A Longitudinal Evaluation of Gender Display in Spouses' Housework Hours*

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Gender display theory suggests that women whose earnings are less than their husbands' will reduce their housework as they contribute a greater share of family income, while women who contribute a majority of household earnings will spend more time in housework as their earnings rise, compensating for their deviant labor market position with gender-conformist household roles. We use a modified fixed effects strategy and 1976-1996 data from the Panel Study of Income Dynamics to test the validity of gender display in explaining changes over time in couples' housework hours. Using longitudinal data reduces the possibility that our results are due to unobserved differences among couples that affect both labor outcomes and housework hours. Preliminarily, we find support for gender display among women but not among men. For women, housework hours fall with increasing financial contributions up to the point that they provide about 60% of household income and then increase.

The publication of Arlie Hochschild's groundbreaking book, *The Second Shift*, brought widespread attention to the persistence of gender inequality in the division of household labor, even as women were entering the labor force in greater numbers and gaining financial independence (1989). In the following years, a number of studies attempted to measure and explain the gender gap in household labor that exists net of gender differences in labor force participation and earnings. Gender inequality in the domain of housework is itself a form of stratification by gender, as it contributes to a "leisure gap" between men and women, with men having considerably more time than women to pursue outside activities and hobbies (Hochschild 1989). Additionally, couples' decisions about the division of household labor are tied to decisions about labor force participation. The expectation that women will perform the majority of household labor may lead to lower lifetime labor force participation by women and slower earnings growth. Thus, inequality in the division of household tasks also has implications for the persistence of both gender differences in earnings and the greater financial vulnerability of women in the event of marital disruption.

One area of particular interest for scholars investigating gender disparities in housework time has been the theory of gender display, which suggests that couples in which women out-earn their husbands in the labor force compensate for a gender-deviant breadwinner outcome with a gender-conformist division of household labor. Gender display implies a causal question: whether higher amounts of household labor for women who out-earn their husbands, and lower amounts of household labor for those husbands, are *due to* their high earnings relative to those of their husbands. As a result, existing evaluations of gender display that have made use primarily of cross-sectional relationships between housework hours and spouses' relative earnings (Brines 1994; Bittman et al. 2003; Evertsson and Nermo 2004; Greenstein 2000) have limits. First, the cross-sectional results may be due to unobserved heterogeneity across individuals: individuals may have unobserved traits that contribute to their high or low performance in both the paid labor market and the domestic sphere. These unobserved traits could reflect physical limitations due to health, differences in motivation level, or some other cause. Provided that these differences vary across couples but are fixed at the couple level, a fixed effects strategy will allow us to estimate whether the longitudinal patterns of housework division for couples are consistent with gender display. Second, a curvilinear relationship between men's dependency on their wives and their housework hours may appear in the cross-section because couples are slow

to adjust their division of household labor in response to changes in their division of paid labor. This may be the case if highly dependent men are disproportionately those who have experienced a recent decline in labor market position but have only partially adjusted their housework hours in response to this change. This lagged adjustment is consistent with the results of Gershuny et al., who find that couples' adjustments to changes in labor force participation occur gradually over several years (2005). The use of longitudinal data allows us to test formally how men's and women's housework hours change in response to changes in their financial dependency.

In this paper we aim to answer the following questions: How do couples adjust time spent in housework in response to changes in their life circumstances and labor market outcomes? In particular, can gender display provide an explanation for couples' changing housework hours across time?

Previous Research

Previous research on the division of household labor typically engages with three theoretical perspectives—the time availability perspective, the relative resources perspective, and the gender perspective. The time availability perspective suggests that the division of labor is rationally allocated according to availability of household personnel in relation to the amount of housework to be done. Hence, time in housework should be strongly negatively related to time spent in market labor and family composition (Bianchi et al. 2000). The relative resources perspective, in contrast, argues that the allocation of housework reflects power relations between men and women, with the level of relative resources partners bring to a relationship determining how much domestic labor is completed by each partner (Bianchi et al. 2000). The more powerful partner will strive to minimize his or her own housework contributions and maximize those of the partner (Szinovacz 2000). The partner with lower earnings is viewed as being economically dependent on the other and may spend more time doing household chores out of a reciprocal obligation to the partner with higher earnings (Gupta 2007). Previous studies have found some evidence of the dependency or relative resources hypothesis, finding that wives' housework hours are greater when they are more financially dependent on their husbands (South and Spitze 1994) and that women's hours employed and household earnings both reduce time spent on housework (Sanchez and Thomson 1997; Bianchi et al. 2000).

