Market Income and Household Work: New Tests of Gender Performance Theory

August 14th, 2009

Daniel Schneider
Princeton University

Word Count: 9,525

*Direct correspondence to Daniel Schneider, 284 Wallace Hall, Office of Population Research, Princeton University, Princeton, NJ 08544, djschnei@princeton.edu, Phone: (646) 942-6074, Fax: (609) 258-1039. This paper has benefited from the helpful advice and comments of Devah Pager, Cristobal Young, Sara McLanahan, and participants in the Princeton University Women and Gender Graduate Student Colloquium. The author is grateful for support from the National Science Foundation (NSF) Graduate Research Fellowship and the Princeton Joint Doctoral Program in Sociology and Social Policy.

Market Income and Household Work: New Tests of Gender Performance Theory

ABSTRACT

I provide new evidence about whether men and women engage in gender performance through housework. Scholars have reported empirical findings that suggest that there may be a curvilinear relationship between income share and housework time that is indicative of efforts by men and women to neutralize the gender deviance created by non-adherence to the male breadwinner norm. However, the empirical evidence for this inference is scattered and has been contested in the literature. In this paper, I provide new tests of gender performance theory, the first tests to use high quality time diary data for a U.S. sample for the contemporary period. I draw on data on 11,856 married women and 10,756 married men surveyed in the 2003-2007 waves of the American Time Use Survey. I find no evidence that married men "do gender" through housework. However, I find strong evidence of a curvilinear association between relative income share and women's housework time that accords with the predictions of gender performance theory. Further, these results are generally quite robust to alternative model specifications.

Prior research has led to near unanimity among scholars that what married men and women earn in the market affects the amount of housework they do at home. There is substantially more ambiguity and debate however about just how income affects housework time. Household bargaining theory posits that income share should be negatively related to housework time as the higher earning spouse can be expected to use his or her position of superior earnings to negotiate a smaller housework burden (Lundberg and Pollack, 1996). While research bears out this prediction in couples in which the husband earns the majority of couple income, scholars have detected a surprising relationship between income share and housework in couples in which the wife earns at least half of couple income. Women in these couples actually appear to do more housework than otherwise similar women who earn roughly equal amounts as their husbands and men in these couples appear to do less housework than otherwise similar men in couples with approximately equal earnings (Brines, 1994; Greenstein, 2000; Bittman England, Folbre, Sayer, and Matheson, 2003). The literature then documents an unexpected curvilinear relationship between income share and housework time.

Scholars have interpreted this relationship through the prism of gender performance theory, arguing that housework can serve as a way in which men and women enact gender and create social meaning (West and Zimmerman, 1987). This type of gender performance may be particularly important in the context of gender deviance, such as when couples do not adhere to the male breadwinner norm, with housework being used to neutralize deviance and reconstruct gender (Greenstein, 2000; Bittman, et al, 2003).

However, while a number of findings in the housework literature do seem to provide support for gender performance theory, the broader empirical record is substantially more ambiguous. One set of findings does suggest that men may in fact "do gender" by reducing housework time when they earn less than their wives (Brines, 1994; Greenstein, 2000). However,

this evidence in support of gender performance theory has been challenged by scholars who find that these results are driven primarily by outliers - the lowest earning men in married couples (Gupta, 1999; Bittman et al, 2003). Other research provides some evidence that though men may not be "doing gender," women may be engaging in gender performance through housework (Bittman et al, 2003; Evertsson and Nermo, 2004). However, this finding has also been challenged, in this case by recent work which suggests that women's absolute levels of income, not their share of income, may predict the amount of time they spend on housework (Gupta, 2006; 2007; Achen and Gough, 2009).

This uncertainty in the literature has created a substantial gap in our understanding of housework. More generally though, since housework has served as a key strategic site to test broader theories of gender and household dynamics, uncertainty about the validity of gender performance theory in this specific domain has cast broader doubts about the soundness of this key sociological theory.

In this paper I provide new evidence to help resolve the empirical debate. Drawing on time diary data collected between 2003 and 2007 by the American Time Use Survey (ATUS), I assess the relationship between men's and women's housework time and their market incomes. In contrast to the predictions of gender performance theory and bargaining theory, I find no evidence of an association between men's relative income shares and the amount of time men spend on housework. However, in confirmation of findings by Bitman et al (2003), I do find evidence that women's housework time exhibits patterns of association with relative income share that are evidential of both gender performance theory and bargaining theory. Moreover, in contrast to work by Gupta (2007), I find that adjusting separately for men's and women's own absolute incomes generally does not attenuate the curvilinear association between income share and housework time that has been interpreted as evidence of gender performance and bargaining.

THEORETICAL BACKGROUND

Bargaining theorists draw a connection between market income and housework by arguing that income earned in the market serves as a bargaining resource in negotiations that take place in the home over housework (Lundberg and Pollack, 1996). Spouses who contribute larger shares of couple income have more power in the couple and so are better able to bargain to avoid the unpleasant work of household chores. Bargaining theory then predicts a strong negative relationship between each spouse's relative income and the amount of time each spends on housework. A key feature of this theoretical model is that this negative relationship should be identical for men and for women. Men who are the primary breadwinners in a couple can be expected to do less housework than otherwise similar men who earn less than their wives and the same type of relationship can be expected to hold for women. The utility of income as a bargaining resource does not vary depending on the gender of the earner.

However, this body of theory cannot then adequately explain the puzzling empirical finding of a quadratic relationship between income share and housework time. Gender performance theory, explicitly focused on the idea that both income and housework have important cultural meanings that vary by gender, appears to provide greater explanatory power. Originating in the theoretical work of West and Zimmerman (1987), this perspective suggests that spending time on housework (or avoiding it) is a way in which women and men actually produce gender. Rather than being able to rely on gender as a fixed biological trait or social role, men and women must constantly perform gender through activities that conform to social expectations (West and Zimmerman, 2009) and that when they do not, their actions simply do not make sense to others (England and Folbre, 2005). Housework then is not a gender-neutral activity that is bargained over, but rather is a set of actions imbued with cultural meaning, actions that serve as a resource for the construction of gender for women and as a threat to gender identity for men.

Scholars have extended this theory to argue that when men and women are gender deviant in one domain, they may attempt to neutralize that deviance by making particularly pronounced efforts at gender performance in another (Greenstein, 2000; Bittman et al, 2003; Kroska, 2008). Research to date that links gender deviance and housework focuses on situations in which men earn less than their wives (e.g. Brines, 1994; Bittman et al, 2003; but see Schneider, 2009) and so fail to meet the social expectation that they be the primary economic providers for their families. In these situations, the predictions of bargaining theory and gender performance theory diverge. While bargaining theory would predict that relatively low earning men would spend more time on housework and that their wives would spend less time, gender performance theory predicts the opposite. Men who are gender deviant in their relative contributions to couple income will seek to neutralize that deviance by doing less housework and their wives will actually do more housework in response to their deviant earnings.

In her renowned ethnography, *The Second Shift* (1989), Arlie Hochschild offers several particularly vivid examples of this kind of gender deviance neutralization. For instance, she describes Peter and Nina, a married couple living in the San Francisco Bay area. In violation of the male breadwinner norm, Nina earns more than her husband Peter and yet, in contrast to the predictions of bargaining theory, Nina still does most of the housework. Hochschild writes, "Nina did not want to push Peter about the housework. So she rarely asked. She herself did the lion's share of it. Nina made up for out-earning her husband (and breaking the cultural rule) by working a double day." Here, housework is an important venue for the performance of gender, Nina engages in housework to enact her femininity and compensate for her gender deviance in earnings. Peter avoids housework so as not to further threaten his masculinity in the face of the violation of the male breadwinner norm.

