The Effect of Audience Composition on the Gendered Performance of Housework

Daniel Schneider[*]   Christopher Steven Marcum[†]   Judith Treas[‡]

September 22, 2011

Abstract

A contentious body of empirical research has used the performance of housework by men and women to assess gender display theory. However, while this theory, rooted in symbolic interactionism, stresses the importance of interactions between men and women and those who would hold them accountable for gender, empirical work to date has not actually examined that dynamic. We draw on data from the pooled 2003-2008 American Time Use Survey to assess the extent to which men and women perform male- and female-typed housework tasks while in the presence of others. We find evidence that women do a larger share of their female-typed housework in the presence of others than do men and that men do a larger share of their male-typed housework in the presence of others than do women, evidence suggestive of efforts at gender display. However, this dynamic appears to be confined to instances in which the "audience" of others contains children, which we argue reveals this behavior to be more likely the result of gender socialization than *sui generis* gender display.

Keywords: Gender, Housework, Time Use

1 Introduction

West and Zimmerman's (1987) foundational work on gender display has given rise to a large and growing body of quantitative research that investigates how men and women "do" gender through housework. The most prominent line of this research examines the relationship between women's share of married couple income and men and women's housework time. Several scholars (Brines, 1994; Greenstein, 2000; Bittman et al., 2003; Evertsson and Nermo, 2004) have found evidence of a curvilinear relationship between housework time and income share that is indicative of gender display/gender deviance neutralization. While some scholars have suggested that this relationship may simply be the artifact of outliers or of failing to account for the separate effects of men's and women's own earnings (Gupta, 1999a; 2006b; 2007; Sullivan, 2011), recent research suggests that the results remain robust to addressing these concerns (Schneider, 2011).

This body of scholarship on income and housework takes seriously the idea that housework is a resource for the display of gender, particularly in the context of gender deviance in other domains. However, West and Zimmerman's (1987) original conception of gender display was informed by the work of Goffman and Garfinkel and was focused explicitly on inter-personal interaction. Indeed, West and Zimmerman (1987) wrote, "while it is individuals who do gender, the enterprise is fundamentally interactional and institutional in character, for accountability is a feature of social relationships" (p. 136-137). We suggest that this interactional element has been overlooked in much of the quantitative research on gender display and housework to date.

Two studies of marital status and housework mark something of an exception. South and Spitze (1994) argue that women's housework should be highest and men's lowest in couple households as compared with households in which men and women live alone because such arrangements present the greatest opportunity to be accountable to and display gender to another. Using data from the National Survey of Families and Households (NSFH), South and Spitze (1994) find evidence that women living in married couple households spend more time on housework than women who are divorced, widowed, or never married and, to a lesser extent, women who are cohabiting, even after adjusting for a large number of potentially confounding characteristics. Gupta (1999b) extends this research, using two waves of the NSFH to examine how changes in marital status are related to changes in housework time, an approach which allows him to better account for unobserved confounding characteristics in the relationship between marital status and housework time. Using this approach, Gupta (1999b) finds evidence in

support of South and Spitze's (1994) results: single, never-married, women increase their hours of female-typed housework upon entering a co-residential union and women decrease their hours of female-typed housework upon exiting a marital union. The opposite effects are found for men. Similar results have been reported for Australia (Baxter et al., 2008).

This prior research on marital status and gender display is, however, limited by its operationalization of interaction. While the NSFH contains data on housework time and on household composition, it does not associate the two at the activity-level. That is, the data contain no information on the presence of others during the performance of actions. While South and Spitze (1994) and Gupta (1999b) surmise that those in co-residential unions would spend more time with others and so would be more accountable to them, this is not actually tested, and the hypotheses these scholars generate are based on differences in housework by marital status rather than by co-presence with those who might hold an individual accountable for doing gender.

In this paper, we develop a new approach to assessing the role of gender accountability in the performance of housework. We draw on the rich time-diary data from the American Time Use Survey (ATUS) to associate housework and co-presence at the activity level and to gauge whether men and women do indeed use housework as a means of displaying gender to others.

2   Hypotheses

Before offering an alternative set of hypotheses, we first recognize that housework is not monolithic and that particular tasks are gendered in different ways (Treas and de Ruijter, 2008). While engaging in tasks such as cleaning, cooking, and washing may threaten masculinity, men may engage in other housework tasks, such as home and yard care or car repair, as a means of enacting masculinity. Consequently, we distinguish between male- and female-typed housework.

We create two variables measuring housework time. First, we combine the total minutes respondents reported spending preparing meals, doing dishes, cleaning, shopping, doing laundry, and washing (as well as associated ancillary activities such as travel time) into a measure of female-typed housework. Second, we combine the total minutes respondents reported spending on interior and exterior home maintenance, lawn and garden care, and auto repair (again, plus associated ancillary activities) into a measure

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of male-typed housework. This categorization follows that used in the literature to date (South and Spitze, 1994; Schneider, 2012). Specific examples from the male- and female-typed housework activity set can be found in Appendix Table 1.

We expect that men and women, in "doing gender" will seek to reveal to others the gender-typical housework tasks they do and conceal from others those tasks which may be seen as gender-deviant. In this sense, our expectations about the performance of housework while with others versus while alone are inspired by Goffman's (1959) distinction between performance in front of an audience and actions that take place "backstage" (not in the presence of others). Goffman defines that backstage as "a place, relative to a given performance, where the impression fostered by the performance is knowingly contradicted" (p. 112). We suggest that individuals preserve their presentation of self with regard to gender by doing deviant housework while alone, where accountability to others is minimized.

