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The Effects of Malpractice on Medical Specialties

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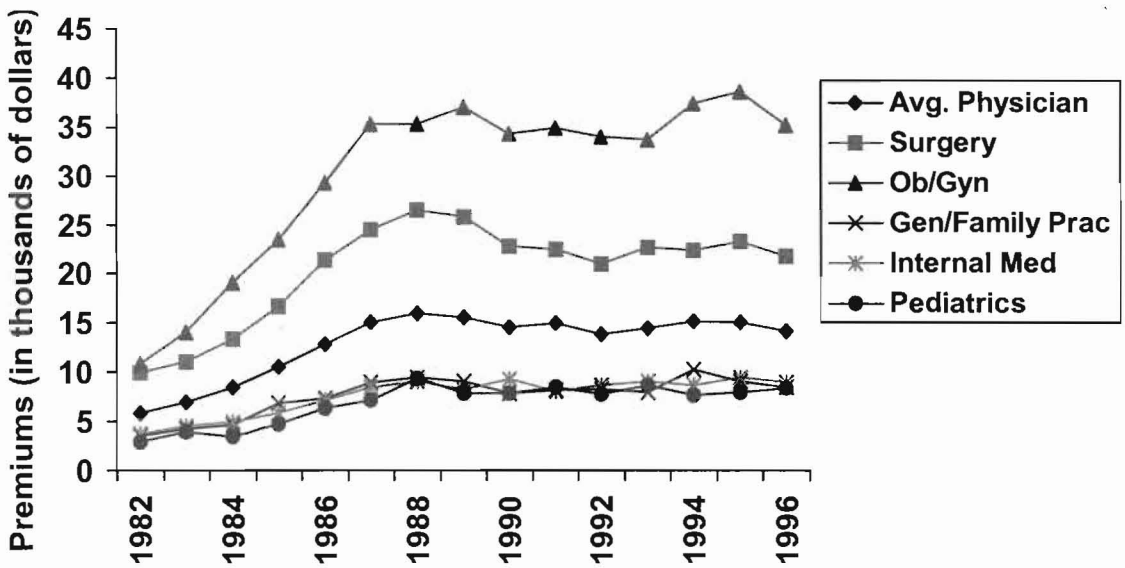
I. Introduction

"Tort law refers to the set of legal rules and practices that govern wrongful injuries to persons or property" (Culyer & Newhouse, 2000). In today's world, individuals highly utilize the law as a resource for blame and compensation. One of the best demonstrations of this mentality is the reaction of some Americans to the terrorist attacks of September 11, 2001. For instance, in Florida, two men filed a $1.1 trillion lawsuit against Osama bin Laden, claiming that his terrorist acts threatened them with personal injury and forced them to re-fortify their bomb shelters. Additionally, they accuse bin Laden of causing them to suffer from high blood pressure and stomach disorders, though they acknowledge it is highly unlikely that he will actually appear in court ("Bin Laden Lawsuit", 2001). Moreover, the wife of a man who perished in the September 11 attack on the World Trade Center is suing bin Laden and the Taliban for at least $5 million in a wrongful death lawsuit (McKay, 2001).

For economists, the increased volume and cost of tort litigation is a topic of concern because it means that vast amounts of wealth are tied up in transfer activity. A study by Laband and Sophocleus (1992) found that transfer seeking constituted at least 11% of all economic activity conducted in the US in 1985. Therefore, they suspect that in the absence of such investment, the rate of economic growth experienced in the late 1980s would have been substantially higher. For instance, the cost of tort litigation in 1985 was $17,350,000,000. In other words, roughly $17 billion could have been employed in productive ventures or in leisure but was instead removed from the production possibilities of the economy (Laband and Sophocleus, 1992). Moreover, that figure is quite dated and is therefore not nearly representative of the total expenditure on tort law today.

Looking at a specific field of tort litigation, the frequency and expense of medical malpractice claims have risen dramatically since the late 1960s. For instance, from 1975 to 1984, claims per physician rose an average of 10 percent annually, and between 1982 and 1986, claim frequency per 100 physicians rose from 13.5 to 17.2 a year (Danzon, Pauly, & Kington, 1990). Additionally, jury awards for medical malpractice cases have risen as well, up nearly 80 percent between 1993 and 1998, from $1.95 million to $3.49 million (Treaster, 2001). This trend in the increased frequency of claims and higher jury awards is reflected in higher insurance premiums for doctors, leading to what some refer to as the "malpractice insurance crisis." However, Figure 1 shows that malpractice premiums have actually been fairly level since the late 1980s. Thus, looking at the numbers makes one wonder whether this malpractice "crisis" really plagues a substantial number of physicians or whether it is merely propaganda bought into by the masses.