EMPIRICAL EVIDENCE

Several studies do indeed find evidence that would seem to support gender performance theory. Drawing on data from the 1985 wave of the Panel Survey of Income Dynamics, Brines (1994) finds that wives' housework time exhibits a roughly linear negative relationship with income share and husbands appear to increase their housework time as their income shares decrease towards equality. However, in contrast to the predictions of bargaining theory, when husbands are the minority breadwinners, they actually appear to spend less time on housework. Brines (1994) argues that this quadratic relationship between income share and men's housework time appears to better fit the predictions of gender performance theory. Men and women in married couples interviewed for the National Survey of Families and Households (NSFH-I) appear to follow similar patterns of housework. Men who earn less than their wives actually do less housework, not more, than men in couples where spouses have equal incomes (Greenstein, 2000).

However, subsequent research suggests that each of these results is primarily driven by the lowest earning men in the samples. After excluding the two to three percent of lowest earning men from the PSID and NSFH-I samples used by Brines (1994) and Greenstein (2000) respectively, Gupta (1999) and Bittman et al (2003) show that there is no quadratic relationship between men's housework time and income share while Evertsson and Nermo (2004) just find evidence of a simple linear negative relationship. It is not necessarily clear however whether these outliers are the result of measurement error or whether they are informative extreme values, representing cases in which the relationship between income and housework really is materially different. Those concerns aside, in all, this research suggests that while bargaining theory may accurately describe some aspects of the relationship between income share and men's housework time, gender performance theory does not.

However, more recent research provides somewhat more persuasive evidence that though men may not "do gender" through housework to neutralize gender deviance, women may. Married

Australian women appear to reduce their housework time as their relative income shares approach equality, but, as predicted by gender performance theory, past the point of equality, these women actually increase the amount of time spent on housework (Bittman et al, 2003). Further, the authors are careful to test the sensitivity of their results to the exclusion of outliers and use of alternative measures of income share. This fairly strong evidence of gender performance among women in Australia is particularly striking because research in other national contexts, most notably Sweden (Evertsson and Nermo, 2004) and Great Britain (Kan, 2008a), has not found any similar evidence of gender performance among women.

Additionally, scholars have reported divergent findings regarding gender performance through housework among women in the United States. Analyzing data from the 1973, 1981, 1991, and 1999 waves of the PSID, Evertsson and Nermo (2004) find evidence that women do less housework as their incomes increase towards equality with their husbands', but that in the 1981, 1991, and 1999 waves, once women's incomes exceed their husbands', women actually increase the amount of time they spend on housework (though this curvalinearity is only strongly evident in the 1991 wave). This curvilinear relationship suggests a pattern of gender performance by women to neutralize the deviance created by earning more than their husbands. However, exploiting the panel design of this same PSID data to employ fixed effects, Achen and Gough (2009) find no evidence that women "do gender" in this way. Instead, in confirmation of the predictions of autonomy theory, they find that women's absolute amount of own income is an important predictor of housework time.

Gupta and his co-authors, using different data, report the primary evidence in support of the autonomy argument, finding that women's own income has a strong negative relationship with women's housework time (Gupta, 2006; Gupta, Sayer, and Cohen, 2009). Additionally, while Gupta (2007) finds a quadratic relationship between income share and housework time among married

women employed full-time in the NSFH-2, he shows that this relationship disappears when men's and women's absolute levels of income are controlled for separately and shows that women's own income has a large negative relationship with housework. Though compelling, Gupta (2007) limits his sample to married women who are employed full time. While that restriction may allow for cleaner comparisons between women, it limits the external validity of his analysis much more than was the case in prior work. Additionally, Gupta (2007) uses a definition of housework that is limited to cooking, cleaning, laundry, and doing the dishes. This fairly restrictive definition makes it more difficult to compare his results to other research that has used a broader measure of housework (Brines, 1994; Greenstein, 2000; Bittman et al, 2003; Evertsson and Nermo, 2004).

UNANSWERED QUESTIONS

My study takes up three unanswered questions in this dynamic literature. First, though it appears that there is in fact little evidence in the NSFH-I and PSID that men "do gender" through housework in response to gender deviance in earnings, that conclusion rests on data gathered with survey-based interview methods rather than on time-diary data. While the basis for much of the research in the United States on the association between housework time and income share, it appears that time-use data collected using survey questions may be less reliable than time use data collected using time diaries (Marini and Shelton, 1993; Bianchi, Milkie, Sayer, and Robinson, 2000; Bonke, 2005). Additionally, with the exception of Evertsson and Nermo's (2004) research, this work is all based on data collected in the 1980s or early 1990s. Before concluding that men really do not "do gender" through housework, it would be useful to re-visit the issue, drawing on up-to-date data with analyses that carefully exclude outliers. I do so using time diary data from the 2003 – 2007 American Time Use Survey (ATUS).

Second, though there is more reliable evidence in the literature on the connection between women's relative income share and women's housework time (Bittman et al, 2003), considerable ambiguity remains about why scholars have uncovered such different results across national contexts. There appears to be strong evidence of gender performance among married couples in Australia (Bittman et al, 2003), no such evidence in Sweden (Evertsson and Nermo, 2004) or Great Britain (Kan, 2008a), and contested evidence in the United States (Evertsson and Nermo, 2004; Gupta, 2007; Achen and Gough, 2009). One way to reconcile these results is to attribute these differences to cultural and economic variation across countries. But, such an explanation is confounded by a second source of variation between the studies. While prior work on income share and housework in the United States, Great Britain, and Sweden has relied on survey-based questions about housework time, the evidence from Australia is based on time-diary data. This paper makes use of the time diary-based ATUS, which allows me to in some sense hold constant differences in data collection methodologies and so make a closer comparison between the Australian and U.S. contexts.

Third, though Bittman et al (2003) do find evidence of gender performance among married Australian women, their work predates Gupta's (2007) criticism and so their models do not adjust for men's and women's own absolute incomes. In this work, I use the ATUS time diary data to ensure a closer comparison to the Australian data, but I also examine the relationship between absolute individual income and housework time in order to test if autonomy, more than bargaining or gender performance, is the link between market income and household work. I also examine the sensitivity of these results to alternative definitions of housework beyond the relatively narrow definition used by Gupta (2007) and to larger sub-samples of the population that go beyond the full-time female workers upon whom Gupta (2007) focuses.

Further, proponents of autonomy theory suggest that the hiring of employees to help with housework is the principal mechanism through which absolute income may affect housework time. Yet, that contention has not been empirically tested in the literature. I examine whether women's absolute income predicts the amount of time women spend on paid housework services and if any relationship between women's own income and housework time is moderated by the use of paid household services.

DATA AND METHODS

Data

I make use of a relatively new data source, the American Time Use Survey (ATUS), a nationally representative repeated cross-sectional survey of the United States non-institutionalized population aged 15 and older that was fielded in each of the years 2003 – 2007. The ATUS draws its sample from the outgoing rotation group of the Current Population Survey (CPS), re-interviewing selected CPS respondents two to five months after the completion of their final CPS interview. In all, the 2003 – 2007 ATUS samples include 72,922 respondents for whom there is time diary data, reflecting an average response rate of about 58% (Bureau of Labor Statistics, 2009). Though this response rate is somewhat low by survey standards, it appears that at least for the 2003 and 2004 waves, non-response does not appear to be a major source of bias (Abraham, Maitland, and Bianchi, 2006). All data are accessed through the American Time Use Survey Extract System (Abraham, Flood, Sobek, and Thorn, 2008) maintained by the University of Maryland and the University of Minnesota.

The time diary method involves asking each ATUS respondent to provide detailed information about all of the activities they engaged in throughout the course of a randomly chosen day (with weekend days over-weighted), starting at 4:00 AM and continuing for the following

twenty-four hours. Individuals are asked at what time they began each activity, how long it lasted for, who they were with, and where they were. This iterative process creates a detailed record of how each respondent spent his or her day.