Gender display theory in the domain of household labor has been presented as an extension to the gender-neutral theory of relative resources. In contrast to the relative resources hypothesis, the gender display (or deviance neutralization) hypothesis argues that, while the predictions of relative resources are correct for high levels of wife-dependency, the pattern will reverse when women out-earn their husbands, as couples seek to neutralize a gender-deviant division of financial responsibility with a gender-typical division of household labor. This hypothesis is most often tested with a quadratic specification of the relationship between women's share of household earnings and a spouse's housework hours. If gender display is supported for women, we expect that housework hours will fall with increasing financial independence up to the point that women contribute about half of family income, but will then rise. The reverse is predicted for men. The gender perspective is rooted in the idea that housework is a symbolic enactment of gender relations and that there is not a simple trade-off between time spent in unpaid and paid labor among men and women. It also suggests that

women are disadvantaged in the allocation of housework tasks (Bianchi et al. 2000). In this perspective individuals use housework to affirm gender identity in the face of gender-atypical economic circumstances such as a female breadwinner situation (Gupta 2007). Unlike the time availability and relative resources hypotheses, the gender perspective is not gender-neutral, and thus has the potential to explain gender differences in hours spent in household labor that remain after adjusting for hours in the paid labor force, relative resources, and other covariates.

Evidence for gender display has been mixed. Brines uses a quadratic specification of dependency and finds that men who are highly financially dependent on their wives spend less time in housework than those who are only somewhat dependent (1994). She interprets these results as evidence that men who are financially dependent on their wives resist housework, as doing this stereotypically "women's work" would further undermine their already threatened masculinity (1994). Later researchers have questioned Brines' finding by showing that the non-linearity that is critical to her argument is heavily dependent on the lowest 3 percent of men in the sample (Gupta 1999b). Brines, however, is not the only scholar to find evidence of a non-linear relationship between economic dependency and hours of housework. Greenstein replicates and extends upon Brines (2000), finding evidence of gender display, which he terms "deviance neutralization," for both men and women. When women contribute more than half of the household's earnings, men's housework hours decline as their financial dependence on their wife grows. Similarly, as wives contribute more than their husbands financially the proportion of housework they perform increases (Greenstein 2000). Greenstein argues that this is evidence that couples with non-traditional financial arrangements attempt to neutralize the "deviance" of their situation by becoming more traditional in the division of housework (2000).

Using Australian time-use data collected in 1992, Bittman et al. (2003) find a non-linear relationship between women's financial dependency on their husbands and their housework hours, with decreasing husband dependency associated with a reduction in housework hours up to the point that women contribute about half the family income, but then an increase rather than a decrease in women's housework hours as women provide more than half of the family's income. Evertsson and Nermo, using American data from repeated cross-sections of the PSID in the 1980s and 1990s, also find a quadratic relationship between women's housework hours and their financial dependence on their husband, with women minimizing their housework hours when they provide more than half but less than 100 percent of the family income (2004). However, they find no evidence of a quadratic relationship for men. Evertsson and Nermo note that their findings are robust to the exclusion of the 3 percent of men who are most highly financially dependent on their wives, and so pre-empt a critique of the kind Gupta leveled at Brines (1999b). Thus, unlike Brines, Bittman et al. and Evertsson and Nermo argue that it is women, not men, who are susceptible to the gender display phenomenon, with men's housework hours relatively less responsive to changes in financial dependency, while Greenstein argues both men and women show evidence of gender display. In conflict with these findings, Gupta (2007) argues the gender display pattern in the relationship between earnings and housework, where women with high relative earnings spend a greater amount of time on housework, is spurious. He argues that the observed quadratic relationship between relative economic dependency and housework is due to specification error. In particular, he argues that there is a linear relationship between women's own *absolute* earnings and their hours of housework, and that the observed quadratic is simply a function of the relationship between absolute and relative

earnings, with high-earning women tending to live in households in which they provide a moderate share of the total family income.

