The Effect of Malpractice Liability on Obstetrics and Gynecology: Taking the Measure of a Crisis

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Abstract

This Article investigates the effects of malpractice liability on the specialty of obstetrics and gynecology. The authors combine rich data from a survey of 1,476 physicians with detailed measures of liability pressure to assess the effects of the liability environment on physician behavior. The analysis reveals important inconsistencies between alleged effects and actual effects. On the one hand, physicians report having made substantial changes to their practice in response to the general malpractice environment and to liability pressures. But on the other hand, regression analysis finds that the direct effects on actual physician income and productivity are less clear. The evidence suggests that rising malpractice premiums may lead to practice reductions in the short run, but that in the long run they lead to a specialization effect by which some physicians focus more on obstetrics and others focus more on gynecological surgery. Thus, the analysis suggests that while the liability environment has had modest effects on the specialty of obstetrics and gynecology, these effects appear to fall short of a malpractice-induced “crisis.”

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THE EFFECT OF MALPRACTICE LIABILITY ON OBSTETRICS AND GYNECOLOGY: TAKING THE MEASURE OF A CRISIS

Introduction

A common refrain among doctors, politicians, and academics is that the American medical malpractice system is in serious need of reform. Indeed, many have argued that the current system fails to achieve either of its twin goals: it neither deters negligence by doctors nor provides adequate compensation for injured patients.\(^1\) Compounding this failure, the system is said to contribute significantly to skyrocketing malpractice insurance premiums and to healthcare inflation more generally.\(^2\) In sum, we are told, “[t]he United States medical malpractice regime is broken.”\(^3\)

But while there has been widespread agreement about the existence of problems with the current system, there has also been considerable divergence of opinion about solutions. Some scholars have noted that the vast majority of negligent medical injuries never result in payments to victims, and have argued that any reforms should address this reality.\(^4\) However, many of the most vocal

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2 See Paul C. Weiler, Reforming Medical Malpractice in a Radically Moderate—and Ethical—Fashion, 54 DEPAUL L. REV. 205 (2005). For his part, Weiler perceives “several intellectual fallacies” in the claim that rising premiums “is a problem created by malpractice litigation, and even more, the claim that [malpractice litigation] is the key reason why our health insurance costs have gone up at least 10% a year since 2000.” Id. at 208. See also Zeiler, supra note 1 at 694 (“evidence suggests that the connection between the liability system and insurance markets is tenuous, which makes it unsurprising that tort reform has little to no impact on insurance markets”).
3 Note, supra note 1 at 1192. See also Moncrieff, supra note 1 at 844.
4 Professor Weiler’s statistics indicate that there are some 115,000 negligent medical injuries per year, of which only approximately 15,000 result in settlement payments or jury awards—“[i]n other words, there is just one paid malpractice claim for every twenty-one negligent medical injuries, and just one for every eight serious or fatal injuries.” Weiler, supra note 2 at 215. See also Zeiler, supra note 1 at 694 (analyzing jury verdicts in Texas and finding that even large jury awards
proponents of reform have downplayed the problem of under-compensation and focused instead on the reverse problem of over-compensation—i.e., on jury awards that significantly exceed the cost of any actual injury. Lawmakers have often cited these awards in support of proposals to cap damages for pain and suffering in malpractice cases. For example, in the recent debate over the Patient Protection and Affordable Care Act of 2010, Congressional Republicans repeatedly insisted that limiting malpractice awards was an essential component of healthcare reform, and faulted Democrats for failing to include such limits in the legislation.

Nor have lawmakers been alone in calling for caps on malpractice awards. Doctors and industry groups have long advocated for this brand of tort reform, arguing that excessive jury awards have driven up malpractice premiums to such a degree that we have experienced repeated “malpractice crises.” Each of these crises is said to share common features: doctors increasingly practice defensive medicine, refuse to treat high-risk patients, or leave the profession altogether.

The crisis is alleged to be particularly acute for obstetricians and gynecologists. Doctors themselves paint a grim picture: in surveys, large shares of ob-gyns consistently report practicing often result in significantly reduced payouts, and concluding that “we might be facing a patient compensation crisis rather than a medical malpractice liability crisis”).

6 See, e.g., Darrell Issa, Bipartisan Health Care Reform Must Include Tort Reform, POLITICO, Feb. 25, 2010 (available at www.politico.com/news/stories/0210/33438.html) (“Tort reform that reduces frivolous lawsuits and caps outrageous jury awards is a critical component of any solution to bring the cost of health care within reach of every American. So far, however, the president has barely mentioned it.”).
7 The first crisis is generally dated to the 1970s, during which California became the first state in the nation to impose a cap on damages for pain and suffering in malpractice cases; a second crisis developed in the mid-1980s. Weiler, supra note 2 at 209. See also David M. Studdert, Michelle M. Mello, and Troyen A. Brennan, Medical Malpractice, 350 NEW ENG. J. MED. 283 (2004) (discussing three crises).
8 See generally Studdert et al., supra note 7; Note, supra note 1; Beomsoo Kim, The Impact of Malpractice Risk on the Use of Obstetrics Procedures, 36 J. LEGAL STUD. S79 (2007).
9 See Kim, supra note 8 (noting high rates of settlement payments of ob-gyns compared to other specialties and testing assumption that obstetricians are particularly likely to practice defensive medicine); Lindsay J. Stamm, The Current Medical Malpractice Crisis: The Need for Reform to Ensure a Tomorrow for Oregon’s Obstetricians, 84 OR. L. REV. 283 (2005) (arguing that effects of crisis in Oregon have been especially severe for obstetricians).
defensive medicine, limiting the scope of their practice, stopping obstetrics, stopping high-risk obstetrics, or planning to relocate due to liability pressures. Thus, ob-gyns claim that the malpractice environment has not only affected doctors by reducing their incomes; it has also affected patients by reducing the supply of physicians and access to care.

Notably, however, the scholarly literature has generally not supported these claims—at least not very strongly. Beginning with the connection between malpractice risk and defensive medical decisions, the evidence is decidedly mixed. Some studies have shown that increased liability pressures lead to a greater probability of cesarean sections, but others have found no such connection. Another study found that rising malpractice premiums increase the use of imaging technology, resulting in considerably higher Medicare spending. However, the authors explicitly noted that their findings did “not imply that any change in spending was necessarily ‘defensive medicine.’” With respect to practice decisions, a recent analysis found little effect of premium increases on physicians restricting the scope of their practices in Pennsylvania, even when the authors examined the specialty of obstetrics and gynecology directly. Investigations looking for effects on physician supply or income also have come up largely empty-handed. While data support the statement that ob-gyn incomes have declined more rapidly than those of other physicians, it is unclear

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11 See Studdert, Mello, and Brennan, supra note 7 at 286 (citing studies); Kim, supra note 8 at 85-87 (reviewing literature).

12 Katherine Baicker, Elliott S. Fisher, and Amitabh Chandra, Malpractice Liability Costs and the Practice of Medicine in the Medicare Program, 26 HEALTH AFF. 841 (2007).

13 Id. at 850.


15 In the 1990s, ob-gyns experienced declines in real income that were three times as large as physicians in other specialties (17% vs. 5%). See AMERICAN MEDICAL ASSOCIATION, PHYSICIAN CHARACTERISTICS AND DISTRIBUTION (various years).
whether this is due to liability pressures. One study found that increasing malpractice premiums were not responsible for declining physician incomes in the past 30 years, 16 and a number of other studies reveal only small or nonexistent effects of liability pressures on physician supply. 17 Recent work, however, suggests that some of the most substantial effects of liability may be on physicians’ personal well-being: that the relatively high risk of being sued may increase personal stress, anxiety, and depression. 18

There is thus a large gap between the subjective perceptions of many ob-gyns and the objective analyses of many academics: practitioners believe that their specialty is in grave crisis, whereas scholars generally conclude that the picture is not so bleak. 19 The goal of this paper is to try to reconcile these divergent impressions, and thereby to improve our understanding of the actual role of malpractice insurance premiums and claims play in affecting the practice of obstetrician-gynecologists. We do this by using survey responses with regard to subjective perceptions, self-reported income and productivity outcomes, and external measures of the liability environment.