More specifically, we first hypothesize that the share of women's total female-typed housework that women do in the presence of others will be greater than the share of men's total female-typed housework that men do in the presence of others. We represent this hypothesis by the following inequality:

$$
\underbrace{\frac{\text{Women's ♀-HW With Others Present}}{\text{Total Women's ♀-HW}}}_{(a)} > \underbrace{\frac{\text{Men's ♀-HW With Others Present}}{\text{Total Men's ♀-HW}}}_{(b)} \qquad (1)
$$

Conversely, we hypothesize that the share of men's total male-typed housework that men do in the presence of others will be larger than the share of women's total male-typed housework that women do in the presence of others. We likewise represent this hypothesis by the following inequality:

$$
\underbrace{\frac{\text{Women's ♂-HW With Others Present}}{\text{Total Women's ♂-HW}}}_{(c)} < \underbrace{\frac{\text{Men's ♂-HW With Others Present}}{\text{Total Men's ♂-HW}}}_{(d)} \qquad (2)
$$

In short, netting out the total amount of time that any man or woman spends on male- or female-typed housework, we expect that men will conceal and/or women will display the female-typed housework they do and that men will display and/or women conceal the male-typed housework they do. Using these proportional measures, then, has the advantage of adjusting for the large differences in the total amount of time that men and women spend on male- and female-typed housework and of adjusting for the substantial heterogeneity among men and women in housework time (Bianchi et al., 2000; Gupta et al., 2010).

We might also expect that quantity (a) will be larger than quantity (c) if women seek to make the female-typed housework they do more visible to others than the male-typed housework they do and that quantity (d) will be larger than quantity (b) if men seek to make the male-typed housework they do more visible than the female-typed housework they do. However, our ability to draw inference from this set of comparisons may be hampered by differences in the locations in which male- and female-typed housework is performed. Specifically, given that male-typed housework involves more tasks done out-of-doors and female-typed housework more tasks done in-doors, it is possible that for both men and women, a smaller share of male-typed housework will be done in front of others than female-typed housework. These inequalities are presented in the hypotheses itemized below:

> **Gender Display Hypotheses**
> H1: the share of women's total female-typed housework that women do in the presence of others will be greater than the share of men's total female-typed housework that men do in the presence of others
>> H1a: women will do a larger share of their female-typed housework in the presence of others than of their male-typed housework
> H2: the share of men's total male-typed housework that men do in the presence of others will be larger than the share of women's total male-typed housework that women do in the presence of others
>> H2a: men will do a larger share of their male-typed housework in the presence of others than of their female-typed housework

Given that West and Zimmerman (1987) stress the importance of accountable-parties, but do not theorize that individuals will be more accountable to some people than others (at least on the basis of gender or age), we test these hypotheses using a coding criterion in which "others" are defined to be individuals of any age, gender, or relationship to respondent.

We can refine these hypotheses further. So far, we have hypothesized that housework done or avoided while in the presence of others is attributable to men's and women's need to display gender to parties that hold them accountable for gender. However, an alternative hypothesis is also possible: Consciously or not, men and women may engage children in interactions consistent with current conceptions of appropriate gender behavior (Coltrane, 2000; Gupta, 2006a). Gender socialization theory posits that children learn gender-appropriate activities by observing the behavior of their same-sex parent and contrasting it with the behavior of their opposite-sex parent. By this process, for example, boys learn that mowing the lawn is a masculine

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activity by observing the relatively greater frequency that their fathers cut the grass compared with their mothers.

From this standpoint, we would expect to find evidence of the inequalities discussed above when "others" are narrowly defined as including only children but not when "others" are defined to only include adults. Following that logic, we adjudicate between theories of gender display and socialization, by re-testing the hypotheses above after imposing constraints, defined by gender and age, on the identity of "others." Thus, we present analyses that limit others to (a) adults only and (b) children only.

If the presence of others shaped housework time primarily through a process of gender display and accountability, then we would expect that our original hypotheses would hold under both conditions (a) and (b). That is, men and women would seek to display gender through housework for audiences of adults and children. Alternatively, if the presence of others shaped housework time primarily through a process of gender socialization, then we would expect that our original hypotheses would hold under condition (b) but not under (a). That is, adults would perform more gender-typical housework for audiences of children, but would not attempt to 'socialize' other adults to traditional gender roles. We note that these contrasts reveal a limitation on our ability to adjudicate between the display and socialization perspectives: evidence that our hypotheses hold under conditions (a) and (b) would not rule out gender-socialization, but merely show it to be empirically indistinguishable from gender display for children.

These additional hypotheses contrasting the performance of housework in the presence of others as display versus socialization are itemized in the following list:

> **Gender Display Versus Gender Socialization Hypotheses**
> H3: H1, H1a, H2, & H2a do not hold when others are restricted to be adults only
> H4: H1, H1a, H2, & H2a hold when others are restricted to be children only

Finally, if this socialization process holds, as evidenced by support for Hypotheses 3 and 4, then we further hypothesize that this process will be particularly evident when the audience is composed of only children resident in the household and that household boys and girls will be exposed to greater same-gender housework when they are exclusively present with their same-gender parent.

This final set of hypotheses exploring how child gender is related to the performance of housework are itemized in the following list:

Detailed Gender Socialization Hypotheses
H5: H1, H1a, H2, & H2a hold in the presence of household children only
H6: H1a& H2a hold when others are restricted to only household girls and boys, respectively

3   Data & Methods

We draw on data from the 2003–2008 pooled American Time Use Survey (ATUS) to test these hypotheses. The ATUS is a nationally representative, repeated cross-sectional survey of the United States's non-institutional population fielded by the US Census on an annual basis in conjunction with the Current Population Survey. The ATUS uses the time diary method to collect a detailed record of the daily activities of respondents. The pooled sample includes this information for 20,737 men and 22,636 women in married, heterosexual, families—roughly 50% of these families have children in the home.

