Home Production, Occupation, and the Gender Pay Disparity

Abstract

A substantial literature documents an inverse relation between wages and time on housework that has a larger effect on women's wages than on men's wages. Using data from the American Time Use Survey for the years 2003-2006, this paper finds that housework has a negative effect on wages for women that spans most occupations. There is strong evidence of a threshold effect, with a negative effect of housework on wages for both women and men spending one or more hours per day on housework. Neither omitted working conditions correlated with housework time nor effort is likely to explain the negative housework effect. The connection of housework time to the 'lack of interest' argument proposed by defendants in class action discrimination cases is examined.

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A considerable amount of unpaid market-like activity, such as cleaning, cooking, and home maintenance, takes place in the household. The total time spent by women on home production activities dominates the time spent by men, with the bulk of women's total home production time devoted to routine housework such as cleaning and cooking. There is considerable evidence that time spent on housework has a negative effect on wages, with the impact greatest for women's wages. Furthermore, time on housework typically explains a substantial share of the gender pay gap. But the mechanism by which housework affects earnings is not resolved. It is also unknown whether the effect on wages of housework differs by occupation. As women increasingly enter occupations such as law and medicine that formerly were almost exclusively male, it is particularly valuable to understand whether individual choices with respect to household production influence labor market outcomes differently in different occupations.

In this paper, I use time diary data from the American Time Use Survey (ATUS) to investigate the effect on wages of household production of various types, where home production is divided into time spent on housework and on other types of home production such as maintenance and repair. The time use data available in the ATUS are reported in more detail, and the sample size is considerably larger, than in any other data set previously used to examine the effect on wages of time on home production, allowing analyses not otherwise possible with the data sets used in previous research.

The first order of business is to verify whether the findings of earlier work hold up with newer and more refined home production data, and to quantify the contribution of housework to explaining the gender pay gap. In particular, I estimate the relation between time on housework

and wages, examine whether the effect of housework on wages differs based on whether housework is combined with market work within the same day, examine whether the effect on wages of housework differs from the effect on wages of other types of home production, and calculate the increase in the explained share of the gender wage gap resulting from inclusion of time on housework and other home production activities.

Second, the large sample size available in the ATUS allows analysis of whether the effect on wages of housework differs by occupation. Other than the ATUS, data sets with information on home production and labor market characteristics do not have enough observations to reliably examine occupational differences, although differences by marital status and age have been examined. Although occupation may be jointly chosen with anticipated or actual household responsibilities, occupations differ in a number of characteristics that allow combining market work with home responsibilities. Whether the effect differs by occupation is of interest as it provides information on the mechanism by which housework affects wages. In particular, if the source of the negative housework-wage effect arises from either omitted working conditions correlated with housework that warrant a compensating differential, or from omitted effort, then controlling for occupation should decrease or eliminate the effect of housework on wages.

An additional benefit of examining occupational effects is the relevance to class action employment discrimination litigation. Examining the validity of a negative effect on wages of housework within occupations provides information on the empirical validity of the often-cited "lack of interest" argument evoked by defendants in many class action employment discrimination cases based on gender. The lack of interest defense maintains that pay and promotion disparities between male and female workers arise from women's preferences to seek or remain in jobs that best balance market work with family responsibilities. Greater credence

can be given to a lack of interest explanation of gender pay and promotion disparities if men and women are equally penalized within an occupation for time spent on housework or other home production activities, but women choose to sacrifice higher pay in order to undertake more housework than do men in the occupation.

I. Background

A substantial number of studies using a variety of data sets find that time spent on housework lowers wages.[1] Housework is defined variously in different studies, but generally refers to activities such as cooking, cleaning, and laundry.[2] Studies consistently find a negative effect of housework on wages for women, with weaker evidence of a negative effect for men. Most of the studies examine time on housework only, as time on other types of home production is not recorded in most of the data sets used in these studies. This is not necessarily an important omission, because as shown using the ATUS as well as in other data sets, the majority of home production time is spent on housework. Furthermore, using data from the National Study of Families and Households that reports time on nine different home production activities, Hersch

[1] Studies finding a significant effect of housework on women's earnings include the following: Coverman (1983) uses the 1977 Quality of Employment Survey; Hersch (1985) uses data on piece rate workers; Shelton and Firestone (1989) use the 1981 Time Use Survey; Hersch (1991b) and Stratton (2001) use a regional wage survey collected by Hersch; Hersch (1991a), Hersch and Stratton (1997), Hundley (2000), and Keith and Malone (2005) use the Panel Study of Income Dynamics; Noonan (2001) and Hersch and Stratton (2002) use data from the National Survey of Families and Households; Phipps, Burton, and Lethbridge (2001) use data from the 1995 Statistics Canada General Social Survey; Bonke, Datta Gupta, and Smith (2005) use data from the 1987 Danish Time Use Survey; Bryan and Sevilla-Sanz (2007) use data from the British Household Panel Survey.

[2] Time use studies allow the researcher to define what is meant by housework or home production, but many of the data sets with adequate sample sizes and labor market information as well as time on housework report only summary measures of housework time. For instance, the housework question on the PSID asks: "About how much time do (you or your spouse) spend on housework in an average week? I mean time spent cooking, cleaning, and doing other work around the house." The British Household Panel Survey has a similar question, asking: "About how many hours do you spend on housework in an average week, such as time spent cooking, cleaning and doing the laundry?" The National Survey of Family and Households asks respondents to report time spent on nine activities, specifically: meal preparation; washing dishes and cleaning up after meals; house cleaning; shopping for groceries and other household goods; washing, ironing, and mending; outdoor and other household maintenance tasks; auto maintenance and repair; paying bills and keeping other household records; and driving other household members to work, school, or other activities. Hersch and Stratton (2002) group the first five activities into a category called 'typically female' housework reflecting the observed gender stratification of activities.

and Stratton (2002) find that only housework has a significant effect on wages, while time on activities such as outdoor work, maintenance, and bill paying do not have a significant effect on wages.

To interpret the mechanism underlying the housework-wage effect, consider a general wage equation:

$$\ln W_{it} = X_{it}\beta + HW_{it}\gamma + J_t\alpha + \mu_{it} \quad (1)$$

$$u_{it} = \mu_i + \varepsilon_{it}, \quad (2)$$

where W represents the real hourly wage of individual i at time t, X is a vector of human capital characteristics such as education and experience, HW is time spent on home production activities and may be measured as total time over some period, or on weekdays and weekends, or divided into time spent on specific types of activities such as housework and maintenance. J is a vector of job attributes that may warrant a compensating differential and may be associated with household responsibilities. The term u_{it} is the error term and consists of two components, as indicated in equation 2. The first term, μ_i, is an individual-specific unobserved fixed effect, while the second term, ε_{it}, is a random error term.

