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The Impact of Nonmarket Work on Market Wages

By JONI HERSCH*

It is frequently asserted that balancing a job and family responsibilities is more difficult for women than men. Support for this notion stems from evidence that women, in essence, work two jobs—one in the market and one at home. While the popular press has focused on the stress and frustration associated with the so-called “second shift,” work at home may also affect the labor market situation of women. The types and locations of jobs acceptable to women who assume heavy household responsibilities may be limited. In addition, nonmarket work may have a direct effect on earnings by reducing the amount of energy and effort available for market work.

Economists have largely overlooked the direct effects of household responsibilities on earnings, instead focusing attention on the effect of differences in household roles on human capital accumulation. According to human capital theory, women who bear the majority of household and child care responsibilities may expect discontinuous labor force participation and fewer total years in the labor force than men. Thus women will have fewer years over which to reap the rewards, and hence will optimally choose to acquire less human capital. Further, employers will provide less specific training to women workers in anticipation of their higher turnover.

By this argument, the lower average earnings of women are attributable to lower average quantities of human capital. Yet women are invariably found to earn less than men with equivalent human capital characteristics. Further, as the labor force participation rates of men and women continue to converge, differences in human capital will decrease in importance as an explanation of wage differences between men and women. Yet most women, even those with market jobs, continue to assume the

primary responsibility for household chores. The purpose of this paper is to examine the direct effect on market productivity of the dual responsibilities of market and nonmarket work.

I. Data Set and Empirical Results

To investigate the direct role of housework in affecting wages, I use data from the 1987 *Panel Study of Income Dynamics (PSID)* (Wave 20). This data set has information on 7061 households. Each head of household was asked to respond to a series of questions about sources and amounts of income, labor market activity, and personal background, and to answer a parallel set of questions about their spouse, if the head is married.

For the purposes of this study, the advantage of this data set is that it contains a measure of time spent on housework. Heads of households were asked to answer the following question, for themselves and for their spouse: “about how much time do you (does your spouse) spend on housework in an average week? I mean time spent cooking, cleaning, and doing other work around the house.”

The average values of time spent on housework for the sample members that are employed or temporarily laid off are reported in Table 1. The values are reported by gender, marital status, and presence of children under age 18 in the housing unit. As one would expect, the average values of time spent on housework for parents of either gender exceed the corresponding values for individuals without children under age 18.¹

¹It should be noted that the average values reported in this survey are far below those reported in response to a similar question in the 1977 *QES*, as well as in a data set I collected in 1986 (see my forthcoming article). Possible reasons for these relatively low values include that all values were reported by the head of household for both the head and spouse, which may lead to

*Department of Economics, University of Wyoming, Laramie, WY 82071.

TABLE 1—AVERAGE VALUES OF TIME SPENT
PER WEEK ON HOUSEWORK
BY MARKET WAGE EARNERS IN SAMPLE

	Mean ^a	Sample Size
Married Men:		
Children	8.96 (7.58)	1217
No Children	7.58 (6.29)	532
Married Women:		
Children	19.42 (10.61)	1031
No Children	15.16 (8.21)	587
Not-Married Men:		
Children	10.43 (7.50)	70
No Children	7.73 (5.75)	395
Not-Married Women:		
Children	13.98 (8.32)	300
No Children	10.06 (7.36)	386

^aStandard deviations are shown in parentheses.

Most noteworthy are the dramatic differences in housework time by gender. The time spent on housework by women exceeds that of their male counterpart in every category, statistically significant at the .01 level or better in every case. Married women with children average nearly 20 hours per week on housework, more than double that of married men with children. Married women without children average 15 hours of housework per week, which is 7.58 hours more per week than married men without children. Note that the time spent on housework for married women is usually reported by their husbands, and may be an underestimate of the true value.

Wages and time spent on housework are determined jointly, with higher wages mak-

ing substitutes for nonmarket work more affordable. This suggests that the appropriate procedure is to estimate a two-equation wage-housework system. Accordingly, Table 2 presents the results of this estimation, where the estimation procedure is two-stage least squares (2SLS).