Several features distinguish our analysis. First, we focus solely on obstetrician-gynecologists, rather than physicians more generally. It is reasonable to expect effects to be more evident among ob-gyns, a specialty with relatively high rates of claims and payments, 20 and we employ a large and representative sample of just ob-gyns to investigate these effects specifically. Second, we use

19 Other commentators have noted a similar discord between actual measures and survey measures. See Mello et al., Effects of a Malpractice Crisis on Specialist Supply and Patient Access to Care, supra note 10 at 626; Mello et al., Changes in Physician Supply and Scope of Practice During a Malpractice Crisis, supra note 14 at w425-26.
20 See Jena et al., supra note 18 at 634.
detailed individual-level data on these physicians, including reported changes to practice, attribution of those changes to liability pressure, and self-reported practice characteristics and productivity measures. This enables us to use a variety of different survey responses—qualitative and quantitative, framed both in general terms and in terms of liability—to assess the state of ob-gyn practice and the effects of liability pressure. Third, we use detailed and objective data on liability premiums and payments to measure the liability and practice environment, linking these in via geographic identifiers. This enables us to use these exogenous measures of the practice environment to assess the effects of liability pressure from a different angle.

Hence, by joining the detailed ob-gyn data with external liability insurance data, we are able to investigate liability’s impacts on the specialty from several perspectives. First, we analyze what physicians say about their concerns, changes to their practice, reasons for these changes, and the extent to which they report having made changes in response to liability pressures. Second, we use objective measures of the malpractice environment to assess whether liability pressures increase the likelihood that physicians claim to have experienced or made specific changes in income or productivity. Third, we use objective measures of the malpractice environment to assess whether liability pressures actually affect physicians’ income and productivity. Then, we can assess whether any estimated influence of malpractice pressure on alleged changes to practice (as measured by physicians’ claims of such changes) is in line with any estimated influence on actual changes to practice (as measured by direct self-reports of productivity). The ultimate goal is to draw on different perspectives to sketch a coherent picture of how liability has affected the specialty of obstetrics and gynecology.

We conclude that liability pressures have indeed affected the specialty—but not in the straightforward manner suggested by many physicians. On the one hand, physicians report having made substantial changes to their practice in response to the general malpractice environment and to liability pressures. But on the other hand, regression analysis finds that the direct effects on actual physician income and productivity are less clear. The evidence suggests that rising malpractice premiums may lead to practice reductions in the short run, but that in the long run they lead to a specialization effect by which some physicians focus more on obstetrics and others focus more on gynecological surgery. Thus, the
analysis suggests that while the liability environment has had modest effects on the specialty of obstetrics and gynecology, these effects appear to fall short of a malpractice-induced “crisis.”

I. Data and Methods

A. Data

The American College of Obstetricians and Gynecologists (ACOG) conducted its 2003 Survey of Fellows Regarding the Structure and Economics of Physicians’ Practices to collect detailed physician-level data about ob-gyn practice. This survey, of a stratified random sample of the ACOG membership, provides the primary data for this analysis. The data include information on physician concerns, changes to practice, personal characteristics, professional characteristics, subspecialization, scope of practice, deliveries, and surgical procedures. The survey also collected information about malpractice insurance: physicians were asked about their individual malpractice insurance premiums for several years, their perceptions of the stresses of liability insurance, and any changes they may have made to their practices due to liability pressure. The mail survey was designed by ACOG in collaboration with Princeton Survey Research Associates (PSRA) and was conducted by PSRA. It includes responses from 1,476 obstetrician-gynecologists, for an ultimate response rate of 49%. PSRA investigated the overall quality of the data and concluded that it is generally very good quality for a long and complex self-administered survey of professionals.21 Despite the moderate response rate, the data appear to be representative of the ACOG membership and of ob-gyns more generally.22 ACOG also conducted similar surveys in several prior years (1991, 1994, 1998). These earlier surveys provide data on an additional 3,647 physicians—but they placed little

21 For comparison, the response rate among the American College of Surgeons survey employed in Balch et al., supra note 18, was 29%.
22 PSRA calculated data weights to adjust for slight differential non-response across demographic groups (categorized by ACOG geographic district, gender, age, and fellowship type). Divergences of the sample from the ACOG membership were very small, and the calculated weights are distributed approximately normally, falling between 1.00 and 2.07. These weights are used in the analysis. Additional discussion of potential response-rate bias and the representativeness of the ACOG survey sample can be found below.
emphasized on liability concerns and consequently will be used only tangentially.

Information on the broader liability environment is comprised of data on malpractice insurance premiums and malpractice payments (either through settlements or court judgments). First, the Medical Liability Monitor Rate Survey (MLM) provides data on malpractice insurance premiums in obstetrics and gynecology by state and year since 1991. The MLM data is constructed from a nationwide survey of the cost of a malpractice policy offering $1 million in coverage per claim and $3 million coverage per year. The MLM premium data are aggregated up to the state level by calculating the population-weighted average state premium. Second, the National Practitioner Databank (NPDB) records all medical malpractice payments made in the United States by or on behalf of a licensed health care provider, with detail about the provider’s position and specialty as well as the nature of the claim. We use the claims related to ob-gyns only. Although the NPDB is sometimes faulted for not recording payments made by hospitals or corporations, it still provides arguably the most comprehensive data available on medical malpractice payments—indeed, one significant advantage of the NPDB is that it includes information about settlement payments as well as jury verdicts. While the ACOG data also contain self-reports of malpractice insurance premiums, these are subject to obvious endogeneity concerns and reporting problems. Because the external measures from the MLM and

23 Medical Liability Monitor Rate Survey, Medical Liability Monitor, Oak Park, IL, various years.
24 This method for calculating a “standard” premium for ob-gyn liability insurance in each state is identical to that pursued by Baicker and Chandra, supra note 17. While this method adjusts for the population of the counties in which insurers operate, it does not adjust for the market shares of insurers in those counties. Unfortunately, available data do not present a clear way to remedy this shortcoming. It would appear that the MLM still provides the best available data on ob-gyn liability premiums.
26 By contrast, the Jury Verdict Reporter is limited to information about jury awards, which comprise only a small and unrepresentative sample of malpractice payments. For a detailed discussion of these issues, see Amitabh Chandra, Shantanu Nundy, and Seth A. Seabury, The Growth of Physician Medical Malpractice Payments: Evidence from the National Practitioner Data Bank, HEALTH AFF. WEB EXCL. W5-240 (2005).
27 Such endogeneity would occur if those physicians with unusually high premiums also have very different practice characteristics; in such a case, a relationship
NPDB provide more exogenous and reliable measures of the broader malpractice environment in the physician’s state of practice, they will be used as the measures of the malpractice environment.

Data on the general medical practice environment are drawn from the Area Resource File, compiled by the Bureau of Health Professions.\textsuperscript{28} Dollar values in all of the datasets are deflated to real 2002 dollars using the Consumer Price Index.

B. \textit{Methods}

The analysis began with an assessment of physicians’ reports of changes to their practice, as well as their perceptions of malpractice pressure and its effects on ob-gyn practice. The primary regression analysis first used a probit equation to estimate the influence of malpractice environment on physician activity:

\begin{equation}
\text{Probability(outcome)} = \alpha_0 \text{ LiabilityMeasure} + \alpha_1 \text{I(female)} + \alpha_2 \text{I(age<40)} + \alpha_3 \text{I(black)} + \alpha_4 \text{I(asian)} + \alpha_5 \text{I(other race)} + \alpha_6 \text{I(subspecialist)} + \alpha_7 \text{I(board certification)} + \alpha_8 \text{YearsInPractice} + \alpha_9 \text{I(census region)} + \alpha_{10} \text{I(County Pop < 50k)} + \alpha_{11} \text{I(County Pop > 100k)} + \varepsilon
\end{equation}

Outcomes considered included reducing all ob-gyn care, reducing only obstetrics, reducing gynecological care, reducing high-risk obstetrics care, or stopping obstetrics all together. (The function I(·) is an indicator function, equal to 1 or 0 depending on whether the individual possess the characteristic or not.)