The specified general model requires data that are more extensive than generally available, and most of the research examining the effect of housework on wages has addressed only parts of the question. Specifically, data on working conditions are generally not available in the same data sets that include housework time and have largely not been analyzed together with the effect of housework on wages (the exception is Hersch 1991b to be discussed later).

For the following discussion, HW will be referred to as 'housework' reflecting the usage in the literature. Setting aside for now the possibility of bias arising from a correlation of housework with omitted working conditions, note that if housework has a direct negative effect

on wages, then we expect $\gamma < 0$. If, however, housework time is correlated with u_{it}, then OLS estimates of the effect of housework on wages will be biased. There are two ways in which such a correlation can arise. First, the correlation could arise from the unobserved individual-specific fixed effect μ_i. For instance, if individuals with higher innate market productivity spend less time on housework, then the coefficient on housework estimated by OLS will be biased downward.[3] Second, housework and wages may be jointly endogenous. Workers with higher wages may be more likely to purchase market substitutes for their housework time. Housework time will be lower for higher wage workers, so observed housework time will be correlated with the error term u_{it}. Once again OLS estimates will be biased downward, showing housework to have a greater negative effect on wages than is true.

If panel data are available, fixed effects estimation can be used to eliminate the bias arising from unobserved individual-specific fixed effects. If suitable instruments are available, instrumental variables techniques can be used to yield consistent estimates of the wage-housework relation no matter the nature of the correlation.

Although recognizing the role of unobserved individual heterogeneity and the possible joint endogeneity of housework time and wages, most of the studies in the literature estimate wage equations by OLS. Use of OLS is generally necessitated by the lack of alternatives given data limitations, because few data sets provide panel data with individual housework, and it is hard to even conceptualize what instruments for housework would be suitable. However, studies that have estimated fixed effects and/or instrumental variables equations find that the negative effect of housework on wages for women estimated in OLS specifications persists, although the

[3] Although housework time may be correlated with unobserved time-invariant innate market productivity, the correlation may be small. For women, time on housework varies over time by individual (Hersch and Stratton 1997) as well as over the lifecycle (Keith and Malone 2005). The 'lack of interest' explanation explored later considers housework as a proxy for a time-varying individual effect.

magnitude is smaller in fixed effects relative to OLS (Hersch and Stratton 1997, Keith and Malone 2005, Bryan and Sevilla-Sanz 2007).[4] Hersch and Stratton (1997) find coefficient estimates from instrumental variables estimation that are largely similar to those of OLS.

Although the housework-wage effect does not seem to be the result of either individual fixed effects or endogeneity bias, the effect may be due to omitted variables bias arising from the general failure to control for working conditions (Hersch 1991b). Differences in the types of jobs that are compatible with extensive household responsibilities may have different characteristics that warrant compensating differentials that on average favor men, such as greater flexibility in scheduling or fewer physical demands. Housework time is therefore a proxy for working conditions warranting a compensating differential, and failure to control for working conditions will spuriously indicate a negative effect on wages of housework.

Alternatively, housework may have a direct negative effect on wages by lowering market productivity if individuals allocating more effort to home production allocate less effort to market production. This is the argument made in Becker (1985) who assumes effort is fixed and must be allocated across market and nonmarket work. However, there is little reason to believe that effort is fixed, and time is not simply allocated between market and housework but between at least three activities (market, home production, leisure) or four activities (including tertiary activities such as sleeping and eating as in Hamermesh and Donald 2007). Even if total effort is fixed, more effort on home production and market can be offset by leisure activities that require little effort.

An explanation that combines elements of compensating differentials with a direct effect of housework is that housework time impinges on market time or leads to less flexibility in a

[4] The housework data in these studies are summary measures that could include considerable random measurement error, so the fixed effects estimates may well be biased downward.

way that lowers market productivity. For example, if time-sensitive household responsibilities limit ability to stay at work late to complete projects, housework time may have a direct effect on productivity.

The literature provides some evidence on the likely importance of these potential mechanisms. Hersch (1991b) examines concurrently the importance of compensating differentials and housework time on wages. The data set includes information on housework and childcare time, working conditions, and job effort, as well as on wages and human capital characteristics. Respondents reported the non-pecuniary characteristics of their jobs, such as whether they were exposed to unsafe working conditions or bad weather, whether their job required physical exertion, and whether their job allowed for individual discretion over how to perform the job and whether the job was repetitive or stressful. The analysis finds substantial evidence of compensating differentials for a wide range of working conditions. Only women's wages are significantly influenced by housework time, and this negative effect appears only for housework time performed on job days. But the effect of housework is altered only slightly by the inclusion of working conditions in the equation, indicating that the effect of housework time on women's wages is not biased by exclusion of working conditions.

The role of flexibility has received specific attention. Using data from the Danish Time Use Survey, Bonke, Datta Gupta, and Smith (2005) document that women do more housework before and after market work than men do. They find that timing of household activities and flexibility of work scheduling are more important influences on wages than total amount of household time. Housework performed by women before and after work has a consequential effect on wages, with the effect larger for those on fixed work schedules. These findings are consistent with the results in Hersch (1991b) that it is time spent on housework during job days

only that yields a negative effect of housework on wages for women. It is also consistent with the results in Hersch and Stratton (2002) which show that only time spent on daily household activities, such as meal preparation, washing dishes, cleaning, grocery shopping, and laundry, but not time spent on activities such as household maintenance, has a significant negative effect on women's wages. In fact, time spent on daily household activities also has a marginally significant effect on married men's wages.

Finally, any explanation of the mechanism underlying the housework-wage effect needs to explain why the magnitude of the effect is larger or significant only for women. A possible explanation for the differential effect of housework on wages by sex may arise if there are threshold effects. The large disparity between men and women in total housework time raises the concern that although relatively small amounts of time on household activities undertaken by men can easily fit into the day and will not be fatiguing or disruptive, and can even be pleasant, wages may be affected adversely by the large magnitude performed by employed women. Hersch and Stratton (1997) find some evidence in support of a threshold effect for women. Women's wages are not affected by up to ten hours of housework per week, with the negative effect of housework kicking in after this point. In contrast, Bryan and Sevilla-Sanz (2007) do not find evidence of threshold effects.

In this paper I estimate conventional log wage equations using OLS, initially controlling for work-related and family characteristics as well as for measures of time on home production of various types. I then consider whether the effect of housework on wages varies by occupation. Note that occupation may not be determined independently of household responsibilities, thus inclusion of controls for occupation should reduce the magnitude of the housework effect.

Because occupations differ in terms of their flexibility or physical demands, this provides direct evidence on the role of working conditions or effort in affecting the housework-wage relation.

