GENDER DIFFERENCES IN TIME USE AND LABOR MARKET OUTCOMES*

Sanders Korenman, Mei Liao and June O'Neill

Baruch College and CUNY Graduate Center

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Gender differences in pay have narrowed considerably over the past 25 years, yet women still earn about 75-80 percent as much as men.[1] Explanations of the gender gap in pay have increasingly focused on work experience and occupational differences associated with gender differences in responsibilities for housework and childcare (O'Neill 2003; O'Neill and O'Neill 2005). Differences in pay between childless men and women are very small (Waldfogel 1998), and lifetime differences in work experience can account for a large portion of the gender difference in wages.

A limitation of this literature is that inferences about the impact of child care responsibilities on labor market outcomes of parents are typically indirect, rather than based on measures of time actually spent with or caring for children (exceptions are various papers by Hersch and Stratton). In this paper we attempt to contribute evidence on this issue by using the 2003 ATUS to examine patterns of time use of men and women, their differences and correlates, and the relation of these time use patterns to wage rates and the gender wage gap.

These issues are difficult to address both analytically and empirically. Researchers have long recognized that decisions about the allocation of time in the home and market are jointly (endogenously) determined. Nonetheless, useful insights can be obtained from examining male-female differences in child care, housework, and time with children as detailed in the ATUS, and investigating the determinants of those aspects of time use. We also provide some new results on the possible effects of time use on pay using the match of ATUS data with the CPS. However, lack of longitudinal information as well as lack of information on the intra-household

[1] The gender gap in wages, unadjusted for gender differences in characteristics, varies considerably depending on the sample population and the way in which wages are measured. In 2004 the female/male ratio of median usual weekly wages of all full-time wage and salary workers 16 and over was 80%, up from 62% in 1979. For part-time workers the ratio was 110%. The ratios vary by age—88% for workers 25-34 and 73-76% for those ages 35-64. (Department of Labor, 2005). The trend in the gender pay gap is similar in most advanced economies (Blau and Kahn 2000).

allocation of time among members, especially couples, and other characteristics of the ATUS, limit the extent to which answers can be obtained on the pay gap.

I. BACKGROUND

For women, the time allocation decision is not simply labor vs. leisure, but is three-part—work at home, work in the market and leisure (Mincer, 1962). With the rise in market wages and transformation to a service economy on the one hand, and the development of low cost substitutes for cooking/cleaning and decline in family size on the other, women have increasingly spent more time working in the market and less time doing home work. In 1900 women worked 84 hours a week doing home work (Lebergott, 1976); in 1975, 41 hours (Hill, 1981); and roughly 30 hours in the mid-1990s.[2] Nonetheless, married women with children today still spend far less time in the labor market and far more time in home work than married men (Table 1).

Why have we not seen complete convergence in roles in the family? Becker's analysis stresses that division of labor in the family allows for specialization in investment in human capital, thereby maximizing family income (Becker,1981).The importance of human capital investment for wage growth has not diminished and seems to have grown stronger in recent years. What about specialization in home work? The trend in the demand for home-oriented capital is unclear. Housework encompasses a variety of skills, but market substitutes can now be found for most tasks (Greenwood and Vanderbroucke, 2005) that can be used with little skill (and time!). The major task for which there does not appear to be a good market substitute for the parent's time, usually the mother's, is child care, which is also potentially the most time consuming.[3]

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[2] Authors' estimation based on figures in Bianchi, 2000.

[3] Rising real wages and technological progress in housework are thought to have fueled the tremendous post-war increase in women's labor force participation (Greenwood and Vanderbroucke 2005). Child care is also partly consumption for parents; housework, less so. Rising wages and faster technological progress in housework should lead families to allocate more of mothers' time to market work, and less to housework. Parents' time in child care should fall by less than time in housework, and by less than one hour for each hour increase in work time. If time with children is complementary to parents' leisure time, then leisure time with children may rise because parents' leisure time is increased by both higher incomes and by leisure-enhancing technological change. Also, doing housework and supervising children at home are complementary activities; as housework time falls, there should be less combining of housework and child supervision. Total time with children may fall as market time increases and housework time falls, but leisure time spent with children should rise as a proportion of time with children. The ability to find suitable substitutes for parental child care may vary by parental education level. For example, if the typical "market" child care provider has an average level of

A dilemma is created for women. Rising wages provide an incentive to pursue market work. Work experience is an important component of human capital development. But with higher income, families may want "high quality" children, which may require more time from mothers. Why the mother rather than the father? Some might attribute this choice to labor market discrimination which lowers pay for women and discourages investment in market skills. But today that argument should have less force than it might have several decades ago (also priority for physical strength would have given men comparative advantage in market work). Differences in pay between men and women have narrowed markedly; the raw (unadjusted) difference in median weekly wages among full-time workers is 20 percent, down from close to 40 percent as recently as 1979 (see footnote 1); childless men and women have comparable rates of pay (e.g., Waldfogel 1998); and detailed adjustment for productivity differences leave quite small residual gender pay gaps (e.g., O'Neill and O'Neill, 2005; Brown and Corcoran 1997).

If the pay gap does not drive role specialization, then what does? For social or biological reasons, women may have a comparative advantage in child care—something that is clearly true when it comes to breast feeding infants, but more difficult to document for other aspects of care.[4] Women may also have stronger preferences for child care; these preferences may be reinforced by and may reinforce their occupational choices, which take into account responsibility for child care in the home.

But from another perspective these conflicting forces may not be a dilemma at all. With increasing longevity and increased ability to control the number and timing of births, it may be more possible than ever before to "have it all." Moreover, women (and couples) can also plan dual careers by choosing fields that do not heavily penalize career interruptions, that allow for part-time work, that are easy to enter and

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education, more highly educated families will have more difficulty than less-educated families in finding an acceptable substitute for parents' time in child care. Thus, all else the same, families in which the mother is more highly educated would reduce mother's child care time less for each hour of work than families in which the mother is less highly educated. More highly-educated mothers may work more because higher wages increase the opportunity cost of non-market time. But given the number of hours of market work, they should spend more time in child care than less-educated mothers.

[4] Anecdotal evidence (Belkin 2003) indicates difficulties faced by the few fathers who take care of children at home full time; such men report difficulty accessing to social networks dominated by mothers and also difficulty in gaining social acceptance of their choices.

re-enter, and that allow for flexibility on the job in other ways. To the extent that providing greater flexibility is a cost to employers, flexibility is bound to generate a compensating wage differential.

II. WHAT THE LITERATURE SHOWS

In this section, we review briefly several recent papers on gender differences and trends in time allocation. We then review in detail studies that have attempted to estimate effects of home time allocation on wages.

Major trends in time allocation of mothers and fathers

Over the past 30-40 years, women, including mothers with children under age 18, have increasingly allocated time to market work. Data on labor force participation show that women with children under 18 increased their labor force participation from 39% in 1970 to 71% in 2004 while the participation rates of women with children under 6 rose from 29% to 62%. Combining time use data for working and non-working mothers, market work time is estimated to have increased by about 14 hours per week, on average since 1965 (Bianchi and Raley, 2005, Table 2.2). Not surprisingly, mothers reduced time spent doing housework (from 32 to 18 hours per week) over this period.[5] Fathers have picked up some of the slack at home, increasing housework time by about six hours per week (from 4 to 10 hours). Between 1975 and 2000, fathers increased time spent with their children from about 26 to 33 hours per week ("time with" figures are not available for 1965) as well as time providing primary and secondary child care time.