I pool data from the five available waves of the ATUS, drawing on the time-diary data and the accompanying survey-based data collected on demographic and economic characteristics. In addition, I join the ATUS data with supplemental data collected by the CPS about married ATUS respondents' spouses. I impose three restrictions on the sample, including only those respondents (1) between the ages of 18 and 65, (2) who were in heterosexual married couples, and (3) had complete data on all covariates. Of the 43,195 female respondents and the 43,156 male respondents in married couples, I eliminate 26,281 and 28,165 respectively because one of the spouses was either younger than 18 or older than 65. I also eliminate an additional 5,058 female and 4,225 male respondents (11.7% and 9.8% of the married sample respectively) who lack complete data on all covariates. These procedures yield an analysis sample of 11,856 women and 10,756 men. The data are weighted in all analyses to take account of sample design and non-response.

The ATUS data are recommended by two chief virtues. First, the time diary methodology that it employs appears to produce more accurate assessments of time-use than the survey-based questions used in studies such as the NSFH and the PSID (Marini and Shelton, 1993; Bianchi, Milkie, Sayer, and Robinson, 2000; Bonke, 2005; Kan, 2008b). Second, while the most recent wave of time use data from the NSFH dates to 1992-1994 and the PSID to 1999, the ATUS data are quite current, with all of the data collected since 2003 and the most recent data collected in 2007.

However, despite these advantages, the ATUS data has rarely been used to empirically test bargaining, gender performance, and autonomy theories of housework (though see Schneider, 2009 and Gupta et al, 2009). In addition to the unfamiliarity of the data to many scholars, the non-use of the ATUS may stem from two more substantive concerns.

First, unlike the NSFH, the ATUS only collects time-use data from one member of each married couple included in the survey. This design precludes the calculation of relative housework shares for married couples. However, this design issue is of relatively minor concern because the housework literature has almost exclusively focused on absolute measures of housework time rather than shares of housework (Brines, 1994; Gupta, 1999; Bittman et al, 2003; Evertsson and Nermo, 2004; though see Greenstein, 2000). Since economic and demographic data is available for both members of each married couple, the ATUS can easily be used to examine the extent to which the characteristics of respondents and the characteristics of their spouses predict the absolute amount of time respondents spend on housework.

Second, scholars may avoid the ATUS data due to an understandable desire to make use of data sets, which, like the NSFH and PSID, have been more widely used in the literature and so can be used to produce estimates that are more readily comparable to prior work. However, in this case that potential drawback is actually a virtue. The ATUS provides an independent source of data to assess null, new, and controversial, findings in the literature. Further, because the strongest current evidence for gender performance theory comes from Australian time diary data, the ATUS is particularly valuable for use in performing comparable calculations in the United States context.

Dependent Variable

I calculate total housework time as the sum of minutes per day spent on nine types of housework: (1) cleaning, laundry, sewing, (2) meal preparation and clean-up, (3) shopping, (4) interior maintenance, (5) exterior maintenance, (6) lawn, garden, and yard care, (7) auto maintenance and repair, (8) household management, and (9) care of pets. I top-code the total time spent on these housework tasks at the 99th percentile for the analysis sample. Though the definition of housework that scholars have used varies by study, the fairly inclusive measure used here is quite close to that

used by Bittman et al (2003) and Greenstein (2000) and should overlap with the measure used by Brines (1994), Evertsson and Nermo (2004), and Achen and Gough (2009) which is based on a single catch-all question about housework in the PSID. Using an even more inclusive definition of housework that accounts either for time spent on just primary or primary and secondary childcare does not substantively alter my results.

Independent Variables

Following Soerenson and McLanahan (1987) and much of the housework literature to date (e.g. Greenstein, 2000; Bittman et al, 2003; Evertsson and Nermo, 2004), I define income share as husband's income less wife's income divided by total couple income. The resulting variable ranges from -1 (wife contributes all of couple income) to 1 (husband contributes all of couple income) and I rescale this variable to range from 0 (wife contributes all of couple income) to 1 (husband contributes all of couple income). Additionally, I also include controls for total couple income and, in a second set of models, separate controls for men's and women's individual absolute incomes.

These variables are designed to separate the relationship between income share and housework from the relationship between absolute income and housework. But, all three of these theoretically important variables may also be associated with other characteristics, confounding the relationship between income and housework. The leading candidate for this kind of omitted variable bias is the amount of time that men and women spend at paid market work (Shelton and John, 1996). To avoid this threat to validity, I include measures of respondents' and spouses' usual hours of paid work.

Other demographic and economic variables may have readily apparent associations with housework time, but less intuitively clear associations with income share. Nevertheless, I include linear and squared terms for age, a dichotomous measure of race (white vs. non-white), a

dichotomous indicator of homeownership, a measure of the number of children under age 18 in the household, indicators for completed education (high school, some college, college completion or more – relative to not graduating from high school), a dichotomous indicator of current enrollment in school, and dichotomous indicators of unemployment and labor force participation. In addition, I include dichotomous indicators for time-diary interviews conducted on Saturday, Sunday, and holidays (relative to a non-holiday weekday).

Analyses

I use Ordinary Least Squares regression to estimate the relationship between income share and the amount of time men and women spend on housework. In my first set of analyses, I use the ATUS data to estimate models of the relationship between income share and men's housework time. These analyses revisit the findings (Brines, 1994; Greenstein, 2000) and challenges to those findings (Gupta, 1999; Bittman et al, 2003) in the literature about whether there is a curvilinear association between income share and men's housework time.

Second, shifting from a focus on men's housework time, I regress a linear and squared term for income share on women's housework time, controlling for total couple income, usual work hours, as well as economic and demographic characteristics. Bargaining theory would predict a linear negative relationship between this measure and housework time for both men and women. However, gender performance theory would predict a quadratic relationship with a negative coefficient on the linear term and a positive coefficient on the squared term. I take particular care to assess the sensitivity of these analyses to the exclusion of outliers.

Finally, third, I re-estimate these models substituting separate measures of women's and men's own absolute income for total couple income. This modeling strategy allows me to investigate Gupta's (2007) recently articulated autonomy theory of housework. In addition, in an

effort to assess if any discrepancies between my results and Gupta's (2007) are due to differences in model specification rather than more substantive differences in the content of the data, I re-run the analyses using Gupta's (2007) specifications for the analysis sample, definition of housework, and covariates. I also examine how sensitive the results based on Gupta's (2007) specifications are to alternative definitions of housework, variations in the sample restriction criteria, and covariates.

In an effort to isolate the causal mechanism behind autonomy theory, I conduct two additional tests. First, I assess if the absolute level of individual income is predictive of the amount of time women spend managing and arranging paid household services. Second, I examine whether any relationship between own income and housework time is moderated by time spent on paid household services.

DESCRIPTIVE STATISTICS

Married women do far more housework each day than married men. On average, as shown in Table 1, married women (column 5) in my sample spend about two and a half hours (154 minutes) on housework while married men (column 1) spend a bit more than half that amount of time, 87 minutes, on similar tasks each day. Columns 1 and 5 of Table 1 also present basic descriptive statistics about the economic and demographic characteristics of men and women in the analysis sample. While men and women have approximately equal levels of educational attainment, men have higher rates of labor force participation and have higher earnings. These higher average absolute earnings translate into a male advantage in terms of relative contributions to couple income. On average, men contribute two thirds of couple income and women contribute just one third. But, as depicted in Figure 1 (Panel A), there is a bimodal distribution of relative income shares because in a large minority of couples there is just one earner. In 32% of couples this sole earner is male while in 8% the sole earner is female. While sole earners are fairly common, there is substantial

heterogeneity in the relative income shares of the approximately 60% of couples which are composed of dual earners (Figure 1, Panel B).

Table 1 also presents some descriptive evidence to support the hypothesis that women who earn more than their husbands might actually spend more time on housework than women who earn the same amount as their husbands. Women whose husbands contribute 10% or less of couple income (column 8) perform 122 minutes of housework per day on average, about 12 minutes more than women who earn between 45% and 55% of couple income (column 7), but still substantially less than women whose husbands earn at least 90% of couple income (column 6). However, Table 1 also reveals that women whose husbands earn 10% or less of couple income are also less affluent than their counterparts in couples where husbands earn at least 90% of earnings or spouses' earnings are approximately equal. These couples have weekly incomes of just $726 on average, as compared to $1,388 for all married couples, $1,652 for couples in which women earn about the same amount as their husbands, and $1,083 for couples in which women's husbands earn at least 90% of couple income. Further, both women who earn large and small shares of couple income are much less likely to have completed college than women whose earnings are roughly equal to their husbands'.