Effects on continuous outcomes were estimated using weighted least squares:

\begin{equation}
\text{Outcome} = \alpha_0 \text{ LiabilityMeasure} + \alpha_1 \text{I(female)} + \alpha_2 \text{I(age<40)} + \alpha_3 \text{I(black)} + \alpha_4 \text{I(asian)} + \alpha_5 \text{I(other race)} + \alpha_6 \text{I(subspecialist)} + \alpha_7 \text{I(board certification)} + \alpha_8 \text{YearsInPractice} + \alpha_9 \text{I(census region)} + \alpha_{10} \text{I(County Pop < 50k)} + \alpha_{11} \text{I(County Pop > 100k)} + \varepsilon
\end{equation}

between premiums and practice characteristics would be apparent, but one could not determine the direction of causality. Exogenous variation in premiums, or variation external to the individual physician, provides a more promising route by which to establish a causal effect of premiums on physician practice.

\textsuperscript{28} \textit{Area Resource File}, available at http://arf.hrsa.gov/.
Outcomes considered in this framework included physician income, the number of deliveries, and the share of deliveries by cesarean section. In both analyses, liability measures included the average malpractice premium in the state, changes in state premiums, the average value of the liability payments, and the number of such payments per ob-gyn in the state.29

The interpretation of such regression results is relatively straightforward. The coefficient $\alpha_0$ is the primary coefficient of interest: it indicates the extent to which a liability measure affects an outcome (or its probability). If the estimated value of $\alpha_0$ is statistically insignificant, then the analysis indicates no significant relationship between the liability measure and the outcome. If the estimated value of $\alpha_0$ is statistically significant, then the estimated value tells us how much the outcome (or its probability) will change when the liability measure is changed by one unit.

C. A Framework for Establishing the “Guilt” of Malpractice Pressure

A primary goal of this paper is to determine how malpractice pressures affect the specialty of obstetrics and gynecology. Toward this end, we adopt an analytical framework that seeks to address the problem of “suggestive identification” that may be inherent in some survey questions. Examples of suggestive identifications abound in criminal law; the classic scenario is one in which a victim is presented with a single suspect and asked whether he is the guilty party. Such identifications have a high risk of unreliability and have long been criticized.30 For example, the Supreme Court has observed that “identifications arising from single-photograph

29 Regression analysis was performed on a sub-sample of 1,104 of ob-gyns with complete data. Observations were retained in the sample if i) they contained values for income, weeks, hours, patients, procedures, age, sex, ii) age < 80 years, iii) annual income between 2nd and 98th percentiles, iv) weeks > 26, v) hours and patients between the 1st and 99th percentiles, and vi) procedures performed less than the 99th percentile. Data weights calculated by PSRA were used in the analysis.

30 See, e.g., Simmons v. U.S., 390 U.S. 377, 383 (noting that “improper employment of photographs by police may sometimes cause witnesses to err in identifying criminals” and that “[t]his danger will be increased if the police display to the witness only the picture of a single individual who generally resembles the person he saw”); Stovall v. Denno, 388 U.S. 293, 302 (1967) ("The practice of showing suspects singly to persons for the purpose of identification, and not as part of a lineup, has been widely condemned.").
displays may be viewed in general with suspicion.” 31 By contrast, identifications that result from a lineup or multi-photograph array of several individuals are generally thought to be more reliable. 32

While the analogy between victim identifications and survey responses may be imperfect, it is nevertheless instructive. Like one-person lineups, some survey questions present ob-gyns with a single suspect, and invite them to expound upon its guilt. To wit, one question in the ACOG survey expressly asked respondents if they have made any changes in their practice “because of professional liability insurance affordability and availability issues” [italics in the original]. The suggestiveness of this question is clear, and may therefore cast doubt on the reliability of physicians’ responses.

Fortunately, not all questions in the ACOG survey use this suggestive format. Rather, some questions are more open ended—they simply ask respondents to identify changes they have made in their practices, and invite them to choose from nine different options to explain the reasons for these changes. These questions are much more akin to multi-person lineups: insurance affordability is presented as merely one among many possible suspects, instead of being highlighted as the lone (presumptively guilty) party. We can therefore have more confidence in the reliability of physicians’ answers to these questions.

The strategy for this paper should now be becoming clear. Instead of simply accepting physicians’ responses to suggestive questions about the role of liability pressures in their practices, we test these responses for reliability by comparing them with other data. While ob-gyns may attribute numerous effects to malpractice premiums when explicitly invited to do so, what do they say when alternative explanations are also available? Are ob-gyns consistent in their accounts of what changes they have made to their practices as a result of malpractice pressures? If ob-gyns report that malpractice pressures produce certain effects, are objective measures of those malpractice pressures actually related to those effects? Our analysis aims to answer these questions below.

### TABLE 1

**Summary of Variables**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Mean</th>
<th>Std. Dev.</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Age</td>
<td>46</td>
<td>(11)</td>
</tr>
<tr>
<td>Share under age 40</td>
<td>36%</td>
<td></td>
</tr>
<tr>
<td>Share Female</td>
<td>40%</td>
<td></td>
</tr>
<tr>
<td>Share White</td>
<td>83%</td>
<td></td>
</tr>
<tr>
<td><strong>Physician Characteristics</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Years in practice</td>
<td>15</td>
<td>(11)</td>
</tr>
<tr>
<td>Share board certified</td>
<td>77%</td>
<td></td>
</tr>
<tr>
<td>Share subspecialists</td>
<td>18%</td>
<td></td>
</tr>
<tr>
<td>Share who do no obstetrics</td>
<td>21%</td>
<td></td>
</tr>
<tr>
<td>Annual income ($ thousands)</td>
<td>207</td>
<td>(149)</td>
</tr>
<tr>
<td>Hours per week</td>
<td>63</td>
<td>(22)</td>
</tr>
<tr>
<td>Patients per week</td>
<td>91</td>
<td>(44)</td>
</tr>
<tr>
<td>Number of births per year</td>
<td>109</td>
<td>(90)</td>
</tr>
<tr>
<td>Number of procedures per year</td>
<td>227</td>
<td>(149)</td>
</tr>
<tr>
<td>Share of births by cesarean</td>
<td>24%</td>
<td>(11%)</td>
</tr>
<tr>
<td><strong>Malpractice Insurance Premiums</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>State average insurance premium ($ thousands)</td>
<td>60</td>
<td>(24)</td>
</tr>
<tr>
<td>% change in premium in the state 1992-2002</td>
<td>9%</td>
<td>(28%)</td>
</tr>
<tr>
<td>% change in premium in the state 2001-2003</td>
<td>33%</td>
<td>(23%)</td>
</tr>
<tr>
<td><strong>Malpractice Payments</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of payments (paid claims) in state</td>
<td>42</td>
<td>(34)</td>
</tr>
<tr>
<td>Number of payments per 100 ob-gyms in state</td>
<td>2.8</td>
<td>(1.1)</td>
</tr>
<tr>
<td>Mean payment in state ($ thousands)</td>
<td>525</td>
<td>(257)</td>
</tr>
<tr>
<td>Median payment in state ($ thousands)</td>
<td>330</td>
<td>(149)</td>
</tr>
<tr>
<td><strong>Number of Observations</strong></td>
<td>1476</td>
<td></td>
</tr>
</tbody>
</table>

**SOURCE:** Physician-level data from the ACOG survey. State average insurance premiums are from the MLM. Payments are from the NPDB.