The ATUS is ideally suited for testing the hypotheses described above. Most importantly, the ATUS is unique among surveys of the United States population for collecting information about what activities individuals performed, how long they spent at each activity, and, crucially, who was present during each activity. The ATUS allows us to couple the performance of housework with an actual audience, which is an improvement in precision over past research. The ATUS contains information on the age and gender of these other individuals if they were household members. For non-members, only their presence, and not their demographic attributes, is collected, which limits our ability to adjudicate between the gender-specific socialization and doing gender perspectives for circumstances where non-household others are present in the home.

The ATUS is also recommended by its use of the more reliable time-diary method rather than survey-based questions for collecting data on housework time (Kan, 2008; Lee and Waite, 2005; Robinson, 1988). Additionally, the ATUS data was collected very recently and thus reflects a more contemporary social reality than the often used NSFH data (e.g. Gupta (2006b)), which was collected in the late 1980s and mid-1990s.

In practice, we operationalize the inequalities outlined above by constructing two ratios:

$$\frac{\text{Time Spent Doing } \male\text{-HW in the Presence of Others}}{\text{Total Amount of } \male\text{-HW Time}} \tag{3}$$

and,

$$\frac{\text{Time Spent Doing } \female\text{-HW in the Presence of Others}}{\text{Total Amount of } \female\text{-HW Time}} \quad (4)$$

and evaluate our hypotheses empirically by evaluating the sign (negative or positive value) of the coefficient for gender from the regression of the ratios on gender and other covariates.

3.1 Multiple Regression Methods

Our dependent variables are proportions of time spent doing housework in the presence of others to total amount of time spent doing housework. To evaluate each hypothesis about the relationship between the proportions and gender, we regress each base proportion on a dummy indicator for the gender of the respondent, controlling for other factors. We then summarize the distribution of the gender coefficients. For hypotheses 1 through 5 we expect that the coefficients for gender (reference=Male) from the regressions of the share of female-typed housework on covariates and male-typed housework on covariates to be positive and negative, respectfully. If, however, the gender display hypothesis is not supported, these coefficients will be either be indistinguishable from zero or have signs in the opposite directions (an alternative not currently supported by the literature).

For hypotheses 1a, 2a, and 6 we evaluate the expected values ($E(Y|X)$) for both dependent variables by gender. Hypothesis 1a holds if women's share of time spent doing female-typed housework in the presence of others is greater than their share of time spent doing male-typed housework in the presence of others. Similarly, hypothesis 2a holds if men's share of time spent doing male-typed housework in the presence of others is greater than their share of time spent doing female-typed housework in the presence of others. By extension, we also anticipate that the expected value for men doing male-typed housework in the presence of household boys to be greater than the expected value for women doing male-typed housework in the presence of household boys and that the expected value for men doing female-typed housework in the presence of household girls to be less than the expected value for women doing female-typed housework in the presence of household girls. We now discuss the regression methodology in detail.

We use Bayesian Truncated Normal regression to conduct our analyses—sometimes called Tobit Regression in econometric contexts. While akin to Tobin's (1958) model for limited dependent variables, our approach differs in three substantial ways. First, as proportions, our dependent variables are bounded on the inclusive interval between 0 and 1 (as opposed to upper-,

or lower-, bound censoring only). Second, rather than applying a censoring function to a latent variable *post hoc*, as in Tobin's method, we simply draw directly from the truncated normal distribution and use the appropriate mean and variance estimators directly as outlined in both Gelfand et al. (1992) and Chib (1992). Thirdly, rather than a single point estimate, we are interested in summarizing the entire posterior distribution of our dependent variables (and associated posterior predictives), which is only accomplished by Bayesian methods. The model and priors (Bayesian model assumptions) are described below.

The classic Tobit model posits a latent variable $Y_i^\star$, and observes Y_i (the predicted value of Y) such that:

$$Y_i = \begin{cases} 0 & \text{if } Y_i^\star \leq 0; \\ Y_i^\star & \text{if } 0 < Y_i^\star < 1; \\ 1 & \text{if } Y_i^\star \geq 1. \end{cases} \tag{5}$$

where $Y^\star$ is drawn from the truncated normal distribution. We then proceed as in ordinary least squares with a model of the form: $Y_i = X_i\beta + \epsilon_i$, $\epsilon_i \sim N(0, \sigma^2)$, $\mu_i = X_i\beta$, where $X_i\beta$ is a vector of predictor variables, ϵ_i is a vector of errors, and σ^2 is the standard deviation of the errors.

3.1.1 Prior and Assumptions

We assume standard semi-conjugate uniform priors on β and σ:
$\beta \sim N(b_0, B_0^{-1}); \sigma^{-2} \sim \Gamma(c_0/2, d_0/2)$,
with hyperparameters:
$b_0 = 0$; $B_0 = I(1)$; $c_0 = .001$; $d_0 = .001$ for each of the dependent variables $\left(\frac{\female - HW_O}{\female - HW} \text{ and } \frac{\male - HW_O}{\male - HW}\right)$, where O is the appropriate subset of "others"). In general, these priors assume conditional independence between the variables and very low probability of correlated errors.

We also *a priori* assume that all individuals responding to the ATUS do at least some small amount of housework activity. Consistent with the notion that moving a dirty mug from a table to the sink is housework, albeit mundane, it is likely to be under-reported as effective housework time use and we want to capture it. Therefore, we set a prior equal to 1 minute of time use for both gendered activities. In effect, we treat non-reporting of such activities as a large missing data problem.