The debate about the merits of the gender display perspective is therefore ongoing, with little agreement about whether gender display exists, and, if it does exist, in what countries and time periods it appears, and whether it is stronger for husbands or wives. Conspicuously absent from the existing evaluations of the gender display hypothesis are tests based on longitudinal data. While multiple articles have made use of the housework data available from the PSID (Evertsson and Nermo 2004; Bittman et al. 2003), they have used repeated cross-sections, rather than tracking the division of household labor for specific couples across time. Gershuny et al. depart from the cross-sectional approach to make use of the longitudinal structure of the PSID in an evaluation of time lags in couples' responses in the division of household labor to changes in labor force participation (2005), but they do not evaluate the gender display hypothesis. The use of longitudinal data, however, has advantages as a way to combat the potential for omitted variable bias that is present in existing cross-sectional studies of gender display. With cross-sectional studies one risks attributing to gender display any unobserved factors that differ between couples with high levels of wife-dependency and those without. Although most results have been limited to cross-sectional associations, scholars have sometimes interpreted these results as if they indicate responses of individual couples to changing circumstances. Bittman et al., for example, interpret their cross-sectional results by arguing that "Australian women respond to earning more than their husbands by increasing their housework…" (2003). Interpretations of this kind imply that scholars are interested not only in differences across couples in the allocation of housework, but in differences for couples across time. Therefore, it is reasonable to perform analyses that directly test whether couples respond to changes in their relative earnings by changing their division of household labor in a way that supports gender display. Our study uses longitudinal data from the Panel Study of Income Dynamics (PSID) to perform such an analysis.

Data and Sample

Our sample is drawn from the PSID, which began with a sample of 4,800 households in 1968 and has since re-interviewed members of that original household and their descendants annually or biannually. The panel nature of the PSID makes it an ideal dataset for evaluating how couples change their time spent in household labor in response to changes in their labor force participation and rewards, as well as changes in household composition, particularly the arrival and subsequent aging of children. Our sample spans the years 1976-1996. Our period of study begins in 1976, rather than 1968, because it was the first year that the PSID collected reports of both spouses' housework hours. After 1996, the PSID was conducted only biannually, which complicates the inclusion of later years, for reasons discussed in more detail later. We restrict our sample to men and women who are living in married or long-term (more than one year) cohabiting unions. Trivially, only those couples who are observed for at least two years can contribute to the parameter estimates in the fixed effects model. Because of our analytic strategy, we limit our sample to couples who are observed at least twice with no missing information on any dependent or independent variables. We also limit our sample to couples in which neither partner is above the age of 60. This limitation has two motivations. First, it excludes most retirees, which means that most couples in our sample will be facing meaningful

decisions about the tradeoff for each spouse between time spent in the labor force and time spent in household production. Second, by omitting the elderly, we reduce the number of couples who will have particular divisions of household labor due to health constraints of one or both members of the couple. The couple is the unit of analysis. Therefore, a given individual may enter the sample as part of more than one couple. Our final sample includes 7829 couples, who are observed approximately 8 times each on average, for a total of 62901 observations.

Dependent Variable. The key dependent variable in each year is the individual's weekly hours spent in housework, following convention (Brines 1994; Bittman et al. 2003; Evertsson and Nermo 2004; Greenstein 2000; Gupta 2007). Because results from existing research have so far been divided as to whether it is men's or women's housework hours that show gender display effects, we perform analyses for both men's and women's time. The PSID reports weekly hours of housework for both the husband and the wife in every survey year since 1976, except for 1982. While the use of stylized reports of housework hours has sometimes been challenged as inferior to information obtained from time use diaries, the data quality of the PSID housework hours has been found to be quite good, and subject to minimal bias when time trends are the outcomes of interest, rather than absolute levels (Juster, Ono and Stafford 2003).

Independent Variable. Financial dependency has typically been measured in one of two ways. Some scholars have constructed a measure of financial dependence that, for a given spouse, is: (own earnings – spouse's earnings)/(own earnings + spouse earnings), which necessarily ranges from -1 to 1. (Brines 1994; Sorenson and McLanahan 1987; Greenstein 2000; Evertsson and Nermo 2004). This measure is perfectly correlated with husband's share of total earnings[1], which is the other measure of financial dependence that is sometimes used (Gupta 2007). We use the latter specification, as the values are more easily interpreted. The earnings of each spouse are collected in each wave of the PSID, referring to earnings in the calendar year prior to the survey year. Therefore, it is necessary to match the labor market information collected in survey year t+1 to the demographic and housework information collected in survey year t. This process becomes slightly more difficult after the PSID switches to a biannual format. The first year that is affected is 1997 (there is no 1998 survey). In later years, it is necessary to use the data collected in survey year t+2 about labor market outcomes in year t. This necessarily increases recall difficulties, and these files have a large amount of missing data. Therefore, for this preliminary analysis, we limit the sample to the years 1976-1996. The husband's share of total earnings can only be computed for those couples in which the earnings of at least one spouse are non-zero in that year.

