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# Data Quality of Housework Hours in the Panel Study of Income Dynamics: Who Really Does the Dishes?

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**Abstract**

Direct respondent reports of time use are commonly found to exceed estimates from diary-based measures. In addition it is common to have proxy reports of time in household chores and market work. Here we show that for core housework, as reported in the Panel Study of Income Dynamics (PSID), married men are likely to report greater weekly hours of core housework for themselves than hours reported for them by their wives. For market work hours in the PSID, based on a comprehensive reconstruction of market work over the calendar year, there is little impact of proxy reports by the spouse. Moreover, the average hours of market work align with external diary estimates.

## 1. Introduction

Prior methodology work indicates that respondents' reports of time use are influenced by the method of data collection and who provides the information. Two commonly used methods are what may be called stylized reporting and time diaries, and in many data collections, particularly for stylized measures of time and other activities, it is common to rely on reports of others – or proxy reports of information. In stylized measures a respondent (or a proxy) is asked to characterize normal or typical amounts of time per day, week, month or year devoted to a particular activity. Such reports tend to have a general upward bias, particularly if there is an element of social desirability to the activity (National Academy of Sciences, 2000).

With diary methods respondents are asked a non-directed chronology of events, commonly starting at midnight of a designated weekday or weekend day and covering a 24-hour span and then the records are coded by activity type and aggregated over one or more sampled days to provide an estimate of specified time uses. Research shows that the diary is unbiased in comparison to methods studies based on electronic pagers, which sample random time points and

ask the respondent to record the activity at that sampled time point. Direct questioning designed to elicit stylized reports from individuals about the number of hours spent in housework consistently yields higher estimates than time diaries (Press and Townsley, 1998)[1].

A recent comparison of the core housework hours (cooking cleaning, and laundry) based on stylized reports in the PSID align quite well – but somewhat on the high side – when compared to diary estimates for the same population of married adult couples (Juster, Ono and Stafford, 2003). For the 1990s the weekly core housework hours of married women averaged about 15 hours based on the diary and about 21 hours per week from stylized reports in the PSID. Also, for men weekly core housework averaged about 5 hours based on diary measures and about 7 hours per week from stylized reports in the PSID. Of course what exactly is included in core housework is quite clear from a diary approach whereas the respondent is in the position of interpreting the domain of core housework in the case of stylized measures.[2] The PSID measures capture well the long-run decline in core housework by married women and the modest upward drift in core housework by married men. This long-term pattern is based on the limited available diary measures over recent decades (Bianchi, et.al., 2000).

## 2. Proxy Reporting

Here we address an additional data quality issue of the impact of proxy response in reporting housework hours. Proxy reporting has been shown to create a range of problems. Clearly, proxy respondents need to have knowledge of the information on the relevant domain and for the

[1] It deserves mention that Press and Townsley include in their measured hours of housework not only the "core housework" activities of cooking, cleaning, and laundry that the PSID measures, but also time spent performing yard work or automobile maintenance, which are *not* intended as part of "housework hours" question sequence of the PSID. See Question F2 at http://psidonline/Data/Documentation/cai_doc/1999_Interview_Year/Section_F___Housework__Child_Care__Food_Costs.htm

[2] PSID stylized measures of average market work for both married men and married women align very closely with time diary measures, 1975 – 1999.

subject they are reporting for. In the PSID much of the proxy reporting is on immediate family members and on objective matters, yet even then there are limits to data quality from proxy respondents (Schwartz and Wellens, 1997).

The PSID normally gathers information from an entire household by contact with a single individual, and we might be concerned both with whether these proxy reports are as reliable as direct (stylized) reports on own activities and with whether proxy reports introduce a systematic bias to the data. Is there a systematic tendency to a bias in housework hours reported for married couples, depending on whether the respondent is the husband or the wife and whether the report is for own hours or for the spouse's hours? Taking the time diaries as the more accurate measure, Press and Townsley report that the percentage overestimation of time spent on housework decreases as amount of housework performed increases. Thus, we might expect women to overreport their own hours of housework less than men would. Indeed, Press and Townsley report that men are predicted to overreport their housework by 148%, reporting an average of 7.7 hours per week, but recording only an average of 4.2 hours per week in time diaries, while women appear to overreport by 68%, reporting an average of 31.8 hours per week, but recording only 18.4 hours in their time diaries. While this investigation shows a general upward bias in reporting of housework hours, it does not address whether a proxy response, where an individual reports on the number of hours his/her spouse spends engaged in housework, creates an additional bias.

Juster, Ono, and Stafford have also discussed the difficulty of measuring time use by stylized respondent reports. They concur with Press and Townsley's finding that respondent reports produce higher time estimates than time diaries, and they also address proxy report as a potential source of bias in respondent reports. Juster, Ono, and Stafford suggest additionally that activities

that take place regularly are less susceptible to bias in reporting. Thus, we might predict not only that women's housework hours would be less overreported than men's, but also that hours of paid work, because they are more likely to take place on a more regular schedule, are less likely to be overreported than are housework hours.

