Gender Differences in Physician Pay

Tradeoffs Between Career and Family

Alicia C. Sasser

ABSTRACT

This paper analyzes how much of the gender earnings gap among physicians is due to women's greater family responsibilities. Women physicians earn 11 percent less for being married plus 14 percent less for having one child and 22 percent less for having more than one child. Before marrying/having children, women physicians who later became wives or mothers had higher earnings than those who remained single and childless, but sharply reduced their hours of work after marrying/having children. The results suggest that these earnings gaps do not reflect adverse selection but rather individual choices given time constraints imposed by family responsibilities.

I. Introduction

The U.S. gender gap in pay narrowed considerably during the 1970s and 1980s for many reasons including improvements in women's levels of human capital, decreases in occupational segregation, and implementation of equal pay and equal opportunity policies (Goldin 1990; O'Neill and Polachek 1993; Blau and Kahn 1997; Blau 1998). Since then women have continued to improve their levels of educational attainment and labor market experience relative to men, yet progress in the relative earnings of women has been slower during the 1990s. Could this slowdown in the convergence of male and female wages be related to the differential tradeoff between career and family responsibilities faced by an increasing fraction of women?

In this paper I address the tradeoff between career and family for a specific profession—that of physicians. Examining these issues within a particular profession

Alicia C. Sasser is an assistant professor of economics at Mount Holyoke College. *The author thanks Francine Blau, David Cutler, Claudia Goldin, Christopher Jencks, Lawrence Katz, and Jessica Reyes for valuable suggestions and insights. Three anonymous referees provided stimulating reviews that helped shape the final form of the paper. Generous funding was provided by the National Science Foundation and the Multidisciplinary Program in Inequality and Social Policy at the Kennedy School of Government at Harvard University. All remaining errors are, of course, my own. The data used in this article can be obtained beginning [date six months after publication] through [three years hence] from Alicia C. Sasser, Mount Holyoke College, 50 College Street, South Hadley, MA 01075, asasser@mtholyoke.edu.*
[Submitted August 2001; accepted April 2004]
ISSN 022-166X E-ISSN 1548-8004 © 2005 by the Board of Regents of the University of Wisconsin System

eliminates much of the heterogeneity in earnings due to occupational segregation by sex. Furthermore, medicine is a profession with rigorous and well-established educational standards, further reducing individual heterogeneity in earnings. In addition, I make use of the American Medical Association's (AMA) Young Physician's Survey (YPS) to follow a sample of physicians through the early stages of their careers—from two to nine years after residency—further eliminating heterogeneity due to unobservable characteristics.

Controlling for demographic and professional characteristics as well as specialty and practice setting, women physicians exhibit an annual earnings gap of 11 percent for being married and additional gaps of 14 percent for having one child and 22 percent for having more than one child. Decomposing the gender gap in log annual earnings shows that marital status and the presence of children account for 12 percent and 39 percent respectively of the male-female earnings differential. Moreover, these findings are not the result of negative selection into marriage and motherhood. Analysis of the panel sample reveals that before marrying or having children, women physicians who later became wives or mothers had higher annual earnings than women physicians who did not marry or have children during the intervening years. Although the former group continued to have hourly earnings that were similar to their single and childless counterparts, after marrying and having children they sharply reduced their hours of work leading to large differences in annual earnings. Fixed-effects estimates confirm these results and suggest that the family gaps women physicians face in the labor market do not arise from adverse selection but rather are the result of individual choices given the time constraints imposed by family responsibilities.

II. Background: The Tradeoff between Career and Family

The tradeoff between career and family is by no means a new dilemma for women. Yet the desire to successfully pursue a career while raising a family appears to have become an increasingly common goal among U.S. women, especially the college-educated (Goldin 1997). The full-time labor force participation of women with children increased by about 20 percentage points between 1970 and 2000 with an even greater increase among new mothers. The percentage of women with a child under the age of one who are in the labor force nearly doubled from 31 percent in 1976 to 55 percent in 2000. Much of this increase occurred among college educated women—63 percent of women with a bachelor's degree or above who had a child within the last year were in the labor force in 2000 (U.S. Bureau of the Census 2001).

Yet full equality in both the home and the marketplace remains an elusive goal even for recent cohorts of U.S. women. The literature shows that for women a 10 to 15 percent earnings penalty is associated with the presence of children, even after controlling for education and work experience (Mincer and Polachek 1974; Polachek 1975; Korenman and Neumark 1992).[1] Estimates from the NLSY reveal that marital status

1. The child penalty also persists in panel data when controlling for individual time-invariant characteristics such as unobserved ability or productivity (Waldfogel 1998b; Budig and England 2001).

and the presence of children account for approximately half of the gender wage gap that young women face (Waldfogel 1998b).

Other studies find that although recent cohorts of women enter the labor force at near parity with comparably educated men, they fall behind their male counterparts early on in their careers. The timing of the divergence tends to coincide with the prime childbearing (aged 25–34) and childrearing (aged 35–44) years of women. For example, in their study of young lawyers Wood, Corcoran, and Courant (1993), find that despite similar earnings upon graduation from law school, ten years later the salaries of female lawyers were only 60 percent of their male counterparts'—even controlling for measures of "ability" such as law school rank and LSAT scores. The authors estimate that 40 percent of the difference is directly attributable to lower hours, part-time work, and time out of the labor force for children.

III. How Might Family Responsibilities Affect the Gender Gap Among Physicians?

I consider five mechanisms by which family responsibilities might affect the gender gap among physicians. First, in anticipation of bearing the majority of family responsibilities, women may expect to have fewer total years in the paid labor force compared with men and thus may optimally choose to acquire less human capital. Alternatively, employers may provide less firm-specific training to women workers in anticipation of higher turnover. Thus the lower average earnings of women may be attributable to lower average quantities of human capital (Becker 1981). Although differential education and experience levels can explain much of the earnings gap between men and women in general, the reduced human capital explanation is less plausible for a specific profession such as medicine.

Second, it has been argued that women with children may differ from those without children in terms of unobservable characteristics such as their innate ability or productivity or their commitment to the labor market. Yet the unobserved heterogeneity argument seems less applicable to women physicians who have invested five to ten years in formal training beyond college with the completion of medical school and residency training. Using the longitudinal aspect of the survey data presented here I will be able to further eliminate the possibility of selection bias due to time-invariant characteristics by using a fixed-effects methodology when estimating the marriage and child wage penalties for women physicians.

The third and fourth hypotheses are based on the observation by sociologists that many women work a "second shift" at home after they have worked a first shift in the paid labor market (Hochschild 1990). Over the past two decades, married women and women with children have continued to move into the labor force in greater numbers and remain in the labor force more continuously. Yet there has been little shift in the division of household labor between husbands and wives (Juster and Stafford 1991). A 20-year longitudinal study of men and women who entered medical school in 1956 found that despite high evaluations in medical school and internships at prestigious teaching hospitals, women physicians lagged behind men with similar initial performances by mid-career. Inequality in family division of labor was cited as one of the

primary factors in the divergence between men's and women's career paths (Lorber 1984).

Women's greater responsibility for housework and childcare may adversely affect their labor market outcomes in two ways. First, it may cause women to reduce their job effort or productivity either by constricting their hours of market work or by reducing their effective effort per hour relative to men who spend fewer off-job hours on household tasks (Becker 1981). To determine whether this is a possibility I look at three outcome measures: the portion of the gender gap associated with children in terms of annual earnings, hourly earnings, and hours worked per year. If women physicians reduce their hours of work in response to greater household responsibilities, then the child gap in annual earnings should be explained by differences in annual hours of work. Alternatively, if women reduce their effective effort per hour, then one would expect the child gap in annual earnings to reflect a similar gap in hourly earnings.[2]

Second, women's greater household obligations may affect their demand for working conditions and lead women to trade off higher earnings for family-friendly jobs. Thus the lower earnings of married women and women with children within professions may reflect a compensating differential for jobs with shorter hours, more regular schedules, and generally more opportunity to meet family responsibilities. For example, women physicians may choose certain specialty fields and practice settings that are more conducive to combining career and family. If this is the case then controlling for specialty and practice setting should reduce the gender gap associated with marrying and having children in both earnings and hours.