Figure 1: Trends in Malpractice Insurance Premium Rates



Source: *Socioeconomic Characteristics in Medical Practice 1988, 1995, 1997/1998*

It turns out these fairly constant premium levels are due to several years of price-cutting competition amongst insurance firms, a market share battle which actually left premiums trailing inflation. Insurers were able to sustain these deflated prices for a while through stock investments in a booming market. However, with the market now in a slump, stock market gains can no longer subsidize low premium rates, and the "malpractice insurance crisis" appears to be worsening. As of September 2001, malpractice insurance premiums were at their highest rates since the mid-1980s, and the medical community is reacting (Treaster, 2001).

Blaming rising costs, some physicians may be steering away from certain specialties. In Mississippi, many family medicine and obstetrics-gynecology specialists claim they will have to drop obstetrics due to the skyrocketing costs of malpractice insurance. For physicians such as Dr. Waldemar Prichard in Indianola, whose premium for 2002 was $70,000 and whose gross salary the year before was only $72,000, the dilemma is obvious (AP, 2001). Moreover, doctors may now have to worry about continued insurance costs even after retirement.

Only about half the states have statutes of repose limiting the time frame patients have to discover injuries and file lawsuits. In many states, patients can file medical malpractice lawsuits within one year of discovering injury – regardless of when they received treatment. Hence, many doctors are subject to litigation an indefinite number of years after performing procedures. For instance, patient Shirley DeYoung began losing sight in one eye in 1995, an effect she attributed to radiation treatment she received in 1980. In 1996, she sued the radiation oncologist, Dr. J.T. Griffith, responsible for that original procedure – sixteen years after treatment. Thus, in order to defend himself, Dr. Griffith had to find 16-year-old records and track down witnesses from long ago. Another problematic aspect becomes apparent when considering that "there are constantly new procedures and treatments, and years later you may discover there are harmful

effects...It seems a bit unfair to claim that someone was a victim of malpractice when at the time the care was delivered it was acceptable care" (Tschida, 1998). However, without statutes of repose in place, Dr. Griffith and many doctors may have to maintain records indefinitely – which costs approximately $10,000 a year in 1998 dollars – as well as retain insurance coverage. These monetary costs, along with the possible emotional costs of defending long past actions, could significantly impact the practice of medicine (Tschida, 1998).

Not surprisingly, medical students are showing concern about malpractice lawsuits as well. When prospective students at the University of Connecticut were asked about their concerns regarding practicing medicine, 40 percent cited the fear of malpractice lawsuits (Battista, 1987). In fact, this fear has even led to a change in medical school curriculum. With an estimated 50% of all physicians having to serve as either defendants or expert witnesses in malpractice suits during their careers, schools such as the University of Rochester have students take part in mock trials in order to prepare them for real-life appearances ("Future Experts Prepare...", 1987). Taking that concept a step further, sixteen schools, including SIU Springfield, now offer joint physician-lawyer degree programs (Albert, 2002).

Therefore, this paper concentrates on the effects of the growth of medical malpractice lawsuits. One of the main goals of the medical malpractice system is to provide incentives for physicians to take appropriate precautions in medical treatment. However, I explore whether increased malpractice activity has affected the medical labor market, particularly the choice of specialties that doctors enter. How sensitive are doctors to the fear of litigation? Are doctors in certain specialties more responsive to this stimulus than other doctors?

Thus, the main goal of this paper is to examine certain medical specialties to see if the risk of malpractice lawsuits is acting as a supply shock in the medical labor market.

Accordingly, Section II evaluates the existing literature relating to medical malpractice, while Section III introduces the theoretical framework behind medical malpractice and liability in general. Section IV then presents the empirical model, followed by Section V, which discusses the results of the model. Finally, Section VI draws conclusions from the results in Section V and discusses policy implications and ideas for future research.

II. Literature Review

This section examines three studies. First, Kessler and McClellan (1997) examine the relationship between liability reforms, malpractice pressure, and physician perceptions of medical care. They find that physicians, especially those that have recently or frequently been sued, most definitely change their practices. Thus, the important finding of this study is the proof that malpractice has altered physician behavior. Therefore, it opens the possibility that malpractice could also alter physicians' choice of specialty, as I hypothesize. However, in the context of their study, a change in practice means the use of "defensive medicine," or performing extensive, unnecessary testing as protection against malpractice claims (Kessler & McClellan, 1997). I take that concept a step further and examine what I believe to be the most defensive act a physician could take – avoiding a specialty altogether.