But despite substantial increases in market work, mothers' child care time as a primary or secondary activity has apparently *increased* and their total time with children has remained roughly constant at 48 to 49 hours per week from 1975 to 2000. This development is noteworthy because, at any time, mothers employed outside the home are shown to spend less time with their children and less time doing child care than mothers not employed outside the home. Nonetheless, between 1975 and 2000, mothers' primary child care time increased by nearly 50%, from 8.6 to 12.6 hours per week. Primary time is time devoted entirely to the child and presumably provides more developmental benefit. As a primary or secondary activity, care for children by

[5] The figures in this paragraph and the following are from Bianchi and Raley (2005), mainly Tables 2.5 and 2.6.

their mothers increased from 13.8 to 18.3 hours per week (and from 4.7 to 8.8 hours for fathers).

This surprising result—an increase in mothers' primary child care time and the maintenance of mothers' total time with children, despite substantial increases in market work—has been the subject of much recent interest. There appears to be ample evidence of this trend not only for the U.S. but for many advanced economies (see, e.g., Gauthier, Smeeding and Furstenberg 2004; Sandberg and Hofferth 2005). For example, Gautheir, Smeeding and Furstenberg (2004) conclude that "…parents today appear to be devoting more time to childcare then they did 40 years ago….paid work does not appear to impinge directly on the time investment that parents make in children." But there is less consensus about the implications, interpretation and causes of this trend. Although few would have predicted that increases in maternal market work would be associated with increases in maternal time in child care, some earlier time use studies provide some possible explanation. Studies based on cross-sectional data have found that higher female wages and higher education are associated with more maternal time devoted to child care (Juster and Stafford, 1991). Thus, over time, increases in wages and educational attainment could have increased both market work time and "demand" for maternal (and paternal) child care.[6] The relationship between education and child care is especially strong among employed mothers (e.g., Gauthier, Smeeding and Furstenberg, 2004, p. 663), so there may be interactions between increased employment and increased education.[7]

Although they are not directly concerned with child care time, Greenwood and Vanderbroucke (2005) have emphasized the importance of technological change in housework (e.g., the microwave oven) in explaining both the rise of female employment and the decline in housework time. Whether technological change also accounts for the rise in parental child care and in parental time with children, depends in part on the substitutability of technology and non-parental care for parental care in "production" of child development, and on the complementarities of time spent with children and parents' leisure activities. Technological change in housework should (all else the same) increase labor supply, and decrease the proportion of home time

[6] Juster and Stafford suggest that the income elasticity for child development is high, and there are no close substitutes for parental time in some child development activities.

[7] This sentence is based on an analysis of Canadian data. Gauthier, Smeeding and Furstenberg also call for investigation of the effects of interactions between the employment status of spouses.

spent doing housework. Consistent with these predictions, child care time has increased among both employed mothers and housewives (e.g., Gauthier, Smeeding and Furstenberg 2004).

Some interpret these trends to indicate that investments of time in children have not been diminished by the increase of mother's market work: fathers' and mothers' child care time has increased, as has fathers' total time with children. Since fertility has generally fallen, investments of parental time per child may have increased markedly (Bianchi 2000). However, Folbre et al. (2005) caution against the leap to this conclusion. They fault studies of trends in child care for neglecting "family care"—which would include time investments by siblings or relatives other than parents—and for neglecting the "density" of time investments (such as when multiple caregivers are present). Folbre et al. also emphasize that even though time parents spend with children or parental child care time may not have declined, the type of care provided may have changed; for example, an increase in leisure time spent with children on evenings or weekends may mask a decline in time spent providing basic supervisory care. However, Folbre et al. do not provide alternative evidence of trends in family care or basic supervisory care, so it is unclear that trends in these measures would differ from trends in parent child care.

Studies of effects of home time allocation on gender wage gaps

Hersch and Stratton have conducted many studies of the effects of housework on wages. Their primary concern is whether time spent doing housework (not necessarily including child care) can account for "unexplained" wage gaps between men and women (Hersch and Stratton 1997; 2002) and between married and unmarried men (Hersch and Stratton 2000).

For example, Hersch and Stratton (1997) study the effects of housework on wages of white married couples in the PSID from 1979 to 1987. Wages are negatively and significantly related to housework time for women and men, though the effect is larger for women and more robust to model specification. They find that human capital controls explain about 30% of the gender wage gap over that period.

The difference in housework time between men and women increases the explained portion to about 40%.[8]

A challenge in estimating effects of home time allocation on wages is that time allocation itself is likely to be affected by choices and outcomes in labor markets. A related issue is unobserved heterogeneity: those who (for unmeasured reasons) are more productive in the market relative to the home will devote more time to market work and less time to housework. In that case, the estimated effects of housework reflect, at least in part, unmeasured (relative) productivity in market work.

Hersch and Stratton (1997) use instrumental variables and (individual) fixed-effects estimation techniques to attempt to reduce the influence of endogeneity and heterogeneity bias. Instruments for housework time include ages and number of children, spouse's characteristics such as education, employment and wage rate, and wealth indicators such as housing characteristics. The validity of these instruments is questionable.[9]

In a more recent paper, Hersch and Stratton (2002). study a sample from the National Survey of Families and Households 1987-88 and 1992-94 (a panel survey). The sample includes employed, white, non-Hispanic persons aged 18 to 65 of all marital statuses. Average housework is about 18 hours per week for men and 28 hours per week for women. They classify type of housework into typically male, typically female and neutral activities.

Hersch and Stratton (2002) intend to distinguish between two explanations of their earlier finding that housework reduces wages more for married women than married men. Is this because married women are more likely to perform housework on weekday/workdays? Or does performing "female tasks" reduce wages more? Hersch and Stratton again find that, for both married women and married men, housework reduces wages, but the effect is larger for women. The effects of housework on wages are similar for unmarried men and women. Typically "female" work reduces wages for both women and married men, and the effect is large. Neutral work (such as driving others) is more adverse for men. Typically "male" housework has a generally positive (though not significant) effect, even for women. Instrumental

[8] Obviously, the "unexplained" portion of the gender wage gap falls from about 70 to 60%.
[9] For women, instrumental variables estimates are larger (in absolute value) than OLS estimates, and are statistically significant. Estimates that include individual fixed effects are significant only for women and are about one-third to one-quarter the size of corresponding OLS estimates; they are essentially zero for men.

variables estimates generally support the results for women. Fixed-effects estimates are generally negative but virtually never attain significance. Similar to their earlier study, controlling for housework increases the "explained" part of the gender wage gap from about 29 percent to about 43 percent.

Hersch and Stratton (2002, p. 222) conclude that "The evidence that the negative effect is primarily driven by typically female housework, housework that is more likely to be engaged in on a daily basis and that takes up a great deal of time, provides further support for the hypothesis that home production activities may be interfering with market productivity, especially for women."

As in their earlier study, Hersch and Stratton do not include controls for number and ages of children; the effects of children on wages are presumed to work through experience, tenure, and housework. But children may affect market productivity in other ways, and time with children and childcare are also done daily and take up a great deal of time. For example, in the ATUS data presented below, among women with children under age 13, primary housework time is only a fraction of the amount of waking time spent with children, and is roughly equal to primary child care time.

Hersch and Stratton's results raise some other interesting possibilities regarding the role of housework in narrowing of the gender gap in pay. If women's responsibility for housework significantly reduces wages, then technological changes that have substantially reduced housework time may have contributed to the narrowing of the gender pay gap in recent decades. If, instead, time spent in primary child care time (or time spent with children) is important for reducing women's wages relative to men's, then we must conclude that the gender pay gap has narrowed *despite* the increase in maternal child care time (even among employed women) and the stasis of maternal time with children. However, men have increased total time with children and time in primary child care, raising the possibility that gender roles in the home have been converging, thereby helping to narrow the gender gap in pay.

