

GENDER AND LABOR MARKET OUTCOMES

Reaching Equilibrium in the Market for Obstetricians and Gynecologists

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In the past 30 years, more and more women have become physicians, receiving training that is indistinguishable from that of their male counterparts. This standardization of human capital accumulation, together with the existence of well-defined specialty categories and clear productivity measures, renders the physician labor market well suited to economic analysis of gender discrimination. The literature indicates that gender gaps in income have faded somewhat, but still persist even within medical specialties. Much of this literature, however, uses older data, does not look at trends over time, or does not take appropriate account of medical specialties or shifts in the age and gender composition of physicians.

This paper focuses on the specialty of obstetrics and gynecology (ob-gyn) to gain insight into gender discrimination among highly educated men and women and its evolution in the last 20 years. Ob-gyn is an attractive choice for a number of reasons. First, human capital and production can be measured consistently and accurately. Second, the number of women in the specialty has grown dramatically. While only 12 percent of ob-gyns were female in 1980, the share of women in the field reached 22 percent by 1990 and 40 percent by 2005. Third, ob-gyn is a surgical specialty with an arduous training process. Such specialties have been traditionally male dominated, stressful, and challenging (Janet Bickel 2000). Fourth, there may be discrimination in favor of females on the part

of patients—all patients are female and many prefer a female physician.

This paper investigates the operation of the market for ob-gyns and their services. I start by noting the existence of an initial excess demand for female ob-gyns relative to male ob-gyns (arising from patient preference), and continue to investigate its consequences in the short and long run. In the short run, a competitive market would likely evince higher prices for female ob-gyns. The inelasticity of supply (attributable to low annual turnover, a fixed number of residency positions, and an eight-year production time for new physicians) would most likely inhibit any supply response in the short run. In the long run, a greater elasticity of supply and the gradual easing of barriers to entry for women might permit a supply response. The supply of female ob-gyns could increase, mitigating price differentials by gender. However, noncompetitive features of the markets interfere with these adjustments: prices are often set by third-party payers rather than by the market, and quantities are slow to adjust for the reasons just mentioned. It seems unlikely that the competitive equilibrium would be reached easily or quickly.

This paper finds that the market for ob-gyns and their services is surprisingly flexible. In the short run, there are price differentials and queuing: female ob-gyns charge higher fees and have longer waiting times. In addition, during the time period in which managed care was on the rise (the late 1980s and early 1990s), these effects were mediated by institutional structures. In a traditional third-party-payer framework in which money prices were flexible, physician fees adjusted, whereas in a managed care framework, waiting times adjusted. Over the long run, the supply of women ob-gyns increased dramatically, possibly (though not necessarily) in response to the excess demand for female ob-gyns, and unexplained income gaps disappeared.

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I. Background and Theory

There is evidence that many female patients prefer to be treated by a female physician, that these preferences are more pronounced in gynecology, psychotherapy, and in areas of sexual abuse, and that these preferences intensified as gender attitudes evolved (P. J. Chandler, C. Chandler, and M. L. Dabbs 2000; Susan Thorne 1994; and Karl F. Weyrauch, Patricia E. Boiko, and Barbara Alvin 1990). By the late 1990s, patient preference for female ob-gyns and the ways in which it affects ob-gyn practice and disadvantages male physicians had become a topic of much discussion in the ob-gyn community (Deborah S. Lyon 2002). There is also mixed evidence that female physicians provide quantitatively and qualitatively different care (e.g., tests ordered, procedures performed, interpersonal approach). Lastly, research indicates that female physicians experience discrimination and receive incomes that are 30 percent to 40 percent lower than male physicians (Kathryn M. Langwell 1982; Laurence C. Baker 1996). Physician characteristics and production explain about half the income gap and possibly more in recent years (Robert L. Ohsfeldt and Steven D. Culler 1986; William H. Pearse, William Haffner, and Aron Primack 2001).

In this paper, I first investigate the market for ob-gyn services in the short run. Demand is the number of patients desiring visits with ob-gyns of each gender. Supply is the number of available such visits, and is relatively inelastic—physicians have finite time and production of new physicians is slow. Prices have both a monetary and a time component: fees and waiting times for appointments. In the monopolistically competitive market for physicians' services, price differentials can persist. Moreover, managed care and other insurance contracts can greatly inhibit the free adjustment of physicians' fees. Thus, two things may happen in the short run: the inelasticity of supply will likely cause most adjustment to occur in prices rather than quantities, and price-rigid insurance contracts may cause most adjustment to occur in waiting times rather than fees. Patients may queue up to wait for the physician they prefer, but this is inefficient.

Second, I investigate the market for ob-gyns in the medium to long run, examining changes in relative incomes and in the supply of physi-

cians over a 13-year period (1990 to 2002). In the long run, supply is more elastic, and there may be a supply-side response to the strong demand for female ob-gyns. Furthermore, as women entered ob-gyn in great numbers (even achieving dominance among new resident physicians), it is likely that changes occurred in the structure of ob-gyn practice and the relative performance of male and female ob-gyns.