Finally, it is possible that the lower earnings of women with family responsibilities may arise from employer discrimination.[3] Employers may promote women with children less often, give them fewer job responsibilities, or pay them less within jobs out of paternalistic or discriminatory motives. In traditionally male-dominated occupations such as medicine and law, long hours are still considered a prerequisite for professional success. Combined with the differentials in average time spent on housework and childrearing activities between husbands and wives, employers may perceive that women with children are less "committed" to the workplace.[4] I test this hypothesis by comparing the gender earnings differentials associated with marriage and children for self-employed versus employee physicians. If employer discrimination plays a role in the lower earnings of women physicians with family responsibilities, then one would expect the child gap to be lower or even nonexistent for self-employed physicians.

2. Unfortunately, no information regarding career interruptions was available for the sample. Previous research shows that such interruptions for female physicians tend to be infrequent and short in duration and have little or no impact on earnings (Kehrer 1976; Langwell 1982).

3. While discrimination against women on the part of colleagues and consumers is also possible and may account for a portion of the gender gap between male and female physicians, it is less likely to be a factor in the part of the gender gap associated with family responsibilities.

4. A study of law firms by Landers, Rebitzer and Taylor (1997) found that hours worked were used as an indicator of commitment for promotion from associate to partner. The authors concluded that the "rat-race" created by these promotion practices posed a barrier to those with family responsibilities seeking partnership within the firm.

IV. Factors Affecting the Relative Earnings of Male and Female Physicians

The literature shows that the gains in relative earnings of female physicians over the last two decades, similar to the gains in relative earnings of all women, have been remarkable. Various studies report that the ratio of female to male annual earnings among physicians increased from 0.58 in 1972 to 0.72 in 1990 while the hourly earnings ratio improved from 0.71 to 0.88 over the same period (Kehrer 1976; Langwell 1982; Bobula 1983; Ohsfeldt and Culler 1986; Baker 1996).

Although the percentage of physicians who are female has risen from 8 percent in 1970 to 22 percent in 1999, considerable gender differences in labor market characteristics remain (Wunderman 1983; AMA 2000). Decompositions of the gender gap for physicians show that less than half of the gains over this period can be attributed to improvements in the observable labor market skills and professional characteristics of female physicians such as board certification, specialty field, and practice setting. The remainder is typically attributed to improvements in unmeasured labor market skills and/or reductions in discrimination against women (Kehrer 1976; Langwell 1982).

To assess the impact of family responsibilities on the relative earnings of female physicians, I use both cross-sectional and longitudinal data from the YPS, conducted by the Robert Wood Johnson Foundation, Mathematica Policy Research, and the AMA. The YPS is a nationally representative survey that was designed to investigate the factors influencing the careers of young physicians, covering a wide range of topics including specialty field, practice setting, hours, and income, as well as marital status and number of children. The survey was first conducted in 1987 using a random sample of physicians drawn from the AMA Physician Masterfile who were below the age of 40, had recently completed their graduate medical training (residency), and had been in uninterrupted practice for two to five years. More importantly for this study, the survey was also conducted in 1991 and included a random sample of physicians from the 1987 sample who were reinterviewed in 1991 as well as a new random sample of young physicians under the age of 40 (Practice Patterns of Young Physicians 1998).

In order to examine how changes in family status over time influence earnings for men and women physicians, I focus on the longitudinal aspect of the YPS. To facilitate the comparison of the cross-sectional and fixed-effects estimates I restrict the analysis to the panel sample of observations from 1986 and 1990 for those individuals who were interviewed in both years. In each year, physicians who were no longer practicing or were still in a training program were excluded from the sample. In addition, physicians who reported working less than ten hours per week or 26 weeks per year were also excluded. Such physicians are considered inactive under AMA guidelines and have such low levels of labor force attachment that their earnings data are likely to be unreliable. For similar reasons, physicians whose reported net incomes, weeks worked per year, and hours worked per week resulted in hourly wages below the minimum wage were also excluded from the sample.[5]

Table 1 reports sample means for basic demographic and professional characteristics for male and female physicians for the pooled panel sample from the YPS. The

5. See the appendix, available on the *Journal of Human Resources* website: *www.ssc.wisc.edu/jhr/*, for further details about the sample.

Table 1
Sample Means for Characteristics of Physicians

	Men	Women	Women Not Married No Children	Women Married No Children	Women Ever Married With Children
Number of observations	3,434	1,020	209	164	647
Demographics					
Age	36.66	36.46	35.73	35.74	36.83
Black	0.02	0.04	0.07	0.04	0.04
Hispanic	0.03	0.03	0.05	0.01	0.03
Married	0.89	0.80	0.00	1.00	0.96
Spouse is employed	0.46	0.94	0.00	0.91	0.94
Spouse is physician	0.14	0.40	0.00	0.29	0.42
Has a child	0.79	0.66	0.00	0.00	1.00
Has one child	0.22	0.32	0.00	0.00	0.32
Has two or more children	0.75	0.67	0.00	0.00	0.67
Number of children	2.15	1.87	0.00	0.00	1.87

Labor Market Characteristics					
Net income ($1990)	129,704	92,429	104,668	91,422	89,472
Hourly earnings ($1990)	50.31	42.97	45.34	39.81	43.13
Years of work experience	5.43	5.33	4.87	4.58	5.64
Weeks worked last year	47.48	46.69	47.70	47.01	46.35
Hours worked per week	60.20	51.41	55.44	55.89	49.24
Hours of patient care per week	49.74	42.70	46.51	44.69	41.20
Professional and Practice Characteristics					
Primary care specialties	0.44	0.51	0.42	0.38	0.57
Medical and surgical subspecialties	0.24	0.12	0.15	0.16	0.11
Hospital based specialties	0.20	0.18	0.23	0.28	0.15
Self employed	0.56	0.40	0.35	0.38	0.42
Employee	0.39	0.56	0.59	0.58	0.55
Board certified	0.80	0.77	0.76	0.74	0.78
Patients per hour[a]	1.46	1.48	1.48	1.41	1.50

Source: Young Physicians Survey, 1987 and 1991.

Note: The sample is composed of observations from 1987 and 1991 for those individuals who were interviewed in both years. Physicians who were still in training or reported they were not practicing were excluded from the sample. Physicians who worked fewer than ten hours per week or 26 weeks per year or had hourly earnings that were less than the minimum wage were also excluded.

a. Not asked of hospital based physicians in radiology, anesthesiology, and pathology.

first two columns show that men and women in the sample are similar in age—about 37 years old—and have similar levels of practice experience—about five years. In addition, similar fractions of men and women (80 percent) are board certified. Yet even within this relatively homogeneous sample of young physicians, significant gender differences in pay exist. Women physicians earn about a third less than men on an annual basis and about 15 percent less in terms of hourly earnings. The gender gap in earnings is larger for women physicians who were married or had children compared with their single and childless colleagues. Indeed, women physicians who were not married and had no children earned 13 percent more per year than women who were married and 15 percent more per year than women with children.

Labor market characteristics such as hours worked, specialty field, and practice setting continue to be important factors in explaining the remaining gap in earnings between men and women physicians (Baker 1996). The YPS shows that women physicians work on average one week less per year and 9 hours less per week than their male counterparts. In addition, women are more likely to work in the less remunerative primary-care specialties (general/family practice, general internal medicine, and pediatrics) whereas men are more likely to work in the high-paying medical and surgical fields (cardiology and neurosurgery, for example).