III. ISSSUES WE ADDRESS WITH THE ATUS

We have conducted three types of analysis with the ATUS. The first is descriptive and focuses on gender differences in the allocation of time among market work and home work divided into housework and child care. We look at two ways of measuring child care time; total time during the diary day spent with a children in all

activities and in either a primary or secondary capacity (available only for children under the age of 13) and time spent exclusively in primary child care. We focus on the variation in time use by employment status of respondent and by presence and age of youngest child. Time use is only available for the diary day, but people who are employed may not work on the diary day. Employment status, however, may influence childcare and housework time on days off. We therefore report time use for those who are currently employed divided into those who worked on the diary day and for those who did not, as well as for those who are not employed. Because weekend diary days are largely days when people are not working, they are less useful for our purposes. We conduct most of our empirical work with the weekday sample of respondents although we also examine weekday and weekend combined.

Our second analysis examines the determinants of time spent by men and women on child care (both definitions) and on housework, looking at the effects of such factors as own and spouse's wage rate, market work, type of occupation and age and number of children. In the third analysis we estimate wage equations for men and women focusing on the effects of time with children, primary child care and housework.

IV. DATA ADVANTAGES AND LIMITATIONS

The ATUS has a number of strengths as well as some drawbacks for conducting analyses of the relation between home demands and labor market outcomes Considerable thought has been given to the complexity of time use. With respect to children, it is particularly useful to have a measure of total time spent during the day with children, in addition to the measure of time spent in primary care, since the demands of child care can easily persist no matter what the caregiver is recorded as doing as a primary activity. Another feature is the link to the CPS, which opens a wide range of possibilities for research.

Time use data are unusually difficult and costly to obtain (e.g., Schwartz, Herz and Frazis, 2002) . Consequently, drawbacks are to be expected. One is the limited sample for weekdays (1 day out of 2 rather than 5 out of 7) that sharply reduces the weekday sample size. Although this increases statistical power for comparisons of weekend and weekdays, it reduces sample sizes for analyses of labor market relationships.

Several problems arise out of the fact that individuals report time use for only one day. For example, noise (measurement error) that results from fluctuations in time use from day to day would be reduced by a week-long reporting window. A one-day recall is less of a problem for estimations of aggregates such as mean time spent by the total population on different activities because individual deviations from normal time allocations are likely to cancel out. However, use of a single diary day may introduce substantial attenuation bias in estimated effects of time use in regression analysis.

As noted by Winkler (2002), gathering information for only one member of a household precludes analysis of the within-family time allocation and its impact on labor market outcomes (see also Schwartz, Herz and Frazis, 2002). For example, sharing and substituting by couples cannot really be evaluated. The CPS match provides some information about the spouse, but not on their time use at home. The data would be enhanced by the addition of information on household purchases of substitutes for own time spent on childcare or housework. Do parents employ household help? Do they send young children to day care or preschool ? Do they use laundries, food take-out or eat out?

V. CHILDREN, WORK, AND HOME ACTIVITIES

In Table 1, we describe the allocation of time among seven categories of primary activity (sleeping, housework, child care and care of others[10], work and related, socializing and sports, eating and drinking, and a residual category "all others"). These are shown separately according to the age of the youngest child (<1, 1-5, 6-12, and 13-17 years), and for men and women aged 20 to 50 with no child present under the age of 18.[11] Figures in the table are sample weighted means. Primary activities are mutually exclusive, so, with allowance for rounding error, time spent in the seven activities total 24 hours per day.

Several patterns of time use evident in the table conform to expectations. Mothers devote more time to child care than fathers; time spent by both mothers and fathers doing child care falls sharply as children age; men tend to work about eight hours per day regardless of the age of children, whereas women's work time rises steadily as their children age (from 2.2 hours per week day among women with infants to 5.1 hours among women with a youngest child aged 13 to 17). Mothers do about three hours of housework per day on weekdays, fathers about an hour and a half.

How is mother's time re-allocated as children age and work time increases, by nearly three hours per day, on average? Perhaps surprisingly, primary child care time falls by 3.5 hours, more than offsetting the increase in work time. Figures such as these might suggest that secular increases in maternal work would come at the expense of time mothers spend caring for their children. Nor do father's pick up the child care slack as children age and mothers increase work, as fathers also spend about an hour less time doing primary child care as children age.

On the other hand, mothers' housework time remains relatively constant, falling by only 0.4 hours per day as children age from infants to pre-schoolers; and then remaining constant thereafter as children enter the school ages and teen ages, despite continuing increases in mother's market work time. (Demand for housework may well increase as children age and their food appetites and acquisition of possessions increases. Also house size may rise, partly because older parents have more income, and house size is obviously correlated with increased cleaning time of

[10] Although not shown in the table, nearly all time spent caring for children and others is child care.
[11] We also examined whether time use differed between those with youngest child age 6-9 and those with youngest child aged 10-12; the means of time use were remarkable similar in the two group.

the homemaker or substitute. In tables 3 and 4 housework does increase with age of child for mothers who are not employed, and childcare falls by more, socializing and sports goes up. Both mothers' and fathers' time spent on socializing and sports increases as children age, by about an hour per day for fathers and a half hour for mothers. Including weekend hours does not markedly alter these general patterns.

Although primary child care time does not decline appreciably as mothers increase work over the life-course, this may be an artefact of time-use reporting and classification of time into primary activities. Another perspective on work-family trade-offs, therefore, is provided by data on time spent with children present. , irrespective of whether the primary activity engaged in during that time would be classified as child care. Table 2 sheds light on this question for mothers and fathers with children under 13 years of age (these data were not collected for parents with no children present under age 13). The table is based on a merge of the "time with child" data with the activity file data in order to determine the activities associated with all of the time spent with children during the day. On weekdays, mothers of infants (<1) spend about 12.4 hours per day with their children while (the mother is) awake, or nearly 80% of the mother's waking hours. Yet only about a third (4.3 hours) of this time is classified as primary child care ("socializing and sports" and "housework" is most of the rest). For all women with children under 13, primary child care is only about a quarter of time with children. This substantial difference motivates our interest in investigating multiple time-use measures to analyze the impact of children on labor market outcomes.

Total time with children falls from 12.4 to 9.8 hours as the youngest child ages from <1 to 1-5, and to 7.1 hours when the youngest child reaches ages 6 to 12, for a total decline of 5.3 hours. On the other hand, mothers' primary work time increases by only about 2.4 hours, on average, over these ages (Table 1). So time with children decreases more than twice as much as work time increases.

What stands out in the panel for men is that, compared to mothers, fathers spend less of their waking time with their children. They tend to spend more time with their children on weekends than weekdays, and the bulk of the time spent with children occurs while engaged in socializing and sports, though fathers do about half as much primary child care as mothers (1.1 versus 2.2 hours per day, averaging across all ages and counting weekends). Still, on weekdays alone, fathers spend much less time than mothers with their children, and they do far less infant care.

How is time reallocated to accommodate work? Table 3 shows time spent in primary activities on weekdays for those who are currently employed and who worked on the diary day, those who are employed but did not work on the diary day, and those who are currently not employed. Although there are some differences between the not employed and those who have a weekday off for some reason, the major differences are found between working days and not working days. On the days they work, fathers, on average, work nine to ten hours, and mothers seven to eight hours. What is given up on workdays? For both women and men, working on the diary day reduces sleep by at least an hour, housework by about two hour (or 2.5 hours, comparing work days to the not employed), and child care time by about an hour for fathers and between one and two hours for mothers (with a child under 13).[12] Roughly speaking, therefore, an eight hour workday reduces time doing childcare and housework by four hours for women, a trade-off of 1:2; for men, a nine hour workday reduces child care and housework by about three hours, a 1:3 trade-off. Although one might be concerned that this calculation exaggerates work-family trade-offs because it ignores substitution of housework and child care time from workdays to days off, difference between those who are employed and not working on the diary day and those who are not employed (and have no need to substitute across days) are small.