These differences raise the question of whether any quadratic relationship between housework time and earnings share may in part be driven by class differences that shape both earnings share and women's housework time. Perhaps less affluent women simply complete more housework and are more likely to be in couples where one spouse earns a large share of couple income. In the following regression analyses, I take particular care to control for these class attributes in order to isolate the relationship between income share and housework time.

REGRESSION RESULTS

Do Men "Do Gender"?

Whether men "do gender" through housework in response to gender deviance in earnings persists as a key puzzle in the literature on earnings and housework. Table 2 presents the results of analyses that revisit this puzzle, using data from the ATUS. Employing this new source of time diary data, I find no evidence that men's housework time is responsive to their relative income shares. There is neither a linear relationship (Model 1) nor a quadratic relationship (Model 2) between men's relative income share and men's time spent on housework. In the existing literature, scholars have erased non-linear findings by excluding outliers. In this case, there are no such curvalinearities to question. Excluding men with no income and men in the lowest 2% of earners does not change that null finding.

Income Share and Women's Housework Time

While I find no evidence of a relationship between relative income share and men's housework time, I find strong evidence of a relationship between income share and housework for women. As shown in Model 3 (Table 3), there is a statistically significant relationship between the linear measure of income share and women's housework time (beta = 26.9, $p < 0.01$). As men's share of couple income increases, women appear to increase the amount of time they spend on housework. But, Model 4 demonstrates that there is in fact a quadratic relationship between those two variables. The squared term for income-share is large, positive, and statistically significant (beta = 103.72, $p < 0.001$) while the linear term is negative and significant (-70.04, $p < 0.05$). Plotting the predicted values from Model 4 (holding all other covariates at the sample means) shows a pronounced curvilinear relationship (Figure 2, solid line). Even after controlling for a host of economic and demographic characteristics, it appears that married women decrease the amount of

time that they spend on housework as their share of couple income rises towards equality. That relationship fits with the predictions of bargaining theory. However, in contrast, and in better accord with the predictions of gender performance theory, it appears that when women earn more than their husbands they actually increase the amount of time they spend on housework. Women who are the majority breadwinners do more, not less, housework than women who earn about the same amount of money as their husbands.

Underlying the analysis above, which focuses on the quadratic relationship between income share and housework time, is the even simpler idea that there should be a positive relationship between men's income share and women's housework time for women who earn less than half of couple income and a negative relationship for women who earn more than half of couple income. For women in the first group, who are in married couples that conform to the male breadwinner norm, the predictions of bargaining theory should hold and these women should do more housework as their husbands' shares of couple income approach 100%. In contrast, women who earn more than their husbands and so break the male breadwinner norm should, in accordance with gender performance theory, reduce the amount of housework they complete as their husbands' earnings increase from zero to half of couple income. Splitting the sample this way and running separate regressions with just a linear measure of income returns these relationships. Examining only women who earn less than their husbands shows a positive relationship between men's income share and women's housework time, as husbands' shares of income go from half to one, women's housework time increases (beta = 67.684, $p < 0.001$) (full results not presented here). There is though a negative relationship between income share and housework time for women who earn more than their husbands, these women do less housework as their husbands' shares of income increase from zero to half (beta = -43.972, $p < 0.10$) (full results not presented here). In other words, women who earn all of couple income appear to do more housework than women who earn

half of couple income. These results show, in an alternative formulation, the same evidence for bargaining and gender performance as in the analyses of the relationship between the linear and squared terms for earnings share and women's housework time.

Further, as reported in the results of Model 5 (Table 3), excluding the 8% of female respondents whose husbands reported no income produces substantively similar results to those in Model 4 and, if anything, as show in Figure 2 (dashed line), the curvalinearity is more pronounced, a result that actually mirrors Evertsson and Nermo's (2004) results from similar analyses of the PSID. Additionally, I re-estimate the models excluding women whose husbands' had income but whose incomes fell in the bottom 2% of earners by income share. Those results (not presented here) are also substantively similar.

Finally, as is evident in Table 1, there are meaningful differences in income and education between married women who contribute relatively small shares, relatively large shares, and equal shares to couple income. In order to separate any confounding relationship between class, income share, and housework, the preceding analyses all control for total couple income and education. However, if there is simply a lack of comparable cases between these groups, then it is possible that making comparisons across these groups is inappropriate, that the model makes unreasonable comparisons between respondents in the middle and in the tails of the relative income distribution (Harding, 2003; Winship and Sobel, 2004). As a check on this kind of omitted variable bias and to ensure better comparability across the income share distribution, I simply limit the sample to women whose total couple income is within one standard deviation of the average total couple income of women whose husbands' earn 10% of couple income or less, and re-estimate the models. I also exclude college-educated women and re-estimate the models. Both procedures yield substantively similar results to the models estimated on the full sample of married women.

Bargaining, Performance, or Autonomy?

While the results presented in Table 3 and described above are robust to the inclusion of a large number of economic and demographic controls, they do not address the objections to bargaining and gender performance theory that have been raised by autonomy theory (Gupta, 2007). While I control for total couple income, that control may not be sufficient if it is the case that the relationship between women's housework time and their own incomes is different from that between women's housework time and their husband's incomes Gupta (2006).

Baseline Model Specification: Table 4 presents the results of several analyses designed to investigate this possible confounding relationship. First, in Model 6 (Panel A), I show the simple unadjusted relationship between each member of the couple's own earnings and women's housework time. In confirmation of prior work (Gupta, 2007; Achen and Gough, 2009) I find a negative relationship between women's own earnings and women's housework time while husband's earnings actually has a positive relationship with women's housework time. While the magnitude of the coefficient on women's own earnings is substantially reduced after the inclusion of additional controls (Model 7), there is still a negative and statistically significant relationship between the two variables (beta = -1.09, $p < 0.01$).

In Model 8, I include both measures of absolute individual income of wives and husbands and linear and squared terms for relative income (as well as the same set of economic and demographic controls as used in the models presented in Table 3, except excluding total couple income). In contrast to the predictions of autonomy theory, it is the coefficients on relative income share that are statistically significant, not the coefficients on individual absolute earnings. The coefficient on the linear term for income share is -70.18 ($p < 0.05$) and the coefficient on the squared term is 109.12 ($p < 0.001$), nearly the same values as for Model 4 (Table 3) (which did not include adjustments for individual absolute income). Plotting the predicted values for housework

time against relative income share with the other covariates set at their sample means, shows a similar U-shaped relationship between relative income share and women's housework time as was seen in the models that do not control separately for men's and women's own absolute income (Figure 3, solid line). Further, since Model 7 (Panel A, Table 4) is nested in Model 8 (Panel A, Table 4), I can perform a formal test of the significance of the relative earnings variables against Model 7 (which excludes them). The F-statistic is 9.16 and is statistically significant ($p < 0.001$). These results provide no substantiation of autonomy theory and seem instead to show new support for the bargaining and gender performance theories.

Alternative Model Specifications: It is possible though that the divergence between these results and those reported previously in the literature (Gupta, 2007) stem from different model specifications rather than from differences in people's underlying behaviors as measured in the ATUS and NSFH. Indeed, there are three key differences between my models and those estimated by Gupta (2007). First, Gupta (2007) uses a more restrictive definition of housework including only cooking, cleaning, washing, and laundry (top coded at the 95th percentile) and excluding interior and exterior maintenance, shopping, lawn and garden care, and auto repair - all aspects of housework which I include (top coded at the 99th percentile). Second, Gupta (2007) limits his analysis sample to women who worked at least 35 hours per week for at least 50 weeks per year while my sample includes all married women aged 18 to 65 with complete data on covariates. Third, Gupta (2007) adjusts for a somewhat different set of possibly confounding factors than I have done, most notably not including age, unemployment, or labor force attachment, adjusting somewhat differently for household composition and race, and including measures for spouse's education.