**NOTES:** Means are weighted using weights provided with the ACOG data to adjust for small differences in response rates across groups. Dollar values are in thousands of 2002 dollars (adjusted for inflation using the Consumer Price Index).
D. Summary of Data

Table 1 provides a summary of the data. The average age of physicians in the sample is 46; 40% are female, and 83% are white. The physicians have been in practice for an average of 15 years, 18% characterize themselves as sub-specialists, and approximately one-fifth report doing no obstetrics. Annual net medical income averages $207,000, which is indeed lower than the averages reported in earlier ACOG surveys ($282,000 in 1990, $247,000 in 1993, and $218,000 in 1997, all in inflation-adjusted dollars). A detailed investigation comparing the survey sample, the ACOG membership, and available AMA data on ob-gyns indicates that the ACOG survey sample is representative of obstetrician-gynecologists practicing in the United States in 2002.33

The lower portion of Table 1 provides information about the malpractice liability environment. The average insurance premium calculated from the MLM rate survey of insurers (in the states in which these physicians practice) is $60,000. The MLM data also

33 There is a close match between the number of ob-gyns who are AMA members and the number of ACOG fellows, suggesting that ACOG includes most ob-gyns in the United States. Moreover, the values of demographic and professional characteristics (e.g. age, gender, type of practice, weeks, hours, time allocation across different activities and settings) in available AMA survey data match those in the ACOG survey reasonably well. These comparisons therefore indicate that ob-gyns who are ACOG members are representative of ob-gyns who are AMA members. See generally PRACTICE PATTERNS OF OBSTETRICS/GYNECOLOGY (J.D. Wassenaar and S. L. Thran eds., 2003). In addition, as discussed above, PSRA established that the ACOG survey respondents were, in turn, reasonably representative of the ACOG membership. Thus, the ACOG survey respondents can be taken to be reasonably representative of ob-gyns more generally.

34 The ACOG data also contain self-reports of insurance premiums: the average total insurance premium (premium for individual professional liability insurance plus payment to state patient compensation or birth injury fund) reported is $37,000. This is considerably lower than the $60,000 average in the MLM data. The exact source of the discrepancy is unclear. Investigation of the data suggests that the discrepancy can probably be attributed to physicians having imperfect knowledge of their liability premiums and their payments to patient compensation funds (particularly those in group practices, employed by hospitals or managed care organizations, or residing in states where patient compensation funds are significant.) This gap between physician self-reports and industry reports is not unique to the ACOG data: the ACOG average of $37,000 is close to the $39,000 reported in AMA survey data for the same time period. See Wassenaar and Thran, supra note 33. Whatever the explanation for this discrepancy, the self-reports of liability insurance premiums will not be used in this paper; only the state-level MLM measures of liability insurance premiums will be used. State-level measures
show that in the decade between 1991-1993 and 2001-2003, premiums in the states in which these physicians practice rose by an average of 9%. Increases in premiums were much larger in the shorter period between 2001 and 2003, averaging 33% during this malpractice “crisis.”

Malpractice payments (either through settlements or court judgments) average $525,000 in the NPDB data for the year 2002, with a median payment of $330,000. As has been observed elsewhere, the distribution of payments has a long upper tail, and the 90th percentile in this sample is well over $1 million. Lastly, for every 100 ob-gyns in a state, there are an average of 2.8 allegations that result in payments each year.

II. Results

A. Concerns, Changes, and Reasons

The salient information on physician concerns and practice changes is shown in Figure 1, which lists the top answers to questions about major concerns and practice changes. Respondents were asked “Which of the following are the top two issues of greatest concern to you in your professional life today?” and were given a list of seven possible choices. Nearly all respondents—in excess of 90%—placed medical liability issues or the financial viability of their practice in the top two, and 36% indicated that together those were their top two concerns. In all, 78% cited liability issues as a top concern and 48% cited the financial viability of their practice as a top concern.

also avoid endogeneity problems that plague individual measures (e.g. those who practice obstetrics have higher premiums).

35 From 1991-1993 to 2001-2003, the 25th percentile of changes in premiums was a decline of 10%, the median was an increase of 4%, and the 75th percentile was an increase of 31%.

36 Between 2001 and 2003, the 25th percentile of changes in premiums was increase of 20%, the median was an increase of 29%, and the 75th percentile was an increase of 42%.

37 See, e.g., Jena et al., supra note 18.

38 It is important to note that the best recent evidence indicates that the majority of claims of malpractice do not result in any payment. For ob-gyn specifically, Jena et al (supra note 18) report that the annual rate of claims is 11% while the rate of claims that result in payment is less than 3%.

39 This was the first question on the survey. Note that in this, as in most questions, respondents could write in an answer if none of the available options seemed appropriate.
concern. Thus, it is clear that liability and finances are of great concern to ob-gyns.

Reported Changes in Practice

Physicians were also asked about how their practice may have changed in the previous year. $^{40}$ Nearly one-third (30%) of respondents answered that their workload had increased, while only one-tenth (11%) responded that their workload had decreased. Somewhat in contrast to that split, 13% responded that they had limited the scope of their practice in some manner, while 7% had

$^{40}$ Respondents were asked “Which of the following statements are true about your current practice when compared to your practice a year ago?” and were given a list of twelve choices.
expanded the scope of their practice. Twelve percent responded that their practice group had expanded. No other single change was reported by more than 3% of the sample. While the detailed picture is far from clear, it is clear that physicians were not providing an image of particularly stable practice, with two-thirds of physicians reporting a significant change. Moreover, reports of an increasing workload were common.

Reported Reasons for Changes

Physicians cite a range of reasons for these changes. Four categories make a strong showing: reimbursement issues (23%), increased patient needs (17%), the affordability of professional liability insurance (17%), and personal reasons (15%). Other reasons—such as better opportunities, more professional autonomy, or the availability of liability insurance—come in at 7% or below.

Reported Malpractice-Induced Changes

Physicians were also asked about changes they may have made or experienced as a consequence of liability insurance affordability or availability. The question, appearing much later in the survey, was: “In the past two years … have you made any of the following changes because of professional liability insurance affordability and availability issues.” Respondents could choose from eight “personal/practice” choices and five “financial situation” choices. Figure 2 summarizes the responses. Only 12% of physicians say they relocated, retired, or changed their position or type of practice in response to liability pressures. In contrast, 38% report adverse financial consequences: 32% indicate that their salary was reduced by 10% or more, 15% report using a loan or savings to fund increases in insurance premiums, 4% report decreased personal or professional expenditures, and 1% report having declared bankruptcy. These self-reports paint a rather severe picture of the

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41 These reports are not necessarily in contradiction with each other: workload refers to a volume of services, while scope refers to the type of services. Hence, increasing workload could be consistent with reduced scope.
42 For further detail, see Appendix Figure 1.
43 Immediately following the question about changes, respondents were asked to “indicate why you made the changes you identified” and could choose from nine options.
44 For further detail, see Appendix Figure 2.
45 This was one of the last questions on the survey, and was placed 30 questions after the questions about general changes.
financial consequences of the liability environment, one not inconsistent with the image of a specialty in crisis.

Changes to physician workload are also reported frequently: 31% of physicians report reducing or limiting their workload significantly. These effects are primarily in obstetrics—22% report decreasing high-risk obstetrics, 10% report reducing deliveries, and 7% report stopping obstetrics altogether—but gynecological surgery is not unaffected, with 11% report decreasing gynecological surgery and 4% report stopping gynecological surgery altogether. Only 5% of respondents indicated that their workload increased due to liability pressures. Note that effects on personal well-being were not listed as options, so we are unable to systematically analyze such effects here.

46 A change in the share of births by cesarean section was not an available choice.
Assessing the Consistency of Reported Changes

While these reports do sketch out a picture of a specialty severely affected by the financial and liability pressures of the torts environment, they do not paint a coherent picture: many of the above reports are internally inconsistent. There is a stark contrast between the changes reported by physicians when they are asked in a general context versus in a liability context: in the former, 30% of physicians reported an increased workload, in the latter only 5% did; in the former, 11% reported a decreased workload, in the latter 31% did. These are substantial differences. While it is possible that these inconsistencies are artifacts of aggregating individual data (those who increased workload more generally could be distinct from those who decreased workload due to liability pressures), this does not appear to be the case.\(^{47}\) One-quarter of the sample provides seemingly contradictory answers in the two sections, while only one-quarter provides qualitatively similar answers in both sections. (The remainder of the sample may have mentioned a change in one section but not in another, thereby not confirming their own claims but also not contradicting themselves.)