The shaded rows of Table 3 present corresponding figures for total time with children. Fathers and mothers with children under 13 spend roughly four and a half hours less time with their children on workdays than non working days. Table 4 shows figures that include weekend days, and the general patterns are the same.

We explore the trade-offs between working and home time suggested by the means in a series of multiple regression models summarized in Tables 5 to 8. These regressions are intended to describe in a compact way the trade-offs in time allocation between work on the one hand, and child care, housework and time with children on the other. We control for a number of demographic and socioeconomic characteristics that might confound the bivariate relations[13]. The sample is restricted to mothers and

[12] Working also reduces socializing and sports by about two hours for women and three to four hours for men.

[13] In addition to those shown in the tables, controls include age and age squared, and dummy variables for: education (3) race/Hispanic identity (3), residence in a metropolitan area, region (3), age of youngest child (2), number of children (2), marital status (2), and self-employed spouse and wage and salary worker of spouse. Self-employed persons are dropped from the sample (though not persons with self-employed spouses).

fathers aged 20 to 44 with a child under 13.[14] The excluded employment category is "not employed." We include dummy variables for "employed, but did not work on the diary day," and "worked on the
diary day" as well as an interaction between worked on the diary day and hours worked. Both the intercept (main effect) of working on the diary day and the slope (coefficient of hours work) are of interest, as we shall see.

We first note that in Table 5, pertaining to all men and women with children under 17, there are no statistically significant differences in the outcomes between those who are not employed and those who are employed, but not working on the diary day (i.e., none of the coefficients in the first row is significant). However, married employed women spent 1.3 hours less on primary child care on a non-working weekday than unemployed women (Table 6) and somewhat stronger negatives effects emerge for women who are college graduates compared to those who are high school graduates or less (Table 7).

The first two columns show the effects on time spent with children, for women and men respectively. In table 5,for example, the third entry in the first column indicates that each additional hour of work on the diary day is associated with a reduction of 0.60 hours (36 minutes) of mother's time with children. An eight hour work day is therefore associated with a reduction of 5 hours with children:
8 * (-0.60) - 0.18. The coefficient of hours worked is nearly as large for men, but the intercept is about 1.1, so an eight hour day reduces time with children by only about 3 hours [8*(-0.52) + 1.1] for fathers, albeit starting from a much lower level of involvement.

This pattern of weaker marginal effects for fathers than mothers is also evident in the equations for primary housework and primary child care time. Also, although the coefficients of hours worked is identical for mothers in the child care and housework equations (-0.22), the coefficient of "worked on diary day" indicates that mothers guard their child care time somewhat more than their housework time (an intercept of 0.40 in the child care equation and -0.25 in the housework equation, for a difference of 0.65 hours greater child care than housework at equal hours of market work).

[14] The age of parent is restricted to 20-44 because children are identified as those present in the household. At older ages the likelihood of having a child who no longer lives in the household because they have reached adulthood is greater. The measure of total time spent with children is restricted to children under 13 which is why the sample is further restricted to those with youngest child under 13.

Other results in Table 5 indicate that one's "own" wage is not significantly related to any of the time allocation variables, but the wage of one's spouse is associated with greater time in child care for both women and men. Finally, working in a highly "female" or highly "male" occupation is not significantly related to time allocated to children, child care, or housework. This is perhaps surprising in that women are thought to choose occupations that may pay lower wages but enhance their ability to spend more time with their children or attend to other household responsibilities. However, the percent female in the occupation alone without other characteristics specified may be too crude a measure overall. The expected effect does emerge with respect to total time spent with child when the sample is disaggregated by education as shown below.

Table 6 shows the results for women by marital status. Results do not differ greatly between married and unmarried women. There is some evidence that unmarried women reduce housework and child care less than married women do on work days: an eight hour day is associated with a reduction of over two hours of housework among married women and slightly more than one hour among unmarried women. Perhaps husbands pick up the slack or help to purchase substitutes for mothers' time at home such as housekeepers.

Table 7 shows results of separate regressions by education of the mother: college graduates versus those with no more than a high school diploma.[15] The effects do not differ greatly by educational attainment, with a few exceptions. A highly "female" occupation is associated with more time with children (nearly an hour per day) among college graduates, but not the high school group. The highly female occupations held by college graduates, such as teacher and nurse, offer compatible hours with child demands (short work day and summers off) for teachers, considerable flexibility in choice of hours and shift for nurses. Also, the (positive) effect of spouse's wage on child care time is found only among the highly educated, and is nearly double the magnitude reported in Table 5 for the full sample (0.63 vs. 0.34). College grads do less housework than less educated women, on average, and reduce housework more when they work. An eight hour workday reduces housework about three hours among college graduates, but by only one and one-half hours among less-educated women.

[15] Those with "some college" but no degree are not included in either sample shown, but they are included in samples reported in all other tables.

In sum, mothers reduce time with children by slightly more than one half hour per hour worked on the diary day, and reduce primary child care and primary housework by roughly one quarter hour each per hour worked. Since these are mutually exclusive categories, mothers reduce housework and child care (combined) by one half hour per hour worked on the diary day. On average, fathers do less housework, less child care, and spend less time with their children than mothers. But, compared to mothers, fathers' time allocated to home and children varies less with the hours they work on the diary day. Among mothers, there were only relatively modest differences by education and marital status in the *responsiveness* of home and child time allocations to increases in market work on the diary day.

VI. EFFECTS OF CHILD CARE AND HOUSEWORK ON WAGES

A person's potential wage rate is influenced greatly by work-related investments made over many years. Men and women differ considerably in lifetime work participation and the availability of longitudinal surveys, such as the NLSY, has revealed the importance of work experience in accounting for the gender gap. However, work experience differences alone do not fully explain the pay gap. Thus attention has turned to the implications of gender differences in home responsibilities for more subtle aspects of market work outcomes. Home responsibilities would affect pay if women accommodate child care and housework by working in occupations and types of jobs that pay less but allow greater flexibility. The anticipation of such accommodations can influence such decisions as the choice of a college major and subsequent occupation. Indeed, Brown and Corcoran (1997) find that gender differences in choice of college major explain a significant portion of the gender pay gap. Becker (1985) further suggests that hours spent on child care and housework drain energy and thereby lower productivity and pay.

The ATUS data we have reviewed confirm the large gender differences in time spent on children and housework by parents, even when only working parents are compared. In this section we investigate the relation between the ATUS measures of home time and wage rates of mothers and fathers.

The overall female/male wage ratio for 2003 ATUS respondents (ages 30-44) is about 80% for those with a weekday diary day, and slightly higher for the full sample

including weekend reporters (Table 8).[16] Among those with children (the majority), the ratio is lower—about 76%. However, it does not vary by age of youngest child. As observed in other data, the wage gap is trivial among those who have no child and are not married (96% in the larger combined weekday and weekend sample).

The question of interest here is to what extent time spent on housework and childcare affect the wages of women and men. As we have seen, there are large gender differences in time spent on home responsibilities, and those differences prevail even when women and men who work on the diary day are compared. Table 9 presents results of separate wage regressions for women and men aged 20-44, with children under age 13 that include as explanatory variables measures of child care and housework time. Only those with a weekday diary day are included. Note that this is a sample of employed persons, some of whom are working and some of whom are not working on the (weekday) diary day.

