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The relationship between the markets for health insurance and medical malpractice

insurance

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KEYWORDS:

Health insurance	medical malpractice	health reform	Affordable Care Act	health care
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Disclosure statement

No potential conflict of interest was reported by the authors.

Notes

¹ Kessler (2011) provides an overview of the malpractice system that includes statistics on payouts and a discussion of the intent of tort reform laws.

² Medical malpractice refers to the legal liability incurred by physicians and other

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have con		
³ A tort i		tim can
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2009).		
⁴ See Ro		nt and
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and mai		a discussion
of physician incentives to induce demand, also known as 'offensive med	licir	ne'.

⁵ Under a capitation arrangement, providers are paid a fixed amount per-member permonth.

⁶ From the financial perspective of the provider, providers are not typically well equipped to take on capitation contracts and partly in response to this concern, 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 <u>1997</u>).

⁷ 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.

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

⁹ 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 (<u>2005</u>).

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Medical malpractice insurance market data are acquired from the by-state Exhibit of Premiums and Losses of the NAIC Property and Casualty Annual Statement filings. The Exhibit contains direct losses incurred in the business segment of medical professional liability, which is our unscaled measure of medical malpractice insurance loss levels.

¹⁴ 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.

¹⁵ 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.

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



¹⁷ Health insurance losses incurred is the total of the insurers' health insurance claims

²⁰ For example, differences in access to legal services, income levels, frivolous claims levels, educational attainment, or occupational status may exist between individuals residing in metropolitan areas and those residing in rural areas.

²¹ Controlling for the effect of physicians on medical malpractice insurance claims is consistent with prior literature (e.g. Danzon <u>1984</u>; Barker <u>1992</u>).

²² Caps on noneconomic damages place limits on amounts awarded to injured parties for pain and suffering, emotional distress, loss of consortium, and similar nonpecuniary losses (e.g. Grace and Leverty <u>2013</u>; Viscusi and Born <u>2005</u>).

²³ Studies such as Caselli, Esquivel, and Lefort (<u>1996</u>) do not include time dummies in the Arellano–Bond framework because variables are taken as deviations from period means.

²⁴ Our Arellano–Bond estimator results are based on 294 observations of 49 states over a six year period. This is due to the fact that the procedure requires a two year lag of HealthInsLossPC as part of the identification process, which reduces our total number of state-year observations.



re-estimate the model without the influential observations (N = 377 for this model). The negative and significant relation between health and medical malpractice insurance is still present in this model. Second, we calculate the z-score of health insurance losses per capita based for the full sample of 392 state-year observations and then drop state-year observations with z-scores greater than 2 and less than negative 2. When we re-estimate the model based on the reduced sample (N = 367 for this model), we also find a negative and statistically significant coefficient on health insurance losses per capita.

²⁹ 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 R² of the excluded instruments is 0.161. Further analysis also indicates the 2SLS model is not underidentified nor weakly identified. Finally, as given in the table, the null of exogeneity is rejected at the 1% level.

of Our results are also robust to the inclusion of several other instrumen	ιs.	riist, we use
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with additional instruments, the models are over-identified.

³¹ The inclusion of state and year fixed effects reduces the likelihood of biased results arising from omitted variables and, as reported in the table, a Hausman test supports the inclusion of state and year fixed effects.

³² We thank an anonymous referee for identifying these specific factors.

³³ 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.

³⁴ 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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