In another work, Bovbjerg (1991) highlights a key concept not noted in most malpractice papers – the agonizing unpleasantness of the liability system. He talks about the psychological effects a malpractice suit can have on a physician, comparing a doctor going into the courtroom to a patient going into the hospital:

> Both feel vulnerable. Both know they are at risk. Both have been asked a lot of personal and embarrassing questions in advance...The bills in each case can be horrendous, raising fears that the limits of any insurance will be exceeded. The legal process may take testimony rather than tests. But it is every bit as intrusive as hospitalization. The key psychic factor is that the defendant doctors lose control, a commodity they greatly

> prize...And, as anyone knows who has sat through a cross-examination, even in practice, it is no fun. Anxiety over this process is clearly a problem... (277).

On trial for their professional reputation, doctors feel threatened and defensive, thus raising "concern that doctors may avoid certain categories of patients and certain types of procedures" (Bovbjerg, 1991). In my study, I measure to what extent anxiety over the risk of malpractice suits impacts doctors.

Finally, Danzon, Pauly, and Kington (1990) study the effects of medical malpractice on rising healthcare costs. Their study finds evidence from 1976-1983 suggesting that increased medical malpractice costs reflected in greater insurance costs were being passed on rapidly to patients through higher fees, with little impact on physicians. However, they also emphasize that their conclusions stemmed from data that predated the sharp increase in malpractice premiums in the mid-1980s. They suggest that after the mid-1980s medical malpractice lawsuits have a greater chance of having an effect on physician behavior (Danzon, Pauly & Kington, 1990). Thus, this paper explores more recent trends in physician behavior to see if their hypothesis is correct.

III. Theory

First, it is important to understand the general theory behind liability. The main objective of liability is to reduce the number of accidents, which are a costly side-effect of otherwise beneficial activities, by providing additional incentives for those performing the activity to act with caution. Basically, liability is supposed to minimize risks to consumers. Since safety can be viewed as a good like any other, efficient investment in safety requires producing both the efficient level of safety and using the lowest cost mix of inputs. Thus, if liability is to be deemed an efficient means of ensuring safety, total social cost of accidents must be minimized. In other

words, the benefits of lower risk of injury must outweigh the added costs of precautionary tactics (Culyer & Newhouse, 2000).

Accordingly, any cost-benefit analysis of the medical malpractice system must take into account the manner in which liability affects physician behavior (Culyer & Newhouse, 2000). A supply shock to the medical labor market, then, might be an added cost of liability. Generally, a shock will shift the entire labor supply curve to the left, thus reducing the number of workers at each wage. In effect, by testing the effects of medical malpractice liability, I am also contributing to the cost-benefit analysis of the theory behind liability.

Next, one must consider the decision criteria an individual uses to choose an occupation. It is assumed that the rational individual will choose the occupation that best maximizes his or her utility through net benefits. Given multiple choices of occupations, the following equation results:

Choices = occ_1, occ_2, occ_3,..., occ_x

$$\mathbf{PV}_i = \frac{\sum_{t=1}^{n} \mathbf{(Net\ Benefits)}}{(\mathbf{1}+\mathbf{r})^t}$$

where PV_i is the present value of net benefits in occupation *i*.

The question, then, is what quantifies the net benefits for a physician?

Specifically, the decision to specialize can be determined by analyzing the economic returns to specialty training. These returns can be summarized as follows: "If a doctor goes immediately into private practice instead of specializing, a certain expected path of income is achievable. If the doctor specialized, some added years of training take place, at reduced incomes (during the period of residency), and then the doctor can earn higher incomes" (Phelps, 1992). In other words, the main determinant in the decision to specialize is income. Therefore,

the main positive component of any net benefit equation for physicians is compensation, which is composed of salary and fringes, such as conferences, free samples, and other perks of being a physician. Conversely, training costs and malpractice insurance premiums negatively impact net benefits. Hence, an equation for net benefits for physicians could resemble the following:

Net Benefits = Salary + Fringes – (Training costs + Insurance costs and/or monetary equivalent of the risk of a malpractice suit, etc.)

However, the added cost of a malpractice lawsuit is not simply monetary. More importantly, the malpractice variable represents an added risk for physicians. As stated by Tegner-Miller Insurance Brokers (2002), "A lawsuit, even if meritless, can have serious repercussions." It only takes one highly publicized lawsuit to ruin a doctor's reputation. Even if a doctor is found innocent in a malpractice case, the experience of a drawn-out trial is emotionally draining. Moreover, if the doctor is found to be at fault, the one successful malpractice suit could be the catalyst that triggers an onslaught of other claims, all of which may or may not be valid.