Mean values of the main explanatory variables of interest are shown for women and men in the first two columns.[17] The regression coefficients are given in the next two columns for women and the last two columns for men. Two models are presented. One includes total hours spent with children during waking hours on the diary day as the measure of home responsibilities. The second model instead uses two measures: hours of primary child care and hours of housework. All models include the dummy variable, "work on the diary day". The home-time variables in both models are each interacted with "work on diary day". The other explanatory variables include education (three dummy variables denoting high school graduate, some college, college graduate) and variables indicating marital status, number of children and age of youngest child. Whether the worker usually works part-time in a week is a variable taken from the matched CPS data. We also include the two dummy variables indicating the percent female in the worker's occupation; 80% or more and less than 30%.

One important omitted measure of human capital is the lifetime work experience of the worker with respect to years worked, the intensity of time worked per year, and the continuity of work. The ATUS, like the CPS, is not a longitudinal survey and does not gather such information retrospectively. However, because women still have

[16] The age restriction to 30-44 provides a more balanced representation of men and women who are married and have children because men do both at older ages then women.
[17] Although not reported in the table, the regressions all control for age, age squared, and dummy variables for region (3), metropolitan area and race (3).

considerably less work experience than men, actual experience is an important piece of missing information[18]

The results for women reveal some small significant effects of home-time on the wage rate. In the first model time spent with children on a non-working day has no effect, but an hour of time spent with children on a work day reduces the wage by about 1.4% (statistically significant at the 10% level). (Among men this variable has no effect.) Since women spend two more hours with children than men on a work day, that effect would account for a log difference of 0.028 out of the total log wage difference of 0.322 (about 9%). (It would be 13% of the residual gap after adjusting for basic demographic factors and part-time work; but the residual gap is larger in this case because of the lack of information on lifetime work experience—see below.)

In the second model, consistent with the results of Hersch and Stratton, an additional hour of housework on a workday is found to reduce women's wage rate by about 3% and men's not at all. However, women only do about 40 minutes more housework than men on the work day; so this effect could account for only another small portion of the pay gap. The wage rate of men who do housework on their day off is lower than those who do not (2.4% lower per hour); an intriguing but not quite a significant effect. Primary child care bears a positive but insignificant relation to the wage rate of women and none at all for men.

The results for other variables of interest are similar in both models. Whether one works on the diary day is associated with a significantly higher wage rate for women, probably capturing an aspect of work attachment or intensity. (For men, 88% of whom worked on the diary day, the effect of this variable is much smaller and is not significant.) Working part-time during the week is associated with a 16-17% lower wage rate for women; that effect is also much smaller and insignificant for men. Women are much more likely to work part-time, especially when children are present. In this sample 30% of the women worked part-time compared to 3.5% of the men. Using the female coefficient, the gender difference in part-time work accounts for about 14% of the gender wage gap. Women who work in an occupation that is 80% female have about 5% lower wage rates than those who work in more mixed occupations (30-79% female), an effect that is borderline significant in model 2. (The

[18] For example, using the National Longitudinal Study of Youth (NLSY), one-half of the pay gap between men and women ages 35-43 is found to be explained just by differences in lifetime weeks of work and the percent of those weeks that were part-time (O'Neill and O'Neill 2005).

effect is very large but insignificant for the tiny percentage of men in these occupations.) Women and men who work in predominantly male occupations have somewhat higher pay but that effect is not significant.

Table 10 provides data on the large differences between working men and women in the proportion working in predominantly female or predominantly male occupations. Among the other results, these data suggest a huge return to college education, particularly for women for whom college graduation brings close to a 60% wage premium over high school graduation. With respect to number of children, a negative effect on women's wages is found for three or more children. Although infants are the most time demanding, the wages of mothers of infants are significantly higher than those with older children. The effect is similar but much more modest for men. However, the proportion of mothers of infants who work is relatively small and it is possible we are simply observing a selection effect –women with high pay are less likely to take time out. Men, however, may work overtime and do other things to raise their wages when a child is born to offset the loss of the mother's salary.

In order to estimate the contribution of gender differences in time use variables to the wage gap we have conducted additional regressions pooling the male and female samples and adding a variable indicating whether the respondent is a woman (again for the group of respondents aged 20-44 with children under 13). The female variable provides an estimate of the gender differential controlling for the same variables contained in the separate regressions by sex described in Table 9[19] Using this procedure we find that the raw, unadjusted gender log wage gap of -0.322 is reduced to -0.213 when all variables except for the time use and percent female in occupation variables are included. The addition of hours spent with children on the work day (model 1) reduces the wage gap to -0.198—a reduction of 0.015. Adding the percent female has a larger effect and further reduces the residual wage gap to

[19] Differentials estimated from pooled regressions assume the same effect by sex of each variable on the wage rate. The variable coefficients are not the same by sex. However, in many cases the variables mean different things to men than to women. For example, an increase in the number of children lowers women's wage rates (likely reflecting to some extent the correlation of number of children with the missing variable—lifetime work experience), yet has a positive but insignificant effect for men. Standard decomposition analysis does not seem more useful under these circumstances. However, the female indicator variable also cannot be taken as a refined estimate of the differential because of the difficulty posed by using variables that may be weak proxies for more direct measures of work experience and other variables that better measure productivity.

-0.148. The same procedure was followed using the model 2 specification, which measures child care as hours of primary care and enters hours of housework as an additional variable. Those results show that the residual wage gap is reduced less -- from -0.213 to –0.203 when with two hometime variables are added. The adverse effect of housework on wages is partly offset by the positive effect of childcare. Adding the percent female in occupation variables again reduces the gap significantly—to -0.152.

In sum, the addition of time use variables to the analysis of wages provides some interesting insights. Additional hours spent by women on housework on a work day are associated with lower pay, as found in other studies. But the effect of child care differs depending on the way childcare is measured. Total hours spent with children on a workday has an adverse effect on pay for women. But hours spent on primary childcare on a work day are associated with higher pay (although not statistically significant). These results are broadly consistent with Hersch and Stratton's (2002) finding that time spent in "typically female" activities has larger (adverse) effects on wages than gender neutral or "typically male" activities (since mothers do more housework than fathers).

How can these puzzling results be interpreted? One consideration is that the way one spends time identifies personal characteristics that may be correlated with work productivity, rather than differences that require more accommodation in terms of job flexibility. If that were the case, then child care, which cannot be postponed until the weekend, should surely have a greater negative effect on pay than housework, which can be postponed (but it does not). Total time with children encompasses a variety of activities and may better reflect the burden of children. Those who spend more time on primary child care may find time with children a pleasure, not unlike sports or socializing. Time spent in child care indicate a strong taste for child development, which may be correlated with unmeasured human capital that is also valued in labor markets. Housework, especially of the cooking, cleaning and laundry variety, is probably a disamenity for most people. Those who do more of it may be less skilled, on average, and simply not have the income to purchase substitutes. It is also possible that a single day's behavior is not sufficient to accurately discern an individual's usual time spent. Finally, time with children or housework may not fully measure the distraction of children. The extent to which one

worries about a child on the job and off may have a stronger effect on pay than hours alone, yet not be captured by time use measures.