II. Data source and variables

The American Time Use Survey (ATUS) is sponsored by the U.S. Bureau of Labor Statistics (BLS) and is the first federally administered, ongoing survey of time use in the U.S. (See Hamermesh, Frazis, and Stewart 2005.) The survey began collecting time diary information in 2003. This survey is administered by phone each month to a subsample of respondents to the Current Population Survey (CPS) four months after they have completed their final CPS interview. The designated diary day is the 24 hour period starting at 4AM the preceding day, and respondents report each of their activities in order as well as either the duration of each activity or the start and finish time for each activity. The sample is split between weekend days and weekdays. The ATUS final sample weight for each year that takes into account stratification by demographic group in the sampling frame, diary day of week, and differences in response rates by demographic groups, is used throughout this analysis so that the results are representative of the U.S. population. In addition to the time diary information, the ATUS includes the usual labor market and demographic information available on the monthly CPS.

I use data from the ATUS for all available years, currently 2003 through 2006. There are time diaries for 60,674 observations in the years 2003–2006. The ATUS records activities with a high level of detail, with over 400 categories of time use assigned a six-digit code. With the exception of time spent on providing secondary childcare, simultaneous activities are not recorded.

Conceptually, home production activities are those for which there are market substitutes. Because previous work (Hersch and Stratton 2002) shows that the effect on wages of household responsibilities differs by type of activity, I divide time spent on household production into six categories, which I refer to as 'daily housework,' 'maintenance and repair,' 'lawn and garden,' 'pet care,' 'household management,' and 'grocery and gas shopping.' Appendix 1 lists the activities included under each category and the six-digit code that corresponds to each activity.[5] Daily housework includes cleaning, laundry, food preparation, and so forth. As I show later, I refer to these activities using the term 'daily' because the majority of women in the sample spend at least some time each day on these housework activities. Maintenance and repair includes activities such as interior and exterior maintenance, decoration, and vehicle repair and maintenance. Lawn and garden includes care of lawn and gardens as well as of ponds, pools, and hot tubs. Pet care includes all activities associated with caring for animals, including using veterinary services. Household management includes bill paying, household organizing and planning, and banking. While all shopping time is recorded in the ATUS, I include only time spent grocery shopping and purchasing gas, as these types of shopping are activities that primarily reflect home production.

Within these categories I include own time on these activities as well as time spent using professional or household services and time spent on travel associated with the activity. Although most of the analyses reported in this paper are based on the total time expended on the household production category, I later examine time spent using professional or household services. The reason for separating time using professional or household services is to provide some information on the use of such services that are substitutes for own time. Ideally purchasing such services should take very little time in order to substitute for own time, but time

[5] There are, of course, many alternative categorizations of activities.

using such services will generally still be positive (even if limited to paying and leaving instructions).

I also control for time on childcare. The ATUS records a number of activities that involve caring for and helping household children, such as reading, playing, and helping with homework. I adopt a narrow definition of childcare that includes physical care, looking after children as a primary activity, and dropping off and picking up children including for use of childcare services (see Appendix 1). I define an indicator for whether the diary day includes any time on market work based on whether a positive amount of time is reported for working on the main job or on other jobs.

The dependent variable in the wage equations is the log of the real hourly wage rate in 2006 dollars, calculated by dividing weekly earnings on the main job by usual hours worked per week for those reporting weekly earnings. For those who report that their hours per week vary and that they are paid on an hourly basis, the hourly wage is set equal to the reported hourly wage. Otherwise, workers who report that their usual hours worked per week vary have missing wage data. Earnings are not reported by self-employed workers. The wage equations include indicators for government employer, whether the worker is a union member or is covered by a union contract or employee association, full-time employment based on usual hours worked per week, and whether the worker is paid on an hourly basis. In some specifications I control for occupational category. To the extent that these job characteristics are chosen to allow housework to be combined with market work, the estimated effect of housework will be smaller than if these characteristics are excluded.

As actual experience is not reported, I control for potential experience (calculated as age - years of education - 6) and its square, and include indicators for high school graduate, some

college or associate's degree, and bachelor's degree or higher. Demographic variables included in the wage equations are indicators for whether the individual is married, Hispanic/Latino ethnicity, race (including indicators for those reporting one race only as black/African American, American Indian/Alaskan Native, Asian, and an indicator for those reporting more than one race, with white the omitted category), and indicators for the presence of children in the age groups 0-2, 3-5, 6-13, and 14-17. I also include the total number of children in the household under age 18. Location is controlled with indicators for metropolitan location and residence in the South.

The sample is restricted to employed respondents ages 18-70 who are not full-time students and are not missing wage information, with hourly wage between $2.00 and $100.00 in 2006 dollars. The resulting sample size is 29,337, with 15,302 women and 14,035 men. Descriptive statistics for the non-home production variables are reported in Appendix 2.

III. Distribution of time on home production

Table 1 reports mean values of time on home production, divided into the six categories noted above, as well as time on primary childcare and market work. Panel A reports mean values are reported by gender and within gender by whether the diary day includes market work or not.[6] Panel B stratifies the sample by gender and marital status (married or not married). Several notable patterns are evident. First, as is universally shown in all countries and all time periods, women spend considerably more time than men on home production (Juster and Stafford 1991, Freeman and Schettkat 2005, Aguiar and Hurst 2007). Overall, women spend 53 percent more time on total home production than do men. The gender disparity is narrowest on days with no

[6] An alternative to stratifying by whether the diary day included market work is to stratify by whether the diary day was a weekend or holiday. For example, Kimmel and Connelly (2007) stratify by weekend/holiday, noting that weekend work is typically referred to as nonstandard employment. However, my interest is in whether the housework effect differs by occupation, and as occupations differ in the availability of nonstandard schedules, the housework-wage effect may be affected by these scheduling options.

market work, in which women spend only 33 percent more time than men on total home production, and is largest on days with market work, in which women spend 61 percent more time than do men on home production.

Second, the distribution of total home production by type shows a clear gender pattern. In absolute terms, women spend more time than men on daily housework, household management, grocery and gas shopping, and pet care. But as a share of their total home production time, women and men spend a similar share of their household time on household management, shopping, and pet care. Women spend a disproportionate amount of their total home production time on daily housework. Marriage also affects the patterns of home production time, with married men and women averaging more time on total home production than not-married men and women. But daily housework does not differ by marital status for men, who average about 29 minutes per day on daily housework. In contrast, even not-married women spend a considerable amount of time on daily housework, averaging 67 minutes, while married women average 97 minutes of daily housework. Calculations restricted to men and women without children under age 18 in the household show a similar pattern and magnitudes. Not-married women still spend twice the time on daily housework as do not-married men, and married women spend over three times as much time on daily housework as do married men.[7]

Third, workers are clearly shifting the bulk of their household production time to days without market work. The average time on home production for women on days without market work is more than double the average time on days with market work. For men, the disparity is even greater, with men spending three times as much time on home production on days without market work as on days with market work. It is notable that time on direct childcare is low

[7] How these gender patterns arise will not be addressed here, but see Lundberg and Pollak (2007) for an overview of models of household behavior that can be used to explain gender differences in the allocation of time.

relative to time on daily housework, and that the difference in childcare time between days with and without market work is small in both absolute terms and relative to the time allocation in all other home production categories except pet care. The total time on childcare is fairly small because most activities that relate to caring for children, such as cleaning and food preparation, will be recorded as daily housework.