The wage equation takes the standard human capital specification, augmented by hours of time spent on housework. The log of hourly wage is regressed on hours per week spent on housework, years of education, the log of years of tenure with employer, and years of full-time work experience and its square. In addition, the regression includes dummy variables equal to one if the worker is white, handicapped, married, in a job covered by a union contract, in a white-collar job, is employed full time, or resides in the South. The inverse Mill's ratio, calculated from the full sample of workers and nonworkers, is also included in the wage equation to correct for possible selection bias that may occur since we observe only wages of individuals whose market wage exceeds their reservation wage.²

One determinant of time spent on housework is the market wage rate, since higher market wages make substitutes for own housework more affordable. In addition, time spent on housework will be affected by a variety of individual and household characteristics, as well as by cultural differences and individual attitudes. The household characteristics include number of children (in four different age ranges), number of rooms in the home, and dummy variables equal to one if the individual is married and if the individual lives in a house (rather than an apartment or trailer). Differences in attitudes or cultural differences may be accounted for by race, education, age, and

underreporting of wives' time spent on housework. In addition, unlike the *QES* and my survey that requested information on time spent daily on household chores including yard work, repairs, and shopping, the *PSID* question only requested a summary measure for the week and did not prompt for household chores other than cooking and cleaning, again leading to the likelihood that the time spent on housework is underreported.

²The inverse Mill's ratio was estimated from a probit equation (not reported) that estimated the probability of labor force participation from age, race, handicapped status, marital status, number of children under age 6, number of children between ages 6 and 18, a dummy variable indicating that there were no children under age 18, years of education, and the wage rate for unskilled workers in the county of residence.

TABLE 2—2SLS ESTIMATES OF WAGE AND HOUSEWORK EQUATIONS^a

Independent Variables	Men		Women	
	(1)	(2)	(1)	(2)
<i>Housework</i>	.036 (.012)		-.006 (.003)	
<i>Log(Wage)</i>		-.047 (1.004)		-7.002 (1.812)
<i>Education</i>	.063 (.005)	-.121 (.090)	.063 (.005)	-.216 (.135)
<i>Log(Tenure)</i>	.085 (.009)		.055 (.010)	
<i>Experience</i>	.038 (.013)		.070 (.017)	
<i>Experience Squared</i>	-.0007 (.0004)		-.002 (.0005)	
<i>White</i>	.218 (.027)	-1.057 (.392)	.095 (.018)	.961 (.478)
<i>Handicapped</i>	-.153 (.069)		-.030 (.033)	
<i>Union</i>	.146 (.025)		.190 (.022)	
<i>White Collar</i>	.188 (.025)		.158 (.020)	
<i>Full Time</i>	.200 (.045)		.095 (.025)	
<i>South</i>	-.083 (.021)	.455 (.336)	-.082 (.018)	-.005 (.441)
<i>Married</i>		-.204 (.476)		3.896 (.590)
<i>Age</i>		-.084 (.361)		2.196 (.734)
<i>Age Squared</i>		.001 (.004)		-.026 (.009)
<i>Children under 2</i>		1.739 (.467)		2.940 (.687)
<i>Children age 3-5</i>		1.519 (.461)		3.644 (.604)
<i>Children age 6-13</i>		1.274 (.415)		.685 (.469)
<i>Children age 14-17</i>		.964 (.548)		-.219 (.666)
<i>Other Family Income</i>		.00002 (.00001)		.00002 (.00001)
<i>Family Size</i>		-.629 (.301)		-.242 (.385)
<i>House</i>		-.460 (.384)		-.062 (.506)
<i>No. of Rooms</i>		.265 (.113)		.529 (.142)
<i>Unskilled Wage Rate in County</i>		.049 (.150)		.182 (.195)
<i>Mill's Ratio</i>	.068 (.163)		-.028 (.047)	
<i>Intercept</i>	.308 (.127)	11.269 (5.913)	.553 (.079)	-18.356 (11.258)
<i>Adjusted R²</i>	.38	.02	.41	.18

Note: Col. (1) is Log(Wage); Col. (2) is Housework.