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Table 1

Hours on diary day in primary activities, respondents ages 20-50 by presence and age of youngest child, and by sex

	Weekday reporters					Weekday and weekend reporters				
	<1	*1-5*	*6-12*	*13-17*	*No Child*	*<1*	*1-5*	*6-12*	*13-17*	*No Child*
WOMEN										
Total Hours	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
I. Sleeping	8.1	8.4	8.1	7.9	8.4	8.5	8.7	8.5	8.3	8.7
II. Housework	3.2	2.8	2.9	2.8	2.0	3.2	3.0	3.2	3.0	2.3
III. Childcare and care of others	4.6	3.0	2.0	1.1	0.5	4.2	2.8	1.7	1.0	0.4
IV. Work and related	2.2	3.6	4.6	5.1	5.6	1.7	2.8	3.6	4.2	4.4
V. Socializing, and sports	3.2	3.3	3.4	3.6	4.2	3.6	3.6	3.8	4.0	4.6
VI. Eating and drinking	1.0	1.0	1.0	1.2	1.1	1.1	1.1	1.1	1.2	1.1
VII. All other activities	1.4	1.7	2.0	2.1	2.1	1.5	1.9	2.1	2.2	2.2
Sample Size	***196***	***764***	***800***	***326***	***1089***	***409***	***1630***	***1624***	***638***	***2214***
MEN										
Total Hours	24.0	23.9	24.0	24.0	23.9	24.0	24.0	24.0	24.0	23.9
I. Sleeping	7.9	7.7	7.9	7.8	8.1	8.2	8.1	8.2	8.0	8.4
II. Housework	1.5	1.3	1.5	1.4	1.3	1.7	1.6	1.9	1.8	1.5
III. Childcare and care of others	1.5	1.4	1.1	0.5	0.3	1.8	1.5	1.0	0.5	0.3
IV. Work and related	7.8	7.9	7.7	8.1	6.6	5.8	6.2	6.1	6.4	5.4
V. Socializing, and sports	2.7	3.2	3.3	3.9	4.6	3.7	3.9	4.1	4.6	5.3
VI. Eating and drinking	1.2	1.1	1.1	1.1	1.2	1.3	1.2	1.1	1.2	1.2
VII. All other activities	1.1	1.2	1.3	1.3	1.8	1.3	1.3	1.5	1.5	1.7
Sample Size	***122***	***562***	***499***	***195***	***1131***	***275***	***1155***	***993***	***386***	***2299***

Note: Means are weighted.

Source: ATUS, 2003.

Table 2

Hours on diary day spent with children present, respondents ages 20-50 by age of youngest child

	Weekday reporters				Weekday and weekend reporters			
	<1	*1-5*	*6-12*	*total <13*	*<1*	*1-5*	*6-12*	*total <13*
WOMEN								
I. Housework	2.9	2.4	1.6	2.1	2.8	2.5	2.0	2.3
II. Childcare and care of others	4.3	2.7	1.5	2.4	4.0	2.5	1.3	2.2
III. Work and related	0.3	0.3	0.3	0.3	0.3	0.3	0.3	0.3
IV. Socializing, and sports	2.8	2.5	2.2	2.4	3.2	2.9	2.6	2.8
V. Eating and drinking	0.8	0.7	0.5	0.7	0.9	0.8	0.7	0.8
VI. All other activities	1.0	1.0	0.9	0.9	1.1	1.2	1.1	1.1
Total waking time with chidren	12.4	9.8	7.1	9.0	12.6	10.3	8.1	9.7
% of total waking hours with children	***78.7***	***63.7***	***45.3***	***58.1***	***81.5***	***68.5***	***53.2***	***63.9***
Sample Size	***196***	***764***	***800***	***1760***	***409***	***1630***	***1624***	***3663***
MEN								
I. Housework	0.8	0.8	0.7	0.8	1.0	1.1	1.0	1.0
II. Childcare and care of others	1.4	1.2	0.7	1.0	1.5	1.3	0.7	1.1
III. Work and related	0.4	0.2	0.2	0.2	0.3	0.2	0.2	0.2
IV. Socializing, and sports	1.4	1.8	1.8	1.7	2.2	2.3	2.4	2.4
V. Eating and drinking	0.5	0.5	0.4	0.5	0.7	0.6	0.6	0.6
VI. All other activities	0.5	0.4	0.4	0.4	0.7	0.6	0.7	0.6
Total waking time with chidren	5.1	4.9	4.2	4.7	6.6	6.2	5.6	6.0
% of total waking hours with children	***32.4***	***30.8***	***26.8***	***29.3***	***43.4***	***40.0***	***36.7***	***39.1***
Sample Size	***122***	***562***	***499***	***1183***	***275***	***1155***	***993***	***2423***

Note: Means are weighted.

Source: ATUS, 2003.

Table 3

(Weekday) Hours on diary day in primary activities, respondents ages 20-50 by presence and age of youngest child, work status, and by sex

	Currently Employed								Not currently employed			
	Works on diary day				Does not work on diary day							
	<1	*all <13*	*13-17*	*No Child*	*<1*	*all <13*	*13-17*	*No Child*	*<1*	*all <13*	*13-17*	*No Child*
WOMEN												
Total Hours	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
I. Sleeping	7.4	7.6	7.5	7.9	8.7	9.2	8.7	9.4	8.4	8.7	8.5	9.4
II. Housework	2.3	1.8	1.9	1.4	3.0	3.5	3.4	3.2	3.8	4.2	4.9	2.9
III. Childcare and care of others	3.2	2.1	0.8	0.3	4.8	3.1	1.4	0.7	5.2	3.6	1.6	0.8
IV. Work and related	7.3	7.6	8.2	8.3	0.2	0.1	0.1	0.1	0.0	0.1	0.3	0.5
V. Socializing, and sports	1.5	2.3	2.6	3.1	4.3	4.5	5.4	6.1	3.8	4.2	4.9	6.2
VI. Eating and drinking	1.0	1.0	1.1	1.1	1.3	1.1	1.8	1.1	0.9	1.0	0.9	0.9
VII. All other activities	1.2	1.5	1.8	1.7	1.6	2.3	2.6	2.9	1.4	1.9	2.7	3.0
Total waking time with chidren	8.8	6.7	NC	NA	12.9	10.6	NC	NA	14.4	11.6	NC	NA
Sample Size	***62***	***918***	***215***	***728***	***44***	***310***	***39***	***139***	***90***	***532***	***72***	***222***
MEN												
Total Hours	24.0	24.0	24.0	24.0	24.0	23.8	24.0	23.5	24.0	24.0	24.0	24.0
I. Sleeping	7.5	7.5	7.5	7.5	9.0	9.3	9.2	9.4	9.0	8.6	8.8	9.4
II. Housework	1.0	1.0	1.0	1.0	4.4	3.1	3.5	2.2	2.1	3.5	2.3	2.0
III. Childcare and care of others	1.1	1.1	0.3	0.3	3.6	2.1	1.2	0.4	1.7	1.9	1.6	0.4
IV. Work and related	9.8	9.6	9.6	9.2	0.0	0.2	0.3	0.2	1.3	0.9	0.6	0.8
V. Socializing, and sports	2.3	2.6	3.2	3.5	3.3	6.0	7.5	7.0	6.3	5.7	7.1	7.2
VI. Eating and drinking	1.2	1.1	1.1	1.2	1.2	1.2	0.8	1.2	1.1	0.9	1.3	1.0
VII. All other activities	0.9	1.1	1.2	1.3	1.7	1.5	1.4	2.8	2.3	1.9	2.0	3.0
Total waking time with chidren	3.7	3.8	NC	NA	12.8	8.9	NC	NA	6.1	7.4	NC	NA
Sample Size	***97***	***965***	***158***	***804***	***16***	***128***	***20***	***149***	***9***	***90***	***17***	***178***

Note: Means are weighted. NC: Not Collected; data are not collected for children over 12 years of age. NA: Not Applicable.

Source: ATUS, 2003.