Therefore, when choosing a specialty, medical students must decide how much risk they wish to bear. The introduction of malpractice lawsuits into the medical picture creates tradeoffs between expected future earnings and the riskiness of the specialty. Before a comparison can be drawn between the riskiness of different choices, risk itself must be quantified. Given two possible outcomes with payoffs $\mathbf{X_1}$ and $\mathbf{X_2}$ and with probabilities of each outcome $\mathbf{Pr_1}$ and $\mathbf{Pr_2}$, the expected value is:

$$\mathbf{E(X) = Pr_1X_1 + Pr_2X_2}$$

In this case, the first possible outcome ($\mathbf{X_1}$) would be practicing a certain medical specialty successfully until retirement and earning a steady income. The second possible outcome ($\mathbf{X_2}$)

would be facing a malpractice lawsuit while practicing that specialty and incurring additional emotional and monetary costs. The higher the probability of facing a lawsuit (**Pr**$_2$), the lower the expected value will be.

Considering the most common attitude towards risk is risk aversion, it will be assumed that medical students are risk averse. This risk-averse behavior could be a self-sorting mechanism regarding perceived future competency or it could be a reaction to future costs. When given a choice of two incomes with the same expected value, a risk-averse individual will prefer a certain given income to a risky income because losses are more important to them than gains. The risk-averse individual may even prefer a lower income to a higher, riskier income. Consequently, in order for a risk-averse person to pick a medical specialty with higher instances of malpractice lawsuits, the expected value for the high-risk specialties must exceed that of low-risk specialties. Moreover, the expected value for high-risk specialties must exceed the expected value for low-risk specialties by an amount greater than the risk premium, or "the maximum amount of money that a risk-averse person will pay to avoid taking a risk" (Pindyck & Rubinfeld, 2001). As follows, this study attempts to discover how well physician salaries are compensating for changing risk premiums of malpractice lawsuits.

Finally, to create a supply curve for a certain medical specialty, the benefits and costs of alternative specialties must be included as well. When choosing an occupation, students examine the costs and benefits of all available specialties, not solely the one on which they decide. Thus, the supply for a certain occupation, in this case a medical specialty, is influenced not only by the salary and malpractice premiums for that particular specialty but also by the salary and malpractice premiums in other specialty fields.

IV. Research Design

To assess the effects of the risk of malpractice lawsuits, I look at the five main categories of medical specialty – General/Family Practice, Internal Medicine, General Surgery, Pediatrics, and Obstetrics/Gynecology – over the period 1982 to1998. More specifically, I examine how malpractice affects employment in these specialties, while controlling for salary. However, before delving into an econometric model, I first examine descriptive statistics to see if patterns can be visually perceived in the data.

Accordingly, Table 1 shows the percent change in employment from 1997 to 1998 in each specialty. Additionally, it lists the average malpractice insurance premium paid per physician as well as the average salary received per physician for each specialty. The malpractice and salary data are from 1994 and 1992 in an effort to capture the lag in the time between when a medical student decides on a specialty and when they actually enter into the workforce after training in that specialty. At first glance, it would appear that perhaps compensating wage differentials are at work in the medical field since the specialties with the highest premiums, Surgery and Obstetrics/Gynecology, also have the highest salaries. However, it is also worth noting that those two specialties have the lowest employment growth rates, with the exception of Internal Medicine that also has a negative growth rate for that year. Thus, this implies that salaries may still not be high enough to compensate for the risk of malpractice lawsuits.

Table 1: Descriptive Statistics for Five Main Specialty Groups

Specialty Group	Percent Change in Employment (1998)	Average Malpractice Premium (1994)	Average Salary (1994)
General/Family Practice	2.26%	$10,200	$121,200
Internal Medicine	-.67%	$8,600	$174,900
Surgery	-1.19%	$20,900*	$250,500*
Pediatrics	2.90%	$7,600	$126,200
Obstetrics/Gynecology	.65%	$34,000*	$220,700*

*Data from 1992

Examining the relationship between employment, malpractice premiums, and salaries further leads to Table 2, which depicts the growth in all three areas from 1983 to 1998 for each specialty. Malpractice premiums have risen at a greater rate than salaries for all specialties, though the largest increase is in the Obstetrics/Gynecology field where malpractice premiums grew by 225.9% while salary only grew by 105.7%. Surgery and Obstetrics/Gynecolgy, with the highest average malpractice premiums, still have two of the three lowest employment growth rates.