Even the basic counts fail to match: when asked in a general context, only 21% of physicians who made changes cited liability pressures as a reason for those changes; in contrast, when asked about changes made specifically due to liability, 55% of physicians cited at least one change. The apparent contradiction here is evident: a physician either did make a change due to liability pressures or did not make a change due to liability pressures, but up to one third of the physicians surveyed are essentially saying no (when the question is general) and then saying yes (when liability is presented as the prime suspect.) Furthermore, many physicians seem inclined to report that their workload is increasing and broadening in general while at the same time reporting that their workload is decreasing and narrowing due to liability pressures. The substantial inconsistency in these responses implies that “suggestive identification” bias is not insignificant.

\(^{47}\) Of the individuals who cited an increase or expansion of workload in the general section, only 9% also cited a liability-induced increase, and 34% actually cited a liability-induced decrease. Those who cited decreases in the general section were more consistent: 62% also cited a decrease due to liability pressures, while 4% cited an increase. There is substantial intra-individual inconsistency.
B. Relationship Between Malpractice Pressures and Changes in Practice

We now endeavor to assess to what extent malpractice pressures are in fact responsible for changes in practice. The above results reveal frequent reports of decreases in salary, increased and diversified workloads, as well as decreased and narrowed workloads, and much of this is attributed to liability pressures. But are liability pressures really the culprit? By regressing reported practice changes on measures of the liability environment or changes therein, we aim to ascertain whether greater malpractice pressures lead to greater reports of adverse effects.

As part of this analysis, we can look directly at self-reported physician productivity. The ACOG data contain self-reports of net medical income, mix of procedures, and practice or cessation of obstetrics. While the value of self-reports is debatable, these questions may provide more reliable data because they were asked in a neutral manner (“how many deliveries did you perform?”) and in a separate part of the survey from the malpractice questions. Not having been framed in terms of liability, the answers should be more objective. By regressing physician productivity on measures of the liability environment or changes therein, we can ascertain whether malpractice pressures lead to adverse effects on physician productivity, where productivity is measured in quantitative self-reports.\(^{48}\)

Together, by investigating effects on self-reported changes and on self-reported productivity, we aim to probe the validity of some of the claims put forward above. In addition, we hope to improve our understanding of the extent of the bias resulting from suggestive identification. We consider income first, then turn to practice scope.

Effects on Income

The above survey responses suggest that liability pressures may significantly reduce income, with nearly one-third of the sample attributing an income decline of 10% or more to issues surrounding liability insurance affordability or availability. An initial look at the ACOG data reveals that average ob-gyn income dropped by 3.7% between 1997 and 2002, making it seem unlikely that a full third of the sample could have experienced declines of 10% or more in just

\(^{48}\) Effects on certain outcomes (relocations, retirements or other exits) cannot be assessed using this cross-section of active physicians.
the years between 2000 and 2002 unless the remainder of the sample had stable or increasing incomes. However, we can gain much from a detailed investigation, and Table 2 considers this relationship between malpractice pressures and income declines.

Each coefficient shown in Table 2 reflects the regression-adjusted effect of a single liability variable on a single practice outcome.\textsuperscript{49} The two columns—the first investigating effects on

\textsuperscript{49} Tables 2 and 3 show results from multiple regressions. Each number shown reflects the effect of a single liability variable (as indicated at the left of the row) on a single practice outcome (as indicated at the top of the column). Numbers in the first column, reflecting results from probit specifications, show the change in
The first three rows of the table consider the effects of higher or rising malpractice premiums. The statistically significant coefficients indicate that higher average state premiums and rising state premiums are strongly associated with the probability of attributing an income reduction of 10% or more to liability pressures. An additional $10,000 of premium in the state is associated with a 5 percentage point increase in the likelihood of a physician attributing such an income reduction to liability. Likewise, the average premium increase of 30% in the years 2001-2003 would produce a 9 percentage point increase in that likelihood. Thus, this first column shows that high or increasing liability insurance costs significantly increase physicians’ attribution of income declines to liability pressures.

In the second column of Table 2, we tackle the question from a different angle, investigating effects of high or increasing liability insurance costs on the actual incomes physicians report (independent of any considerations of liability). These results are less consistent. First, higher state premiums are associated with lower net medical incomes. For each additional $10,000 of premium, income is lower by $3,650. However, this is primarily a result of the cross-state comparison in 2002. When one considers changes to premiums, either in the decade between 1992 and 2002 or in the most recent
years 2001 to 2003, there is no significant adverse effect on income; the estimates in rows 2 and 3 are negative and insignificant.

Thus, the first three rows of Table 2 show that while increasing liability insurance costs are associated with physicians alleging income declines due to liability pressure, they are not associated with lower physician incomes when income is reported directly and separate from any discussion of liability. Once again, the alleged effects on income may result from suggestive identification.

The last two rows of Table 2 investigate effects of malpractice payments on reports of liability-induced income declines (column 1) and effects on reported income (column 2). There is little indication of a relationship between the average malpractice payment in a state and reports of income declines. Nor is there any indication of a relationship between the average malpractice payment in a state and reported income. There is, however, some suggestive evidence that more frequent payments increase the probability of reporting an income decline (the P-value on the 5.950 coefficient is 0.103.) Moreover, more frequent payments also appear to significantly decrease income: a 10% increase in the frequency of payments is associated with a 0.7% drop in income. Put another way, a move from the 25th percentile of payment frequency to the 75th percentile is associated with an income decline of approximately $12,000 or 6%. Thus, these estimates indicate that the frequency, not the size, of payments adversely affects income. They also suggest that these are “real” effects that are not entirely driven by suggestive identification bias.

*Effects on Scope of Practice*

Income, while of obvious practical importance, is a relatively coarse measure of practice performance. Luckily, because the ACOG survey was designed exclusively for ob-gyns, the data permit more detailed analysis of the relationships between the liability environment and specific reported changes to or aspects of practice. These results are shown in Table 3. As above, the results are divided into two parts: Panel A displays estimated effects of liability pressures on claims of liability-induced practice changes and Panel B displays estimated effects of liability pressures on reported practice characteristics.
TABLE 3
Effects of Malpractice Pressure on Scope of Practice

Panel A. Effects on Probability of Attributing Certain Practice Changes to Liability Pressure

<table>
<thead>
<tr>
<th>Liability Risk Measure</th>
<th>Reduce All Care</th>
<th>Reduce Obstetrics</th>
<th>Reduce Gyn. Surg</th>
<th>Reduce High-Risk OB</th>
<th>Stopped Obstetrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Average Premium ($ thousands)</td>
<td>0.004 **</td>
<td>0.002</td>
<td>0.011 **</td>
<td>0.001</td>
<td>0.004</td>
</tr>
<tr>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.002)</td>
<td>(0.006)</td>
</tr>
<tr>
<td>Percentage Change in Premium 2001-2003</td>
<td>0.171</td>
<td>0.105</td>
<td>0.045</td>
<td>0.172</td>
<td>-0.058</td>
</tr>
<tr>
<td>(0.163)</td>
<td>(0.166)</td>
<td>(0.219)</td>
<td>(0.177)</td>
<td>(0.262)</td>
<td></td>
</tr>
<tr>
<td>Percentage Change in Premium 1992-2002</td>
<td>0.300 **</td>
<td>0.287 *</td>
<td>0.283</td>
<td>0.386 **</td>
<td>0.252</td>
</tr>
<tr>
<td>(0.147)</td>
<td>(0.149)</td>
<td>(0.199)</td>
<td>(0.161)</td>
<td>(0.236)</td>
<td></td>
</tr>
<tr>
<td>State Average Liability Payment ($ millions)</td>
<td>-0.314</td>
<td>-0.427</td>
<td>0.095</td>
<td>-0.364</td>
<td>-0.442</td>
</tr>
<tr>
<td>(0.306)</td>
<td>(0.310)</td>
<td>(0.416)</td>
<td>(0.333)</td>
<td>(0.487)</td>
<td></td>
</tr>
<tr>
<td>Payments (Paid Claims) per Ob-Gyn in State</td>
<td>9.283 **</td>
<td>8.760 **</td>
<td>14.635 **</td>
<td>3.534</td>
<td>17.104 **</td>
</tr>
<tr>
<td>(3.641)</td>
<td>(3.696)</td>
<td>(4.825)</td>
<td>(3.945)</td>
<td>(5.671)</td>
<td></td>
</tr>
</tbody>
</table>