Women physicians are also more likely to hold salaried positions in institutionalized settings such as HMOs, hospitals, universities, public health clinics, and in government. These institutional settings tend to offer more regular schedules, fewer hours, and an established patient base, in exchange for less prestige and lower incomes. In contrast, male physicians are more likely to work in traditional solo or group practice office-based settings, which involve full or part ownership of the practice. As a result, a greater fraction of men than women receive an ownership share of the income of group practices.

Male and female physicians also differ in terms of family status and how family status interacts with the labor market. Female physicians are less likely to be married (80 percent) compared with male physicians (89 percent). If they are married, women physicians are twice as likely (94 percent) to have a working spouse than their male counterparts (46 percent), and more than twice as likely to be married to another physician—40 percent of women versus 14 percent of men. These differences in marital arrangements are likely to play an important role in how household duties and childcare responsibilities are divided within the families of male and female physicians. Perhaps for this reason only 66 percent of female physicians in the sample have a child compared with 79 percent of male physicians and of those with children, women have on average fewer children than men.

V. Gender Differences in Physician Pay: Cross-Sectional Evidence

Using the panel sample of young physicians, Table 2 reports the mean percent differences in log earnings and hours between men and women by family status for 1986 and 1990. Between the two years, the gap in annual earnings between men and women jumped from 29 percent to 47 percent while the gap in hourly earnings increased slightly from 13 percent to 15 percent.

Table 2
Gender Gap in Log Earnings and Hours for Physicians by Family Status (in percentages)[a]

	Relative to Men in Each Group		Relative to All Men	
	1986	1990	1986	1990
All physicians				
Log annual earnings	29.20***	47.03***	29.20***	47.03***
Log hourly earnings	11.52***	14.79***	11.52***	14.79***
Log annual hours	15.85***	28.09***	15.85***	28.09***
Number of men	1717	1717	1717	1717
Number of women	510	510	510	510
Not married, no children				
Log annual earnings	8.03	−4.72	23.95***	16.16**
Log hourly earnings	4.27	−5.32	13.66**	0.30
Log annual hours	3.61	0.64	9.04***	15.81***
Number of men	215	125	1717	1717
Number of women	120	89	120	89
Currently married, no children				
Log annual earnings	14.01**	19.22**	18.67***	33.88***
Log hourly earnings	10.13	5.31	14.23**	12.90
Log annual hours	3.52	13.21**	3.89	18.58***
Number of men	245	133	1,717	1,717
Number of women	100	64	100	64
With children				
Log annual earnings	39.41***	60.14***	35.10***	56.10***
Log hourly earnings	12.30***	19.34***	9.84***	18.06***
Log annual hours	24.14***	34.18***	23.00***	32.22***
Number of men	1,257	1,459	1,717	1,717
Number of women	290	357	290	357

Sources: Young Physicians Survey, 1987 and 1991.
Note: See sample description in Table 1.
a. Gender Gap = Males–Females
*Indicates significance at the 10 percent level, ** at the 5 percent level, *** at the 1 percent level respectively.

The first two columns compare the earnings and hours of women relative to men in each category (not married no children, currently married no children, and with children). The second group of columns compares the mean earnings and hours of women in each group with the mean earnings and hours of all men in the sample to account for the fact that men generally receive a premium for being married and having children.[6] Similar patterns by family status emerge. In both comparisons, the mean differences reveal little or no gap in earnings and hours between men and women who were not married and had no children, but significant gaps in earnings and hours

6. Although this creates some bias against finding differences based on family status, it does allow one to directly compare the ratios for the different groups of women.

Table 3
Impact of Family Status on the Relative Earnings of Male and Female Physicians: OLS Estimates

	Specification				
	1	2	3	4	5
Dependent variable: log annual earnings					
Married	0.046	0.103**	0.085**	0.083**	0.071*
	(0.038)	(0.044)	(0.040)	(0.042)	(0.038)
One child	−0.024	0.028	0.038	0.019	0.031
	(0.031)	(0.037)	(0.032)	(0.034)	(0.030)
Two or more children	0.043	0.109***	0.113***	0.076**	0.089***
	(0.028)	(0.033)	(0.029)	(0.031)	(0.027)
Female	−0.301***	−0.017	−0.052	0.010	−0.020
	(0.027)	(0.056)	(0.052)	(0.052)	(0.050)
Married*female	—	−0.115*	−0.090	−0.125**	−0.101*
		(0.067)	(0.058)	(0.062)	(0.055)
One child*female	—	−0.207***	−0.146***	−0.183***	−0.131**
		(0.065)	(0.056)	(0.062)	(0.054)
Two or more children*female	—	−0.304***	−0.223***	−0.265***	−0.199***
		(0.059)	(0.049)	(0.055)	(0.046)
R Squared	0.188	0.201	0.386	0.275	0.439
Dependent variable: log hourly earnings					
Married	0.014	0.033	0.010	0.027	0.008
	(0.042)	(0.051)	(0.048)	(0.050)	(0.046)
One child	0.012	0.037	0.051	0.035	0.050
	(0.035)	(0.042)	(0.037)	(0.041)	(0.036)
Two or more children	0.052	0.081**	0.102***	0.064*	0.091**
	(0.032)	(0.038)	(0.033)	(0.037)	(0.032)
Female	−0.108***	0.001	−0.018	0.029	0.014
	(0.026)	(0.055)	(0.053)	(0.054)	(0.053)
Married*female	—	−0.032	−0.009	−0.046	−0.023
		(0.073)	(0.065)	(0.072)	(0.065)
One child*female	—	−0.100	−0.048	−0.090	−0.045

		(0.073)	(0.066)	(0.073)	(0.065)
Two or more children*	—	−0.128**	−0.067	−0.107	−0.056
female		(0.066)	(0.056)	(0.065)	(0.055)
R-Squared	0.132	0.134	0.294	0.169	0.325
Dependent variable: log annual hours					
Married	0.031	0.070**	0.074**	0.057*	0.063**
	(0.028)	(0.030)	(0.030)	(0.029)	(0.029)
One child	−0.035*	−0.009	−0.014	−0.016	−0.020
	(0.021)	(0.024)	(0.023)	(0.024)	(0.023)
Two or more children	−0.009	0.028	0.011	0.012	−0.002
	(0.019)	(0.021)	(0.020)	(0.020)	(0.019)
Female	−0.193***	−0.018	−0.034	−0.019	−0.034
	(0.020)	(0.041)	(0.041)	(0.039)	(0.039)
Married*female	—	−0.082	−0.081*	−0.079	−0.078*
		(0.051)	(0.049)	(0.049)	(0.047)
One child*female	—	−0.107**	−0.098**	−0.093*	−0.086*
		(0.050)	(0.048)	(0.049)	(0.048)
Two or more children*	—	−0.176***	−0.156***	−0.158***	−0.143***
female		(0.045)	(0.042)	(0.044)	(0.041)
R Squared	0.062	0.075	0.139	0.117	0.170
Controls					
Demographic/professional characteristics	X	X	X	X	X
Specialty field (11 categories)			X		X
Practice setting (eight categories)				X	X
Number of observations	4,454	4,454	4,454	4,454	4,454

Note: Demographic/ professional characteristics include age, race, ethnicity, region, experience and its square, and board certification. A time dummy equal to 1 for 1990 is also included to account for time effects. Standard errors in parenthesis are robust and clustered on the respondent's identification number. See sample description in Table 1.