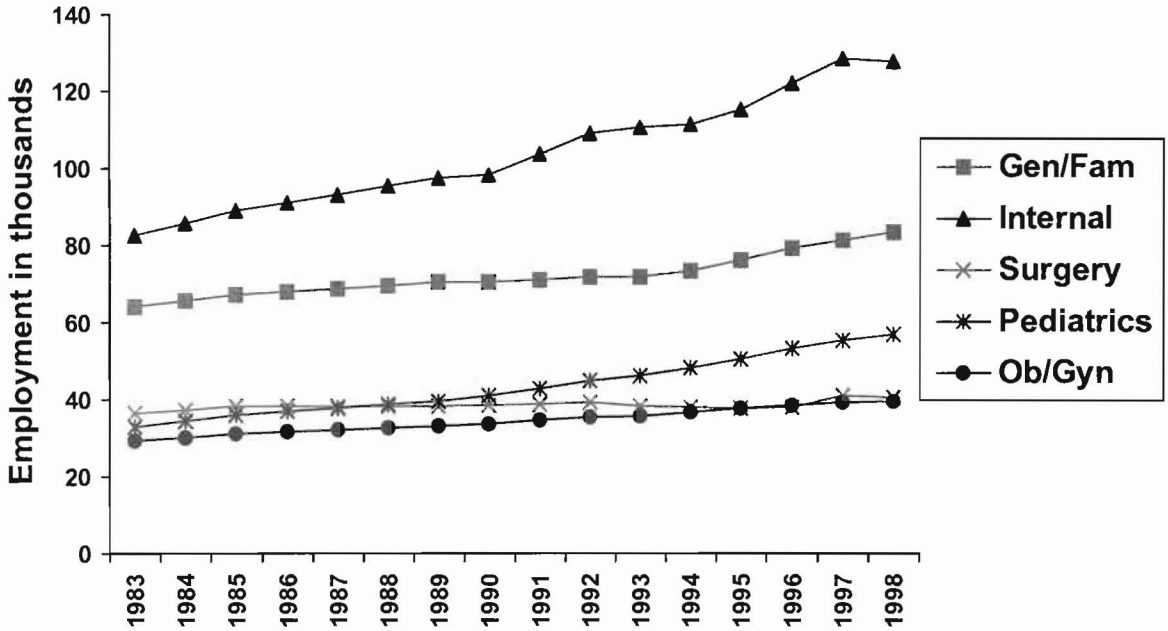
Table 2: Employment, Malpractice, and Salary Growth Rates per Specialty

Specialty	Employment Growth, 1983-1998	Growth in Malpractice Premiums, 1982-1998	Growth in Salaries, 1982-1998
General/Family Practice	29.8%	104%	94.8%
Internal Medicine	54.7%	140.5%	113.7%
Surgery	11.3%	119.2%	114%
Pediatrics	73.8%	186.2%	99.4%
Obstetrics/Gynecology	34.8%	225.9%	105.7%

The interesting aspect is that while surgery does appear to almost have achieved a compensating wage differential with a 119.2% increase in insurance premiums countered by a 114% salary increase, it has by far the lowest employment growth of 11%. On the other hand, malpractice premiums in Pediatrics grew almost twice as fast as salaries, 186.2% compared to 99.4%, and yet experienced 73.8% employment growth. Figure 2 then graphically illustrates the

employment growth rates from 1983 to 1998, thus further extrapolating on the fact that Obstetrics/Gynecology has seemingly experienced a decent amount of employment growth despite its exceptionally high malpractice premium rates.

Figure 2: Trends in Specialty Employment



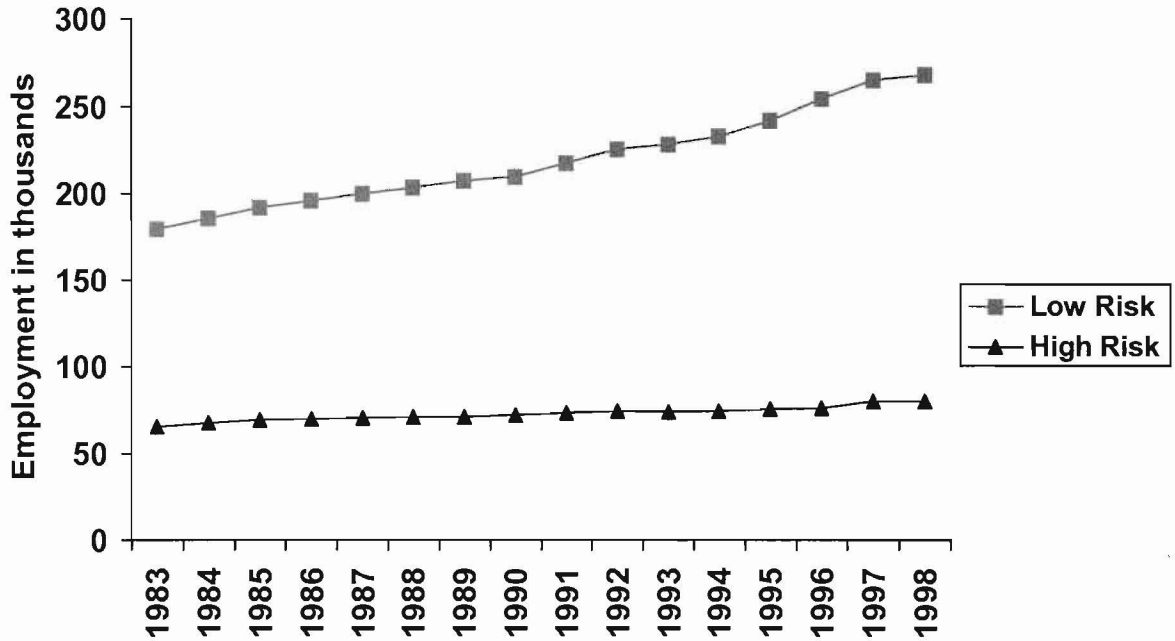
*Data from missing years substituted with mean of preceding and following years.
Source: *Physician Characteristics and Distribution in the US 1990, 1994, 1995/1996, 1997/1998, 1999, 2000/2001*