In Panel B of Table 4, I adopt Gupta's (2007) model specifications as closely as permitted by the ATUS data and re-estimate my models. I am able to very closely match Gupta's (2007) definition of housework and can employ his hourly restriction on market work, though not his

restriction on weeks worked. In terms of covariates, the main difference between our models is that Gupta (2007) is able to use a continuous measure of spouse's education while I must use a set of indicators for high school completion, some college, and college completion and that Gupta (2007) includes a measure of traditional gender attitudes which are not available in the ATUS data.

After aligning my models with Gupta's (2007) specifications, I follow the same procedure as discussed above to test the contribution of the measures of relative income share beyond the measures of individual absolute earnings. In Model 11 (Panel B, Table 4) the coefficient on the squared term for income share (beta = 73.425) is significant ($p < 0.05$). However, the F-statistic for the two income share terms is 2.95 and the p-value of 0.0525 just fails to meet the 95% threshold. Plotting the predicted values from this equation, there is hardly any curvature in the relationship between income share and own income (Figure 3, dashed line). In sum, after adopting Gupta's (2007) model specifications there appears then to be confirmatory evidence for autonomy theory and less support for the bargaining and gender performance theories.

However, the non-significance of the relative income share measures is quite sensitive to the particular model specification as evidenced by additional analyses assessing the robustness of these results to three changes in the model. First, I adopt Gupta's (2007) model specifications for full-time employment and covariates, but alter the definition of housework to conform to the more inclusive measure employed in Table 2 and in Panel A of Table 4 (as well as in prior work such as Bittman et al, 2003 and Greenstein, 2000). Doing so, I find that the linear and squared terms for relative income remain significant ($F = 4.33$, $p = 0.0132$). Similarly, Gupta (2007) uses a 95^{th} percentile top-code for his measure of housework. Re-running the analysis with his definition of housework but with alternative top-codes at the 96^{th}, 97^{th}, 98^{th}, and 99^{th} percentiles also all show the relative income share variables to be jointly significant ($p < 0.05$) even after adjusting for individual absolute income (results not presented here).

Second, I adopt Gupta's (2007) model specifications for housework and covariates, but eliminate the restriction that respondents be employed full-time. Without that limitation, the coefficients on the linear (beta = -81.16) and squared (beta = 112.99) terms for income share are both highly significant ($p < 0.001$). I also relax the full-time employment restriction more gradually, assessing how the significance of the relative income share measures varies at different thresholds for usual weekly hours of work, ranging from 35 hours to 28 hours. Estimating separate nested models for each of these cut-off points shows that while the relative earnings share measures are not jointly significant in models limited to women working at least 33 hours per week or more, at any number of hours less than that, these variables are jointly significant (results not presented here).

Third, I adopt Gupta's (2007) model specifications for housework and full-time employment, but use the set of covariates I employed in the models presented in Panel A of Table 4 (and in Table 3). Whereas altering the specification used for housework and full-time employment substantially changed the key findings of Panel B, shifting the other covariates alone does nothing to make the relative income share variables significant (results not presented here).

Investigating the Mechanism: While in general then the full models show evidence for bargaining and gender performance theory, in models that do not control for income share (Table 4: Pane; A, Models 6 and 7 and Panel B, Models 9 and 10), it does appear that women's own income has a negative relationship with women's housework time. While the behavioral mechanisms that would connect income share and housework time are well articulated (bargaining and gender display), it is less clear why own absolute income should affect housework time. The leading explanation appears to be that higher earning women are able to afford to hire others to perform these household tasks (Gupta, 2006; 2007).

I investigate this mechanism by drawing on data collected by the ATUS on the amount of time that respondents reported spending doing such things as hiring, paying, or talking with

employees who cleaned, cooked, or performed other household services. I use this data on time spent on services to create a continuous measure (minutes spent on such services per day) and a dichotomous measure (any time spent on such services per day).

I first assess whether women's own absolute income predicts time spent on paid household services, controlling for other factors. Neither OLS regression of women's absolute income on minutes spent on paid housework nor logistic regression of women's absolute income on spending any time on paid housework shows a significant relationship (results not presented here). There is, however, a significant association between men's own income and women reporting having spent any time on paid housework services with the odds of using such services increasing 0.25% per hundred dollars of men's weekly income (results not presented here). However, that relationship seems to provide better evidence of a connection between affluence and the use of paid household services than between autonomy and the use of paid household services.

Second, I examine whether time spent on paid household services might moderate the relationship between women's own income and the amount of time women spent on housework. Whether entered as a continuous or dichotomous term, I find no evidence that including a measure of time spent on paid household services reduces the magnitude of the relationship between women's own income and women's time spent on housework (results not presented here).

DISCUSSION

In this paper I report on new evidence concerning the relationship between market income and housework time. I draw on a recently available and little used data set, the American Time Use Survey, to bring high quality time diary data to bear on a long-standing puzzle in the literature: do men and women "do gender" when they do housework?

I find that the answer to that puzzle is relatively straightforward, at least for men. There is no evidence of a relationship between income share and men's housework time in the American Time Use Survey data. This result stands in contrast to earlier literature that found a curvilinear association between income share and men's housework time (Brines, 1994; Greenstein, 2000) and even to work that found a simple linear negative relationship (Evertsson and Nermo, 2004; Achen and Gough, 2009). This null finding is, however, the same as that previously reported in the Australian context in research using time diary data (Bitman et al, 2003). In sum, I find no support for either bargaining or gender performance as far as men's housework time is concerned.

In contrast, my results provide strong evidence that the proportion of couple income that women provide affects the amount of housework that they do. Consistent with the predictions of bargaining theory, it does appear that as married women increase their earnings share towards equality with their husbands, they reduce the amount of time they spend each day on routine housework tasks. This negative relationship persists even after adjusting for a large number of possibly confounding variables including usual work hours, education, and demographic characteristics. It really does appear that increased relative earnings, not just differences in time availability or household composition, equates with reduced housework for women.

Up to the point of equality of incomes with their husbands', women's earnings do then appear to function as a bargaining resource and housework simply as a set of tasks to be avoided if possible. However, examining the relationship between housework and income share for women who out-earn their husbands suggests a more complex relationship. Women who earn more than their husbands, and so who deviate from the male breadwinner norm, appear to increase the amount of time they spend on housework. This U-shaped association fits with what we would expect from a pattern of behavior rooted in gender deviance neutralization and is consonant with the predictions of gender performance theory. My results suggest that far from being just a simple power resource

used in bargaining, income and breadwinning is imbued with a particular set of gendered meanings and that rather than simply being a set of undesirable tasks to be avoided, housework is an important venue for the construction of gender.

These results are also helpful as a means of reconciling the strong evidence of gender performance among women that Bitman et al (2003) found in the Australian context with the null and contested findings in the United States. While Bitman et al (2003) argue that these divergent results are indicative of a "real national difference [between Australia and the United States] that centers on the non-linearity in the effect of earnings on women's housework" (p. 207), my results suggest that these apparent behavioral differences may simply be the artifact of different data collection methodologies. In this paper, I use data collected with the same type of time diary methodology as used by Bittman et al (2003) rather than the survey collection methodology used in other prior work on this topic in the United States. With data collection methodology in effect held constant, I find no evidence of a national difference between the United States and Australia in the relationship between women's income share and housework time. It remains to be seen however if employing time diary data would similarly align the null results from Britain and Sweden with those from Australia and, now, the United States.

While my results are robust to the exclusion of outliers and to controls for a large number of possible confounding variables, I do find that separately adjusting for own absolute income can eliminate the relationship between income share and women's housework time. However, the association between income share and women's housework time is only eliminated using one specific set of model specifications that mirror those used by Gupta (2007). Using alternative specifications of the model that adopt a more commonly used measure of housework or that somewhat relax the restriction on women's full-time employment all leave the statistically significant curvilinear association between income share and women's housework time intact.