Panel B. Effects on Number of Procedures and Scope of Practice

<table>
<thead>
<tr>
<th>Liability Risk Measure</th>
<th>All Procedures</th>
<th>Deliveries</th>
<th>Gyn. Surgeries</th>
<th>Share Cesarean</th>
<th>No Obstetrics</th>
</tr>
</thead>
<tbody>
<tr>
<td>State Average Premium ($ thousands)</td>
<td>-0.169</td>
<td>-0.021</td>
<td>-0.167 **</td>
<td>0.000</td>
<td>0.002</td>
</tr>
<tr>
<td>(0.154)</td>
<td>(0.097)</td>
<td>(0.094)</td>
<td>(0.018)</td>
<td>(0.003)</td>
<td>(0.003)</td>
</tr>
<tr>
<td>Percentage Change in Premium 2001-2003</td>
<td>-41.547 **</td>
<td>-12.433</td>
<td>-18.096 **</td>
<td>-0.022</td>
<td>0.427 *</td>
</tr>
<tr>
<td>(14.309)</td>
<td>(10.18)</td>
<td>(8.820)</td>
<td>(0.244)</td>
<td>(0.231)</td>
<td></td>
</tr>
<tr>
<td>Percentage Change in Premium 1992-2002</td>
<td>10.944</td>
<td>8.606</td>
<td>2.376</td>
<td>-0.014</td>
<td>0.309</td>
</tr>
<tr>
<td>(12.929)</td>
<td>(8.112)</td>
<td>(7.613)</td>
<td>(0.016)</td>
<td>(0.231)</td>
<td></td>
</tr>
<tr>
<td>State Average Liability Payment ($ millions)</td>
<td>-0.034</td>
<td>0.009</td>
<td>-0.031 *</td>
<td>0.000</td>
<td>-0.677</td>
</tr>
<tr>
<td>(0.026)</td>
<td>(0.017)</td>
<td>(0.016)</td>
<td>(0.479)</td>
<td>(0.479)</td>
<td></td>
</tr>
<tr>
<td>Payments (Paid Claims) per Ob-Gyn in State</td>
<td>118.199</td>
<td>150.456</td>
<td>-25.388</td>
<td>0.260</td>
<td>13.247 **</td>
</tr>
<tr>
<td>(316.821)</td>
<td>(200.739)</td>
<td>(193.620)</td>
<td>(0.360)</td>
<td>(5.601)</td>
<td></td>
</tr>
</tbody>
</table>

NOTES: Analysis on ACOG data as described in the text. Premium data are from the MLM, payment and allegation data from the NFDB. Each number is the coefficient from a single regression. The numbers in Panel A, reflecting results from probit specifications, show the change in the probability of reporting having made the indicated practice change (in the past two years), and attributing that change to liability, that results from a 1-unit change in the liability variable. These marginal effects are evaluated at the sample mean. The numbers in the first four columns of Panel B, reflecting results from ordinary least squares, show the change in the value of the outcome shown (total number of procedures, total number of deliveries, total number of gynecological surgeries, or share of deliveries by cesarean section) that results from a 1-unit change in the liability variable. The final column of Panel B shows marginal effects from a probit specification for not practicing obstetrics as of 2003. Units: premiums are in thousands of 2002 dollars, percentage changes are measured from 0.00 to 1.00 (i.e., a 1% change is written as 0.01), state average liability payment is in millions of 2002 dollars, probabilities of reporting a change are measured from 0.00 to 1.00. Significance is indicated by * for P< 0.10 and ** for P< 0.05.
We first consider the effects on physician claims of liability-induced changes, as shown in Panel A.\textsuperscript{50} A higher state premium increases reports of reducing all care and reducing gynecological surgery due to liability pressures, but does not appear to be specifically related to reports of reducing obstetrics or high-risk obstetrics. Recent changes in state premiums (between 2001 and 2003) do not show a significant influence on reports of reducing care. On the other hand, changes in state premiums over the previous decade are strongly associated with reports of reducing all care, obstetrics, and high-risk obstetrics. A 29% rise in insurance premiums (the 75\textsuperscript{th} percentile increase in the period 1992-2002) is associated with a 10 percentage-point increase in the likelihood of reducing all care. Lastly, while the average liability payment shows no significant relationships with these outcomes, a high frequency of paid claims is strongly associated with nearly all reported reductions in care and with reports of the cessation of obstetrics. The elasticity for the effect on cessation of obstetrics is 1.0 (with a standard error of 0.3). This means that a 10% increase in paid claims produces a 3 percentage point increase in the likelihood of stopping obstetrics. In general, more paid claims per physician significantly increases reports of reductions or cessation of care across the board: when litigation is more successful, physicians report that they are affected more acutely. Overall, there is evidence that greater liability pressure, be it high or rising premiums, or large or frequent claims, increases some reports of reduction of care or narrowing of the scope of practice.

Panel B investigates effects on self-reported physician productivity: numbers of procedures, deliveries, and surgeries; the share of births by cesarean section; and the probability the physician actually practices no obstetrics.\textsuperscript{51} The idea is to see how liability pressure affects physician practice by looking not at what they say about how it affects them, but rather by looking for a relationship between such pressure and what they do. Several observations can be made about these results.

\textsuperscript{50} The outcomes investigated in Panel A are in answer to the question “In the past two years, that is, since January 2001, have you made any of the following changes because of professional liability insurance affordability and availability issues.” (Emphasis in original.)

\textsuperscript{51} These are in answer to the question “During all of 2002, how many of the following procedures did you perform?” This was asked in a separate part of the survey from the above question about liability-induced changes.
First, in most cases the only liability pressure measure that has the expected effect of reducing care provided is the recent percentage increase in insurance premiums. The average recent premium increase of 30% is associated with a 5-6% reduction in total procedures, and a doubling of premiums would be associated with an 18-21% reduction (elasticity 0.18). The effects are similar when gynecological surgeries are examined separately, but the effect on the number of deliveries is insignificant (P=0.17). There is, however, a substantial effect on having stopped obstetrics recently: the elasticity is 0.88, and the average premium increase of 30% would be associated with a 12 percentage-point increase in the likelihood of having stopped obstetrics.

Second, the uniformly significant effects of the number of paid claims are largely gone: having more paid claims per physician in the state does not impact most measures of physician productivity. Third, Panel B shows no significant effects of liability pressures on the number of deliveries. Given the general view that one of the main problems is that liability pressures reduce the supply of ob-gyns to deliver babies, this is one area where we might have expected to find significant results. But we do not. Lastly, we do see some negative effects on all procedures performed, gynecological surgeries (elasticities 0.1 to 0.2), and the practice of obstetrics (elasticities 0.7 to 0.9). This last result of a large responsiveness of the cessation of obstetrics to elements of the liability environment may indicate that grouping all physicians together—whether or not they practice obstetrics—might obscure some important aspects of the data.

Overall, the results in Table 3 reveal incongruity between estimated effects on reports of liability-induced changes and estimated effects on more objective measures of productivity. Furthermore, it appears that understanding the effects of liability pressure on production and the scope of practice may require more precise modeling of obstetric care decisions, in particular the decision to stop obstetrics altogether. The next section does this.

**Two Pathways in the Short-Run and the Long-Run**

Separating physicians who continue to practice obstetrics from those who choose to stop obstetrics provides an opportunity to investigate these two pathways directly. Not only is this the appropriate econometric strategy in this situation, it also allows a

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The distribution of outcomes in the sample, particularly the large number of physicians reporting no deliveries and the fact that the distribution is not merely a...
more nuanced investigation of the short-run and long-run dynamics. Essentially, whether to stop obstetrics appears to be a pivotal choice, and our analysis should take that into account.53

Figure 3a shows the impacts of short-term premium increases on self-reported productivity, and does this separately for physicians who continue to practice obstetrics (the blue bars) and for those who have stopped obstetrics (the green bars). The thick colored bars indicate the size of the estimated effect of premium increases on procedures, and the thin lines indicate a 90% confidence interval around those estimates. In response to recent sharp increases in premiums (between 2001 and 2003), physicians who continue to practice obstetrics reduce the total number of procedures they perform, including a highly significant effect reducing the number of deliveries and a marginally insignificant effect reducing the number of surgeries. Those who have stopped obstetrics seem to reduce the total procedures they perform, and substantially reduce the number of surgeries they perform (in addition to having stopped obstetrics altogether). This is the standard story: increasing premiums lead to reductions in care.