Control Variables. A linear time trend is included to adjust for period and life-cycle effects. The number of children in the household and the age of the youngest child are both included in order to control for the fact that children are associated with changes in household labor for both spouses and changes in labor force participation for women (Bianchi et al. 2000; Gupta 1999a). The weekly hours of labor force participation for both the husband and the wife are included in the models for each spouse. The time availability hypothesis suggests that spouses allocate housework rationally, conditional on decisions about labor force participation. While the endogeneity of the relationship between housework and labor force hours has been noted

[1] "Total earnings" here is defined as the sum of the husband's and wife's earnings, not total family earnings, as there may be other wage-earners in the household.

elsewhere (Evertsson and Nermo 2004), controlling for hours in the paid labor force ensures that any observed relationship between relative earnings and housework is not due to relative differences in time spent in the labor force. Typically, total family income is included as a control variable, to reflect the fact that families with greater financial resources may buy out of household labor (Brines 1994; Bittman et al. 2003; Greenstein 2000). However, we include two separate independent variables—one for husband's earnings and one for wife's earnings—to address Gupta's claim that wives' absolute earnings levels drive women's housework hours, rather than their earnings relative to those of their husbands. All earnings are standardized to 2008 dollars. We also include a dummy variable that indicates whether the head or the wife provided the PSID interview in that year, since some evidence suggests that, controlling for other factors, men report more housework hours for themselves than their wives report for them (Achen and Stafford 2005). Because each couple-year observation actually includes information from two different survey years, we include separate indicator variables for the respondent's identity in the year in which the demographic and housework information was collected and for the year in which the labor force information was collected.

Analytic Approach

Our primary analytic strategy is a modified fixed effects model. A fixed effects model has several advantages in this context. First, as previously mentioned, using repeated observations of the division of labor within the same households allows us to net out differences that may be due to unobserved time-invariant differences at the couple level. Differences across couples in the division of household labor may be interesting in their own right, but cross-sectional analyses of this kind make it more difficult to make assertions that the observed quadratic relationship is not due to some spurious factor. Additionally, the use of fixed effects models may reduce some concerns about measurement error, since the outcome of interest becomes not absolute levels of housework, but changes over time.

However, specification is difficult. In a fixed effects model, the inclusion of a quadratic term does not capture the concept of gender display. In the cross-section, scholars argue that a linear relationship between financial dependency and housework hours provides evidence for the relative resources perspective, since each spouse does less housework with increasing financial power in the relationship, while a quadratic relationship that shows wives' hours minimized and husbands' maximized at some other point when wives provide more than half but less than all of the total family income provides evidence of gender display. This specification, however, is inappropriate in a fixed effects model. A significant quadratic term in a fixed effects model simply implies that changes in housework hours do not scale up linearly with changes in financial dependency. However, in the fixed effects model, this relationship is independent of the location of the couple on the distribution of housework hours. As an example, including a quadratic term in a fixed effects model would allow that the change in predicted housework hours experienced by a woman whose husband's share of household income changes by 0.1 need not be half the change in predicted hours for a woman whose husband's share of household income changes by 0.2. However, it does *not* permit that the change by 0.1 in husband's share would have different predicted effects on a woman's housework hours if her husband previously provided 0.1 of the household earnings as opposed to if her husband previously provided 0.8 of the household earnings. However, the idea that changes in housework hours will be different at

different points along the distribution of financial dependency is central to the gender display hypothesis.

To address this difficulty, we use a modified fixed effects framework. We normalize the dependent, independent and control variables, purging them of couple-specific fixed effects. The coefficient on each independent variable, then, represents the change in predicted housework hours that would be expected from a one-unit deviation from the couple's couple-specific mean of the independent variable. We also include an interaction term between the normalized value of the husband's share of income (the deviation from the couple-specific average) and the couple-specific average of husband's share of income. In this way, we can determine whether the changes in housework hours experienced by couples in response to changes in the share of total income provided by the husband vary with the position of the couple along the distribution of financial dependency. This is the critical hypothesis of gender display. Use of this framework means the observations are no longer independent, since each couple is observed multiple times, so we use robust standard errors to correct for this fact.