Combining the specialties into high and low-risk categories with respect to the level of malpractice premiums, groups Surgery and Obstetrics/Gynecology as high-risk specialties and General/Family Practice, Internal Medicine and Pediatrics as low-risk specialties. Table 3 depicts employment, malpractice premium and salary growth with the specialties divided into the two categories of low and high-risk. Now it becomes clearer that the high-risk specialties have experienced greater increases in both malpractice premiums and salaries but have half of the employment growth that low-risk specialties have experienced. Figure 3 further illustrates the differing employment growth trends between the two categories.

Table 3: Employment, Malpractice, and Salary Growth in Low and High Risk Specialties

Specialty	Employment Growth, 1983-1998	Growth in Malpractice Premiums, 1982-1998	Growth in Salaries, 1982-1998
Low Risk	49.2%	153.5%	103.4%
High Risk	21.8%	174.9%	110.1%

Figure 3: Trends in High and Low Risk Specialty Employment



*Data from missing years substituted with mean of preceding and following years.
Source: *Physician Characteristics and Distribution in the US 1990, 1994, 1995/1996, 1997/1998, 1999, 2000/2001*

Generating an empirical model from these descriptive data, then, would entail running two separate OLS regressions, one on high-risk specialties and one on low-risk specialties, to compare the effects malpractice has on them. My hypothesis is that the added costs of malpractice lawsuits should have a greater impact on employment in high-risk specialties. The dependent variable chosen is **SPECIALTY**, which I measure through the percent of total

physicians actively employed in each specialty. In that way, the numbers grasp the changing composition of specialties within the medical field.

Since fringes and training costs are more abstract concepts to measure, and do not really pertain to my research problem regarding malpractice, I have omitted them from my model. Instead, my four independent variables consist of **MALPRAC, SALARY, MALOTHER,** and **SALOTHER.** I choose to measure the effects of the risk of malpractice lawsuits on physicians through the price of malpractice insurance premiums due to the fact that premiums should take into account not only an increase in the volume of lawsuits filed but also the increased value of settlements awarded. However, I am actually trying to measure the risk that malpractice lawsuits impose on doctors, such as damage to reputation and emotional stress, factors that premium prices may not fully encompass. Nor do premium prices fully take into account all of the monetary aspects, such as the cost of maintaining records and insurance coverage indefinitely. However, insurance premiums are the best proxy I can conceive of. I hypothesize that **MALPRAC** will have a negative impact on **SPECIALTY** due to the fact that it represents an added cost and risk to the physician.

On the other hand, the independent variable **SALARY**, which is represented with the average annual net income per physician in each specialty, should have a positive impact on **SPECIALTY** since it represents a benefit, in this case a profit, to the physician. In general, the higher the compensation a physician receives for his services, the more likely he is to perform such services. Furthermore, these data are net income, or income after expenses but before taxes. Thus, the monetary effect of malpractice premiums has already been accounted for, making **MALPRAC** a proxy variable for risk of malpractice lawsuits.

SALOTHER and **MALOTHER** are included in the model in order to create an accurate supply curve estimate. When deciding on a specialty, medical students do not merely look at the salary of the specialty that they decide to enter but rather examine salaries in all specialties. Hence, for high-risk specialties, **SALOTHER** is the average annual net income of low-risk specialties, while for low-risk specialties, **SALOTHER** is the average annual net income of high-risk specialties. The same concept applies to the malpractice variable. Medical students look at malpractice premiums in all specialties to gauge the amount of risk in each. Thus, for low-risk specialties, **MALOTHER** is the average annual malpractice premium paid by high-risk specialties, and vice versa. I predict that **SALOTHER** will have a negative impact on **SPECIALTY** because it represents a loss of possible income, while **MALOTHER** should have a positive sign because it represents an additional cost.