Because of the high statistical power with a sample size as large as the pooled ATUS, the prior will have little effect on the posterior as the data will tend to dominate it (Gelman et al., 1995). Furthermore, these assumptions

make the model essentially equivalent to ordinary least squares given errors from a truncated normal (Chib, 1992), which is convenient for interpretation. The model is fit by Gibbs sampling using the `MCMCpack` package for `R` (Martin et al., 2010). Standard sampling weights (the inverse probability of being sampled) are used to account for the uneven sampling probabilities present in the ATUS.

3.2 Covariates

As noted above, by using a ratio of housework done in the presence of others to total housework performed, we fairly effectively take account of variation across individuals in the total amount of housework they do and so minimize the potential for omitted variable bias. But, it remains possible, of course, that the relationship between gender and the share of housework done in the presence of others could still be confounded by other factors. Because our measure of housework is novel, their is little prior literature to guide our identification of such characteristics. Consequently, we rely on the large body of evidence that documents associations between housework time and demographic and economic characteristics to identify such possible confounding variables.

We adjust our models for a number of demographic factors including race/ethnicity (measured with dichotomous indicators of being Hispanic, Black-only, or other race, with White-only omitted), age, and household composition. We measure the latter by the number of adults in the home, number of children in the household, and the age of youngest household child (measured with dichotomous indicators for no child, child age 6-11, or child age 12-18, with child age 0-5 omitted). We also adjust for several economic characteristics: female earning share (measured with dichotomous indicators for 0.40 - 0.59 or 0.6 - 1.0, with 0 - .39 omitted), education of respondent (measured with dichotomous indicators for less than high school, high school, some college, or professional degree, with college omitted), respondent's employment status (measured with dichotomous indicators for employed part-time, retired, unemployed, disabled, or not in the labor force for other reasons, with employed full-time omitted), for spouse's work hours (measured with dichotomous indicators for 21-40 hours, 40+ hours, varied hours, or hours not reported, with less than 21 hours omitted), for housing type (measured with dichotomous indicators for mobile home or other, with house or apartment omitted), and for housing tenure (measured with dichotomous indicators for rented or other, with homeowner omitted). Finally, we also adjust for diary day of the week and for the diary day falling

on a holiday.

3.3   Analysis Samples

For the first set of analyses (testing hypotheses 1- 4), we consider all heterosexual individuals who are married and live with their spouses. Our second set of hypotheses, however, attempt to distinguish between two competing processes of gender task performance—gender accountability and gender socialization—that rely upon the assumption that gender-specific behavioral cues are transmitted downward from one generation to the next (Thomson et al., 1992). While hypothesis 4 does not require that we further limit our sample to married heterosexual respondents with children, hypotheses 5 and 6 do in that we use these tests to look within households. Taken together, our approach to sample selection is appropriate because it allows us to directly assess the heteronormative roots of "doing gender" theorized by West and Zimmerman.

There were a total of 190,926 household production activities done by 43,373 valid married respondents in the ATUS. The remaining 5,134 who reported doing zero minutes of household production are assumed *a priori* to do at least some tiny (ϵ) amount of each gendered activity type (as discussed above). The second subset—married individuals living with their spouses who have children—resulted in a sample size of 23,243 individuals.

4   Results

4.1   Gender Display

Table 1 reports the unweighted means and standard deviations of the number of minutes spent doing all gendered housework tasks and doing gendered housework tasks in the presence of others, separately for men and women. The data are heavily right-tailed with most individuals reporting zero minutes of any type of housework. Among the sample of married respondents, men do more male-typed housework per day on average than women (53 minutes vs. 21 minutes) and women do more female-typed housework than men (172 minutes vs. 63 minutes). Men also do more male-typed housework than women and women more female-typed housework than men while in the presence of others. Similar differences are evident in the married with children sub-sample. However, these simple descriptive statistics do not reveal the expected inequalities in the share of total male- and female-typed housework that men and women do in the presence of others.

However, moving onto our regression analysis, we find tentative support for the gender display hypotheses (H1-H2) when we consider others to be anybody (children, adults, household members, and non-household members) and examine all married heterosexual respondents. Tables 2 and 3 present the regression results for female- and male-typed housework, respectively for this sample. *Ceteris paribus*, women do, on average, an 8 to 10 percentage point greater share of their female-typed housework in the presence of others than men do. Likewise, women do, on average, a 1 percentage point smaller share of their male-typed housework in the presence of others than men do (though small, the difference is still significant).

Table 4 provides the mean expected values of the proportions of time spent doing gender-typed housework in the presence of others to total amount of time doing gender-typed housework, comparing men and women. Standard deviations are provided in parentheses adjacent to the means. Examining the first row, we see that men do 40.5% of the female-typed housework that they do in the presence of others while the ratio for women is significantly higher, 47.3%. These expected values show the gender difference to be substantively significant with women doing about 17% more of their female-typed housework while with other people than men do $((.473-.405)/.405)$. However, as suggested by the results in Table 3, there are much smaller differences in the share of male-typed housework that men and women do in the presence of others: 19.8% for men and 19.2% for women.

These results also allow us to evaluate hypotheses 1a and 2a. In particular, hypothesis 1a—that women will do more female-typed housework in the presence of others than male-typed housework—is supported but the corollary hypothesis for men (2a) is not supported. Both men and women tend to do a larger share of their female-typed housework in the presence of others, which translates into both men and women doing more female-typed housework than male-typed housework in the presence of all others. We suspect that this is reflective of something about the nature of male- and female-typed housework tasks, perhaps that male-typed tasks are more likely to be done outside where fewer people may be present.