Preliminary Results

The results presented and discussed in this section are preliminary and reflect the fact that this submission is an extended abstract rather than a complete paper. Table 1 below presents summary statistics for couples at various points during the period of study. As has been documented elsewhere (see Bianchi et al. 2000), women's average weekly housework hours fell during this period, from an average of 28.2 hours per week in 1976 to 19.1 hours per week in 1996. At the same time, men's housework hours rose, but only slightly, from 5.9 hours per week in 1976 to 6.9 hours per week in 1996. In real terms, the median income of employed men remained fairly constant over the period 1976-1996, rising only 5% from 1976 to 1996, while the median earnings of employed women rose consistently, from $17,633 in 1976 to $25,200 in 1996, an increase of more than 40%. This pattern is partly explained by fairly flat median weekly hours of employment for men, which remained just over 40 hours per week, while the weekly labor force hours of women increased from 29.2 hours in 1976 to 35.3 hours in 1996. At the same time, the fraction of women with no earnings fell from 36.8% in 1976 to 17.4% in 1996. As a result of both increases in employment and increases in earnings among the employed, the average share of household income contributed by husbands fell during the period, from 0.80 in 1976 to 0.66 in 1996. Thus, although men's share of total household income declined during the period, male breadwinning is still the norm even at the end of the period.

Table 1. *Descriptive Statistics for the Sample*

	1976 (N=*2578*)	1986 (N=*3103*)	1996 (N=*2439*)
Median Husband's Annual Earnings (if earnings>0)	$46585	$46130	$49000
Median Wife's Annual Earnings (if earnings>0)	$17633	$21400	$25200
Mean Husband's Share of Earnings	0.80	0.73	0.66
Mean Husband's Weekly Housework Hours	5.9	7.1	6.9
Mean Wife's Weekly Housework Hours	28.2	23.2	19.1
% of Husbands with no Housework Hours	23.0%	17.1%	13.3%
Median Husband's Weekly Employment Hours (if hours>0)	40.4	40.4	42.0
Median Wife's Weekly Employment Hours (if hours>0)	29.2	33.7	35.3
% of Husbands with No Earnings	1.9%	2.7%	2.9%
% of Wives with No earnings	36.8%	23.6%	17.4%

Results from the multivariate regressions of husbands' and wives' housework hours are shown in Table 2 and Table 3, respectively. In each table, Model 1 includes all couples, while Model 2 is limited to couples in which the spouse whose housework hours are being predicted has non-zero earnings in that year. The reason for this distinction is because it is possible that the effects of joblessness on couples' division of household labor are different from the effects of fluctuations in financial contributions for working spouses. For men and women, the arrival of children significantly increases hours spent in housework, although the additional housework associated with additional children declines as the youngest child ages ($p<0.001$). For men the first child adds an average of 1.5 hours of housework per week, holding all else constant. A second child adds approximately 6 minutes more, and a third child adds an additional 6 minutes. Though all of these differences are significantly different from time spent in housework by men when no children are present ($p<0.001$), they are modest in terms of time. The story for women is quite different. Holding all else constant, a first child adds, on average, about 6 hours and 45 minutes of housework per week for women. A second child adds about another 2 hours, and a third child adds about an additional hour and a half ($p<0.001$). These jumps in time spent in housework are considerably larger than those for men and indicate that having two children as compared to none adds an entire work day's worth of hours spent in housework to women's already high weekly hours.

Table 2. *Multivariate Results for Husband's Housework Hours*

	Model 1 (N=*62320*)		Model 2 (N=*44380*)	
	b	*SE*	*b*	*SE*
Age of youngest child[+]	-0.101***	0.008	-0.110***	0.009
1 child	1.488***	0.110	1.605***	0.122
2 children	1.566***	0.110	1.744***	0.124
3 or more children	1.680***	0.129	1.847***	0.150
Housework hours respondent is husband	2.243***	0.099	2.236***	0.114
Labor force respondent is husband	0.280**	0.098	0.239*	0.112
Husband's earnings	-1.39e-06*	6.22e-07	1.39e-07	9.22e-07
Wife's earnings	-4.76e-06*	2.23e-06	-6.73e-06**	2.43e-06
Husband's employment hours	-0.042***	0.003	-0.039***	0.003
Wife's employment hours	0.029***	0.003	0.027***	0.003
Year	0.075***	0.006	0.060***	0.007
Share of total earnings contributed by husband	-2.960***	0.686	-2.754**	0.860
Gender display	1.857	1.056	0.865	1.296
Constant	-1.14e-09	0.023	-0.004	0.027
r^2	0.031		0.030	

[+]All values are centered to the couple-specific mean, with the exception of the gender display term, which is the interaction between the centered value of the husband's share and the couple-specific average.
[++]Robust standard errors are reported.
*p<.05. **p<.01. ***p<0.001.