II. Data and Empirical Approach

The first dataset is the Practice Patterns of Young Physicians (YPS) conducted in 1987, 1991, and 1997 and containing data on 8,797 physicians in all specialties aged 45 years or younger. In addition to data on practice characteristics (such as patients, hours, and income), the YPS includes data on fees (for a visit with an established patient) and waiting times (in weeks, from call to appointment) for 1987 and 1991. The YPS sample includes 850 young ob-gyns, of which 299 are female. The YPS provides a good picture of the market in the short run. In the YPS data, female physicians receive incomes 30 percent lower than male physicians. They work 17 percent fewer hours per week, see 10 percent fewer patients per week, and have 40 percent longer waiting times. A Oaxaca decomposition shows that more than half the income difference can be explained by differences in characteristics, particularly specialty choice. Within the ob-gyn specialty, most of the gender gap is small (20 percent in income, 5 percent in hours, none in patients seen). The gap in waiting times, however, is quite large. Patients wait 2.2 weeks to see a male ob-gyn compared with 4 weeks to see a female ob-gyn (a 70 percent premium). There is also an insignificant 10 percent differential in standard fees (women's fees are higher).

The second dataset is the Socioeconomic Surveys of Fellows of the American College of Obstetricians and Gynecologists (ACOG), conducted in 1991, 1994, 1998, and 2003 and containing data on 3,698 ob-gyns (1,501 of whom are 40 years of age or younger, 722 of whom are aged 40 and younger and female). The data include information on practice characteristics as well as data specific to ob-gyn practice (e.g., subspecialization, deliveries, and surgical procedures) and cover a longer time period during which women entered ob-gyn in great numbers.

TABLE 1—STANDARD FEES, WAITING TIMES, AND CONTRACT SETTING

	All		No contract ^a		Contract ^a				
<i>Panel A. Standard fee (\$)</i>									
Female	0.19	(0.98)	0.42	(1.65)	0.00	(1.22)			
Ob-gyn	6.30	(1.43)	**	3.07	(2.25)	8.16	(1.79)	**	
Female*obgyn	3.34	(2.61)		10.22	(5.03)	**	-0.66	(2.79)	
<i>Panel B. Waiting time (weeks)</i>									
Female	0.48	(0.09)	**	0.44	(0.13)	**	0.53	(0.11)	**
Ob-gyn	1.49	(0.16)	**	2.18	(0.27)	**	1.00	(0.18)	**
Female*obgyn	1.48	(0.27)	**	0.75	(0.45)		1.92	(0.32)	**

Notes: Shows only selected coefficients. Standard errors are in parentheses. Significance is indicated by * for p -values < 0.10 and ** for p -values < 0.05 .

^a Contract arrangement is determined by association with an HMO, PPO, or IPO.

In the ACOG data, female ob-gyns are younger than males, earn lower incomes (\$196,000 versus \$257,000), and produce less (e.g., hours, patients, and procedures). Even when considering only young ob-gyns, there is a gap of 23 percent in income, 10 percent in hours, 9 percent in patients, and 21 percent in procedures performed. This difference in procedures (which widens in later years) is the most striking new information provided by the ACOG data.

The short-run analysis uses the YPS and regresses prices on physician characteristics, practice characteristics, and physician activity. The long-run analysis uses the ACOG data and regresses log weekly income on an analogous set of explanatory variables, also incorporating measures of production such as hours, patients, and procedures.¹ While one might wish to study fees and waiting times in the long run as well, data are not available for this task. The regressions are estimated as weighted least squares with Huber-White robust standard errors. Year dummies are included as appropriate, and dollar figures are adjusted using the Consumer Price Index (CPI). Focusing on young physicians provides a sample that includes more women and eliminates bias that would arise from the difference between the installed base of physicians (older and primarily male) and the flow of new

physicians (younger and primarily female). In all cases, the figure of interest is the gender differential within ob-gyn.

III. Results and Discussion

Table 1 shows the regression results for spot prices. The analysis of fees suggests that patients pay more to see a female ob-gyn than to see a male ob-gyn, but the results are not statistically significant. The within-ob-gyn gender differential in fees is estimated as an insignificant premium of \$3.34 on an average fee of approximately \$45. When including year interactions (results not shown), the ob-gyn specific gender fee premium is significant (\$4.81, $p < 0.05$) in 1987, but it is insignificant in 1991, possibly attributable to the higher penetration of managed care and its greater role in setting prices. Splitting the sample by whether or not physicians have a managed care contract yields striking results. Female ob-gyns without a managed care contract, who are relatively free to set their fees, do indeed receive higher fees (\$10.22 higher), while those with a contract do not.²

Turning to waiting times, the results in panel B indicate that patients wait substantially longer to see a female ob-gyn (0.48 weeks more) than they would for a female physician in any specialty, and 1.49 weeks longer for a female ob-gyn. The waiting time (weeks from an initial inquiry to the soonest available appointment)

¹ Independent variables in both regressions include gender, age, race, experience, experience squared, board certification, private practice, and salaried practice. The YPS analysis adds a female X ob-gyn interaction, medical specialty categories, marital status, children, AMA membership, year dummies, and (only in column 1) contract setting. The ACOG analysis adds subspecialization, deliveries, surgeries, hours, patients, census region, county population category, and (only in row 1) year dummies.