The ability or choice to shift home production to days without market work may account for much of the gender disparity in the effect of housework time on wages found in other studies. Many of the estimates of the housework-wage effect in the literature are based on data sets that provide a summary measure of time on home production for a full week, rather than reporting time for specific days. Table 2 reports whether workers spent any time on each type of household production on days with and without market work. As this table indicates, on days in which they work in the market, 75 percent of women, but only 43 percent of men, spent some time on daily housework. The activities of maintenance and repair and lawn and garden work are far more likely to be performed on days without market work, as well as more likely to be performed by men. Women and men are similarly likely to spend time on pet care and household management on days with and without market work.

IV. Regression results

Table 3 summarizes the coefficients on home production activities in six categories and childcare. The wage equations are estimated separately by female and male workers, and for each gender three regressions are reported, for all workers in column 1, and then stratified by whether the individual engaged in market work on the diary day.

For the full samples of both female and male workers, there is evidence of a significant negative effect of time on daily housework on wages. For women, an extra hour on daily housework lowers the hourly wage by 1.5 percent (about 26 cents per hour on average). For men, an extra hour on daily housework lowers the hourly wage by 1.0 percent (about 21 cents an hour on average). However, for men, time on all non-daily home production activities other than shopping are associated with higher wages, while none of the non-daily home production activities have a significant effect on women's wages. A possible interpretation is that men who perform these activities are more responsible and may thereby be also more productive at work relative to men who do not take on such responsibilities.

The magnitude of the effect of daily housework on women's wages is considerably larger when housework is combined with market work, although shifting housework time to days without market work does not eliminate the penalty of housework on wages. For men, the opposite is true: time on daily housework has the largest penalty when performed on days without market work, and there is no penalty for men for performing daily housework on days with market work. This may reflect men's success at minimizing their home production activities on market work days to a level that does not interfere with market work.

Table 4 summarizes the results for alternative samples of a standard wage decomposition of the male-female wage disparity into the amount explained by differences in average measured characteristics and the amount due to differences in returns to characteristics. Columns 1 and 2 report the coefficients on daily housework for females and males in the indicated sample or specification. Columns 3 and 4 report the percent explained by characteristics in the wage regressions with and without home production measures. The first and second rows correspond to columns 1 and 2 of Table 3. Rows 3 through 6 summarize results for full-time workers,

married, for those with children under 18 in the household, and from including daily housework as the only home production variable. These are specifications that have been analyzed in other studies. Row 7 summarizes the results controlling for indicators for occupational categories. Notably, the coefficient on daily housework is similar in all specifications with the exception of the sample with market work on diary day. Note that inclusion of indicator variables for occupation reduces the magnitude but does not eliminate the statistically significant negative effect of daily housework, even though occupation may be correlated with housework time.

As Table 4 indicates, the addition of time on home production increases the amount of the gender wage gap explained by characteristics by less than one percentage point (for the sample with market work on diary day) to 7.6 percentage points (for the sample who are married). Other studies show a greater increase in percent explained by characteristics when housework is included. For example, Hersch and Stratton (1997) show an increase of 8-11 percentage points by inclusion of housework. Hersch and Stratton (2002) show an increase of 14 percentage points by inclusion of housework. Bryan and Sevilla-Sanz (2007) show the percent explained by characteristics increases by 17-27 percentage points in their samples of full-time workers from the British Household Panel Study. There are at least 3 reasons for a lesser improvement in the explanatory power. The first to consider is that other studies often only control for housework, such as cooking and cleaning, rather than for the different types of home production that are available from the ATUS. Because men's wages are positively related to time on maintenance and repairs and yard work, the negative effect of housework is offset. However, as shown in row 6, regressions excluding all home production activities except daily housework yield virtually identical results. Second, although the current results show a larger and more consistently negative effect for women, men also have a negative housework effect, unlike that

found in most of the studies in the literature. The explanatory power then will be driven primarily by the difference in male and female average household time. Third, many of these studies are based on data that report only summary measures of housework time rather than time use data. These summary measures typically request time on activities predominantly performed by women, again causing a greater share of the pay gap to appear to be explained by housework.

V. Occupation, job characteristics, and home production

If occupations differ in characteristics that allow accommodation of market work with household production, we would expect the effect on wages of housework to likewise differ. For example, occupations differ in the flexibility of hours, availability of part-time work, and work schedules that include weekend or evening work that allow for coordination with a spouse or partner. Workers would sort into occupations that allow combining their preferences for home production and market work. Under a compensating differential explanation, the observed negative effect of housework on wages is actually due to omitted variables bias arising from failure to control for job characteristics correlated with housework that warrant a compensating differential.

There is a considerable literature estimating compensating differentials for working conditions. Overall there is little support in the literature for compensating differentials for job characteristics other than risk of injury or death. Furthermore, to the extent that having flexible work hours is a work characteristic that would be valued by those who combine market work with extensive home production, thereby warranting lower pay for those with flexible schedules, such flexibility is associated with higher, not lower, pay (Gariety and Shaffer 2001). Also recall

that inclusion of extensive working conditions in wage equations did not change the effect of housework in Hersch (1991b).

Thus, it seems unlikely that the observed negative effect of housework on wages is due to omitted working conditions correlated with housework. But it also seems unlikely that housework would have a negative effect on wages for the entire population of workers. Bonke, Datta Gupta, and Smith (2005) examine the effect of housework on wages at different quantiles, finding a positive effect of housework on wages for women in the highest quantile, but a large negative effect for men in the highest quantile. Keith and Malone (2005) find the effect of housework on wages differs by age group, with the negative housework effect observed only for young and middle aged married women.

I begin by examining whether the effect of housework on wages differs by occupation. I estimate wage equations controlling for 11 occupational categories as well as for the interaction of daily housework with occupation in addition to the remaining variables in the wage equations reported in Table 3. After identifying those occupations in which housework affects wages, I consider what characteristics are associated with the occupations and the individuals in those occupations that may explain this relation.