^aStandard errors are shown in parentheses.

residence in the South. Other family income (net of the individual's own labor income) is included to indicate the household's ability to afford substitutes for nonmarket work. The county wage rate for unskilled labor proxies for the cost of substitutes such as paid housekeepers.

The results of the simultaneous estimation of the wage-housework system are presented in Table 2. The wage equation conforms to standard estimates of wage equations. Wages rise with tenure and years of work experience at decreasing rates, more educated workers tend to earn higher wages, as do union, white-collar, full-time, and white workers, and workers not located in the South.

The time spent on housework by both men and women is primarily affected by the presence of children and by the number of rooms in the home. White women and married women spend more time on housework, while white men and men in larger families spend less time on housework. The negative effect of family size on housework performed by men, after controlling for the number and ages of children, may be due to the presence of other adults (for example, parents) that can help with housework. Other family income does not have a significant effect on time spent on housework for either men or women.

Most noteworthy is the significantly negative effect of housework on wages, and of wages on housework, for the sample of women. Each extra hour of housework reduces women's hourly wages by an average of .6 percent, while each extra dollar per hour in wages earned by women reduces her time spent on housework by about 2.5 hours. Surprisingly, men's wages are positively and significantly related to time spent on housework, while time spent by men on housework is not affected by their wage.

II. Discussion

The results indicate that women's wages, but not men's, are reduced by time spent on housework. Further, the time spent by women on housework is inversely related to her own earnings, but is not affected by the household's other income. Men's time on

housework is unaffected by their wage or by other family income.

The basis for the inverse relation between women's wages and time spent on housework may be due to a number of related factors. These include the possible direct effect of housework on market effort and the possibility that household roles affect demand for working conditions and thereby wages as a compensating differential. A further possibility is that women who have demonstrated that family life is a priority are placed on a so-called "mommy track" with reduced work responsibilities and promotion prospects.

Housework may have a direct effect on market productivity, after controlling for any effects that anticipated household responsibilities have on human capital acquisition. The direct effect may be caused by a reduction in the amount of effort available for market work. This result is consistent with my earlier research, using two other data sets, that indicates that housework has a negative effect on women's wages (see my 1985 and forthcoming articles). Yet time spent on housework apparently has a positive effect on the wages of men.

Since women spend more time on housework than men, any negative effect of housework on wages may begin at a point beyond the average amount of time spent on housework by men. Further, it is more likely that the timing of household chores is different for men and women. Women are more likely to take responsibility for chores that have a time element associated with them, such as cooking a meal or arranging doctors' appointments for children. Because such activities make schedules less flexible, market work is more likely to be disrupted for women than men. For instance, women may be less likely to work late than men, and more likely to take time off work to make and meet family-related appointments.

To the extent that housework interferes with women's market work because of scheduling and physical and mental effort, we would expect to see women in jobs with characteristics that reflect these different requirements. If these job characteristics warrant lower pay as a compensating dif-

ferential for favorable job conditions, then the negative effect of housework on wages may be spurious, and instead due to the correlation of housework with unobserved working conditions that warrant lower wages as a compensating differential. This hypothesis cannot be tested using the *PSID* data set, but I have tested this theory using data I collected, with the results presented in my forthcoming article. I find that although men and women are in jobs with very different characteristics, time allocated to household responsibilities has an independent negative effect on women's wages, controlling for differences in working conditions and human capital.

A second hypothesis regarding the manner in which housework reduces wages may be due to the indirect effect referred to as the mommy track. The notion of a mommy track suggests that family responsibilities and careers are fundamentally incompatible, and the expectations on the job for women should accordingly be scaled down. Women that have demonstrated that they are taking on household chores may be de facto placing themselves on a slower track with respect to promotions. Thus lower wages accompanying greater household responsibilities may be caused by women being promoted at different rates than men with otherwise similar human capital characteristics.

However, despite the popular press notion that women are victims of men and are forced to do housework to the detriment of their careers, it is worth noting that even childless unmarried women spend more time on housework than their male counterpart. This suggests that at least some of the extra time on housework spent by women is due to differences in tastes.

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