*Indicates significance at the 10 percent level, ** at the 5 percent level, *** at the 1 percent level respectively.

between men and women who were married and/or had children. Moreover, as these physicians progressed along their respective career paths over the four-year interval, women who were not married and had no children narrowed the difference in log annual and hourly earnings relative to their male colleagues. In contrast, women physicians who were married and/or had children fell further behind their male counterparts in terms of annual earnings and annual hours worked, contributing to the increase in the overall gap between the two years. In addition, women physicians who had children also fell behind in terms of hourly earnings. These results suggest that family responsibilities may impact the gender earnings gap in medicine through a combination of a reduction in hours as well as a decrease in effective effort per hour.

Yet the simple log differences in Table 2 do not take into account important differences in labor market and professional characteristics between men and women physicians. To do this, I estimate the following equation for log earnings and hours using OLS for the pooled panel sample:

$$(1)\quad \ln W_{it} = \beta_0 + \beta_1 X_{it} + \beta_2 \tau_t + \beta_3 FEMALE_i + \beta_4 MARR_{it} + \beta_5 CHILD_{it} + \beta_6 (MARR_{it} \bullet FEMALE_i) + \beta_7 (CHILD_{it} \bullet FEMALE_i) + \varepsilon_{it}$$

where i indexes individuals and t indexes years. The dependent variable, $\ln W_{it}$ is log real earnings (or log hours) and X is a vector of observable characteristics. The variable τ_t equals 1 for 1990 and 0 otherwise, and *FEMALE* is a dummy variable equaling 1 for female physicians. In order to capture the impact of family responsibilities on the gender gap I also include dummies for marital status and the presence of children and interact these variables with the female dummy. Given the possibility that additional children produce greater demands upon one's time, the regression includes separate dummy variables for having one child and two or more children. A stochastic error term is represented by ε_{it}.

Table 3 reports the coefficients on the marriage and child dummies from Equation 1 for various specifications that include different sets of controls. Columns 1 and 2 control for only the basic demographic and professional characteristics which include age, experience and its square, race, ethnicity, region, and board certification. Column 1 shows that the female earnings gap among physicians is quite large even controlling for these basic characteristics—35 percent on an annual basis and 11 percent in terms of hourly earnings. Column 2 shows that the gap associated with being female falls to zero with the addition of the interaction terms for marital status and the presence of children. In terms of annual earnings, a premium of 11 percent is associated with marriage for men. They also enjoy additional positive returns of 12 percent for having two or more children. In contrast, a gap of 12 percent is associated with marriage for women with additional gaps of 23 percent and 36 percent for having one child and two or more children respectively.[7]

Columns 3 and 4 add controls for specialty field and practice setting respectively, important factors in explaining the gender gap among physicians. Despite the addition of these controls, marital status, and the presence of children continue to have a

7. An *F*-test rejects the hypothesis that the gender interaction coefficients are jointly equal to zero at the 1 percent level.

sizeable impact on the relative incomes and earnings of male and female physicians. However, the magnitude of the effects are smaller when controlling for specialty field and practice setting, suggesting that women may choose certain specialty fields and practice settings that are more compatible with family responsibilities, a possibility that is explored in more detail later in the paper. When controlling for demographic and professional characteristics as well as specialty field and practice setting, female physicians face a marriage gap of 11 percent and additional gaps of 14 percent for having one child and 22 percent for having two or more children. Decomposing the gender gap in annual earnings shows that marital status and the presence of children account for 12 percent and 39 percent respectively of the male-female earnings differential.[8]

The lower two panels of Table 3 show that the annual earnings gaps for women with family responsibilities are largely driven by fewer annual hours worked rather than by lower hourly earnings. Married women physicians worked 8 percent fewer hours per year. Women physicians with one child worked 9 percent fewer hours and those with two or more children worked 15 percent fewer hours per year. These results contradict what has previously been found in the literature. Recent studies of young women using the NLSY typically find an hourly earnings gap of 4 to 6 percent for having one child and 6 to 11 percent for having two or more children despite controlling for differences in human capital (Budig and England 2001, Waldfogel 1998a). It may be that women physicians with children, having made significant investments in human capital, are able to preserve their hourly earnings potential while working flexible or part-time schedules that allow more time for household and childcare responsibilities.

VI. Accounting for Unobserved Heterogeneity: Longitudinal Evidence

Part of the gender earnings differential associated with marital status and the presence of children may arise from differences among women physicians with respect to unobservable characteristics such as career commitment or underlying productivity. It may also be the case that women physicians choose to marry and have children when their labor market opportunities look less favorable.

To address the possibility of negative selection into marriage and motherhood, Table 4 reports the percent differences in log earnings and hours for women who became wives and mothers between 1986 and 1990. The top panel compares the difference in log earnings and hours between men and women by changes in family status. In 1986, the gaps between men and women who would later marry and have children were similar to those between men and women who would remain single and childless. Yet while the gap in annual earnings narrowed for women who remained single and childless during the period, it increased significantly for women who

8. See Appendix Table A7, available on the *Journal of Human Resources* website: *www.ssc.wisc.edu/jhr/.* Similar results are obtained when using the full cross-sectional samples from the 1987 and 1991 Young Physician Surveys. These results, along with the full specification and decomposition for annual earnings are reported in the Appendix Tables A1 through A3, available on the *Journal of Human Resources* website: *www.ssc.wisc.edu/jhr/.*

Table 4
Differences in Log Earnings and Hours for Physicians by Changes in Family Status (in percentages)

	Remained Single and Childless		Married		Had Children	
	1986	1990	1986	1990	1986	1990
Number of men	108	108	50	50	206	206
Number of women	69	69	23	23	72	72
Gender gap = males − females						
Annual earnings	9.60	4.14	3.67	29.64**	8.99	54.49***
Hourly earnings	6.28	0.75	4.08	7.07	4.35	12.93
Annual hours	3.12	3.36	2.02	21.08**	4.45	36.80***
Family gap = Women who remained single and childless − women who married or had children						
Annual earnings			−7.29	26.29*	−8.17	27.85**
Hourly earnings			−1.92	10.42	−1.46	8.95
Annual hours			−5.48	14.38	−6.81	17.35**

Sources: Young Physicians Survey, 1987 and 1991.
Note: See sample description in Table 1.
*Indicates significance at the 10 percent level, ** at the 5 percent level, *** at the 1 percent level respectively.

married and/or had children. The difference in annual earnings between men and women physicians who married during the period rose from 4 percent in 1986 to 30 percent in 1990. Similarly, the difference between men and women physicians who became parents rose from 9 percent in 1986 to 55 percent in 1990. In both cases the increase in the annual earnings gap was primarily due to increases in the gap in both hourly earnings and hours worked per year.

The bottom panel of Table 4 calculates the "family gap"—the difference in log earnings and hours between women who subsequently married and/or had children and women who remained single and childless throughout the period. Prior to marrying and/or having children, there were no significant differences in earnings or hours between women who would later take on family responsibilities and those who did not marry or have children during the intervening years. This result suggests that the wage gap in 1990 may be due to slower wage growth for women who take on family responsibilities rather than preexisting differences between the two groups.

According to Table 4, after marrying and having children, significant differences in annual earnings emerge between the two groups. Between 1986 and 1990, two-thirds of the increase in the annual earnings gap over time was due to a significant reduction in annual hours of work on the part of women who married and/or had children relative to those who remained single and childless. The remainder of the increase in the annual earnings gap over time can be attributed to slower growth in the hourly earnings of women with family responsibilities.