Table 5 reports the coefficients on the interaction of daily housework with occupation for the full sample stratified by gender. Starting with the results for women, note that housework has a negative effect on wages that is statistically significant at least at the 10 percent level in the occupations of professional and related, food preparation and serving related, personal care and service, sales and related, office and administrative support, and natural resources, construction, and maintenance.[8] The negative effect on wages of housework for those in professional and

[8] The hypothesis that the daily housework coefficients are equal across all occupations can be rejected at the 1 percent level.

related occupations is a surprising finding, as these are the occupations with the highest pay and flexibility, thus allowing these workers to most readily purchase market substitutes for their own time or to shift work to accommodate housework requirements. The six occupations with a negative effect of housework on wages that is significant at the 10 percent level employ 71 percent of the women in the sample, which suggests why the overall effect of housework on wages for women is negative. Note also that although not statistically significant at conventional levels, housework also has a negative effect on wages for women in management, business, and financial occupations (p=0.156).

In contrast, housework has a negative effect for men in only sales and related occupations, with a marginally significant negative effect in management, business, and financial occupations (p=0.116). These two occupations employ only 24 percent of the men in the sample, thus explaining why the overall effect for men is smaller than for women and is often not significantly different from zero. The effect of housework on wages is also negative for women in sales and related occupations, and the magnitude is somewhat larger for men. Housework has a positive relation with wages for men in food preparation and serving related occupations. Perhaps this is because men in these occupations enjoy cooking and are productive in both home and the market, although note that the effect is of the opposite sign for women and fairly large.

The most surprising finding of this analysis by occupation is how pervasive is the negative effect of housework on wages for women, with an effect that spans most of the occupations in which women are employed. As these occupations differ extensively in their job characteristics and the characteristics of workers, the general similarity of the negative housework effect makes it unlikely that omitted working conditions correlated with housework are the source of the negative housework effect for women. In addition, given the vast

differences in the amount of effort required in these different occupations, whether physical or mental, it is also unlikely that the negative housework effort is a consequence of allocating limited effort to housework rather than to the market.

One question is whether workers avail themselves of market substitutes for own housework time. Freeman and Schettkat (2005) document greater use of market substitutes for own housework time in the U.S. than in the EU and relate the disparity in women's hours worked between the U.S. and the EU to the use of market substitutes. Although the ATUS does not report expenditures or usage of housework services, we can use information on the frequency of non-zero time using housework services as an indication of frequency of use. Within the category of housework services are cleaning, meal preparation, and clothing repair and cleaning services. Calculations from the data show that within the employed sample, only 0.7 percent of women and 0.5 percent of men report spending any time using daily housework services. This percentage is doubtlessly lower than the share that would report use over a longer time period such as a week. Housework services generally are not used on a daily basis. In addition, using such services will ideally take little time, so some users of housework services will report zero time. But the rarity in which time is spent on housework services suggests that such market substitutes for own housework time are not widespread.

VI. Threshold effects and lack of interest

We now need to examine why the effect on wages of housework differs by gender within all occupations but sales and related occupations. One possibility is that time on housework needs to pass a threshold before any negative effect on wages is experienced. The second possibility is that housework serves as a proxy for 'lack of interest,' as the term is used in class

action litigation. The lack of interest defense is that women earn less or are less interested in managerial or demanding jobs because of family responsibilities. This is a frequently used defense and is the argument made in the largest class action discrimination cases ranging from *EEOC v. Sears*, filed in 1973, to *Dukes v. Wal-Mart*, filed in 2001.[9] Similarly, firms that expect client contact and socializing, such as law firms and stock brokerage firms, claim that women's failure to advance to partnership positions derives from their household responsibilities that make them less available to clients than are men.[10]

The typical class action employment discrimination case has two parts: pay disparity among workers within certain groups (e.g., hourly employees in *Wal-Mart*, salaried employees in *Sears*), and promotion to managerial jobs (e.g., in *Wal-Mart*) or commission sales jobs (e.g., in *Sears*). A typical characteristic of defendant firms is that the process by which job assignments or promotions are made does not allow individual workers to apply for higher paying or higher level jobs. Wal-Mart, for instance, used a 'tap on the shoulder approach' for promotions in which openings for managerial jobs were not posted and only those selected by current managers were considered for promotion. Plaintiffs maintain that firms that do not advertise open positions to all workers are likely to engage in gender stereotyping and do not consider women for positions that management deems incompatible with family responsibilities in situations in which there is no way to gauge workers' actual interest in management positions.[11]

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[9] See, for instance, Schultz (1990) and Selmi (2005). Other class action defendants recently citing lack of interest as the basis for underrepresentation of women in managerial jobs include Home Depot and many grocery stores chains. See Selmi (2005) for a list of recent major class action litigation cases in the grocery and securities industries.

[10] Many firms require mandatory arbitration of employment disputes which limits the scope of class action litigation. Exceptions include class actions against most of the major securities firms including Smith Barney, Merrill Lynch, and Morgan Stanley, all which reached large settlements with the class of female plaintiffs.

[11] See, for instance, the Declaration of William T. Bielby, Ph.D. in Support of Plaintiffs' Motion for Class Certification, *Dukes v. Wal-Mart*, Case No. C-01-2252 MJJ, United States District Court, Northern District of California, July 23, 2003. This report summarizes generally the social science evidence on gender stereotyping as well as discussing specific Wal-Mart policies that the plaintiffs allege result in lower pay for female workers relative to comparable male workers and underrepresentation of females in managerial positions.

While firms may simply assume all women lack interest in managerial positions, the fact that women are promoted at firms such as Wal-Mart, albeit at rates below their representation in lower level jobs, suggests that firms take into account worker characteristics in addition to gender. Time spent on housework may indeed be a proxy for lack of interest. However, firms are not likely to directly observe workers' time on housework but may observe behavior correlated with housework time.

In particular, the ATUS data allow us to directly examine time spent socializing as part of the job as well as time spent with coworkers, colleagues, and clients other than while working.[12] Table 6 reports by gender minutes on daily housework, time socializing as part of the job, and time spent with coworkers, colleagues, and clients other than while working. As Table 6 shows, in all occupations, women average more than an hour per day on daily housework, while the maximum average among men is 40 minutes for those men in protective service occupations. Note that while respondents spend a considerable amount of non-work time with coworkers, colleagues, and clients, workers report spending very little time socializing or eating or drinking as part of the job. Specifically, female workers report spending an average of 16 minutes a day of non-work time with coworkers, while male workers report spending an average of 22 minutes a day. But the average time spent socializing, eating, or drinking as part of the job is less than a minute a day for both women and men, and calculations show that only 0.6 percent of the women, and 1 percent of the men, report spending any time socializing as part of the job. Of

[12] Specifically, for most of the activities in the ATUS, respondents report who was in the room or who accompanied them during the activity, with one of the categories 'coworkers/colleagues/clients.' Who the respondent was with is not asked for the activity of working (codes 0501xx), but categories under working include socializing as part of the job and eating and drinking as part of the job. Presumably time spent socializing with clients as part of the job would be reported under working so that the category 'coworkers/colleagues/clients' actually refers to time with coworkers and colleagues.

course, as with the use of housework services, it is likely that a larger share would report socializing as part of work over a longer time period such as a week.

