample contains viable, operating insurance companies. In unreported analyses, we find that our main result remains qualitatively unchanged when the loss ratio filter is not imposed.

<sup>15</sup> The state-level data set contains information relating to medical malpractice insurer losses and health insurer losses for all states except California, which was excluded from our analysis due to incomplete data from health insurers operating in the state.

<sup>16</sup> Variable sources, detailed definitions, and within and between-state variations are provided in [Appendix 1](#). All variables capturing monetary values are expressed in terms of 2009 dollars.

<sup>17</sup> Health insurance losses incurred is the total of the insurers' health insurance claims in all lines of health insurance business, as reported in the NAIC Health Annual Statement.

<sup>18</sup> We considered additional state market controls for inclusion in the models such as Medicaid and Medicare enrolment, uninsured persons, specialist physicians, hospital admissions, and Health Maintenance Organization enrolment. These variables are omitted from our reported analysis in an effort to mitigate potential endogeneity and/or multicollinearity problems. In unreported analyses, we find that our main result is robust in a variety of model specifications which include these additional state-level market controls. The inclusion of state and year fixed effects in our model (described in an ensuing section) helps to further control for omitted state market factors.

<sup>19</sup> It was necessary to scale several state market control variables in the regression analysis. For example, the variable for the percentage of the population aged 65 and over was scaled by a factor of 100.

<sup>20</sup> For example, the variable for the percentage of the population aged 65 and over was scaled by a factor of 100.

<sup>21</sup> Contrary to our findings, previous research has found that health insurance claims is consistent with prior literature (e.g. Danzon [1984](#); Barker [1992](#)).

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also find a negative and statistically significant coefficient on health insurance losses per capita.

<sup>29</sup> The 2SLS method is an alternative approach to addressing the potential for endogeneity in our model. To obtain the 2SLS output in Table 2, we follow an approach similar to McShane, Cox, and Butler (2010) and calculate an instrument equal to the average of health insurance losses per capita in year  $t - 1$  for all states which border state  $i$ . Unreported analysis indicates the instrument is positive and statistically significant in the first stage regression model and the partial  $R^2$  of the excluded instruments is 0.161. Further analysis also indicates the 2SLS model is not under-identified nor weakly identified. Finally, as given in the table, the null of exogeneity is rejected at the 1% level.

<sup>30</sup> Our results are also robust to the inclusion of several other instruments. First, we use the proportion of a given states' population that has been told they have high blood cholesterol levels (available via the Centers for Disease Control and Prevention (CDC)) as an alternative instrument. The literature related to medicine indicates that genetic factors play a larger role in determining cholesterol levels than do environmental factors (e.g. Heller et al. 1993; Cuchel and Rader 2003), which is evidence that Cholesterol may not be correlated with the same socioeconomic or demographic factors associated with the tendency to file a lawsuit. The negative and significant relationship remains when Cholesterol is used as an instrument. Our results also remain quantitatively unchanged when we employ total health insurance premiums earned per capita as an instrument or the proportion of a given state's population smokes cigarettes on a regular basis, Smokers. When we consider multiple instruments for HealthInsLossPC, our main results are consistent for any combination of Cholesterol, Smokers, health insurance losses per capita in bordering states, and health insurance premiums earned per capita. With one exception, all models pass the relevant



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<sup>33</sup> Total health enrollees is defined as the sum of all health enrollees in state  $i$  during year  $t$  across all health insurers and data are obtained from the NAIC health filings. The alternative scaling is insightful because it allows us to allocate losses for the respective insurance markets more closely to the population for which each type of coverage is relevant. While the results using the alternatively scaled variables provide important and robust evidence, we provide the evidence using uniform scaling of all variables by population for consistency.

<sup>34</sup> Active physicians is omitted as an independent variable due to the fact that it is used to scale the dependent variable.

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