However, the long-run situation, shown in Figure 3b, is markedly different. Long-term premium increases (over the decade between 1992 and 2002) seem to lead to more procedures for both types of physicians. More specifically, these long-term premium increases lead to higher numbers of deliveries among those who still practice obstetrics and higher numbers of surgeries among those who have stopped obstetrics. Rather than a uniform reduction, there is specialization and a shift. Some physicians specialize more in obstetrics (elasticity 0.13), others specialize more in gynecological surgery (elasticity 0.35). This is a new story.

truncated normal, presents an econometric challenge. Ordinary least squares is an inappropriate strategy, and a tobit or similar specification is “manifestly misspecified” for these data (Greene 2008, pp. 878-880). Ultimately, splitting the sample is the most appropriate econometric strategy.53 The analysis discussed in this section is based on regressions in which the specification is identical to the specification discussed in earlier results, but the sample is split into two – a set of physicians who have continued to practice obstetrics, and a set of physicians who have stopped practicing obstetrics. For clarity of exposition, the full regression results are not shown. Instead, the main results are illustrated in bar charts in Figures 2 and 3. The full regression results are available from the authors on request.
FIGURE 3a
Effects of Short-Run Premium Increases on Ob-Gyn Productivity

FIGURE 3b
Effects of Long-Run Premium Increases on Ob-Gyn Productivity

Notes: Solid bar heights show the coefficient estimate from the regression of number of procedures performed on the percentage change in premiums. Thin lines represent the 90% confidence interval for the coefficient estimate. Analysis on ACOG data as described in the text and in notes to Appendix Table 1. "Still practice OB" results are based on the sample of 879 physicians who report still practicing obstetrics as of 2003. "Have stopped OB" results are based on the sample of 225 physicians who report having stopped obstetrics by 2003.
Having uncovered a more textured response in this specialization story, it is natural to ask what this means for physicians’ incomes. Additional regressions find few significant effects of premium changes on net medical income.\(^{54}\) This would suggest that premium increases are not responsible for reducing physicians’ incomes. Moreover, for those who still practice obstetrics, long-term increases in premiums increase the share of income from obstetrics, further supporting the specialization scenario.

Interestingly (but perhaps not surprisingly), this story of specialization is not apparent when we investigate the effects of liability pressure.\(^{55}\) In that case, those who still practice obstetrics are more likely to claim reductions in procedures when they have experienced larger long-term premium increases, while those who have stopped obstetrics are no more or less likely to claim reductions in procedures when they have experienced larger long-term premium increases. Neither group shows any effects of short-term premium increases on the likelihood of reporting reductions in procedures. At the same time, both short-term and long-term premium increases substantially increase reports of liability-induced income declines. Given the near absence of effects on income, there appears yet again to be a misattribution of blame onto liability pressures. At this point, these contradictions should not be surprising: physicians’ specific claims of the effects of liability pressures do not align well with the actual effects of those pressures. We have mounting evidence that the physicians’ perceptions or claims of how liability is affecting them may be inaccurate.

\(^{54}\) When income for the two groups is regressed on the two premium increases, the only statistically significant effect among the four coefficients is the one from the regression of income of physicians who have stopped obstetrics on short-term premium increases. Alternately, we can calculate the income lost from the predicted reductions in practice (cessation of obstetrics and/or reduction of the number of procedures performed): a 30% increase in malpractice premiums in the 2001-2003 period is associated with an income decline of approximately $8,500 (3.7%) for physicians who do not stop obstetrics, and a decline of $10,500 (5.5%) for physicians who stop obstetrics.

\(^{55}\) Such results show effects only of long-term premium increases on reported reductions for those who still practice obstetrics, and no effects for those who have stopped obstetrics.
III. Discussion

A. Malpractice-Induced Specialization

One interpretation consistent with the above results is a “two-pathway” story. Faced with liability pressure, physicians choose a pathway—continue doing obstetrics or stop—and one pathway leads to increasing concentration in obstetrics while the other leads to increasing concentration in gynecological surgery. Those physicians left behind still doing obstetrics do more of it, while those who have stopped doing obstetrics naturally shift into doing more gynecological surgery. These shifts can be seen in Figure 3. Those who continue obstetrics are able to maintain reasonably stable incomes in the face of liability pressure, and over time a larger share of their income comes from obstetrics. Those who stop obstetrics experience income declines in the short-term, but these are largely erased over time by a reallocation of effort towards gynecological surgery.

This specialization scenario makes a good deal of sense from an economic standpoint. If taking on the greater liability risk of obstetrics is a largely fixed cost that does not depend on the number of births, then it is efficient for some physicians to take that on while others give it up. Theoretically, physicians with strong preferences for delivering babies would have a higher willingness to pay for the privilege, and would keep doing obstetrics despite the high liability insurance costs. Those with weaker preferences for delivering babies would relinquish the privilege more readily. The net result would be an efficient allocation of physicians to either broad ob-gyn practice or pure gyn practice based on their own preferences.\textsuperscript{56}

Overall, the available evidence indicates that malpractice pressures do not simply shrink the specialty and reduce incomes. Rather, malpractice pressures may induce specialization and reallocation, and through this responsive action physicians largely insulate themselves from income declines. Although this contrasts with the standard story, it is supported by the data and makes a good deal of sense from an economic standpoint.

It is important to note that these hypotheses are limited by having derived primarily from analysis of cross-sectional data and by

\textsuperscript{56} Another example of such specialization is the relatively recent emergence of “laborists,” obstetricians who work in hospitals and deliver babies, with no other patient care responsibilities or interactions.
TAKING THE MEASURE OF A CRISIS

being unable to directly assess the roles of some other supply or demand factors (entry into the specialty, substitution of other providers, or changes in demand). However, these hypotheses do derive from careful analysis of the most detailed and extensive data available on ob-gyn practice, combined with the best available data on malpractice liability environments. Moreover, these hypotheses accord well with other recent work, particularly two papers that present similar scenarios in which physicians engage in reallocations of effort which serve to stabilize their incomes in the face of liability pressures. Baicker, Fischer, and Chandra discuss the possibility of both positive and negative defensive medicine: physicians can do more (positive) or less (negative) in response to liability pressures, and the net effect on income may be neutral.\(^57\) Pauly, Abbott, and Thompson find support for the hypothesis that physicians maintain net income not by raising prices but rather by providing more services, whether those are defensive actions or more generic.\(^58\) In this way, while the details of this particular specialization story are new, the broad outlines have been taking shape in the literature.

B. Reports vs. Data

The previous section outlined a simple scenario of ob-gyn behavior that is supported by the data. However, this scenario is not in line with physician reports that liability pressures are causing a crisis in the specialty. Physicians’ twin concerns regarding medical liability issues and the financial viability of their practice are hardly surprising. In the 1990s, obstetrics and gynecology experienced a much larger income decline than other specialties. Insurance premiums rose mildly in the 1990s, and rose drastically after 2000. It is easy to understand why ob-gyns put liability and financial viability at the top of their list of concerns, and why they may have linked the two, blaming liability pressures for their declining incomes. Nevertheless, the above results indicate that much of that blame is not justified. As has been discussed by Rodwin, Chang, and Clausen, simultaneity may have led to conflation of these issues.\(^59\) Chandra, Nundy, and Seabury discuss a similar misattribution of

\(^{57}\) See Baicker et al., Malpractice Liability Costs and the Practice of Medicine in the Medicare Program, supra note 12.