Given the vast disparities in average time on daily housework between women and men within occupation, threshold effects may be important. In addition, both socializing as part of work and spending time with coworkers can be an important part of marketing or networking and may thereby contribute to higher pay. Women spend less time in these activities than men, perhaps because of their household responsibilities, so part of the housework penalty may be due to less time spent with clients or networking.[13]

Table 7 summarizes the coefficients from wage regressions allowing the effect of daily housework time to differ based on whether the amount of time is under 30 minutes, from 30 minutes to less than one hour, and one hour or more, as well as including socializing as part of job and time with coworkers not as part of job. First note the strong evidence of a threshold effect. The effect of time on housework on wages is not statistically significant until the amount of time is at least one hour. This pattern holds for both women and men, although the magnitude of the effect is 50 percent greater for women. Calculations show that 49 percent of women in the sample spend one hour or more on daily housework, in contrast to 17 percent of the men.

Second, time with coworkers has a positive effect on wages for both men and women, but socializing as part of the job has no effect on wages. Thus, the negative effect of housework remains even with controlling for time with coworkers and does not seem to arise because workers are not available for socializing and networking.

[13] Of course, although such socializing may be career-enhancing, women have not always been welcome. The major class action litigation against most of the major stock brokerage firms in the country such Smith Barney and Merrill Lynch routinely report that women were excluded from golf and strip club outings with clients. See Selmi (2005).

VII. Concluding comments

Using time use data from the American Time Use Survey for the years 2003-2006, this study finds that time spent on daily housework activities has a negative effect on wages for all workers, with the magnitude of the effect larger for women than for men. This is consistent with the findings of numerous studies that document an inverse relation between housework and wages. The magnitude of the effect is small, with an extra hour on daily housework associated with average wages about 26 cents lower per hour for women and about 21 cents lower for men. While the magnitudes seem minor, it is notable that the current class action litigation against Wal-Mart involves a gender pay disparity of 9 cents an hour among the hourly employees.

While the empirical evidence is consistent that housework is associated with lower wages, the mechanism driving this relation is not clear. Housework performed on a daily basis or on days with market work has a stronger impact on wages than home production activities that can be deferred. Yet the mechanism does not seem to be compensating differentials for working conditions that better accommodate housework. Nor does it seem to be a tradeoff between fixed effort that must be allocated between market effort and housework effort. This is because the negative effect of housework appears for women across almost all occupations that vary widely in their working conditions and effort requirements. Notably, the effect of housework on wages exhibits a threshold effect, with the negative effect appearing for those spending one hour or more per day on daily housework.

A final possible mechanism examined in this paper is whether time on housework may be a proxy for 'lack of interest,' in the sense used in class action litigation to explain women's lower representation in higher paying and managerial positions. The lack of interest defense has often been used by retailers, including Sears and Wal-Mart. Time on daily housework does have a

significant negative effect for workers in sales and related occupations. However, this negative effect of housework on wages is observed for both male and female workers in sales and related occupations and thus cannot provide a gender-specific explanation of the pay and promotion disparity. Instead, the far greater time spent on daily housework by women in sales and related occupation relative to men in these occupations may account for the pay and promotion disparity.

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Appendix 1: Household Activities Categories

Activity and Description	2006 code
Daily housework	
Daily housework (by self)	
Interior cleaning	020101
Laundry	020102
Sewing, repairing, & maintaining textiles	020103
Storing interior hh items, inc. food	020104
Housework, n.e.c.	020199
Food and drink preparation	020201
Food presentation	020202
Kitchen and food clean-up	020203
Food & drink prep, presentation, & clean-up, n.e.c.	020299
Daily housework services	
Using interior cleaning services	090101
Using meal preparation services	090102
Using clothing repair and cleaning services	090103
Waiting associated with using household services	090104
Using household services, n.e.c.	090199
Daily housework travel	
Travel related to housework	180201
Travel related to food & drink prep., clean-up, & presentation	180202
Travel related to using household services	180901
Travel related to using household services, n.e.c.	180999
Maintenance and repair	
Maintenance and repair (by self)	
Interior arrangement, decoration, & repairs	020301
Building and repairing furniture	020302
Heating and cooling	020303
Interior maintenance, repair, & decoration, n.e.c.	020399
Exterior cleaning	020401
Exterior repair, improvements, & decoration	020402
Exterior maintenance, repair, & decoration, n.e.c.	020499
Vehicle repair and maintenance (by self)	020701
Vehicles, n.e.c.	020799
Appliance, tool, and toy set-up, repair, & maintenance (by self)	020801
Appliances and tools, n.e.c.	020899
Maintenance and repair services	
Using home maint/repair/décor/construction svcs	090201
Waiting associated w/ home maint/repair/décor/constr	090202
Using home maint/repair/décor/constr services, n.e.c.	090299
Using vehicle maintenance or repair services	090501
Waiting associated with vehicle maint or repair services	090502

Using vehicle maint & repair svcs, n.e.c.	090599
Using household services, n.e.c.	099999
Maintenance and repair travel	
Travel related to interior maintenance, repair, & decoration	180203
Travel related to exterior maintenance, repair, & decoration	180204
Travel related to vehicle care & maintenance (by self)	180207
Travel related to appliance, tool, and toy set-up, repair, & maintenance (by self)	180208
Travel related to using home maint/repair/décor/construction svcs	180902
Travel related to using vehicle maintenance & repair services	180905
Lawn and garden	
Lawn and garden (by self)	
Lawn, garden, and houseplant care	020501
Ponds, pools, and hot tubs	020502
Lawn and garden, n.e.c.	020599
Lawn and garden services	
Using lawn and garden services	090401
Waiting associated with lawn and garden services	090402
Using lawn and garden services, n.e.c.	090499
Lawn and garden travel	
Travel related to lawn, garden, and houseplant care	180205
Travel related to using lawn and garden services	180904
Pet care	
Care for animals and pets (not veterinary care)	020601
Pet and animal care, n.e.c.	020699
Using veterinary services	080701
Waiting associated with veterinary services	080702
Using veterinary services, n.e.c.	080799
Using pet services	090301
Waiting associated with pet services	090302
Using pet services, n.e.c.	090399
Travel related to care for animals and pets (not vet care)	180206
Travel related to using veterinary services	180807
Travel related to using pet services (not vet)	180903
Household management	
Household management (by self)	
Financial management	020901
Household and personal organization and planning	020902
HH & personal mail & messages (except e-mail)	020903
HH & personal e-mail and messages	020904
Home security	020905
Household management, n.e.c.	020999