4.2   Gender Display Versus Gender Socialization

These results suggest that women do indeed perform a larger share of the female-typed housework that they do in the presence of others than do men and that men perform a larger share of the male-typed housework that they do in the presence of others than do women. Yet, these patterns could be reflective of gender display or of gender socialization. Hypothe-

ses 3 and 4 are designed to help us adjudicate between these two explanations. First, hypothesis 3 summarizes our expectation that if men and women are doing gender through housework, then this behavior should be evident when their audience is just composed of adults. To test this, we limit "others" to adults only in the regression. The results (Appendix Table 2) reveal non-significant negative sex coefficients for share of male-typed housework ($mean = -0.0029, [-0.0073, 0.0014]$) and non-significant positive coefficients for female-typed housework ($mean = 0.0016, [-0.0048, 0.0080]$). This evidence against gender display is also captured in row 2 of Table 4 in which we see no significant difference in the expected values of the shares of female-typed housework done with adults present by men (36.6%) and by women (36.8%) or of male-typed housework done with adults present by men (15.3%) and women (15.1%). We note that the mixed evidence for H1a and H2a found above is similar here. In sum, hypothesis 3 is born out, we do not find evidence of gender display when "others" are defined to just be adults.

We would expect then that given that women do a larger share of their female-typed housework in the presence of all others than men and that men do a larger share of their male-typed housework in the presence of all others than women, but that these relationships do not hold in settings with only adults present, then the patterns should be evident when only children are present. This is indeed the case. We find conditional support for the gender socialization process (H4) when we restrict others to be only children (household members or not). That is, women only seek to reveal or men to conceal their female-typed housework and men only reveal or women conceal their male-typed housework when around children, not when they are only around adults. This evidence is presented in Appendix Table 2, where we see significant negative sex coefficients for share of male-typed housework ($mean = -0.0078, [-0.0105, -0.0051]$) and significant positive coefficients for female-typed housework ($mean = 0.0867, [0.0824, 0.0909]$) [1]. Table 4, row 3, shows that the expected value for the share of female-typed housework that women complete in the presence of children only is 28.9% against 17.1% for men and that the share of male-typed housework that men complete in the presence of children only is 6.6% against 6.2% for women. Again, we find similar mixed evidence for H1a and H2a.

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[1]Note, though, that the probability of the hypotheses (i.e, the Bayesian answers for H1 and H2, $Pr(\theta < 0)$) are 0.690 and 0.908, respectively.

4.3 Gender Socialization in Detail

Hypotheses 5 and 6 are designed to further hone in on the role of gender socialization in the performance of housework. To test these hypotheses, we limit our sample to heterosexual married respondents living in households with children. We find very similar results in support of hypothesis 5 as for hypothesis 4. As shown in Table 4, row 4, women do a larger share of their female-typed housework in front of household children (28.9%) than men do (17.1%) and men do a larger share of their male-typed housework in front of household children (10.7%) than women do (10%). Moreover, the relative difference in the share of female-typed housework that women and men do in front of household children is larger than the corresponding difference in housework done in front of all children (household and not). While being mindful of the fact that these results arise from different sub-samples of the data and are not directly comparable, they perhaps suggest more concerted efforts to socialize one's own children.

Finally, the results for same-gender socialization are nuanced. Men tend to do a larger share of their male-typed housework in the presence of household boys than women do (4.5% versus 4.1%) and women tend to do a larger share of female-typed housework in the presence of household girls than men do (7.1% versus 5%). However, men and women are also more likely to display female-typed housework in the presence of both boys and girls only.

4.4 Relationships with Covariates

Table 2 also reveals the relationship between our measures of demographic and economic characteristics and the share of female-typed housework that respondents (of both genders) do in the presence of others. Most of these relationships can be understood to be the product of expected patterns of variation in when multiple people might be present in the domicile. For instance, relative to individuals in households where the youngest child is age 0-5, individuals with no children in the household or older children all do smaller shares of their female-typed housework while in the presence of others. Similarly, individuals who are employed part-time or are retired do larger shares of their female-typed housework in the presence of others relative to those who are employed full time. We also find evidence that would seem to reflect a greater amount of socializing on weekend days, with the share of female-typed housework done in the presence of others small on weekdays than on Saturday or Sunday.

There are however some notable differences by race and education that are perhaps not so readily understood. We find that Hispanics do a 2.4 percentage point larger share of female-typed housework in the presence of others and Blacks do an 8.2 percentage point smaller share than Whites. We also find that those with a BA or equivalent do a larger share of female-typed housework in the presence of others than those with less education. Similar relationships, though generally less pronounced, are evident in Table 3 as well.

5 Discussion

A large literature has developed that seeks to empirically test theories of gender display with data on the performance of housework by men and women. However, with few exceptions, this literature has not been able to adequately capture the interactional element that was foundational to West and Zimmerman's (1987) seminal theoretical work on this subject. In particular, these analyses do not take into account the role of others in holding men and women accountable for gender.

In this paper, we drew on a unique set of data, the American Time Use Survey, to examine variation by gender in the presence of others during the performance of housework. We argue that women will seek to reveal or men to conceal female-typed housework by doing more/less of it in front of other people and that men will seek to reveal or women to conceal male-typed housework by doing more/less of it in front of other people. In so doing, men and women display gender.

We find evidence that, on first blush, seems strongly supportive of these hypotheses. Women appear to do substantially more of their female-typed housework in the presence of others than men. Men do slightly more of their male-typed housework in the presence of others than women.