Table 4

(Weekday and Weekend) Hours on diary day in primary activities, respondents ages 20-50 by presence and age of youngest child, work status, and by sex

	Currently Employed								Not currently employed			
	Works on diary day				Does not work on diary day							
	<1	*all <13*	*13-17*	*No Child*	*<1*	*all <13*	*13-17*	*No Child*	*<1*	*<13*	*13-17*	*No Child*
WOMEN												
Total Hours	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0	24.0
I. Sleeping	7.5	7.7	7.7	8.0	8.9	9.4	9.1	9.6	8.7	8.9	8.8	9.5
II. Housework	2.3	1.9	1.9	1.5	3.1	3.7	3.9	3.2	3.6	4.0	4.6	2.9
III. Childcare and care of others	3.2	2.0	0.8	0.3	4.4	2.5	1.0	0.5	4.6	3.1	1.4	0.7
IV. Work and related	7.2	7.4	7.9	8.0	0.1	0.1	0.0	0.1	0.0	0.1	0.2	0.4
V. Socializing, and sports	1.6	2.4	2.7	3.2	4.3	4.6	5.4	6.1	4.1	4.4	5.2	6.4
VI. Eating and drinking	1.0	1.0	1.1	1.1	1.4	1.2	1.5	1.3	1.0	1.1	1.0	1.0
VII. All other activities	1.2	1.5	1.8	1.8	1.7	2.3	2.6	2.8	1.5	2.0	2.6	2.8
Total waking time with chidren	8.9	6.9	NC	NA	12.8	11.1	NC	NA	14.1	11.8	NC	NA
Sample Size	***79***	***1240***	***298***	***1012***	***135***	***1253***	***213***	***783***	***195***	***1170***	***127***	***419***
MEN												
Total Hours	24.0	24.0	24.0	24.0	24.0	23.9	24.0	23.8	24.0	24.0	24.0	24.0
I. Sleeping	7.6	7.6	7.6	7.6	9.3	9.4	9.2	9.6	9.2	8.8	8.9	9.5
II. Housework	1.1	1.1	1.2	1.0	3.1	3.0	3.3	2.4	1.9	3.2	2.3	1.9
III. Childcare and care of others	1.3	1.1	0.3	0.3	2.8	1.8	0.7	0.5	1.8	1.9	1.3	0.4
IV. Work and related	9.2	9.1	9.0	8.9	0.0	0.1	0.1	0.1	1.1	0.8	0.6	0.6
V. Socializing, and sports	2.5	2.8	3.3	3.7	5.4	6.3	7.7	7.5	6.3	5.9	7.6	7.7
VI. Eating and drinking	1.2	1.1	1.2	1.2	1.5	1.3	1.2	1.3	1.2	1.0	1.3	1.0
VII. All other activities	1.0	1.1	1.4	1.2	1.7	1.8	1.7	2.2	2.4	1.9	1.8	2.6
Total waking time with chidren	4.3	4.2	NC	NA	11.5	9.9	NC	NA	5.7	8.1	NC	NA
Sample Size	***147***	***1375***	***221***	***1188***	***113***	***880***	***137***	***763***	***15***	***168***	***28***	***348***

Note: Means are weighted. NC: Not Collected; data are not collected for children over 12 years of age. NA: Not Applicable.

Source: ATUS, 2003.

Table 5: Effects of Work On Home Time Allocation, Men and Women Aged 20 to 44 With Own Children Under Age 13
OLS Coefficients (standard errors)

	Time with Children		Housework		Child Care	
	Women	Men	Women	Men	Women	Men
Employed, did not work on the diary day	-0.48 (0.64)	1.17 (0.98)	-0.06 (0.34)	-0.61 (0.50)	-0.53 (0.36)	0.03 (0.44)
Worked on diary day	-0.18 (0.73)	1.10 (1.04)	-0.25 (0.38)	-0.94+ (0.53)	0.40 (0.41)	0.25 (0.46)
Worked on diary day* hours worked	-0.60* (0.05)	-0.52* (0.05)	-0.22* (0.03)	-0.18* (0.03)	-0.22* (0.03)	-0.14* (0.02)
Log of wage	-0.03 (0.23)	-0.16 (0.28)	-0.16 (0.12)	-0.18 (0.14)	0.04 (0.13)	0.01 (0.12)
Log of spouse's wage	0.35 (0.25)	0.40 (0.33)	0.01 (0.13)	0.14 (0.17)	0.39* (0.14)	0.31* (0.15)
Proportion female in occupation>80%	0.17 (0.24)	-0.42 (1.00)	0.11 (0.13)	0.29 (0.51)	0.02 (0.14)	-0.09 (0.44)
Proportion female in occupation<30%	-0.04 (0.44)	0.08 (0.27)	-0.08 (0.23)	0.21 (0.14)	-0.12 (0.24)	0.05 (0.12)
Adjusted R-square	0.44	0.31	0.35	0.28	0.27	0.14
Mean (SD) of Dependent. Variable	8.8 (4.9)	4.8 (4.2)	2.8 (2.3)	1.5 (2.1)	2.8 (2.4)	1.3 (1.7)

* $p \leq 0.05$; + $.05 < p \leq .10$; Sample Sizes: Women 1437; Men 853.

Note: Additional controls include age, age squared, number of children, dummy variable for positive spouse's wage and salary income, usually part-time, spouse self-employed, race (3), residence in a metropolitan area, region (3), education (3), age of youngest child <1, age of youngest child 1 to 5 years, and blue collar occupation..

Table 6: Effects of Work On Home Time Allocation by Marital Status, Women Aged 20 to 44 With Children Under Age 13
OLS Coefficients (standard errors)

	Time with Children		Housework		Child Care	
	Married	Unmarried	Married	Unmarried	Married	Unmarried
Employed, did not work on the diary day	-0.55 (0.79)	-1.27 (1.20)	-0.42 (0.42)	0.27 (0.57)	-1.29* (0.44)	0.48 (0.64)
Worked on diary day	-0.38 (0.87)	-0.69 (1.44)	-0.59 (0.47)	0.02 (0.69)	-0.31 (0.49)	1.42+ (0.76)
Worked on diary day* hours worked	-0.62* (0.06)	-0.56* (0.10)	-0.26* (0.03)	-0.16* (0.05)	-0.24* (0.03)	-0.21* (0.05)
Log of wage	-0.07 (0.27)	0.54 (0.47)	-0.05 (0.15)	-0.17 (0.22)	0.24 (0.15)	-0.10 (0.25)
Log of spouse's wage	0.37 (0.26)	NA	-0.03 (0.14)	NA	0.34* (0.15)	NA
Proportion female in occupation>80%	0.25 (0.31)	0.16 (0.42)	0.08 (0.16)	0.23 (0.20)	0.05 (0.17)	-0.00 (0.23)
Proportion female in occupation<30%	0.18 (0.55)	-0.50 (0.74)	-0.05 (0.30)	-0.13 (0.36)	0.06 (0.31)	-0.48 (0.40)
Adjusted R-square	0.47	0.36	0.36	0.22	0.28	0.23
Mean (SD) of Dependent. Variable	9.3 (4.9)	7.8 (4.7)	3.1 (2.4)	2.1 (2.0)	3.0 (2.4)	2.4 (2.3)

* $p \leq 0.05$; + $.05 < p \leq .10$; Sample Sizes: Married 970, Unmarried 467; See notes next page.

Note: See Table 5.