Finally, **SALARY, MALPRAC, SALOTHER,** and **MALOTHER** are lagged in order to take into account the fact that medical students choose the specialty into which they will enter years before they actually become employed in that specialty. All doctors must endure four years of medical school followed by a three-year residency. Physicians who choose to go into more highly specialized fields, such as surgery or obstetrics, require additional years of training. In light of the fact that medical students must declare their area of specialization during their third year, it is reasonable to assume that a four-year lag would be sufficient for the low-risk, and less specialized, fields of general/family practice, pediatrics, and internal medicine. A six-year lag is used for the high-risk specialties of surgery and obstetrics/gynecology since they require more training. A summary of all variables is shown below in Table 4.

Table 4: Empirical Model Variables

	Variable	Definition	Predicted Sign
Dependent:	SPECIALTY	Percentage of total physicians actively employed per specialty	
Independent:	SALARY	Average yearly net income per physician by specialty	+
	MALPRAC	Average yearly insurance premium paid per physician by specialty	-
	SALOTHER	Average yearly income per physician of specialty group (high risk or low risk)	-
	MALOTHER	Average yearly insurance premium paid per physician of specialty group (high or low risk)	+

In the end, the empirical model for this cross-sectional time series study thus resembles the following:

$$\textbf{SPECIALTY} = \alpha_1 + \alpha_2\,\textbf{SALARY} + \alpha_3\,\textbf{MALPRAC} + \alpha_4\,\textbf{SALOTHER} + \alpha_5\,\textbf{MALOTHER}$$

Data for **SPECIALTY** come from editions 1990-2001 of *Physician Characteristics and Distribution in the US*, a publication of the American Medical Association (AMA). All data on physicians in these editions were compiled from the AMA's Physician Masterfile, a comprehensive database of physician and medical student information maintained by the Division of Survey and Data. The Masterfile is widely considered the most complete and extensive source of physician-related information in the United States. It contains records of all individuals entering medical school, with information updated by the Physicians' Practice Arrangements questionnaire, which has evolved into a rotating census that surveys approximately one-third of all physicians yearly. Additionally, I acquired information for **SALARY, SALOTHER, MALPRAC,** and **MALOTHER** from an AMA publication as well, *Socioeconomic Characteristics of Medical Practice*, editions 1988, 1995, and 1997/1998.

Information in this book comes from the Socioeconomic Monitoring System, with statistics derived from annual surveys of physicians across the country collected by the Center for Health Policy Research, a division of the AMA

V. Results

In an attempt to see whether the risk of malpractice lawsuits affects specialties differently, two regressions are run on the data. The first regression consists of the high-risk specialties of Surgery and Ob/Gyn; the second of the low-risk specialties of General/Family Practice, Internal Medicine, and Pediatrics. The results of the high-risk regression are very pleasing, with an adjusted R-square indicating that the equation explains nearly 64% of the variation in share of the medical market that high-risk specialties hold. All of the independent variables have their predicted signs, and all but **SALARY** are significant at the .10 level. **MALPRAC** is extremely robust, with a significance of .01. Thus, Regression 1 shows that malpractice does indeed have a negative effect on employment in high-risk specialties. In fact, with a higher premium being representative of more substantial risk to physicians, the resulting coefficient of -.0297 means that a $1 increase in malpractice insurance premiums causes a .02% decrease in the percent of total physicians employed in high-risk specialties. Furthermore, a more feasible increase of $100 or $1000 causes an even more substantial change in composition – a 2% or 20% decrease, respectively. See Table 5.

Table 5: Regression #1 – High-risk Coefficient and R-square Results for SPECIALTY

Variable	Coefficient	Significance
SALARY	.0049	.256
MALPRAC	-.0297	.010* **
SALOTHER	-.0226	.071**
MALOTHER	.1030	.081**
R-square	**Adjusted R-square**	**Sample Size**
.724	.639	32

* Significant at the .01 level, ** Significant at the .10 level

Regression 2, run on the low-risk specialties, also has satisfying results, though somewhat more confusing. With an adjusted R-square of .645, the explanatory power of the second equation mirrors that of the first. Both **SALARY** and **SALOTHER** have their expected signs, positive and negative respectively, and both are significant at the .01 level. While **MALOTHER** is extremely insignificant, **MALPRAC** shows significance at the .05 level. Unfortunately, both malpractice variables produced opposite signs than expected. See Table 6.