However, further investigation reveals that the interpersonal processes that give rise to these gendered patterns are not so clear cut. We find no evidence of gender differences in the performance of housework tasks around others when others are limited to being adults. Rather, it appears that these differences only appear for audiences of children and appear especially pronounced when the children belong to the respondents' own households. We argue that these empirical results are more likely to be indicative of efforts at the gender socialization of children rather than the display of gender to other adults.

Our work is an innovative approach to a long standing and much debated

issue in family demography and the sociology of gender. It provides new insight into how gender structures important economic activities in the home and the organization of daily life. Moreover, this analysis represents a rare effort to incorporate symbolic interactionist perspectives into quantitative sociological research.

However, our work is subject to several important limitations. First, we follow prior research in this area by focusing on married heterosexual men and women. It would be useful to broaden these analyses to include respondents in a wider range of household situations. Second, recent research by Usdansky and Parker (forthcoming) and Gupta et al. (2009) suggests that there are meaningful variations by social class in how gender structures housework time. Here too, it would be useful to expand these analysis to explore variation by social class. Third, the physical traces of housework (a clean house and well-maintained yard) may testify to gender-specific performance even in the absence of an audience that observes the work being done. Finally, we note that women spend more time than men with children only (Mattingly and Bianchi, 2003). This might lead us to expect that women would experience greater time pressure to multi-task and would not have the luxury of doing housework without children present. Accordingly, while the result may be the gender socialization of children, this might come about as the result of the division of childcare rather than as the result of semi-conscious efforts to model gender-normative behavior.

Table 1: Mean Number of Minutes Spent Doing Gendered Housework for Men and Women, By Subsample

| | Men | | Women | |
	Mean	SD	Mean	SD
Married				
Male HW With Others	18.9661	70.8231	12.2608	51.7014
Total Male HW	52.6633	112.9737	21.2255	65.7237
Female HW With Others	39.0193	72.6477	86.1841	108.2339
Total Female HW	62.5105	88.9637	172.4946	143.0999
Married With Children				
Male HW With Others	20.5746	72.8415	11.6157	48.659
Total Male HW	46.6191	105.5952	17.6686	57.8202
Female HW With Others	44.0906	75.9696	103.4901	113.2436
Total Female HW	66.0635	91.3049	180.3241	141.6699

Data come from the pooled 2003-2008 American Time Use Survey, subsample of heterosexual married individuals residing with their spouses (n=43,373) and the subsample of heterosexual married individuals with children (n=23,243). Means and standard deviations are unweighted in this table.

Table 2: Posterior Distribution of Coefficients from the Truncated Normal Regression of Share of Female-Type Housework Done in the Presence of Others on Gender and Covariates

	Mean	SD	Q2.5%	Q97.5%	Sig.
(Intercept)	0.5871	0.0268	0.5350	0.6402	***
Female	0.0873	0.0039	0.0795	0.0950	***
Age	-0.0020	0.0002	-0.0025	-0.0015	***
Hispanic	0.0244	0.0066	0.0115	0.0374	***
Number of Adults in Home	-0.0018	0.0030	-0.0077	0.0040	
Number of Children in Home	0.0163	0.0029	0.0106	0.0221	***
Female Earning Share ($Ref = 0 - .39$)					
0.40 − 0.59	0.0071	0.0058	-0.0043	0.0185	
0.60 − 1.00	-0.0060	0.0057	-0.0171	0.0052	
Income Not Reported	-0.0069	0.0070	-0.0205	0.0066	
Race ($Ref = $ White-Only)					
Black-Only	-0.0820	0.0077	-0.0968	-0.0667	***
Other Race	0.0144	0.0087	-0.0025	0.0314	.
Education ($Ref = $ BA or Equivalent)					
Less than HS	-0.0354	0.0077	-0.0505	-0.0203	***
HS Grad	-0.0231	0.0050	-0.0331	-0.0133	***
Some College	-0.0234	0.0058	-0.0347	-0.0120	***
Professional Degree	-0.0072	0.0063	-0.0193	0.0052	
Age of Youngest HH Child ($Ref = 0 - 5$)					
No HH Child	-0.1002	0.0087	-0.1172	-0.0833	***
6 − 11	-0.0562	0.0060	-0.0681	-0.0444	***
12 − 18	-0.0852	0.0084	-0.1018	-0.0687	***
Respondent's Employment Status ($Ref = $ Employed FT)					
Employed PT	0.0221	0.0069	0.0087	0.0355	**
Retired	0.0507	0.0085	0.0341	0.0674	***
Unemployed	-0.0174	0.0138	-0.0444	0.0096	
Disabled	0.0178	0.0122	-0.0062	0.0413	
NIL Other	0.0064	0.0075	-0.0083	0.0212	
Spouse's Usual Weekly Work Hours ($Ref = $ Less Than 21 Hours)					
21 − 40	-0.0284	0.0241	-0.0754	0.0185	
40+	-0.0284	0.0241	-0.0752	0.0187	
Hours Vary	-0.0440	0.0251	-0.0938	0.0049	.
Hours Not Reported	-0.0118	0.0241	-0.0588	0.0356	
Housing Type ($Ref = $ House or Apartment)					
Mobile Home	0.0149	0.0103	-0.0054	0.0349	
Other	0.0019	0.0668	-0.1276	0.1334	
Housing Tenure ($Ref = $ Householder Owns Home)					
Rented	0.0120	0.0063	-0.0005	0.0242	.
Other	-0.0280	0.0224	-0.0721	0.0158	
Diary Day of the Week ($Ref = $ Sunday)					
Monday	-0.1078	0.0070	-0.1214	-0.0941	***
Tuesday	-0.1046	0.0071	-0.1184	-0.0907	***
Wednesday	-0.1128	0.0071	-0.1272	-0.0989	***
Thursday	-0.1202	0.0071	-0.1342	-0.1062	***
Friday	-0.0942	0.0071	-0.1082	-0.0800	***
Saturday	0.0050	0.0054	-0.0058	0.0156	
Diary Day on Holiday	0.0716	0.0145	0.0432	0.1005	***
Model Fit					
Sigma	0.3971	0.0013	0.3945	0.3997	***
BIC	-18422.13	—	—	—	—

Data come from the pooled 2003-2008 American Time Use Survey, subsample of heterosexual married individuals residing with their spouses (n=43,373). Bayesian estimation done by Gibbs sampling (n=10,000 draws). Significance is based on asymptotic z approximations with significance codes: $Pr(> |z|) =$, 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1.