To formally test whether unobserved heterogeneity could play a role in the impact of family status on the relative earnings of male and female physicians, I use a fixed-effects estimator to eliminate time-invariant unobservable characteristics of individuals that might be correlated with selection into marriage and parenthood. Since individuals are only observed at two points in time, the basic equation that is estimated is a first-difference specification:

$$(2) \quad \Delta \ln W_i = \beta_0 + \beta_1 \Delta X_i + \beta_2 \Delta MARR_i + \beta_3 \Delta CHILD_i + \Delta\alpha_i + \Delta\varepsilon_i$$

where $\Delta \ln W_i = (\ln W_{i1990} - \ln W_{i1986})$ is the change in the individual's log earnings (or log hours) between the two years. The changes in the other variables in the equation are distinguished similarly. X is a vector of time-varying observable characteristics including experience and its square, region, and board certification. I do not include controls for specialty field or practice setting given the potential endogeneity of those choices with respect to family status.[9] My aim here is to estimate the full effect of family status after controlling for human capital. The individual fixed effect α_i, is assumed to vary across individuals but not over time so that the first-difference specification effectively removes it. This is a reasonable assumption if the unobserved variable is an individual characteristic such as motivation or unmeasured ability.[10]

Table 5 reports both the OLS and fixed-effects estimates for men and women physi-

9. In addition, very few physicians change specialty after their residency so that specialty field actually drops out of the equation as a time-invariant characteristic.

10. It is possible that an unmeasured characteristic, such as ambition, could affect the decision to have children and also interact with job experience to create steeper wage trajectories rather than having a simple additive wage increment of a certain percentage in each year. If this is the case, then the fixed-effects model would still yield unbiased estimates of the coefficient on the presence of children.

Table 5
Impact of Family Status on the Relative Earnings of Male and Female Physicians: OLS vs. Fixed Effects Estimates

	Men		Women	
	OLS	Fixed Effects	OLS	Fixed Effects
Dependent variable: log annual earnings				
Married	0.085*	–0.020	0.020	–0.037
	(0.046)	(0.047)	(0.062)	(0.064)
One child	0.030	0.069	–0.186***	–0.192***
	(0.037)	(0.048)	(0.054)	(0.072)
More than one child	0.108***	0.053	–0.193***	–0.199**
	(0.033)	(0.049)	(0.052)	(0.097)
Root mean square error	0.516	0.332	0.506	0.360
Dependent variable: log hourly earnings				
Married	0.015	–0.028	0.042	0.007
	(0.053)	(0.058)	(0.066)	(0.074)
One child	0.039	0.102*	–0.073	–0.010
	(0.042)	(0.056)	(0.061)	(0.077)
More than one child	0.081**	0.051	–0.060	0.014
	(0.038)	(0.058)	(0.058)	(0.101)
Root mean square error	0.565	0.391	0.514	0.423

Dependent variable: log annual hours				
Married	0.070**	0.007	–0.022	–0.045
	(0.031)	(0.035)	(0.052)	(0.053)
One child	–0.009	–0.033	–0.113**	–0.182***
	(0.024)	(0.031)	(0.045)	(0.060)
More than one child	0.027	0.002	–0.132***	–0.213***
	(0.021)	(0.032)	(0.043)	(0.075)
Root mean square error	0.316	0.238	0.395	0.288
Number of observations	3,434	3,434	1,020	1,020
Number of individuals	1,717	1,717	510	510

Note: OLS regressions include controls for age, sex, race, ethnicity, region, and experience and its square as well as a time dummy equal to 1 for 1990 to account for time effects. Fixed-effects regressions exclude controls for time invariant characteristics such as race and ethnicity. Robust standard errors in parenthesis, clustered by individual for the cross-sectional regressions. See sample description in Table 1.
*Indicates significance at the 10 percent level, ** at the 5 percent level, *** at the 1 percent level respectively.

cians separately. Comparing the fixed-effects estimates with the cross-sectional estimates one can identify whether or not selection plays a role in the impact of family status on the relative earnings of men and women. Typically models that explain earnings premiums associated with marital status and the presence of children as arising from selection effects assume that men with wage-enhancing characteristics are more likely to be married and have children, thereby leading to upwardly biased estimates of the premiums in cross-sectional regressions. In contrast, it is generally believed that women with fewer labor market opportunities are more likely to be married and have children because the opportunity costs of devoting more time to household production are lower. According to these models, cross-sectional estimates of the penalties associated with marriage and the presence of children will be upwardly biased. Thus, if selection plays a role, then both the premiums for men and the penalties for women should be reduced or even eliminated when controlling for the time-invariant characteristics of individuals.

Table 5 reveals that selection appears to play a role in the premiums men receive for marrying and having children. However, selection does not appear to play a role in the penalties women receive for marrying and having children. The fixed-effects estimates show that controlling for selection into marriage reduces both the magnitude and significance of the marriage and child premiums for men. In contrast, controlling for selection into motherhood has a negligible effect on the estimated effects of children, as neither of the child coefficients in the first-difference model is significantly different from the OLS estimates. Women physicians receive a significant annual earnings gap of 21 percent for having one child and 22 percent for having two or more children. In terms of hourly earnings, both the cross-sectional and fixed-effects models fail to reveal any significant child wage gap. Thus I find no evidence of negative selection into motherhood, contradicting the notion that women who devote more time to childcare bring less motivation or innate ability to the workplace than their childless counterparts.

However, it should be noted that the YPS yields a rather short panel over which one can trace the effects of marriage and motherhood on wages. It is possible that the fixed-effects estimates reflect the short-term transitory effects of having children rather than a negative shock that is carried throughout one's career. This may be of particular concern since the women who became mothers over the period may have recently taken a maternity leave and are now caring for preschool-aged children. Because the lower annual earnings of women physicians with children is largely caused by working fewer hours, it is not clear that these earnings differences will persist in the future, particularly if these women return to their previous level of hours when their children are older.[11]

However, if the reduction in hours worked leads to less human capital accumulation over time, then women physicians who reduce their hours may not be able to return to their previous earnings trajectory even if they return to a full-time schedule. Previous research using a fixed-effects model and longer panels from the NLSY find

11. Although there is a 1997 follow-up to the Young Physicians Survey, the sample of physicians interviewed in all three years is too small (843 individuals total) to say anything conclusive about the impact of marriage and children on the relative earnings of men and women physicians over a longer time period.

significant hourly wage penalties of 5 percent for having one child and 13 percent for having two or more children (Waldfogel 1998a; Budig and England 2001). These studies also find that the part-time status of the individual's current job and past experience accounts for some portion of the hourly earnings differential. Thus working part-time may reduce hourly pay in the long run, either directly or indirectly if jobs that offer part-time hours are less desirable.

VII. Does Motherhood Reduce Effort or Productivity?

Aside from selection, it has also been suggested that women's greater responsibility for housework and childcare may adversely affect their labor market outcomes by constricting the number of hours they work or by reducing their effective effort per hour. To test this theory, I compare the portion of the gender gap associated with children in terms of annual earnings, hourly earnings, and hours worked per year. If women physicians reduce their hours of work in response to greater household responsibilities, then the child gap in annual earnings should be explained by differences in annual hours of work. Alternatively, if women reduce their effective effort per hour then one would expect the child gap in annual earnings to reflect a similar gap in hourly earnings.

The lower panels of Table 5 confirm the earlier results that showed that the annual earnings gaps for women with children are almost entirely due to working fewer hours per year. Although the OLS estimates suggest that some portion of the gap can be attributed to women with children having lower hourly earnings, the effect is statistically indistinguishable from zero. The fixed-effects estimates show that virtually none of the gap is associated with lower hourly earnings. Using multivariate regression to test coefficients across equations shows that the difference between the estimated family structure gaps in annual earnings and the gaps in hourly earnings are statistically significant at the 5 percent level for both the cross-sectional and fixed-effects models. This evidence suggests that fewer hours worked rather than reduced work effort is the major contributing factor to the lower annual earnings of female physicians with children.

