



Full Length Article

The effects of malpractice non-economic damage caps on the supply of physician labor: Heterogeneity by physician age and risk



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ABSTRACT

We explore the impact of malpractice caps on non-economic damages that were enacted between 2003 and 2006 on the supply of physician labor, separately for high-malpractice risk and low-malpractice risk physician specialty types, and separately by young and old physicians. We use physician data from the Area Resource File for 2000–2011 and malpractice policy data from the Database of State Tort Law Reforms. We study the impact of these caps using a reverse natural experiment, comparing physician supply in nine states enacting new caps to physician supply in ten states that had malpractice caps in place throughout the full time period. We use an event study to evaluate changes in physician labor compared to the prior year. We find evidence that non-economic damage caps increased the supply of high-risk physicians <35 years of age by 0.93 physicians per 100,000 people in the year after the caps were enacted. Non-economic damage caps were cumulatively associated with an increase of 2.1 high-risk physicians <35 years of age per 100,000 people. Stronger non-economic damage caps generally had a larger impact on physical supply.

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1. Introduction

Physician labor supply has long-standing importance for access to and quality of healthcare delivered in the United States (Kirch et al., 2012; Mitka, 2007; American College of Physicians, 2006; Freed et al., 2006; Staiger et al., 2009; Institute of Medicine, 2008; Association of American Medical Colleges, 2014). One potential driver of regional physician shortages is that some physicians may not want to practice in states that have unfavorable malpractice laws because they may be forced to pay higher malpractice premiums or may feel they are at higher risk for being sued (American Medical Association, 2008; Dranove and Gron, 2005). Physicians may choose the state in which they practice based on malpractice environment, or they may choose to leave the workforce entirely by retiring, for example. This may be particularly true for high-risk specialists such as surgical subspecialties and obstetrics/gynecology (Dranove and Gron, 2005; Jena et al., 2011).

In an effort to improve the malpractice environment for physicians, states have responded by passing laws to reduce the risk of a malpractice lawsuit and malpractice payouts (American Medical Association, 2008; Studdert et al., 2004; Bishop et al., 2010a; Congressional Budget Office, 2009a; Zuckerman et al., 1990; Sloan, 1985; Rock, 1988). Malpractice reforms can be divided into indirect and direct reforms. Indirect reforms include those that limit access to court, such as statutes of limitations and screening panels, and include reforms that require higher standards of proof, such as expert witness standards (Studdert et al., 2004). Direct reforms are those that limit the size of awards, also known as damage caps. Physician groups have long argued that physicians want to practice in states with damage caps, and that caps reduce regional physician shortages (American Medical Association, 2008). Increased physician supply in states with damage caps may be a beneficial effect – whether intended or not (American Medical Association, 2008; Congressional Budget Office, 2009b; Anderson, 1999; Kessler and McClellan, 1996; Bishop et al., 2010b).

There have been three major waves of malpractice reforms: in the mid-1970s, mid-1980s, and mid-2000s. In the most recent wave of reforms, known as the third wave, eleven states instituted damage caps between the years of 2003–2006 (Avraham, 2015). One recent article by Helland and Seabury (2015) used a difference-in-difference model to compare the supply of physicians in states

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adopting damage caps in the third wave of reform, pre- and post-adoption. The authors noted non-parallel time trends that caused omitted variable bias in this difference-in-difference analysis; therefore, they addressed this by performing a difference-in-difference-in-difference (DDD) analysis that compared the supply of high-risk specialists relative to low-risk specialties in the states enacting malpractice reform. The authors found that the supply of high-risk specialists increased relative to low-risk specialists in adopting states. The authors noted that one of the limitations of a DDD methodology is that it prevents drawing conclusions about the impact of reforms on overall physician supply, which may be more directly relevant to local policy debates.

Paik et al. (2016) also explored the effects of the third wave of malpractice reform. In their analysis the authors primarily used as the control group only states without caps on non-economic damages, but in supplementary analyses they also calculate results using a “broader” control group of all states (both non-adopting states and prior-adopting states). The authors found no evidence that cap adoption led to an increase in specialties that face high liability risks with the exception of plastic surgeons. In our study, we use an alternative control group of states having previously adopted non-economic damage caps. We also explore heterogeneity by physician age, which the authors did not do in their study.

Other studies have explored the earlier two waves of malpractice reforms. Encinosa and Hellinger found that physician supply increased by over 2 percent in states that had instituted damage caps between 1985 and 2000 and also found that the supply of obstetricians/gynecologists and surgeons increased by over 5 percent in states with damage caps of \$250,000 or less (Encinosa, 2005). Kessler et al. found a 3.3 percent increase in physician supply in states that had instituted caps between 1985 and 2001 compared with states that had not (Kessler et al., 2005).