Table 6: Regression #2 Coefficient and R-Squared Results for SPECIALTY

Variable	Coefficient	Significance
SALARY	.0144	.000* **
MALPRAC	.1290	.040**
SALOTHER	-.0092	.000* **
MALOTHER	-.0206	.213
R-squared	**Adjusted R-squared**	**Sample Size**
.700	.645	60

* Significant at the .01 level, ** Significant at the .05 level

Running a correlation matrix shows that the malpractice and salary variables are all highly correlated, which most likely explains the confusing signs. It may also be that my choice of medical malpractice insurance premiums does not proxy the non-monetary effects of the risk of malpractice suits on low-risk physicians as well as it does for high-risk physicians. Another explanation of these unexpected results could be the lack of a variable representing number of years in training per specialty. If such a variable affects medical students' specialty choice, then its omission could have contributed to these puzzling results. On a positive note, these results do support my hypothesis that **MALPRAC** would negatively impact high-risk specialties more than low-risk specialties. Medical students do indeed appear to be risk-averse.

VI. Conclusions and Policy Implications

The main goal of this paper is to show that the risk of malpractice lawsuits is having an effect on the medical labor market. The results from the first regression strongly support that claim by showing that the malpractice variable negatively impacts the percent of doctors employed in high-risk specialties. In other words, risk-averse medical students are choosing to limit their exposure to malpractice lawsuits by avoiding the fields of Surgery and Obstetrics/Gynecology. In contrast, the second regression seems to suggest that the risk of malpractice lawsuits has a positive influence on the low-risk specialties of Family/General Practice, Internal Medicine, and Pediatrics. This is probably due to a positive correlation between the independent variables representing salary and malpractice, though it could also reflect a poor choice of a proxy variable or lack of other explanatory variables.

Medical malpractice liability is in place for a very good reason – to protect patients from incompetent physicians. The fact that the fear of litigation has proven to negatively affect the growth potential for highly specialized medical fields may be a benefit as well. Perhaps the risk

of malpractice is steering those individuals in doubt of their competency level away from such demanding specialties. However, this effect may also be cause for concern for those wishing to seek medical treatment in the future. If limited growth among high-risk specialties continues, it could lead to a shortage of physicians practicing these specialties in the future. Perhaps, then, what the malpractice system needs is a little tweaking.

One glaring problem with the medical malpractice system is that each state creates its own laws governing the treatment of malpractice cases, in lieu of a uniform countrywide standard. For example, in Pennsylvania, where there are no limits on jury awards in medical malpractice cases, malpractice premiums in many specialties doubled last spring. At the Frankford Hospital in Philadelphia, malpractice insurance spending rose from $6 million to $12 million. Even worse, when orthopedic surgeons' medical malpractice premiums doubled in January, hitting $90,000 annually, they refused to work, forcing the emergency department to close for a few days. "They had to make a statement that they couldn't afford to stay in business," said Roy Powell, chief executive officer of the hospital. Though the surgeons were eventually coaxed back to work, there is fear that doctors will soon leave the area permanently due to the high insurance rates (Thrall, 2001).

With uniform standards in mind, the American Medical Association plans to revive a major agenda item this year that has thus far languished in Congress: tort reform. Particularly, they are calling for a nation-wide cap on non-economic damage awards in malpractice lawsuits, modeling the California law that has been in place since 1975. The California reform includes a $250,000 limit on non-economic damages, requires expert confirmation of a claim's merit before a lawsuit can proceed, and allows for an installment plan for damage payments. Bills with guidelines similar in nature to the aforementioned, with the inclusion of a time limit on the filing

of claims, were introduced in Congress last year. They have yet to move out of committee. The AMA is hoping this year might finally see a resolution of this case (Landa & Albert, 2002).

Lack of uniform laws governing malpractice liability means that examining the country as a whole could be somewhat misleading. For future research it would be very interesting – if the data could be found – to do a study of how the risk of malpractice lawsuits affects physicians in different states, with the states classified according to the type of malpractice legislation in place. Such a study could determine whether jury caps actually have a substantial effect on reducing doctors' fears of litigation, and thus whether this long sought after legislation has a chance to significantly impact the medical field.

Tort litigation in general is of economic concern due to the vast amounts of wealth that it accrues in transfer activity. However, the economic implications go even farther when specifically examining the growing trend in medical malpractice lawsuits. While the medical malpractice system is supposed to provide incentives for physicians to take appropriate precautions in medical treatment, this paper finds that the risk of malpractice lawsuits is actually acting as a supply shock in the medical labor market, causing risk averse medical students to avoid more highly specialized fields. Only time and future research will tell if different forms of legislation might be able to offset this potentially negative side effect of a well-intentioned policy. For now, though, it seems as though Larry Smarr, president of the Physicians Insurers Association of America, is right in saying, "There is no end in sight to this" (Treaster, 2001).

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