To date, no study has directly measured the effort or productivity of women with children versus women without children. For the most part, prior research has approached these questions only indirectly, surveying men and women on how much effort, either physical or mental, their jobs require (Bielby and Bielby 1988). No research has compared the effort levels of women with children to women without children using direct measures or productivity.

One way of measuring productivity is to calculate patients per hour as the number of patients per week divided by the number of hours of patient care per week.[12] Previous research suggests that some portion of the earnings differential between men and women physicians can be attributed to women physicians seeing fewer patients per hour than men (Langwell 1982). Yet in the sample of young physicians analyzed

12. Of course, this method of measuring productivity is imprecise because it fails to account for differences in quality, case-mix, nonphysician labor inputs, and capital inputs, all of which have an impact on practice productivity.

in this paper, women physicians see the same number or even more patients per hour than their male colleagues—even within specialty fields and practice settings. Moreover, women with children see the same number of patients per hour as women without children. Without additional information on the work practices of physicians it is unclear whether women with children in the medical profession differ in terms of effort relative to their childless counterparts.

VIII. Compensating Differentials: The Role of Specialty Field and Practice Setting

The results from the earlier cross-sectional regressions in Table 3 revealed that controlling for specialty field and practice setting reduced the impact of family status on the relative earnings of male and female physicians. These results suggests that women physicians may choose certain specialty fields and practice settings that are more amenable to meeting family responsibilities, possibly trading off higher earnings for more family-friendly jobs. Hence some portion of the gender earnings gap associated with marriage and children within medicine may reflect a compensating differential for jobs with shorter hours and more regular schedules that allow more opportunity for women physicians to meet household obligations.

For example, in the past, female physicians were openly steered toward specialties such as pediatrics that "offer opportunities for limited time commitments" (Ducker 1978). Even now a female physician's expectations regarding family responsibilities may constrain her choice of specialty or practice setting—whether or not she currently has a family.[13] Of course, it may be the case that women physicians choose certain specialties and practice settings for reasons other than lifestyle considerations such as income or professional interest. Yet a recent study showed that lifestyle considerations accounted for 55 percent of a doctor's choice of specialty compared to income which accounted for only 9 percent (Dorsey 2003). In addition, medical educators have noted that young physicians are choosing specialty fields such as dermatology, which require fewer hours and less middle-of-the-night pages, rather than traditional "all-consuming" fields such as surgery. They attribute this shift to the growing proportion of medical students who are women (Richtel 2004).

Table 6 reports the characteristics of male and female physicians by specialty and practice setting. The first three columns highlight the differences between men and women physicians across specialty fields and practice settings. Although nearly one out of every four physicians is female, women physicians account for only 17 percent of specialized internists and only 4 percent of surgeons. In contrast, women physicians comprise 44 percent of all pediatricians and 38 percent of all ob/gyns, with the latter being a more recent phenomenon as ob/gyn has evolved from a surgical specialty to a more comprehensive primary-care specialty. In general, women are more likely to work in the less remunerative primary-care specialties while men are more likely to work in the high-paying medical and surgical fields.

13. One young female physician commented: "I would have been a surgeon . . . if I weren't a woman. I really felt that it would have been impossible to have children if I had done surgery and done the kind of job I felt I had to do" (Mandelbaum 1981).

Table 6
Characteristics of Physicians by Specialty Field and Practice Setting

	Number of Physicians				Weekly Hours		Gender Gap (Males-Females)		
	Men	Women	Percent women	Percent of women with children	Mean	Standard deviation	Annual earnings	Hourly earnings	Annual hours
All physicians	3434	1020	22.9	63.4	58.0	16.8	38.3	13.5	21.8
Family/general practice	585	139	19.2	67.6	57.8	16.4	33.3	–0.6	34.0
General internal medicine	642	186	22.5	66.7	59.9	16.3	42.9	13.2	26.2
Pediatrics	260	206	44.2	74.8	55.3	16.9	21.2	–1.1	22.6
Specialized internal medicine	733	150	17.0	48.7	56.5	16.5	40.1	12.9	24.1
Surgery	310	13	4.0	46.2	66.0	15.2	48.2	3.5	43.2
Obstetrics/gynecology	189	115	37.8	56.5	67.1	17.4	17.3	12.0	4.7
Anesthesiology	196	60	23.4	56.7	60.0	17.5	43.6	27.6	12.5
Pathology	66	28	29.8	57.1	52.9	11.6	28.2	16.5	10.1
Radiology	195	48	19.8	70.8	53.0	11.1	28.4	18.0	8.9
Psychiatry	185	66	26.3	59.1	48.5	12.9	27.8	11.7	14.5
Other specialties	73	9	11.0	88.9	58.1	17.5	4.9	–18.0	28.0
Solo practice	909	180	16.5	71.1	60.6	17.9	41.2	8.4	30.2
Group practice—self-employed	999	220	18.0	65.5	60.3	14.3	37.0	26.0	8.8
Group practice-employee	328	126	27.8	62.7	57.6	16.7	31.3	9.1	20.3
HMO	108	59	35.3	64.4	49.7	15.0	32.6	4.3	38.3
Hospital	402	142	26.1	61.3	54.2	17.6	33.5	9.4	22.0
Academic institution	307	133	30.2	57.9	60.5	17.7	25.5	5.0	19.5
Government	237	122	34.0	60.7	54.4	14.6	9.6	12.9	23.7
Other practice setting	144	38	20.9	52.6	53.2	14.8	11.5	1.2	10.2

Source: Young Physicians Survey, 1987 and 1991.
Note: See sample description in Table 1.

Male and female physicians also differ significantly in the settings in which they practice medicine. Although half of all physicians in the sample were self-employed either in a solo or group practice, only one out of five self-employed physicians were women. As a result, a greater fraction of men then women receive an ownership share of the income of group practices. Women are more likely to be employed in salaried positions in institutionalized settings such as HMOs, hospitals, universities, and the government. Of the 4 percent of physicians in the sample who worked in an HMO, more than one-third of them were women.

Table 6 also reports the mean and standard deviation of total hours worked per week by specialty field and practice setting from the YPS. The differences across specialty fields and practice settings are similar to those observed in surveys done by the AMA (2000). Aside from ob/gyn, the specialty fields that women physicians are disproportionately represented in are those with lower average weekly hours such as psychiatry, pathology, and pediatrics. Similarly, aside from academia, the practice settings that women work in are also those with lower average weekly hours. Moreover, women physicians who do specialize in fields with high average weekly hours, such as surgery and ob/gyn, are less likely to have children than those who specialize in fields with low average weekly hours. In contrast, among practice settings with high average weekly hours, only women physicians in academia are less likely to have children. Indeed, a 1991 survey of physician faculties at U.S. medical schools found that although men and women physicians had similar rates of attrition from academic medicine, women were more likely to leave because of child-rearing issues while men were more likely to leave because of better financial opportunities in private practice (Tesch et al. 1995).

Finally, the last three columns of Table 6 reveal that sizeable percentage differences in log annual earnings, hourly earnings, and annual hours between men and women physicians exist within specialty fields and practice settings. Aside from ob/gyn, the smallest gaps in annual earnings are found in specialty fields such as pediatrics, psychiatry, pathology, and radiology—specialty fields that also have low average weekly hours. Similarly, aside from academia, the smallest gaps in annual earnings are also found in practice settings with the lowest average weekly hours—HMOs, hospitals, the government, and employees' positions in group practices.

The evidence in Table 6 suggests that women physicians, and especially those with children, are more likely to work in specialty fields and practice settings that are lower-paying but require fewer weekly hours on average. In addition, with some exceptions, those same specialty fields and practice settings that require fewer weekly hours also have smaller gaps in annual earnings. Thus it would appear that women physicians may choose to work in specialty fields and practice settings that are more amenable to meeting family responsibilities. If this is the case, then one would expect the marriage and child wage gaps for women to be smaller within specialty fields and practice settings that require fewer weekly hours on average.