This current study uses the third wave of malpractice reform and explores the age at which physician supply is most sensitive to non-economic damage caps. We hypothesize that physician supply, particularly supply of high-risk specialists, increased in states that implemented damage caps in the third wave of reform versus states that did not. Additionally, younger physicians may make decisions about where to establish careers and what types of residencies to enter and older physicians may make decisions about whether or not to retire. One study using data from 1993 to 2001 found only weak evidence that some physicians on the margins of their careers make entry and exit decisions in part based on the size and number of malpractice payments (Baicker and Chandra, 2004). Our paper provides an opportunity to reevaluate if physicians on the margins of their careers are responsive to malpractice environments.

Our paper makes several useful innovations to prior studies evaluating this question. First, we explore how physicians across different ages respond to caps on non-economic damages. Second, by using a reverse natural experiment that uses only states with non-economic damage caps at some point during the study period, we avoid the problem of using as a control group states without non-economic damage caps that may actually lose physicians if physicians relocate from these states to states newly enacting non-economic damage caps. If the control group loses physicians due to malpractice reform in other states, this could cause traditional DD estimates to be too large because of “double-counting.” Third, similar to Paik et al. (2016) we use an event study to evaluate the year-over-year change in the supply of physician labor, both in the years leading up to and after the enactment of non-economic damage caps. This allows us to observe any heterogeneity in effects of the policy in either the pre-period or the post-period.

2. Data

For state malpractice law information, we used the Database of State Tort Law Reforms Version 5 (DSTLR5), which is the most comprehensive dataset of state-level malpractice reforms (Avraham, 2015). This dataset contains a description of each reform, the year of the reform, and other details about the reform (e.g., whether the reform was held up by the states’ court). If a reform was passed in the first half of the year, the DSTLR5 lists that year as the year of the reform (e.g. reform passed in first half of 2005 and listed as 2005 in DSTLR5). If a reform was passed in the second half of the year, the DSTLR5 lists the next year as the year of the reform (e.g. reform passed in second half of 2005 is listed as 2006 in DSTLR5). Our primary variable of interest is malpractice caps on non-economic damages; however, we also control for caps on punitive damages, caps on total damages, split recovery reform, collateral source reform, punitive evidence reform, periodic payments (none, discretionary, mandatory), contingency fee, joint and several liability reform, and patient compensation fund reform. Eleven states implemented non-economic damage caps during our study period, hence we evaluate the effect of this policy change versus enacting caps on punitive damages (3 states) or total damages (no changes).

For physician supply, we used data from the Area Health Resources File (AHRF), which is a county-level database maintained by the U.S. Department of Health and Human Services’ Health Resources and Services Administration (Health Resources and Services Administration, 2014). The AHRF contains data on health resources including physician supply, which includes residents and fellows, by specialty and age. We followed the literature to group active non-federal physicians into high-malpractice risk and low-malpractice risk specialty types based on claims awarded if this data was available (Jena et al., 2011; Helland and Seabury, 2015), or based on claims filed if not (Jena et al., 2011). High-risk specialties are defined as neurological surgery, plastic surgery, thoracic surgery, anesthesiology, emergency medicine, radiology, cardiovascular disease, gastroenterology, pulmonary disease, orthopedic surgery, urology, neurology, general surgery, OBGYN, general practice, and general internal medicine. Low-risk specialties are defined as psychiatry, physical med rehab, public health, allergy immunology, dermatology, family medicine, pediatrics, ophthalmology, diagnostic radiology, and pathology. Additionally, we further grouped these high-risk and low-risk non-federal active physicians into age categories (<35 years of age, 35–54 years of age, ≥55 years of age) to explore if damage caps have differential effects on physicians of different ages; for example, by having disproportionate effects on relocation or early retirement decisions.

For non-malpractice-related state-level characteristics that vary over time, we used median household income information from the AHRF file (inflation-adjusted to 2011 dollars), and we used the percentage of the population in different age-gender cohorts from Census data that was adjusted by the Survey of Epidemiology and End Results (SEER) (The National Bureau of Economic Research, 2016). We used the SEER data to create 18 age categories of 0–4, 5–9, 10–14, [...], 80–84, 85+) for both men and women, creating 36 variables in total.

In our analysis, we use data from 2000 to 2011, which allows at least three years to elapse before a damage cap was newly implemented during the years of 2003–2006. Physician supply data was not provided by the AHRF data for year 2009, and so we exclude this year from our analysis. We exclude three states—Wisconsin, Georgia, and Illinois—from all analyses because Wisconsin repealed its damage cap during the study period, and Georgia and Illinois both implemented damage caps and had them quickly repealed by the courts during the study period.

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