Table 7: Effects of Work On Home Time Allocation by Education, Women Aged 20 to 44 With Children Under Age 13
OLS Coefficients (standard errors)

	Time with Children		Housework		Child Care	
	Col Grad+	≤ HS Grad.	Col Grad+	≤ HS Grad	Col Grad+	≤ HS Grad
Employed, did not work on the diary day	-0.32 (1.24)	0.09 (1.21)	-0.47 (0.60)	0.55 (0.66)	-1.40* (0.65)	-1.53* (0.67)
Worked on diary day	0.29 (1.41)	0.04 (1.40)	-0.89 (0.68)	-0.34 (0.76)	-0.47 (0.74)	0.17 (0.78)
Worked on diary day* hours worked	-0.62* (0.08)	-0.54* (0.10)	-0.25* (0.04)	-0.14* (0.05)	-0.22* (0.04)	-0.27* (0.05)
Log of wage	-0.24 (0.38)	-0.08 (0.50)	0.08 (0.18)	-0.43 (0.28)	0.18 (0.20)	0.34 (0.28)
Log of spouse's wage	0.68 (0.45)	0.31 (0.47)	-0.09 (0.22)	-0.30 (0.26)	0.63* (0.24)	0.05 (0.26)
Proportion female in occupation>80%	0.86* (0.44)	-0.31 (0.45)	0.10 (0.21)	0.22 (0.24)	0.11 (0.23)	-0.10 (0.25)
Proportion female in occupation<30%	0.13 (0.75)	-1.01 (0.79)	0.03 (0.36)	-0.04 (0.43)	-0.07 (0.39)	-0.31 (0.43)
Adjusted R-square	0.46	0.43	0.39	0.31	0.37	.28
Mean (SD) of Dependent. Variable	8.9 (4.9)	9.1 (4.8)	2.6 (2.2)	3.1 (2.4)	3.2 (2.4)	2.6 (2.4)

* $p \leq 0.05$; + $.05 < p \leq .10$; Sample Sizes: College+ = 456; HS grad or less= 553.

Note: See Table 5.

Table 8

Log Wage Rates of Men and Women and The Gender Wage Gap, ATUS Respondents Ages 30-44

	Weekday reporters				Weekday and weekend reporters			
	Men	Women	Gender Wage Gap		Men	Women	Gender Wage Gap	
			Log diff.	***Ratio*** [b]			Log diff.	***Ratio*** [b]
All	2.87	2.65	0.22	***79.9***	2.87	2.66	0.21	***80.9***
with youngest child <18	2.91	2.65	0.27	***76.7***	2.92	2.64	0.27	***76.0***
with youngest child <13	2.92	2.66	0.26	***76.8***	2.93	2.66	0.27	***76.4***
with youngest child <1	3.10 [a]	2.83 [a]	0.27	***76.3***	3.09	2.79	0.30	***73.8***
No child	2.82	2.65	0.17	***84.8***	2.80	2.69	0.11	***89.4***
All married	2.94	2.68	0.26	***76.8***	2.94	2.69	0.25	***77.6***
with youngest child <13	2.96	2.72	0.24	***78.7***	2.96	2.71	0.25	***78.2***
All not married	2.74	2.60	0.13	***87.5***	2.72	2.61	0.12	***89.1***
with youngest child <13	2.57 [a]	2.50	0.07	***93.2***	2.61	2.50	0.10	***90.2***
No child	2.76	2.68	0.09	***91.7***	2.74	2.70	0.04	***96.1***
All high school or less	2.62	2.29	0.33	***71.7***	2.62	2.31	0.30	***74.0***
with youngest child <13	2.61	2.27	0.34	***71.3***	2.62	2.30	0.32	***72.6***
All some college	2.79	2.57	0.22	***80.0***	2.79	2.58	0.22	***80.5***
with youngest child <13	2.88	2.61	0.26	***77.0***	2.88	2.60	0.28	***75.9***
All college graduate or more	3.26	3.07	0.19	***83.0***	3.25	3.06	0.18	***83.2***
with youngest child <13	3.30	3.06	0.24	***78.6***	3.29	3.06	0.24	***78.8***

Note: Means are weighted. [a] Sample size is less than 100; [b] Female/Male wages based on exponentiated log wage.

Source: ATUS, 2003.

Table 9

Means and Regression Coefficients of Explanatory Variables from Separate Log Wage Regressions for Men and Women,
(ATUS Respondents Ages 20-44 with own household children under age 13)

	Means		Women				Men			
			M1		*M2*		*M1*		*M2*	
	Women	*Men*	*Coef.*	*t-stat*	*Coef.*	*t-stat*	*Coef.*	*t-stat*	*Coef.*	*t-stat*
Work on diary day (0,1)	0.758	0.876	0.250	2.87	0.156	2.05	0.093	1.02	0.029	0.36
Hours of Hometime										
Total waking time with chidren	7.372	4.614	0.007	0.98			-0.001	-0.15		
Total waking time with chidren*work on diary day	4.730	3.500	-0.014	-1.70			-0.003	-0.34		
Hours of housework	2.133	1.277			0.005	0.35			-0.024	-1.55
Hours of housework* work on diary day	1.278	0.887			-0.030	-1.75			0.008	0.38
Hours of primary childcare	2.336	1.245			0.003	0.25			0.001	0.04
Hours of primary childcare* work on diary day	1.583	0.983			0.016	1.03			0.000	0.00
Education										
High school grad. (0,1)	0.266	0.286	0.185	2.85	0.175	2.68	0.084	1.27	0.083	1.25
Some college (0,1)	0.321	0.252	0.392	6.01	0.380	5.80	0.236	3.46	0.241	3.52
College or more (0,1)	0.342	0.368	0.772	11.49	0.751	11.10	0.589	8.37	0.588	8.35
Children Status										
2 children (0,1)	0.435	0.442	0.002	0.07	-0.004	-0.10	0.046	1.16	0.044	1.11
3 or more children (0,1)	0.225	0.269	-0.073	-1.68	-0.080	-1.80	0.038	0.85	0.038	0.85
Age of youngest child <1 (0,1)	0.091	0.130	0.184	2.99	0.157	2.46	0.100	1.72	0.111	1.89
1<=Age of youngest child <=5 (0,1)	0.429	0.514	0.071	1.98	0.054	1.48	0.020	0.51	0.020	0.51
Marital Status										
Currently married (0,1)	0.640	0.895	0.050	0.99	0.067	1.32	0.154	1.82	0.167	1.98
Previously married (0,1)	0.212	0.063	0.004	0.07	0.012	0.22	0.087	0.84	0.100	0.96
Usually work part time (0,1)	0.305	0.035	-0.163	-4.71	-0.172	-4.92	-0.051	-0.57	-0.046	-0.51
% female in OCC=>80% (0,1)	0.413	0.016	-0.049	-1.54	-0.054	-1.69	-0.200	-1.56	-0.196	-1.52
% female in OCC<30% (0,1)	0.084	0.582	0.072	1.28	0.076	1.35	0.039	1.12	0.042	1.21
Adj. R-Square			**0.397**		**0.398**		**0.356**		**0.357**	
Dependent mean			**2.603**				**2.925**			
Sample size			**978**				**798**			

Note: All regreessions also include age, age squared, dummy variables for region (3), residence in a metropolitan area and race(3).

Source: American Time Use Survey (ATUS), 2003.

Table 10

Percent Female in Occupation of Men and Women, Weekday ATUS Wage Workers Ages 20-44

	Women		Men	
	% female in OCC=>80%	% female in OCC< 30%	% female in OCC=>80%	% female in OCC< 30%
All	36.8	10.5	2.8	55.9
with youngest child <18	40.4	9.5	1.8	61.3
with youngest child <13	40.3	8.1	1.8	59.8
with youngest child <1	38.8	4.7	0.7	54.8
No child	32.8 [a)]	11.5 [a)]	3.6	51.6
All married	39.6	9.7	2.1	60.8
with youngest child <13	40.8	7.7	1.9	60.0
All not married	34.1	11.2	3.6	50.6
with youngest child <13	39.1	8.9	0.8 [a)]	57.8 [a)]
No child	32.2	11.7	3.9	49.2
All high school or less	35.3	12.6	2.1	67.1
with youngest child <13	34.3	8.2	1.4	72.2
All some college	42.4	9.0	2.9	56.6
with youngest child <13	48.8	8.2	2.1	58.5
All college graduate or more	32.2	9.9	3.8	38.7
with youngest child <13	39.2	7.8	2.2	44.0

Note: Means are weighted; [a)] Sample size is less than 100.

Source: ATUS, 2003.