To test this hypothesis, Table 7 compares the OLS estimates of the impact of family status on the relative earnings of male and female physicians for specialty fields and practice settings with low versus high average weekly hours.[14] Specialty fields with

14. A cross-sectional approach was taken due to the small sample sizes that result when dividing the sample into low and high hours specialty fields and practice settings.

Table 7
OLS Estimates of the Impact of Family Status by Specialty Field and Practice Setting: Low versus High Average Weekly Hours[a]

	By Specialty Field		By Practice Setting	
	Low Weekly Hours	High Weekly Hours	Low Weekly Hours	High Weekly Hours
Dependent variable: log annual earnings				
Married	0.064	0.086*	0.039	0.105**
	(0.053)	(0.051)	(0.050)	(0.051)
One child	0.054	0.004	0.031	0.042
	(0.046)	(0.038)	(0.040)	(0.042)
Two or more children	0.098**	0.074**	0.057	0.107***
	(0.039)	(0.035)	(0.035)	(0.037)
Female	–0.030	–0.011	–0.115	0.066
	(0.072)	(0.067)	(0.071)	(0.059)
Married*female	–0.147*	–0.070	–0.007	–0.185***
	(0.078)	(0.077)	(0.079)	(0.067)
One child*female	–0.069	–0.176**	–0.102	–0.167**
	(0.075)	(0.072)	(0.071)	(0.075)
Two or more children*female	–0.096	–0.274***	–0.177***	–0.212***
	(0.065)	(0.064)	(0.065)	(0.061)
R Squared	0.389	0.476	0.340	0.433
Number of observations	1,937	2,517	1,706	2,748

Note: Each regression includes controls for age, sex, race, ethnicity, region, experience and its square, board certification, specialty, and practice setting. A time dummy equal to 1 for 1990 is also included to account for time effects. Standard errors in parentheses are robust and clustered on the respondent's identification number. See sample description in Table 1.

a. Specialty fields and practice settings with low average weekly hours are defined as those with average weekly hours below the average for all physicians. These include pediatrics, specialized internal medicine, pathology, radiology, psychiatry, and practice settings such as employees' positions in group practices, HMOs, hospitals, government facilities, and locum tenens positions.

*Indicates significance at the 10 percent level, ** at the 5 percent level, *** at the 1 percent level respectively.

low average weekly hours are defined as those with average weekly hours below the average for all physicians (58 hours per week). These specialties include pediatrics, specialized internal medicine, pathology, radiology, and psychiatry. Practice settings with low average weekly hours are similarly defined and include employees in group practices, HMOs, hospitals, government facilities, and "other" settings such as locum tenens physicians.

The OLS results confirm that the marriage and child wage gaps that women physicians face are indeed smaller in specialty fields with lower average weekly hours. In terms of annual earnings, although women physicians in low-hours specialty fields who are married earn 16 percent less than men, there is no significant gap associated with having children. In contrast, women physicians in the high-hours specialty fields face gaps of 19 percent for having one child and 32 percent for having two or more children. As before, the annual earnings gaps for women with children in the high-hours specialty fields are driven almost entirely by fewer annual hours worked rather than by lower hourly earnings (see Appendix Table A8, available on the *Journal of Human Resources* website: www.ssc.wisc.edu/jhr/).

The OLS results for practice settings with low versus high weekly hours are not as clear-cut. In terms of annual earnings, women physicians in low-hours practice settings face no significant gap for being married or having one child, but do face a gap of 19 percent for having two or more children. Women physicians in high-hours practice settings face even greater marriage and child gaps. A gap of 20 percent is associated with marriage for women in the high-hours practice settings with additional gaps of 18 percent for having one child and 24 percent for having two or more children. Again, these annual earnings gaps are almost entirely driven by differences in annual hours worked.

Why do the results differ for specialty field versus practice setting? It may be the case that specialty field places a greater constraint on weekly hours than practice setting and hence on the ability to manage family responsibilities. For example, surgeons, whether in private practice, an HMO, or an academic institution, will be expected to be on call every few days. However, physicians working for an HMO represent a cross-section of specialty fields with different requirements in terms of weekly schedules. Thus, the variation in total weekly hours across practice settings within a given specialty field is likely to be smaller than the variation in total weekly hours across specialties within a given practice setting. Indeed, the standard deviation in weekly hours among practice settings is higher compared to that of specialty fields. Unfortunately, the number of women in the sample (especially the number of women with children) is too small to allow for more detailed OLS estimation by specialty field within practice setting or vice versa.

IX. Employer Discrimination Against Women with Children

Finally, it is possible that the lower earnings of women physicians with family responsibilities may arise from employer discrimination. Persistent discrimination against women physicians has been well documented by the medical literature and has been known to affect hiring practices, admission to residency

programs, and patient preferences (Tesch et al. 1995; Lenhart et al. 1991; Shiffman and Frank 1995). Moreover, the market for physician services has been described as imperfectly competitive due to distortions on both the supply and demand sides of the market (Baker 1997). These distortions are further compounded by informational asymmetries allowing providers to sell differentiated, imperfectly substitutable products thereby giving them some amount of market power. Thus hospitals or other employers of physicians, male colleagues, or even consumers may have been able to discriminate against women and take some surplus (producer or consumer) in the form of discrimination.

Although colleague and consumer discrimination may account for some portion of the gender gap among physicians, it is not clear that this would be a factor in the wage gap women face for marrying and having children. Most patients and referring physicians probably do not know their physician's marital status or family situation. However, it is much more likely that an employer would know whether the physicians was married and/or had children and be concerned about time taken away from the physician's practice to meet their family responsibilities.

Thus differences in earnings between men and women may arise because employers perceive married women and women with children as being less "committed" to the workplace than their childless counterparts. As a result, employers may promote women with children less often, give them fewer job responsibilities, or pay them less within jobs out of paternalistic or discriminatory motives. A 1991 survey of physician faculties at U.S. medical schools found that women physicians were much less likely to be promoted to associate or full professor ten years after their initial academic appointment, even after adjusting for specialty field, hours of work, tenure track status, grant support, and the number of first-author publications (Tesch et al. 1995). Indeed, 37 percent of women physicians with children in the 1991 YPS reported that they were denied or discouraged from seeking a training or job opportunity because of having children.

To test this hypothesis I compare the OLS estimates of the gender earnings differentials associated with marriage and children for employee versus self-employed physicians. Employee physicians include employees in group practices, HMOs, hospitals, academic institutions, and government facilities. Self-employed physicians include those in solo and group practices where the physician is the sole or part owner of the practice. The results show substantial gaps for women in terms of annual earnings and hours for both groups and in some cases the gaps are even larger among self-employed physicians (see appendix table A9, available on the *Journal of Human Resources* website: www.ssc.wisc.edu/jhr/). This evidence suggests that employer discrimination is not the driving force behind the different returns men and women physicians with family responsibilities receive in the labor market.

X. Conclusion

In summary, the lower earnings of married women and women with children within medicine primarily reflect a reduction in hours worked and are not driven by negative selection into marriage and motherhood. Furthermore, women physicians with children do not appear to reduce their effective effort per hour yet they

do cut back on the number of hours worked per week relative to men who are likely to spend fewer nonmarket hours on household and childcare tasks. Women also appear to seek specialties and practice settings with lesser time demands and generally more opportunity to balance career and family. Thus, it would appear that the family gaps women physicians face in the labor market are the result of individual choices given the time constraints imposed by work norms and family responsibilities.