I find strong and fairly roust evidence then of a curvilinear association between relative income share and women's housework time, a relationship that is not eliminated by excluding outliers, including standard controls, or, under most reasonable model specifications, by adjusting for women's own absolute income. Further, in separate analyses, I find no evidence of a link between women's own income and the amount of time women spend managing or arranging for paid household services, a relationship we would expect to find if women's own income reduced housework time by allowing women to outsource household work to paid help. This evidence should not necessarily be taken as a refutation of the mechanism behind autonomy theory as it seems quite possible that the measure of time spent on paid household services that is available in the ATUS is simply a poor measure of the use of paid household services. That said, based on this available measure, I find little evidence of the most feasible behavioral mechanism connecting women's own income and women's time spent on housework.

My findings help to clarify and rehabilitate the explanatory power of gender performance theory with regard to housework. Though recent work has raised serious questions about gender performance theory and provided evidence in favor of autonomy theory, my results, based on a large sample of respondents interviewed using time diary methods, show that there is a strong curvilinear relationship between women's housework time and income share. These results suggest that even as more and more women come to out earn their husbands, that behavior seems to remain an act of gender deviance, an deviant act that some married women attempt to neutralize through the performance of housework.

REFERENCES

Abraham, Katharine G., Sarah M. Flood, Matthew Sobek, and Betsy Thorn. 2008. American Time Use Survey Data Extract System: Version 1.0 [Machine-readable database]. Maryland Population Research Center, University of Maryland, College Park, Maryland, and Minnesota Population Center, University of Minnesota, Minneapolis, Minnesota.

Achen, Alexandra and Margaret Gough. 2009. "A Longitudinal Evaluation of Gender Display in Spouses' Housework Hours." Paper Presented at the Annual Meeting of the Population Association of America, Detroit, MI.

Bianchi, Suzanne M., Melissa A. Milkie, Liana C. Sayer, and John P. Robinson. 2000. "Is Anyone Doing the Housework? Trends in the Gender Division of Household Labor." *Social Forces* 79:191-228.

Bittman, Michael, Paula England, Nancy Folbre, Liana Sayer, and George Matheson. 2003. "When Does Gender Trump Money? Bargaining and Time in Household Work." *American Journal of Sociology* 109:186-214.

Bonke, Jens. 2005. "Paid Work and Unpaid Work: Diary Information Versus Questionnaire Information." *Social Indicators Research* 70: 349-368.

Brines, Julie. 1994. "Economic Dependency, Gender, and the Division of Labor at Home." *American Journal of Sociology* 100:652-688.

Bureau of Labor Statistics. 2008. "Table A-1: Time Spent in Detailed Primary Activities and Percent of the Civilian Population Engaging in Each Detailed Primary Activity Category, Averages per Day by Sex, 2007 Annual Averages." American Time Use Survey, Bureau of Labor Statistics.

Bureau of Labor Statistics. 2009. "American Time Use Survey User's Guide: Understanding ATUS 2003 – 2007." American Time Use Survey, Bureau of Labor Statistics and U.S. Census Bureau.

England, Paula and Nancy Folbre. 2005. "Gender and Economic Sociology." Pp. 627-649 in *The Handbook of Economic Sociology*, edited by N. J. Smelser and R. Swedberg. New York: Russell Sage Foundation and Princeton University Press.

Evertsson, Marie and Magnus Nermo. 2004. "Dependence Within Families and the Division of Labor: Comparing Sweden and the United States." *Journal of Marriage and Family* 66:1272-1286.

Greenstein, Theodore. 2000. "Economic Dependence, Gender, and the Division of Labor in the Home: A Replication and Extension." *Journal of Marriage and the Family* 62:322-335.

Gupta, Sanjiv. 1999. "Gender Display? A Reassessment of the Relationship Between Men's Economic Dependence and Their Housework Hours." Paper Presented at the Annual Meeting of the American Sociological Association, Chicago, IL.

Gupta, Sanjiv. 2006. "Her Money, Her Time: Women's Earnings and Their Housework Hours." *Social Science Research* 35: 975-999.

Gupta, Sanjiv. 2007. "Autonomy, Dependence, or Display? The Relationship Between Married Women's Earnings and Housework." *Journal of Marriage and Family* 69: 399-417.

Gupta, Sanjiv, Liana C. Sayer, and Philip N. Cohen. 2009. "Earnings and The Stratification of Unpaid Time among U.S. Women." *Social Indicators Research.*

Harding, David. 2003. "Counterfactual Models of Neighborhood Effects: The Effect of Neighborhood Poverty on Dropping Out and Teenage Pregnancy." *American Journal of Sociology* 109(3): 676-719.

Hochschild, Arlie and Ann Machung. 1989. *The Second Shift.* New York, NY: Avon Books.

Kan, Man Yee. 2008a. "Does Gender Trump Money? Housework Hours of Husbands and Wives in Britain." *Work Employment and Society* 22: 45 – 66.

Kan, Man Yee. 2008b. "Measuring Housework Participation: The Gap between "Stylized" Questionnaire Estimates and Diary-based Estimates." *Social Indicators Research* 86: 381-400.

Kroska, Amy. 2008. "Examining Husband-Wife Differences in the Meaning of Family Financial Support." *Sociological Perspectives* 51(1): 63-90.

Lundberg, Shelly and Robert Pollak. 1996. "Bargaining and Distribution in Marriage." *Journal of Economic Perspectives* 10:139-158.

Marini, Margaret Mooney and Beth Ann Shelton. 1993. "Measuring Household Work: Recent Experience in the United States." *Social Science Research* 22: 361-38

Schneider, Daniel. 2009. "Gender Deviance and Household Work: The Role of Occupation." Paper presented at the Annual Meeting of the American Sociological Association, San Francisco, CA.

Shelton, Beth Anne and Daphne John. 1996. "The Division of Household Labor." *Annual Review of Sociology* 22:299-322.

Sorensen, Annemette, and Sara McLanahan. 1987. "Married Women's Economic Dependency: 1950-1980." *American Journal of Sociology* 92: 659-687.

West, Candace and Don H. Zimmerman. 1987. "Doing Gender." *Gender & Society* 1:125-151.

West, Candace and Don Zimmerman. 2009. "Accounting for Doing Gender." *Gender & Society* 23: 112 – 122.

Winship, Christopher and Michael Sobel. 2004. "Causal Inference in Sociological Studies." In *Handbook of Data Analysis* eds Melissa Hardy and Alan Bryman. London: Sage Publications.

TABLES

Table 1. Descriptive Statistics, Means and (Standard Deviations) (ATUS 2003-2007)

	Men by Husband's Share of Couple Earnings				Women by Husband's Share of Couple Earnings			
	All	>= .9	.55 to .45	<= .1	All	>= .9	.55 to .45	<= .1
	[1]	[2]	[3]	[4]	[5]	[6]	[7]	[8]
Housework Time (minutes per day)	86.70	73.04	81.38	152.77	153.83	216.41	110.24	122.13
Economic Attributes								
Share of couple income[a] (percent)	0.67	1.00	0.50	0.00	0.34	0.01	0.50	1.00
Couple weekly income (dollars per week)	1,413	1,120	1,685	665	1,388	1,083	1,652	726
Own income (dollars per week)	948	1,115	847	0.48	482	84	821	724
Own home (percent)	0.83	0.78	0.86	0.82	0.83	0.76	0.84	0.80
Respondent's usual work hours	41.89	46.10	44.11	1.18	26.71	1.40	41.39	38.38
Spouse's usual work hours	26.16	0.913	41.09	39.93	40.32	45.26	43.03	0.73
Unemployed (percent)	0.02	0.00	0.00	0.25	0.03	0.10	0.00	0.00
Not in the labor force (percent)	0.06	0.00	0.00	0.723	0.26	0.82	0.00	0.00
Education (percent)								
Less than high school	0.10	0.16	0.07	0.13	0.09	0.16	0.06	0.07
High school	0.31	0.28	0.31	0.40	0.31	0.32	0.26	0.37
Some college	0.25	0.20	0.28	0.27	0.26	0.25	0.26	0.25
College or more	0.34	0.36	0.34	0.20	0.34	0.28	0.42	0.30
Currently enrolled in school (percent)	0.04	0.03	0.04	0.05	0.06	0.06	0.07	0.04
Demographic Attributes								
Age (years)	43.55	42.55	43.00	49.23	41.55	40.48	40.24	46.5
White (percent)	0.72	0.66	0.71	0.72	0.73	0.67	0.75	0.73
Number of children	1.13	1.46	0.92	0.74	1.12	1.45	0.98	0.73
N[b]	10756	3699	1418	854	11856	3820	1637	1014

Notes:

[a] Husband's (for men) and wife's (for women) annual income divided by couple's annual income.