Table 3. *Multivariate Results for Wife's Housework Hours*

	Model 1 (N=*62320*)		Model 2 (N=*44380*)	
	b	*SE*	*b*	*SE*
Age of youngest child[+]	-0.382***	0.015	-0.346***	0.016
1 child	6.768***	0.200	6.458***	0.212
2 children	8.861***	0.200	8.222***	0.212
3 or more children	10.379***	0.244	9.769***	0.269
Housework hours respondent is husband	0.804***	0.177	0.590**	0.188
Labor force respondent is husband	0.232	0.175	0.268	0.189
Husband's earnings	-1.37e-06	1.53e-06	-3.10e-06	1.86e-06
Wife's earnings	-4.00e-05***	4.42e-06	-2.60e-05***	4.64e-06
Husband's employment hours	0.022***	0.005	0.012*	0.006
Wife's employment hours	-0.125***	0.006	-0.107***	0.006
Year	-0.165***	0.011	-0.173***	0.012
Share of total earnings contributed by husband	-7.998***	0.979	-9.754***	1.295
Gender display	19.006***	1.606	25.753***	2.109
Constant	9.44e-09	0.041	-0.037	0.046
r^2	0.124		0.133	

[+]All values are centered to the couple-specific mean, with the exception of the gender display term, which is the interaction between the centered value of the husband's share and the couple-specific average.
[++]Robust standard errors are reported.
*p<.05. **p<.01. ***p<0.001.

In predicting changes in the husband's housework hours, increases in his hours in the labor force have consistent negative and significant effects across models (p<0.001). This is consistent with the time availability perspective which suggests that men who work longer hours

in the labor force have less time to spend on housework. Similarly, the man's wife's hours in the labor force have a consistent positive and significant effect across models ($p<0.001$), implying that he increases his housework time when she increases her time in paid labor. In estimating the wife's housework hours, we find these same relationships but reversed. Changes in her hours in the labor force have consistent negative and significant effects on her housework hours across models ($p<0.001$). For each increase of 10 hours in the labor force, she decreases her housework by 1.25 hours per week, net of other factors. Similarly, the woman's husband's hours in the labor force have a consistent positive and significant effect across models ($p<0.001$), so that she increases her time spent in housework when he increases his time spent in paid labor.

Consistent with Gupta's findings (2007), we find that a wife's own earnings have a negative and significant effect on her housework hours ($p<0.05$), while the effect of her husband's earnings on her housework hours is insignificant. Each $10,000 increase in the wife's earnings corresponds to about half an hour less spent on housework per week, controlling for other factors. As suggested by Gupta (2007), this relationship may occur if women use their own earnings to buy out of time spent in housework. Since the wife's earnings also reduce her husband's time in housework, the use of the wife's earnings to substitute for either spouse's domestic labor time seems reasonable. We note that the influence of changes in the wife's earnings is stronger than changes in the husband's earnings not only for her housework hours, but for his as well.

In terms of dependency and gender display, we find that gender display holds for women but not for men. For men, housework hours decrease significantly ($p<0.001$) as the share of earnings provided by the husband increases. This effect is tempered somewhat by the gender display variable, so that although men's housework hours always decline as they provide an increasing share of household income, the decline is less pronounced when the husband provides most of the household income. For women, there is a significant nonlinear relationship between increasing share and women's housework hours ($p<0.001$). In Model 1, women's housework hours are minimized when their husbands contribute a 42 percent share of income. As women increase the share of income they provide from 0 to 58 percent, their hours in housework decline, but once women contribute more than 58 percent of income, their hours begin to increase. In Model 2, this inflection point occurs when men contribute a 38 percent share of earnings, so that women decrease their hours in housework as they increase the share of earnings they provide from 0 to 62 percent, but once their contribution rises above a 62 percent share of income they experience an increase.