Household management services	
Banking	080201
Using other financial services	080202
Waiting associated w/ banking and financial services	080203
Using financial services and banking, n.e.c.	080299
Using legal services	080301
Waiting associated w/ using legal services	080302
Using legal services, n.e.c.	080399
Activities related to purchasing/selling real estate	080601
Waiting associated with purchasing/selling real estate	080602
Using real estate services, n.e.c.	080699
Security procedures related to professional/personal services, n.e.c.	080899
Household management travel	
Travel related to household management	180209
Travel related to household activities, n.e.c.	180299
Travel related to using financial services and banking	180802
Travel related to using legal services	180803
Travel related to using real estate services	180806
Travel related to using prof. & personal care services, n.e.c.	180899
Grocery and gas shopping	
Grocery and gas shopping	
Grocery shopping	070101
Purchasing gas	070102
Grocery and gas shopping travel	
Travel related to grocery shopping	180701
Travel related to purchasing gas	180702
Childcare	
Physical care for hh children	030101
Looking after hh children (as a primary activity)	030109
Picking up/dropping off hh children	030112
Caring for & helping hh children, n.e.c.	030199
Using paid childcare services	080101
Waiting associated w/ purchasing childcare svcs	080102
Travel related to caring for & helping hh children	180301
Travel related to hh children's education	180302
Travel related to hh children's health	180303

Source: American Time Use Survey (ATUS) Activity Lexicon 2006, U.S. Bureau of Labor Statistics.

Appendix 2: Descriptive Statistics for Non-Home Production Variables in Wage Regressions
Mean (Standard Deviation) or Percent

	Female		Male	
Hourly wage (2006$)	17.15	(11.15)	20.87	(13.08)
Log of hourly wage (2006$)	2.72	(0.58)	2.91	(0.59)
Potential experience	21.70	(12.34)	20.78	(11.79)
High school graduate	30.05		32.17	
Some college or associate's degree	28.97		24.69	
Bachelor's degree or higher	33.81		31.69	
Government employer	21.76		14.39	
Union or employee association	14.38		16.42	
Full-time	78.89		94.01	
Paid hourly rate	60.87		54.36	
Married	59.28		64.51	
Number of children under 18	0.80	(1.08)	0.86	(1.15)
Any child age 0-2	8.12		11.37	
Any child age 3-5	9.19		11.67	
Any child age 6-13	21.77		20.35	
Any child age 14-17	13.89		11.85	
Hispanic/Latino	10.96		15.52	
White	82.59		85.07	
Black/African American	12.36		9.28	
American Indian/Alaskan Native	0.60		0.61	
Asian	3.14		3.38	
More than one race reported	1.31		1.66	
Metropolitan location	70.29		70.62	
South	34.26		33.48	
Market work on diary day	66.84		71.91	
Observations	15,302		14,035	

Table 1: Average Minutes per Day on Home Production, Childcare, and Market Work, by Gender and Marital Status

Panel A: All marital statuses

	All days	Market work on diary day	No market work on diary day
Female:			
Total home production	133.34	95.44	209.71
Daily housework	84.62	59.96	134.33
Maintenance and repair	8.21	4.60	15.48
Lawn and garden	6.67	3.79	12.48
Pet care	5.98	5.72	6.51
Household management	14.86	11.93	20.77
Grocery and gas shopping	12.99	9.44	20.15
Childcare	24.13	22.01	28.38
Market work	295.55	442.19	0.00
Observations	15,302	8,289	7,013
Male:			
Total home production	86.95	59.35	157.63
Daily housework	28.76	20.27	50.51
Maintenance and repair	20.73	12.35	42.18
Lawn and garden	13.47	7.76	28.11
Pet care	3.97	3.49	5.19
Household management	11.59	9.47	17.02
Grocery and gas shopping	8.43	6.01	14.63
Childcare	11.39	10.28	14.22
Market work	355.29	494.07	0.00
Observations	14,035	8,464	5,571

Panel B: By marital status

	Female		Male	
	Married	Not married	Married	Not married
Total home production	147.56	112.63	93.60	74.86
Daily housework	96.66	67.11	28.91	28.49
Maintenance and repair	8.79	7.37	23.31	16.04
Lawn and garden	7.30	5.75	16.50	7.98
Pet care	5.90	6.11	4.29	3.38
Household management	14.79	14.96	11.94	10.96
Grocery and gas shopping	14.13	11.33	8.65	8.02
Childcare	28.76	17.37	15.67	3.60
Market work	284.90	311.05	360.29	346.21
Observations	8,329	6,973	9,292	4,743

Table 2: Percent Performing Home Production Activity[a]

	Female			Male		
	All days	Market work on diary day	No market work on diary day	All days	Market work on diary day	No market work on diary day
Any daily housework	77.44	74.77	82.83	45.49	42.97	51.93
Any maintenance and repair	7.78	5.88	11.62	15.76	12.55	23.97
Any lawn and garden	7.03	5.32	10.49	10.90	8.24	17.73
Any pet care	17.00	18.47	14.05	11.62	11.97	10.73
Any household management	32.33	32.05	32.90	24.23	23.82	25.26
Any grocery and gas shopping	21.56	18.23	28.26	14.76	12.09	21.59
Observations	15,302	8,289	7,013	14,035	8,464	5,571

a. Columns report percent spending any time on indicated activity on diary day.

Table 3: Coefficients on Hours of Home Production per Day in Wage Regressions by Gender[a]
Dependent Variable: ln(real hourly wage)[b]

Panel A: Female

	All days	Market work on diary day	No market work on diary day
Daily housework	-0.015**	-0.022**	-0.009**
	(0.002)	(0.004)	(0.003)
Maintenance and repair	0.0003	-0.002	0.003
	(0.005)	(0.011)	(0.005)
Lawn and garden	-0.006	-0.023+	0.004
	(0.006)	(0.013)	(0.007)
Pet care	0.016	0.010	0.026*
	(0.010)	(0.016)	(0.012)
Household management	0.009	-0.008	0.019**
	(0.006)	(0.011)	(0.006)
Grocery and gas shopping	-0.002	-0.006	0.004
	(0.007)	(0.013)	(0.008)
Childcare	0.021**	0.013	0.025**
	(0.005)	(0.008)	(0.006)
Adjusted R-squared	0.32	0.33	0.31
Observations	15,302	8,289	7,013

Panel B: Male

	All days	Market work on diary day	No market work on diary day
Daily housework	-0.010*	-0.004	-0.014**
	(0.004)	(0.008)	(0.004)
Maintenance and repair	0.008*	0.017*	0.003
	(0.003)	(0.007)	(0.003)
Lawn and garden	0.010*	0.015+	0.007
	(0.005)	(0.009)	(0.005)
Pet care	0.032*	0.053**	0.012
	(0.013)	(0.021)	(0.016)
Household management	0.022**	0.019+	0.023**
	(0.007)	(0.011)	(0.008)
Grocery and gas shopping	-0.004	0.009	-0.013
	(0.008)	(0.014)	(0.009)
Childcare	0.014*	0.010	0.018*
	(0.007)	(0.011)	(0.009)
Adjusted R-squared	0.36	0.36	0.38
Observations	14,035	8,464	5,571

a. Real hourly wage is in 2006 dollars. The equations also control for potential experience, potential experience squared, number of children under age 18, and indicators for high school graduate, some college or associate's degree, bachelor's degree or higher, government employer,

union or employee association, paid hourly, Hispanic/Latino, race (Black/African American, American Indian/Alaskan Native, Asian, more than one race reported), metropolitan location, South, full-time, married, and presence of children age 0-2, age 3-5, age 6-13, and age 14-17. Results for ‘all days’ also include an indicator for market work on diary day.

b. Standard errors in parentheses. + significant at 10%; * significant at 5%; ** significant at 1%.