\(^{59}\) See Rodwin et al., Malpractice Premiums and Physicians’ Income: Perceptions of a Crisis with Empirical Evidence, supra note 16.
blame in the liability arena, arguing that the growth in malpractice payments is overstated and does not appear to be the driving factor in the growth in malpractice premiums.\(^{60}\) Broadly, the literature suggests that the relationships among these various factors are complex and likely not what they first appear. Moreover, the physicians’ reports in the ACOG survey are not internally consistent, with substantial discrepancies between changes reported in a general context and changes reported in a liability context. Many physicians report that their workload is increasing and broadening while at the same time reporting that their workload is decreasing and narrowing due to liability pressures. Ultimately, the scenarios put forward by physicians—according to which liability pressures have a substantial negative impact on ob-gyn practice—do not withstand close scrutiny.

This brings us to consider a question posed by Mark Pauly: “If physicians generally can offset the impact of higher malpractice premiums on their net incomes, why do they complain so bitterly?”\(^{61}\) Our paper suggests an answer similar to that proposed by Patricia Danzon: physicians complain because the smooth surface of the data—where little appears to change—belie a turbulent reality—where physicians are making many difficult adjustments.\(^{62}\) Thus, while physicians are largely successful in “protecting” themselves from incurring direct costs in the form of lost income, they may incur substantial other costs in the form of effort or stress. Their complaints and concerns may be reflecting the substantial adverse effects on their professional satisfaction and general well-being, hypotheses which receive some support in the literature.\(^{63}\) Physicians may “complain so bitterly” because, having achieved apparent stability with apparent ease, they may be eager to set the story straight and give their own account of their struggles—even if that account is not supported by the data.


\(^{62}\) See Patricia M. Danzon, Liability for Medical Malpractice, in HANDBOOK OF HEALTH ECONOMICS (Anthony Culyer and Joseph Newhouse eds., 2000).

\(^{63}\) See, e.g., Jena et al., supra note 18; Balch et al., supra note 18.
C. A Mild “Crisis”? 

This is not to say that the liability crisis is all imagined. We do find substantial (if not entirely consistent) evidence that liability pressures affect ob-gyn practice. Different measures of the liability environment yield different results: some have significant effects on physicians claiming changes due to liability pressure, some have significant effects on actual reports of activities, with little overlap between the measures. High state premiums, long-term changes in premiums, and greater frequency of payments all increase the likelihood of reporting reductions in practice, but are largely unrelated to lower actual productivity. On the other hand, short-term changes in premiums are not significantly related to the likelihood of reporting reductions in practice, but are significantly associated with lower actual productivity. Ultimately, rising premiums appear to induce specialization by which physicians do more of some things and less of others, largely insulating themselves from income declines.

Overall, the results lend credence to the claims of physicians that liability pressures cause them to contract their medical practice, while also supporting the conclusions of many analysts that the effects may be smaller than alleged. The reductions in income, deliveries, and procedures this analysis is able to ascribe to greater malpractice pressure may not be as prevalent nor as sizeable as those that physicians themselves ascribe to greater malpractice pressure, but they are qualitatively similar in many respects. In short, we do find evidence of impacts on physician practice, but these impacts do not appear to rise to the level of a crisis.

Conclusion

The major contribution that this paper makes is to provide insight into what has happened to the practice of obstetrics and gynecology as a result of malpractice pressures. We have shown that in the short run rising premiums lead to practice reductions, but in the long run they may lead to a specialization effect, with some physicians focusing more on obstetrics and others focusing more on gynecological surgery. Moreover, this reallocation of effort appears to go a long way to insulating physicians from income declines that might otherwise arise from liability pressures. It is unclear, however, what other stresses physicians may take on in order to maintain these
incomes. In addition, as discussed elsewhere in the literature, the particulars of individual experience may be obscured when looking at larger population trends. Future work will further investigate the dynamics of how physician behavior evolves in response to liability pressures.

Overall, the ultimate effects of liability pressures on the specialty of obstetrics and gynecology appear to be less significant than many physicians claim—apparently as a result of adjustments made by the physicians themselves. In trying to reconcile different perceptions, we arrive at the conclusion that the reality is somewhere in the middle: there are adverse effects on physician practice and experience, but these effects are not sufficient to be deemed a “crisis” by objective standards. However, the estimated effects are not necessarily trivial. Although the current analysis does not provide the opportunity to assess precisely how this all adds up, reductions of 5% in surgeries, deliveries, and procedures could present barriers to patient access to care. Small reductions in physician income may not be seen as onerous, given that they fall on a group of high-income individuals, but they could adversely affect the long-run supply of obstetrician-gynecologists, thereby presenting additional barriers to access to care.

While future work will investigate these dynamics more closely, the current Article has endeavored to sketch out a more detailed picture of how the malpractice crisis has affected the practice of obstetrics and gynecology. The hope is that these insights will be useful in discussions regarding malpractice reform and the future of the specialty.
Appendix FIGURE 1
Changes to Ob-Gyn Practice

SOURCE: Author's calculations from ACOG data.
Appendix FIGURE 2
Reasons for Changes to Ob-Gyn Practice

SOURCE: Author's calculations from ACOG data.
Appendix TABLE 1
Comparison of Changes by Whether Physicians Have Stopped Practicing Obstetrics

<table>
<thead>
<tr>
<th>Panel A Productivity</th>
<th>Total Procedures</th>
<th>Deliveries</th>
<th>Surgeries</th>
<th>Total Procedures</th>
<th>Deliveries</th>
<th>Surgeries</th>
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<tr>
<td>Δ Premium 2001-2003</td>
<td>-44.84 **</td>
<td>-21.57 **</td>
<td>-12.29</td>
<td>-54.93</td>
<td></td>
<td>-52.73 *</td>
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<tr>
<td></td>
<td>(15.17)</td>
<td>(9.27)</td>
<td>(8.43)</td>
<td>(35.08)</td>
<td></td>
<td>(28.74)</td>
</tr>
<tr>
<td>Δ Premium 1992-2002</td>
<td>11.65</td>
<td>17.72 **</td>
<td>-6.00</td>
<td>50.80 *</td>
<td></td>
<td>39.28 *</td>
</tr>
<tr>
<td></td>
<td>(13.85)</td>
<td>(8.42)</td>
<td>(7.51)</td>
<td>(28.45)</td>
<td></td>
<td>(23.39)</td>
</tr>
</tbody>
</table>

<table>
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<tr>
<th></th>
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<tbody>
<tr>
<td>Δ Premium 2001-2003</td>
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<td>0.06</td>
<td>0.03</td>
<td>0.38</td>
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<td>0.16</td>
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<tr>
<td></td>
<td>(0.16)</td>
<td>(0.16)</td>
<td>(0.26)</td>
<td>(0.42)</td>
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<td>(0.47)</td>
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<tr>
<td>Δ Premium 1992-2002</td>
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<td>0.28 **</td>
<td>0.54 **</td>
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<td></td>
<td>(0.16)</td>
<td>(0.16)</td>
<td>(0.24)</td>
<td>(0.35)</td>
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<td>(0.40)</td>
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<tr>
<th>Panel C Income</th>
<th>Income</th>
<th>Share of Income from OB</th>
<th>Report Income Decline</th>
<th>Income</th>
<th>Share of Income from OB</th>
<th>Report Income Decline</th>
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<tbody>
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<td>Δ Premium 2001-2003</td>
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<td>-1.33</td>
<td>0.36 **</td>
<td>-47.85</td>
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<td>0.26</td>
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<td></td>
<td>(12.49)</td>
<td>(2.62)</td>
<td>(0.18)</td>
<td>(34.08)</td>
<td></td>
<td>(0.42)</td>
</tr>
<tr>
<td>Δ Premium 1992-2002</td>
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<td>7.98 **</td>
<td>0.29 *</td>
<td>-1.30</td>
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<td>0.60 *</td>
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<td>(11.45)</td>
<td>(2.35)</td>
<td>(0.16)</td>
<td>(28.89)</td>
<td></td>
<td>(0.36)</td>
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</table>

**NOTES:** Analysis on ACOG data as described in the text and in notes to Table 3. The first three columns show results from analysis on the sample of 879 physicians who report still practicing obstetrics as of 2003. The next three columns show results from analysis on the sample of 226 physicians who report having stopped obstetrics by 2003. Significance is indicated by * for P<0.10 and ** for P<0.05.