Table 3: Posterior Distribution of Coefficients from the Truncated Normal Regression of Share of Men's Housework Done in the Presence of Others on Sex and Covariates

	Mean	SD	Q2.5%	Q97.5%	Sig.
(Intercept)	0.1508	0.0195	0.1130	0.1894	***
Female	-0.0089	0.0028	-0.0145	-0.0033	**
Age	-0.0001	0.0002	-0.0004	0.0002	
Hispanic	-0.0166	0.0048	-0.0259	-0.0071	***
Number of Adults in Home	-0.0023	0.0022	-0.0065	0.0020	
Number of Children in Home	0.0086	0.0021	0.0044	0.0128	***
Female Earning Share ($Ref = 0 - .39$)					
0.40 − 0.59)	-0.0070	0.0042	-0.0152	0.0013	.
0.60 − 1.00	-0.0171	0.0041	-0.0252	-0.0090	***
Income Not Reported	-0.0133	0.0051	-0.0232	-0.0035	**
Race (Ref = White-Only)					
Black-Only	-0.0474	0.0056	-0.0582	-0.0363	***
Other Race	-0.0279	0.0064	-0.0402	-0.0156	***
Education (Ref = BA or Equivalent)					
Less than HS	0.0018	0.0056	-0.0092	0.0128	
HS Grad	0.0087	0.0037	0.0015	0.0159	*
Some College	0.0063	0.0042	-0.0019	0.0146	
Professional Degree	-0.0024	0.0045	-0.0112	0.0066	
Age of Youngest HH Child ($Ref = 0 - 5$)					
No HH Child	-0.0021	0.0063	-0.0144	0.0102	
6 − 11	0.0004	0.0044	-0.0082	0.0090	
12 − 18	0.0037	0.0061	-0.0084	0.0157	
Respondent's Employment Status (Ref = Employed FT)					
Employed PT	0.0081	0.0050	-0.0016	0.0179	
Retired	0.0122	0.0062	0.0002	0.0243	*
Unemployed	0.0047	0.0100	-0.0149	0.0243	
Disabled	-0.0041	0.0088	-0.0215	0.0130	
NIL Other	0.0101	0.0054	-0.0006	0.0208	.
Spouse's Usual Weekly Work Hours (Ref = Less Than 21 Hours)					
21−40	-0.0103	0.0175	-0.0444	0.0238	
40+	-0.0082	0.0175	-0.0423	0.0259	
Hours Vary	-0.0172	0.0183	-0.0533	0.0183	
Hours Not Reported	-0.0096	0.0175	-0.0438	0.0248	
Housing Type (Ref = House or Apartment)					
Mobile Home	-0.0146	0.0075	-0.0293	-0.0001	.
Other	0.0153	0.0485	-0.0788	0.1108	
Housing Tenure (Ref = Householder Owns Home)					
Rented	-0.0464	0.0046	-0.0555	-0.0376	***
Other	-0.0027	0.0162	-0.0347	0.0292	
Diary Day of the Week (Ref = Sunday)					
Monday	-0.0399	0.0051	-0.0498	-0.0299	***
Tuesday	-0.0489	0.0051	-0.0589	-0.0388	***
Wednesday	-0.0506	0.0052	-0.0611	-0.0405	***
Thursday	-0.0502	0.0052	-0.0604	-0.0401	***
Friday	-0.0489	0.0052	-0.0591	-0.0386	***
Saturday	0.0067	0.0039	-0.0011	0.0145	.
Diary Day on Holiday	0.0190	0.0106	-0.0017	0.0399	.
Model Fit					
Sigma	0.2885	0.0010	0.2866	0.2904	***
BIC	-24814.35	—	—	—	—

Data come from the pooled 2003-2008 American Time Use Survey, subsample of heterosexual married individuals residing with their spouses (n=43,373). Bayesian estimation done by Gibbs sampling (n=10,000 draws). Significance is based on asymptotic z approximations with significance codes: $Pr(> |z|) =$, 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1.

Table 4: Posterior Expected Values and Standard Deviations of Share of Housework Done with Select Others Present by Housework Gender-Type for Men and Women

	Others Present	Men Male HW	Men Female HW	Women Male HW	Women Female HW
1	Anybody	0.198(0.004)	0.405(0.006)	0.192(0.004)	0.473(0.006)
2	Adults Only	0.153(0.003)	0.366(0.005)	0.151(0.003)	0.368(0.003)
3	Any Children Only	0.066(0.002)	0.081(0.002)	0.062(0.001)	0.129(0.003)
4	HH Children Only	0.107(0.003)	0.171(0.004)	0.100(0.003)	0.289(0.005)
5	HH Boys Only	0.045(0.001)	0.050(0.001)	0.041(0.001)	0.062(0.001)
6	HH Girls Only	0.031(0.001)	0.049(0.001)	0.033(0.001)	0.071(0.002)

Data come from the posterior predictive distributions of the Truncated Normal Regression models of share of housework done in the presence of others on covariates (n=10,000). Estimates derived from full models and represent the expected proportion of time spent doing female- and male-type housework in the presence of others (e.g., anybody, only adults, only children, boys only, girls only) to total amount of time spent doing female- and male-typed housework. Rows 1–3 incorporate models using data from the primary sample of married couples and rows 4–6 reflect data from the "married with children" subsample. Posterior standard deviations are in parentheses.