Implications and Future Directions

The preliminary results suggest the existence of gender display behavior for women but not for men. For men, our results are consistent with the relative resources theory, since men consistently decrease their housework as they provide a greater share of household earnings, throughout the entire range of financial relationships. These results suggest that the observed higher housework hours for women who are the primary breadwinners in their households as compared to women who contribute close to one-half of the household's financial resources are not simply due to time-invariant differences between couples with these different financial

relationships. If true, this represents a strong test of the gender display hypothesis, as there is less chance that the observed relationship is confounded by either unobserved variation across couples or a disproportionate representation of men experiencing a negative income shock among financially dependent men. Despite the initial support of our results for a strong form of gender display, the results presented are only preliminary. In the coming months, we will conduct several extensions of the existing analyses to test the robustness of our findings. We have already performed analyses (results not shown) that confirm that the results are not sensitive to the exclusion of the most highly dependent men (men who contribute no more than 20% of their household's total earnings). We propose additionally to verify that the preliminary pattern holds true for smaller ranges of the distribution, in order to confirm that there is a true gender display effect for women with high earnings shares, rather than simply a declining return to financial independence for the majority of women who are, on average, financially dependent on their husbands.

One possible alternative explanation is that the results are driven by changes in health status. If a husband experiences a negative shock to his health status, it may both decrease his earnings and increase his wife's housework hours, perhaps both because she must do housework that he is no longer able to do and because she does additional housework through the provision of care for him. Although the PSID has only collected information on both spouses' health statuses since 1984, for the subset of years 1984-1996 it is possible to control for changes in health status that occurred for spouses. We will pursue this possible explanation further with this subset of years.

Another line of research is to explore more fully the different effects of changes in housework that are prompted by changes in absolute earnings, employment status, and relative earnings. Like Gupta (2007), we find that women's housework hours are influenced by the absolute levels of their own earnings and that the magnitude of this effect is much larger than the effect of men's earnings on their wives' housework hours, but, unlike Gupta, we do not find that this effect explains the quadratic relationship between financial dependency and women's housework hours. However, we are sensitive to the hypothesis that the relationship between absolute earnings and housework hours may be non-linear. Just as in our current specification, where the interaction between the normed measure of husband's share of earnings and the couple-specific average provides a way to determine whether the size and direction of the effect of financial dependency on housework hours varies at different points in the distribution, a similar interaction between the normed measure of wives' absolute earnings and the couple-specific average of wives' absolute earnings can determine whether non-linearities in this relationship may be contributing to the effect that we are interpreting as gender display. We will conduct a similar analysis for the measure of absolute hours spent in the paid labor market, as the labor market-housework tradeoffs may also be non-linear.

Additionally, as mentioned previously, couples may respond to the transition of one spouse from employment to non-employment differently than to more gradual changes in financial dependency. For example, such a change may make couples more likely to explicitly re-negotiate their division of housework. More generally, couples may negotiate on the basis of relative hours rather than relative earnings. To test this hypothesis, we propose the introduction of a measure of relative hours similar to the measure of relative earnings, as well as performing

analyses separately for couples who are both working full-time during the entire period. We also plan to analyze separately the responsiveness of husbands' and wives' housework hours to job loss. In this way, we intend to follow a framework similar to that of Gershuny et al. (2005), who trace the responsiveness of men's and women's housework hours to women's transitions into the labor force.

Finally, we propose a series of subgroup analyses in order to test whether the observed pattern of gender display holds equally strongly in different populations. First, we might expect that gender display would be less evident in later periods, so we propose testing for a decline in gender display across years. In terms of education, we might expect that the more educated, who tend to have more liberal gender ideologies (Thornton, Alwin, and Camburn 1983), would show less evidence of gender display. On the other hand, Hochschild's results suggest that gender strategy and gender ideology may be inconsistent (1989), which implies there may be no difference in the degree of gender display for members of different educational groups. Finally, if we consider potential differences by race, we might expect that African-Americans would show less evidence of gender display, since African-American women have a long history of labor force participation (Shelton and John 1996) and on average contribute a greater share of household income in married couple families than do white women (Choi 1999). This may make being a breadwinning African-American wife less gender-deviant, reducing the necessity for deviance neutralization through increased time spent on housework.

The significance of this paper is that it presents a more rigorous test of gender display than the typical cross-sectional analyses that have been presented. In addition to making use of longitudinal data that allow us to net out time-invariant differences across couples, our research takes seriously the complicated relationships between employment status, hours of employment, absolute earnings, and relative earnings, and attempts to disentangle whether gender display in the form of allocation of housework hours exists in response to changes in any of these labor force outcomes.

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