Table 4: Coefficient on Daily Housework and Percent of Wage Gap Explained by Home Production, Alternative Samples and Specifications[a]

	Coefficient (standard error) on daily housework hours		Percent explained by characteristics[b]	
	Female	Male	Without home production	With home production
Sample	(1)	(2)	(3)	(4)
(1) All workers	-0.0150** (0.0025)	-0.0104* (0.0043)	20.1	24.2
(2) Market work on diary day	-0.0225** (0.0045)	-0.0039 (0.0079)	22.7	22.9
(3) Full time	-0.0156** (0.0028)	-0.0093* (0.0042)	12.7	17.5
(4) Married	-0.0167** (0.0033)	-0.0146* (0.0051)	20.9	28.5
(5) Children in household	-0.0170** (0.0032)	-0.0103+ (0.0054)	20.2	24.6
(6) Daily housework only home production variable	-0.0151** (0.0025)	-0.0105* (0.0043)	20.1	24.7
(7) Occupation indicators	-0.0121** (0.0024)	-0.0094* (0.0041)	23.5	27.4

a. Dependent variable is the log of real hourly wage in 2006 dollars. Column 3 results based on equations that also control for potential experience, potential experience squared, and indicators for high school graduate, some college or associate's degree, bachelor's degree or higher, government employer, union or employee association, paid hourly, Hispanic/Latino, race (Black/African American, American Indian/Alaskan Native, Asian, more than one race reported), metropolitan location, and South. Additional variables in all equations except when the variable identifies the sample are number of children under age 18 and indicators for market work on diary day, full-time, married, and presence of children age 0-2, age 3-5, age 6-13, and age 14-17. Column 4 results and the coefficients reported in columns 1 and 2 are based on a regression that controls for all variables listed above as well as for time on maintenance and repair, lawn and garden, pet care, household management, grocery and gas shopping, and childcare (except for row 6.) Row 7 adds indicator variables for 10 occupations (professional and related; healthcare support; protective service; food preparation and serving related; building and grounds cleaning and maintenance; personal care and service; sales and related; office and administrative support; natural resources, construction, maintenance; production, transportation, material moving, with management, business, financial the omitted category).

b. The decomposition is based on the male coefficients.

c. + significant at 10%; * significant at 5%; ** significant at 1%.

Table 5: Effect of Daily Housework on Wages by Occupation[a]

Interaction of daily housework with:	Female	Male
Management, business, financial	-0.009	-0.016
	(0.006)	(0.010)
Professional and related	-0.009*	-0.014
	(0.004)	(0.010)
Healthcare support	-0.008	-0.000
	(0.010)	(0.071)
Protective service	0.024	0.014
	(0.026)	(0.018)
Food preparation and serving related	-0.025**	0.049+
	(0.010)	(0.028)
Building and grounds cleaning and maintenance	0.005	-0.032
	(0.010)	(0.021)
Personal care and service	-0.016+	0.037
	(0.010)	(0.036)
Sales and related	-0.021**	-0.028*
	(0.007)	(0.011)
Office and administrative support	-0.015**	0.008
	(0.005)	(0.015)
Natural resources, construction, maintenance	-0.080**	-0.004
	(0.021)	(0.010)
Production, transportation, material moving	-0.005	-0.010
	(0.008)	(0.010)
Adjusted R-squared	0.37	0.40
Observations	15,302	14,035

a. Dependent variable is the log of real hourly wage in 2006 dollars. Standard errors in parentheses. + significant at 10%; * significant at 5%; ** significant at 1%. The equations include indicator variables for occupational category as well as time on maintenance and repair, lawn and garden, pet care, household management, grocery and gas shopping, childcare, potential experience, potential experience squared, number of children under age 18, and indicators for high school graduate, some college or associate's degree, bachelor's degree or higher, government employer, union or employee association, paid hourly, Hispanic/Latino, race (Black/African American, American Indian/Alaskan Native, Asian, more than one race reported), metropolitan location, South, market work on diary day, full-time, married, and presence of children age 0-2, age 3-5, age 6-13, and age 14-17.

Table 6: Average Minutes on Daily Housework, Socializing as Part of Job, and Time with Coworkers Not as Part of Job, by Occupation

	Daily housework		Socializing as part of job		With coworkers not as part of job	
Occupation	Female	Male	Female	Male	Female	Male
Management, business, financial	70.73	29.30	0.81	1.39	17.39	18.75
Professional and related	80.78	30.85	0.44	0.67	17.20	19.63
Healthcare support	95.87	22.06	0.00	0.00	15.05	26.04
Protective service	72.96	39.54	3.68	2.25	27.65	16.12
Food preparation and serving related	97.47	22.07	0.00	0.00	9.34	11.63
Building and grounds cleaning and maintenance	114.78	29.65	0.03	0.87	13.43	26.02
Personal care and service	95.78	36.06	0.56	4.81	12.87	11.13
Sales and related	84.22	27.13	0.72	1.11	12.87	16.47
Office and administrative support	83.70	31.08	0.31	0.29	15.71	22.97
Natural resources, construction, maintenance	92.46	27.33	0.26	0.17	34.10	29.46
Production, transportation, material moving	97.19	26.51	0.14	0.14	22.24	21.84
All workers	84.62	28.76	0.44	0.67	16.32	21.54

Table 7: Effect of Daily Housework on Wages:
Threshold Effects, Socializing as Part of Job, and Time with Coworkers Not as Part of Job
Dependent Variable: ln(real hourly wage)[a]

	Female	Male
Daily housework < 30 minutes	-0.026 (0.045)	0.002 (0.047)
Daily housework 30 - 59 minutes	-0.026 (0.017)	-0.004 (0.019)
Daily housework 60 minutes or more	-0.015** (0.003)	-0.010* (0.004)
Socializing as part of job	0.015 (0.029)	0.010 (0.027)
Customers, clients, and coworkers not as part of job	0.014* (0.006)	0.014** (0.005)
Adjusted R-squared	0.32	0.36
Observations	15,302	14,035

a. Standard errors in parentheses. * significant at 5%; ** significant at 1%. See Table 3 note for list of additional variables in wage equations.