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APPENDIX

Table A-1: Descriptions of Female and Male Typed Housework Activities

Female HW	Male HW
Housework	Interior Maintenance, Repair, and Decoration
Interior cleaning	Interior arrangement, decoration, and repairs
laundry	Building and repairing furniture
Sewing, repairing, and maintaining textiles	Heating and cooling
Storing interior household items, including food	Interior Maintenance, Repair, and Decoration, nec
Housework, nec	Exterior Maintenance, Repair, and Decoration
Food and Drink, Presentation, and Clean-up	Exterior Cleaning
food and drink preparation	Exterior repair, improvements, and decoration
food presentation	Exterior maintenance, repair, and decoration, nec
kitchen and food clean-up	Lawn, Garden, and Houseplants
Food and drink preparation, presentation, clean-up, nec	lawn, garden, and houseplant care
Consumer Purchases	ponds, pools, and hot tubs
Shopping (store, telephone, internet)	lawn and garden, nec
Grocery shopping	Vehicles
purchasing gas	Vehicle repair and maintenance (by self)
purchasing food (not groceries)	vehicles, nec
shopping, except groceries, food, and gas	Appliances, Tools, and Toys
waiting associated with shopping	appliance, tool, and toy set-up, repair, and maintenance (by self)
shopping nec	appliances and tools, nec
Researching Purchases	Travel related to interior maintenance, repair, decoration
comparison shopping	Travel related to exterior maintenance, repair, decoration
researching purchases	Travel related to lawn, garden, and houseplant care
Security Procedures Related to Consumer Purchases	Travel related to vehicle care and maintenance (by self)
Security Procedures Related to Consumer Purchases	Travel related to appliance, tool, and toy-set-up, repair, and maintenance (by self)
Security Procedures Related to Consumer Purchases, nec	Travel related to using maintenance, repair, decoration, or construction services
Consumer purchases nec	Travel related to using lawn and garden services
Travel related to housework	Travel related to using vehicle maintenance and repair services
Travel related to food and drink prep, clean-up, presentation	Home Maintenance, Repair, Decoration, and Construction (not done by self)
Travel related to grocery shopping	Using home maintenance, repair, decoration, or construction services
Travel related to other shopping inclusive	Waiting associated with home maintenance, repair, decoration, or construction
Travel related to purchasing good (not groceries)	Using home maintenance, repair, decoration, or construction services nec
Travel related to shopping except groceries, food, and gas	Lawn and Garden Services (not done by self)
Travel related to purchasing gas	Using lawn and garden services
Travel related to consumer purchases	Waiting associated with lawn and garden services
Travel related to using household services	Using lawn and garden services nec
Household services (not done by self)	Vehicle Maintenance and Repair Services (not done by self)
Using interior cleaning services	Using vehicle maintenance and repair services
Using meal preparation services	waiting associated with vehicle maintenance or repair services
Using clothing repair and cleaning services	Using vehicle maintenance and repair services nec
Waiting associated with using household services	—
Using household services nec	—

Table A-2: Posterior Distribution of Gender (ref=Male) Coefficients from the Truncated Normal Regression of Share of Male and Female Typed Housework Done in the Presence of Others

	Housework Type	Others	Mean	SD	2.5%	97.5%	Sig.
1	Female-Typed Housework	Anybody	0.0873	0.0039	0.0795	0.0950	***
2	Male-Typed Housework	Anybody	-0.0089	0.0028	-0.0145	-0.0033	**
3	Female-Typed Housework	Adults Only	0.0016	0.0032	-0.0048	0.0080	
4	Male-Typed Housework	Adults Only	-0.0029	0.0022	-0.0073	0.0014	
5	Female-Typed Housework	Children Only	0.0867	0.0021	0.0824	0.0909	***
6	Male-Typed Housework	Children Only	-0.0078	0.0014	-0.0105	-0.0051	***
7	Female-Typed Housework	HH Children Only	0.1627	0.0038	0.1552	0.1703	***
8	Male-Typed Housework	HH Children Only	-0.0105	0.0025	-0.0154	-0.0056	***
9	Female-Typed Housework	HH Girls Only	0.0774	0.0027	0.0721	0.0827	***
10	Female-Typed Housework	HH Boys Only	0.0044	0.0014	0.0017	0.0071	**
11	Male-Typed Housework	HH Girls Only	0.0413	0.0026	0.0362	0.0464	***
12	Male-Typed Housework	HH Boys Only	-0.0128	0.0018	-0.0162	-0.0093	***

Data come from the posterior coefficient distributions of the Truncated Normal Regression models of share of housework done in the presence of others on covariates (n=10,000). Estimates are derived from full models and represent the expected difference between men and women in the share of time spent doing female- and male-type housework in the presence of others (e.g., anybody, only adults, boys only, girls only, men only, women only) to total amount of time spent doing female- and male-type housework, net of all controls. Rows 1–6 incorporate models using data from the primary sample of married couples and rows 7–12 reflect data from the "married with children" subsample. Posterior standard deviations are in parentheses. Significance is based on asymptotic z approximations with significance codes: $Pr(> |z|) =$, 0 '***' 0.001 '**' 0.01 '*' 0.05 '.' 0.1 ' ' 1.