[b] The ATUS data do not contain reports of housework for both members of a married couple. Consequently, there can be unequal numbers of men and women and couple level measures, such as couple income or home ownership may not match exactly for men and women.

Table 2. Men's Minutes of Housework per Day, Coefficients from OLS Regressions (ATUS 2003 - 2007)

	Model 1		Model 2	
Earnings Share[a]	5.91		-0.11	
Earnings Share-squared	--		5.03	
Total Couple Income	0.05		0.05	
Husband's Usual Work Hours	-0.95	***	-0.95	***
Wife's Usual Work Hours	0.26		0.28	
Own Home	18.21	***	18.22	***
Education[b]				
High school	0.04		0.05	
Some college	6.37		6.39	
College or more	-0.28		-0.27	
Respondent Enrolled in School	-25.36	***	-25.38	***
Respondent Age[c]	0.55	***	0.55	***
Respondent Age-squared	-0.03	*	-0.03	*
White	18.25	***	18.27	***
Number of Children	0.46		0.45	
Unemployed	57.65	***	55.99	**
Not in Labor Force	23.83	*	22.17	
Saturday	57.51	***	57.51	***
Sunday	58.39	***	58.39	***
Holiday	33.26	**	33.25	**
Intercept	69.00	***	70.06	
N	10756		10756	
R-squared	0.098		0.098	

* p < 0.05, ** p < 0.01, *** P< 0.001

Notes:

[a] Earnings share is calculated as (husband_income - wife_income) / (husband_income + wife_income) and is then rescaled to range from 0 to 1.

[b] Relative to respondents with less than a high school diploma

[c] Age is centered on its mean to reduce multivariate collinearity

Table 3. Women's Minutes of Housework per Day, Coefficients from OLS Regressions (ATUS 2003 - 2007)

	Model 3	Model 4	Model 5[a]
Earnings Share[b]	26.90 **	-70.04 *	-110.26 *
Earnings Share-squared	--	103.72 ***	138.41 **
Total Couple Income	-0.51 *	-0.51 *	-0.50 *
Wife's Usual Work Hours	-0.95 ***	-0.72 ***	-0.61 ***
Husband's Usual Work Hours	0.12	0.36 *	0.34
Own Home	2.56	2.38	2.15
Education[c]			
High school	-19.54 **	-20.03 **	-20.50 **
Some college	-26.02 ***	-26.37 ***	-27.35 ***
College or more	-26.60 ***	-27.17 ***	-28.46 ***
Respondent Enrolled in School	-26.52 ***	-26.96 ***	-27.72 ***
Respondent Age[d]	1.58 ***	1.52 ***	1.62 ***
Respondent Age-squared	-0.04 *	-0.04 *	-0.03
White	1.04	0.44	-2.10
Number of Children	11.35 ***	11.15 ***	11.19 ***
Unemployed	35.82 ***	28.67 *	26.76
Not in Labor Force	43.77 ***	20.43 *	18.54 *
Saturday	35.40 ***	35.65 ***	34.45 ***
Sunday	27.80 ***	27.76 ***	23.42 ***
Holiday	27.33 *	27.03	25.22
Intercept	159.07 ***	157.76 ***	168.59
N	11856	11856	10857
R-squared	0.137	0.138	0.140

* $p < 0.05$, ** $p < 0.01$, *** $P < 0.001$

Notes:

[a] Model 5 replicates Model 4 on a restricted sub-sample of the ATUS respondents. In addition to being limited to married women aged 18-65 with complete data on all covariates, the sub-sample also excludes women whose husband's reported no income.

[b] Earnings share is calculated as (husband_income - wife_income) / (husband_income + wife_income) and is then rescaled to range from 0 to 1.

[c] Relative to respondents with less than a high school diploma

[d] Age is centered on its mean to reduce multivariate collinearity

Table 4. Women's Minutes of Housework per Day, Coefficients from OLS Regressions, Comparison of Model Specifications (ATUS 2003 - 2007)

Panel A: Baseline Model Specifications[a]	Model 6	Model 7	Model 8
Wife's Weekly Earnings ($ hundred)	-6.32 ***	-1.09 **	-0.23
Husband's Weekly Earnings ($ hundred)	1.34 ***	-0.11	-0.66
Earnings Share[b]	--	--	-70.18 *
Earnings Share-squared	--	--	109.12 ***
Controls[c]	--	X	X
Intercept	172.15 ***	171.00 ***	155.61
N	11856	11856	11856
R-squared	0.057	0.136	0.138

Panel B: Replication of Gupta (2007) Model Specifications[d]	Model 9	Model 10	Model 11
Wife's Weekly Earnings ($ hundred)	-1.60 ***	-0.89 **	-0.48 ***
Husband's Weekly Earnings ($ hundred)	0.22	0.14	-0.26
Earnings Share	--	--	-54.75
Earnings Share-squared	--	--	73.43 *
Controls[e]	--	X	X
Intercept	96.95 ***	97.63 ***	98.03 ***
N	6050	6050	6050
R-squared	0.008	0.093	0.095

* p < 0.05, ** p < 0.01, *** P< 0.001

Notes:

[a] This model adopts the same specifications as used in Model 2 of Table 1, except that wives' and husbands' individual earnings are used instead of total couple earnings. The sample is restricted to married women aged 18 - 65 with complete data on all covariates. No restrictions are imposed on men's earnings share.

[b] Earnings share is calculated as (husband_income - wife_income) / (husband_income + wife_income) and is then rescaled to range from 0 to 1

[c] The controls are (1) respondent's and respondent's spouse's usual work hours, (2) a dichotomous measure of homeownership, (3) dichotomous measures of high school completion, compeltion of some college, and completion of college or more, (4) a dichotomous measure of respondent's school enrollment, (5) respondent's age and age-squared, (6) a dichtomous indicator of race (1 = white), (7)a measure of the number of children (< age 18) present in the household, (8) a dichtomous measure of unemployment, (9) a dichotomous indicator of labor force participation, and (10) dichotmous indicators of if the survey was administered on a Saturday, Sunday, or Holiday. These are the same controls as included in the models presented in Table 2.

[d] This model mirrors, as closely as possible given differences between the ATUS and NSFH-2 data, the model specifications adopted by Gupta (2007). The sample is limited to married women aged 18-65 with complete data on all covariates who usually worked at least 35 hours per week. Housework is defined as the total amount of time per day spent on cooking, cleaning, washing dishes, and laundry, top coded at the 95th percentile. The covariates are listed in note (e) below.

[e] The controls are (1) respondent's and respondent's spouse's usual work hours, (2) a dichotomous measure of homeownership, (3) dichotomous measures of spouse's high school completion, completion of some college, and completion of college or more, (4) a continuous measure of respondent's years of education, (5)) a dichtomous indicator of being black and a dichotomous indicator of being of another race (neither white nor black), (6) a dichotomous indicator for children present and an indicator of other adults present in the household, and (7) dichotmous indicators of if the survey was administered on a Saturday, Sunday, or Holiday.