² The YPS data cover the time period during which managed care was on the rise. As a result, the sample is relatively evenly split between physicians in contracts and those not in contracts, providing the unusual opportunity to investigate the role of these organizational structures.

TABLE 2—GENDER GAPS IN LOG WEEKLY INCOME

	No controls			With controls		
All years	-0.195	(0.027)	**	-0.069	(0.024)	**
1990 only	-0.208	(0.059)	**	-0.084	(0.047)	*
1993 only	-0.205	(0.076)	**	-0.111	(0.064)	*
1997 only	-0.190	(0.038)	**	-0.110	(0.035)	**
2002 only	-0.180	(0.050)	**	-0.015	(0.049)	

Notes. The table shows the coefficient on the female dummy for the regression described in the text. Standard errors are shown in parentheses. Significance is indicated by * for p -values < 0.10 and ** for p -values < 0.05 .

represents the length of the wait, and the within-ob-gyn gender differential indicates that patients do in fact wait longer for an appointment with a female ob-gyn as one manner of paying for this desirable good. In addition, contract setting has precisely the expected effect. Physicians not in contract settings are better able to charge patients more using traditional fees, and patients do not experience substantially longer waiting times. In contrast, physicians in contract settings, relatively unable to use fees to ration demand, experience significantly higher waiting times (patients wait two weeks longer to see a female ob-gyn).³ Overall, the results in Table 1 reveal that fees adjust for physicians not in contracts, while waiting times adjust for those constrained by such arrangements.

I now consider the market for ob-gyns in the long term. Between 1990 and 2002, the female share of ob-gyns rose from 22 percent to 37 percent. This expansion of supply could be expected to alleviate the pressure of an excess demand and reduce price differentials. While I do not have data on spot prices in the later years, I am able to examine income throughout this time period. Analysis of the YPS data (which includes all specialties) provides insight that, while they were still doing worse than male ob-gyns in 1987 and 1991, female ob-gyns were closing the gender gap more successfully than female physicians in other specialties. The gender gap in ob-gyn was about half as large as that in other specialties (12 percent in ob-gyn versus 24 percent in other specialties). Results using the ACOG data (Table 2)

³ These results are not substantially different between 1987 and 1991. Investigation of quantities that might be flexible in the short run (e.g., hours, patients) shows that female ob-gyns match their male colleagues closely in production (whereas in most specialties women produce less.)

show that throughout the 1990s young female ob-gyns earned 19 percent less per week than males, a gap that remained relatively stable over time. Adjusting for practice characteristics and production, however, reveals that a 10 percent gender gap that existed in the 1990s narrowed substantially after 1997, such that by 2002, gender, per se, was an insignificant factor in explaining income. In 2002, the raw gender income differential of 18 percent is largely explained by female physicians choosing to see fewer patients, perform fewer surgical procedures, or practice in less financially rewarding settings. A Oaxaca decomposition confirms that the portion attributable to differences in productive characteristics stayed stable, at about half, in the 1990s (1990, 0.50; 1993, 0.53; 1997, 0.54), but rose dramatically to near unity by 2002 (0.96). At least by this measure, discrimination made way for divergent labor supply responses.⁴

This disappearance of a measurable unexplained gender gap coincides with the rise to predominance of women in ob-gyn. Women became the majority of ob-gyn residents in 1992 and surpassed 70 percent in 2001. By the late 1990s, discussion of the feminization of the specialty of ob-gyn intensified. It seems possible that a tipping point was reached: perhaps women gained enough clout that they were able to choose a practice style that more closely matched their preferences (e.g., fewer procedures) and also to eliminate any remaining anti-female discrimination in income. In this scenario, the relative incomes for women would fall because they were doing less, and rise because they were treated more equally. The net result would

⁴ Analysis using alternate income measures, specifications, or samples yields similar results.

have been that the raw income gap remained the same, but the unexplained gap fell to near zero. At the same time, ob-gyns experienced declines in real income that were three times as large as those of physicians in other specialties: 17 percent versus 5 percent (American Medical Association data 1992 and 2001). It is possible that, even as female ob-gyns gained relative to male ob-gyns, the specialty as a whole suffered from its feminization.⁵

IV. Conclusion

This paper has afforded a unique opportunity to examine a single market from a variety of perspectives. Starting out of equilibrium, and confronted with inelastic supply, the short-run market used traditional and nontraditional spot prices to clear an excess demand for female ob-gyns. Noncompetitive contracts partially inhibited the adjustment of physician fees, producing a greater adjustment of waiting times for physicians bound by such contracts. In the long run, the supply of female physicians increased and unexplained income gaps disappeared. While female ob-gyns had earned lower incomes than male ob-gyns (but did relatively better than female physicians in other specialties), by 2002 they suffered no unexplained income deficit. Overall, it appears that the market has been surprisingly, though not perfectly, flexible, and that female ob-gyns have been at least partially successful at capturing their scarcity value.

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⁵ Managed care may have been an additional factor reducing physician rents and narrowing gender differentials.

Rising liability insurance premiums may also have adversely affected ob-gyn incomes.