In many ways, the results presented in this paper have positive implications for women in medicine that may also apply to other professions such as law or business. Whereas in the past women in professional occupations either chose to pursue their careers or to drop out of the labor force to have children, it appears that women are able to combine career and family with some degree of success. Women physicians were able to reduce their hours and weeks worked without suffering any significant reductions in their hourly earnings. In addition, since the lower annual earnings of women physicians with children are largely due to their working fewer hours, it is not clear that these earnings differences will persist in the future, particularly if these women return to previous level of hours when their children are older.

However, if reductions in hours worked on the part of women physicians leads to less human capital accumulation over time, then women physicians with children may not be able to return to their previous earnings trajectory even if they return to their previous work schedules. This may also be true for women in other professional occupations such as law or business where new knowledge or techniques must be continually mastered in order to continue practicing or where maintaining one's client base is essential for advancement.

References

American Medical Association. 2000. *Physician Characteristics and Distribution in the United States*. Chicago: American Medical Association.

Baker, Laurence. 1996. "Differences in Earnings Between Male and Female Physicians." *New England Journal of Medicine* 334:960–64, April.

———. 1997. "The Effect of HMOs on Fee-For-Service Health Care Expenditures: Evidence from Medicare." *Journal of Health Economics* 16(4):453–81.

Becker, Gary. 1981. *A Treatise on the Family*. Cambridge, Mass: Harvard University Press.

Bielby, Denise, and William Bielby. 1988. "She Works Hard for the Money: Household Responsibilities and the Allocation of Work Effort." *American Journal of Sociology* 93:1031–59.

Blau, Francine. 1998. "Trends in the Well-Being of American Women, 1970–1995." *Journal of Economic Literature* 36(1):112–65.

Blau, Francine, and Lawrence Kahn. 1997. "Swimming Upstream: Trends in the Gender Wage Differential in the 1980s." *Journal of Labor Economics* 15(1):1–42.

Bobula, Joseph. 1983. "Income Differences Between Male and Female Physicians." In *Profile of Medical Practice 1980: Decade on the 1970s—the Changing Profile of Medical Practice*, ed. G. Glandon and R. Shapiro. Chicago: American Medical Association.

Budig, Michelle, and Paula England. 2001. "The Wage Penalty for Motherhood." *American Sociological Review* 66(2):204–25.

Dorsey, E. Ray, David Jarjouru, and Gregory Rutecki. 2003. "The Influence of Controllable Lifestyle on Relevant Trends in Specialty Choice by U.S. Medical Students." *Journal of the American Medical Association* 290:1173–78, September.

Ducker, D. G. 1978. "Believed Suitability of Medical Specialties for Women Physicians." *Journal of the American Medical Women's Association* 33:25–32, April.
Goldin, Claudia. 1990. *Understanding the Gender Gap*. New York: Oxford University Press.
———. 1997. "Career and Family: College Women Look to the Past." *Family Issues in the Workplace*, ed. Francine Blau and Ronald Ehrenberg. New York: Russell Sage Foundation.
Hochschild, Arlie Russell. 1990. *The Second Shift*. New York: Avon Books.
Juster, F. Thomas, and Frank P. Stafford. 1991. "The Allocation of Time: Empirical Findings, Behavioral Models, and Problems of Measurement." *Journal of Economic Literature* 29(2):471–522.
Kehrer, Barbara. 1976. "Factors Affecting the Income of Men and Women Physicians: An Exploratory Analysis." *Journal of Human Resources* 11(4):526–45.
Korenman, Sanders, and David Neumark. 1992. "Marriage, Motherhood, and Wages." *Journal of Human Resources* 27(2):233–55.
Landers, Renee, James Rebitzer, and Lowell Taylor. 1997. "Work Norms and Professional Labor Markets" In *Gender & Family Issues in the Workplace*, ed. Francine Blau and Ronald Ehrenberg. New York: Russell Sage Foundation.
Langwell, Karen. 1982. "Factors Affecting the Income of Men and Women Physicians: Further Explorations." *Journal of Human Resources* 17(2):261–75.
Lenhart, S., F. Klein, P. Falcao, E. Phelen, and K. Smith. 1991. "Gender Bias and Sexual Harassment of AMWA Members in Massachusetts." *Journal of the American Medical Women's Association* 46(4):121–5.
Lorber, Judith. 1984. *Women Physicians: Careers, Status, and Power*. New York: Tavistock Publications.
Mandelbaum, Dorothy Rosenthal. 1981. *Work, Marriage, and Motherhood: The Career Persistence of Female Physicians*. New York: Praeger.
Mincer, Jacob, and Polachek, Solomon. 1974. "Family Investment in Human Capital: Earnings of Women." *Journal of Political Economy* 82(2):S76–108.
Ohsfeldt, Robert, and Steven Culler. 1986. "Differences in Income Between Male and Female Physicians." *Journal of Health Economics* 5(4):335–46.
O'Neill, June, and Solomon Polachek. 1993. "Why the Gender Gap in Wages Narrowed in the 1980s." *Journal of Labor Economics* 11(1):205–28.
Polachek, Solomon. 1975. "Potential Biases in Measuring Male-Female Discrimination." *Journal of Human Resources*. 10(2):205–29.
Practice Patterns of Young Physicians. 1987 [United States] [Computer File], 2nd ICPSR version. Chicago, Illinois: American Medical Association, Education and Research Foundation (producer), 1987. Ann Arbor, Michigan: Inter-University Consortium for Political and Social Research (distributor), 1998.
———. 1991 [United States] [Computer File], ICPSR version. Washington, D.C.: Jack Hadley, Georgetown University Center for Health Policy Studies, (producer), 1993. Ann Arbor, Michigan: Inter-University Consortium for Political and Social Research (distributor), 1998.
———. 1997 [United States] [Computer File], ICPSR version. Washington, D.C.: Jack Hadley, Georgetown University Center for Health Policy Studies, (producer), 1999. Ann Arbor, Michigan: Inter-University Consortium for Political and Social Research (distributor), 2000.
Richtel, Matt. 2004. "Young Doctors and Wish Lists: No Weekend Calls, No Beepers." *New York Times*, January 7, Section A, p. 1.
Sasser, Alicia. 2001. "The Impact of Managed Care on the Gender Earnings Gap Among Physicians." *The Role of Gender and Family in the Labor Market*. Dissertation.
Shiffman, Melissa, and Erica Frank. 1995. "Harassment of Women Physicians." *Journal of the American Medical Women's Association* 50(6):207–11.

Tesch, Bonnie, Helen Wood, Amy Helwig, and Ann Nattinger. 1995. "Promotion of Women Physicians in Academic Medicine: Glass Ceiling or Sticky Floor?" *Journal of the American Medical Association* 273:1022–25, April.

U.S. Bureau of the Census. 2001. "Fertility of American Women: June 2000." *Current Population Reports*, P20-543RV. Washington D.C.: U.S. Department of Commerce.

Waldfogel, Jane. 1998a. "The Family Gap for Young Women in the United States and Britain: Can Maternity Leave Make a Difference?" *Journal of Labor Economics* 16(3):505–45.

———. 1998b. "Understanding the "Family Gap" in Pay for Women with Children." *Journal of Economic Perspectives* 12(1):137–56.

Wood, Robert, Mary Corcoran, and Paul Courant. 1993. "Pay Differences Among the Highly Paid: Male-Female Earnings Gap in Law Salaries." *Journal of Labor Economics* 11(3):417–44.

Wunderman, Lorna. 1983. "Female Physicians in the 1970s: Their Changing Roles in Medicine" In *Profile of Medical Practice 1980: Decade on the 1970s—the Changing Profile of Medical Practice*, ed. G. Glandon and R. Shapiro, 51–66. Chicago: American Medical Association.