FIGURES

Figure 1: Relative Income Shares of Married Men and Women (ATUS, 2003-2007)

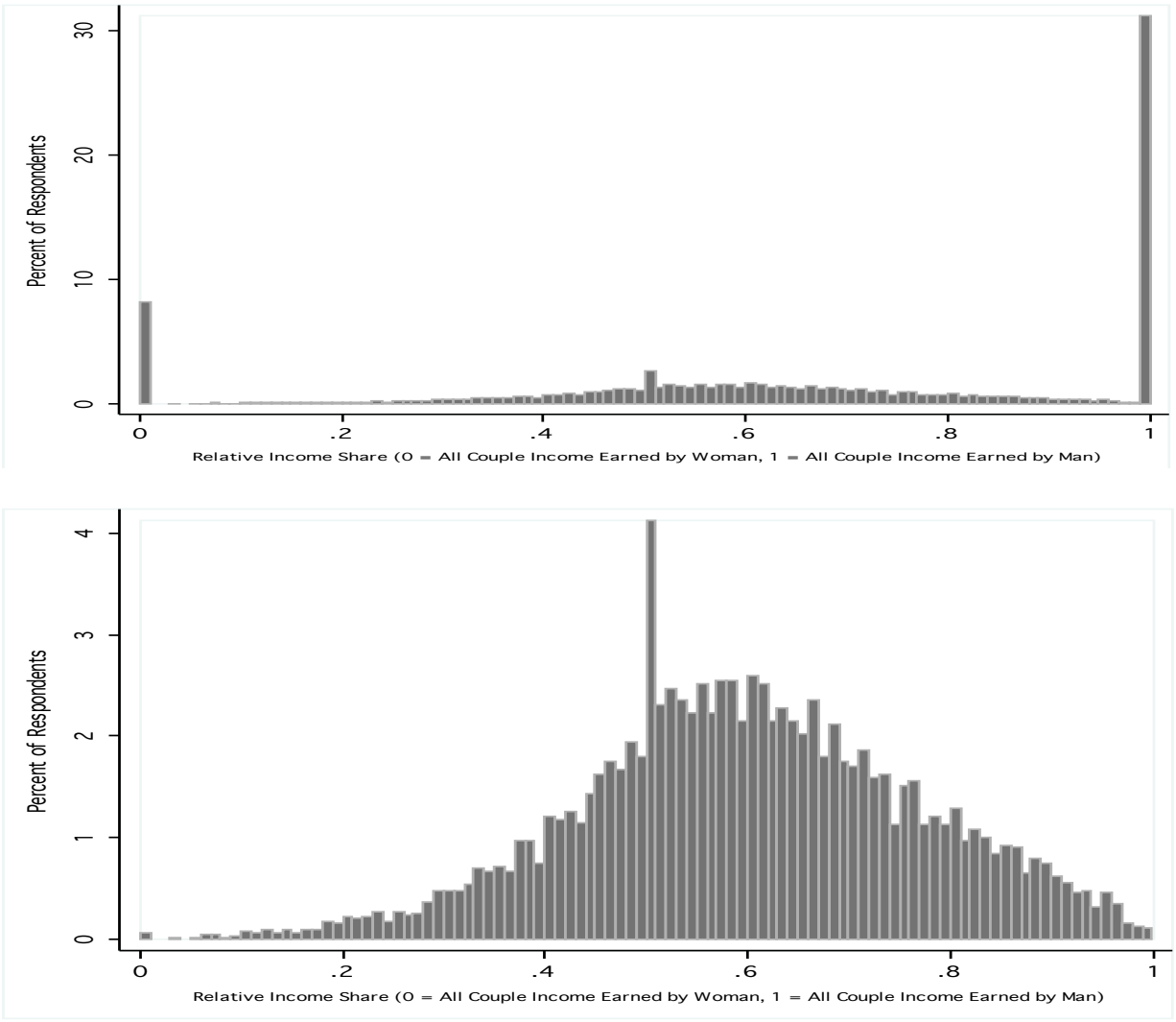

Figure 2: Women's Minutes of Housework per Day, Predicted Values from OLS Regression (ATUS, 2003 – 2007)

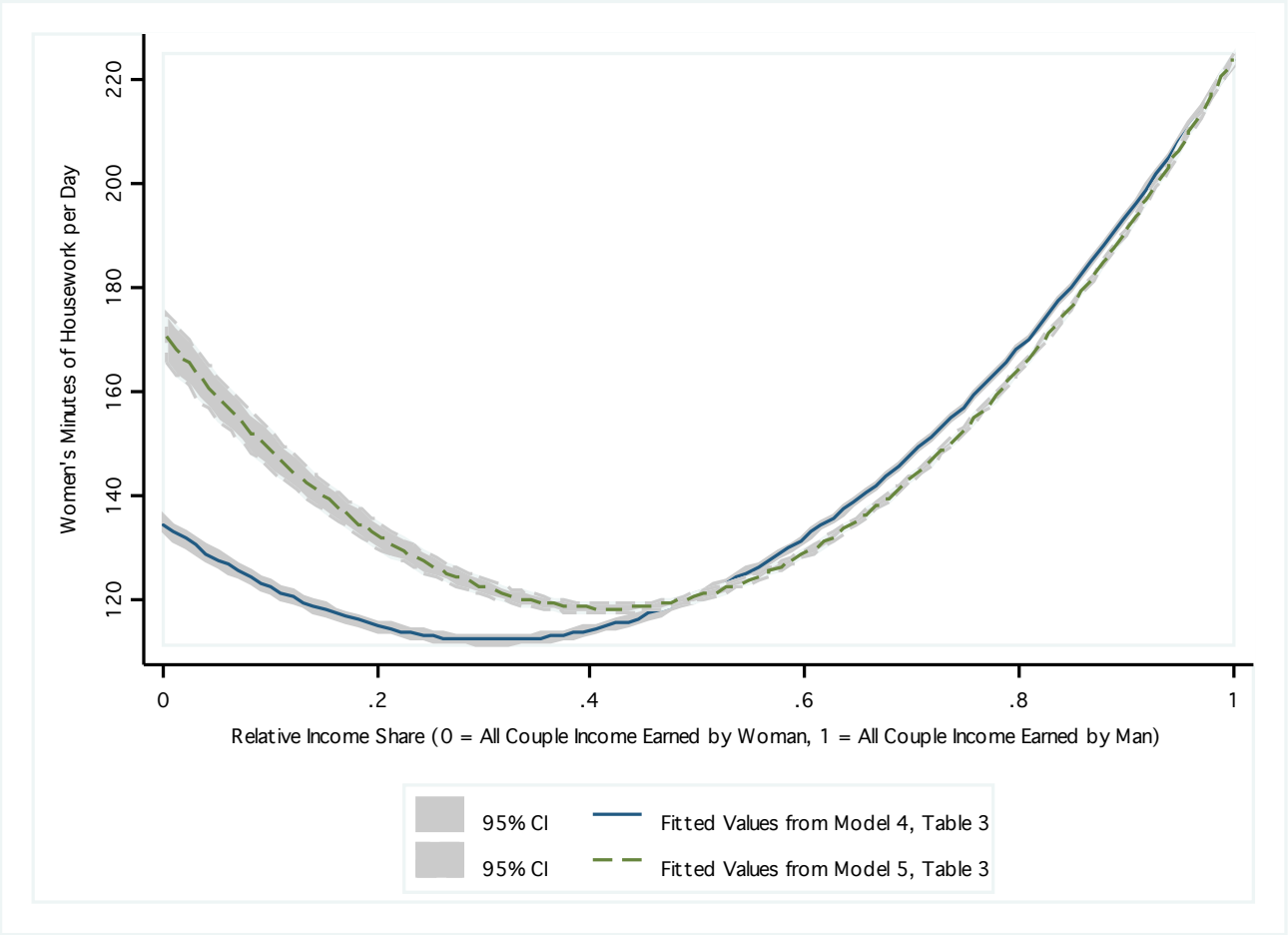

Figure 3: Women's Minutes of Housework per Day, Predicted Values from OLS Regression with Adjustment for Own Absolute Income (ATUS, 2003-2007)