Chung and Monroe articulate social desirability as "the tendency of individuals to deny socially undesirable actions and behaviors and to admit to socially desirable ones," and suggest that this may cause respondents to over-report time spent on socially desirable activities. As housework is a socially desirable activity, one might speculate that self-reports of this activity would be prone to over-reporting, whereas proxy reports might have a lower degree of upward bias[3]. It is also arguable that social norms make housework a more socially desirable activity for women than for men, and so women's self-reports might be especially biased by this effect.

## 3. Data and Patterns of Hours

For the analysis presented here, the data set is PSID households in 2001 that consisted of a married couple, in which both individuals were under the age of 65. The age restriction limits the possibility that one spouse is in such poor health that s/he is unable to contribute to the housework, and standardizes some for generational patterns to housework. One might certainly argue that cohabiting couples ought to be included in the sample as well as married couples. However, using only married couples not only provides standardization to the sample, but also increases the possibility that the couples are involved in long-term relationships, and are more likely to have relatively stable patterns of labor division within the household. In the PSID, for married couples, the head of the household is the husband, unless he has some extreme

[3] It is of course possible that one would over-report socially desirable activities for one's spouse as well as oneself, out of either affection for the spouse or a sense of being identified with his/her actions.

condition, and so only male-headed couples were included in the sample. The respondent is the spouse better able to answer the wide array of financial and other content in the study, and about half of respondents are female[4]. All respondents who refused to answer or said that they did not know the answer to questions that asked about the housework hours, the educational attainment, or the hourly wage rate of either spouse were excluded from the sample as well.

Women in the sample (unweighted) averaged 18.22 hours of core housework per week, while men averaged 7.111 hours per week. Women as own respondents self-report spending an average of 18.09 hours per week on housework, while husbands as proxy respondents report that their wives spend an average of 18.39 hours per week engaged in housework (see **Table 1**). A two-sided t-test of the results gives a p-value of 0.5370, which is high enough to accept the null hypothesis of no difference in hours for own reports versus proxy reports of married women's housework hours. Furthermore, it is striking that the variances in the two samples were quite similar. One might suppose that men, having less knowledge about their wives' housework hours than the wives themselves do, would vary much more in their estimates, even if the average number of hours reported was similar to those that the wives themselves reported. This, however, is not supported by the data.

**Table 1: Women's and Men's Mean Reported Weekly Housework Hours**

| | **Women respondents (N=1664)** | **Men Respondents (N=1233)** | **P-value of no difference in means** |
|---|---|---|---|
| **Women's Housework** | 18.09 (13.03) | 18.39 (12.72) | 0.5370 |
| **Men's Housework** | 5.966 (6.885) | 8.655 (7.415) | $6.707 * 10^{-23}$ |

[4] In this sample, 57.4% of respondents were female.

An analysis of the housework hours of men, however, tells a different story. Men self-report an average of 8.655 hours per week of housework, while women as proxy respondents report an average of only 5.966 hours per week of housework performed by their husbands. A t-test of these results gives a p-value of $6.707 \text{ X } 10^{-23}$, which warrants rejection of the null hypothesis of no difference in the two means (see **Table 1**). On the surface, these results do not support the supposition that women significantly over-report their own hours due to the social desirability of housework for women. Rather this may lend credence to the hypothesis that women's housework hours, because they are greater and more visible, are less susceptible to reporting bias than men's are.

## 4. An Exploration of the Difference

Does the disparity in housework hours for men merely indicate that the husbands who are also the respondents in fact do more housework and that the difference in reported hours is not a measurement error at all? In order to investigate this question, it is useful to examine the effect of proxy responses on the reported housework hours of men in the context of other factors influencing men's housework. To these ends, a regression analysis is presented in **Table 2**. Included are observable covariates that are well known to influence housework time: the housework hours of the wife, the ages of both the head of the household and the wife, the number of children under 18 in the household, the educational attainment of both spouses, and whether each spouse has a job that pays more than $15/hr, as well as our variable of interest – the relationship of the respondent to the head of the household[5]. For men's housework hours, the relation of the respondent to the head of the household remained significant, with a p-value of

[5] This analysis uses the dummy values of 0 for respondents who are husbands and 1 for respondents who are wives. The data sample analyzed is limited to respondents who were either the head or his wife.

4.174 X $10^{-24}$ and an estimated coefficient of -2.745 (see **Table 2, Regression 2**). That is, the model predicts that housework hours reported for the husband, holding other factors constant, is expected to drop 2.745 hours per week when the wife is the proxy respondent, as compared to when the husband is the respondent. From this regression, the educational attainment of both the head and the wife, the age of the head, and the number of children in the household all do not appear to be significant predictors of the head's weekly housework hours. Looking at the regression for the wife's weekly housework hours, however, only the age of the head and the head's educational attainment remain statistically insignificant, while the number of children in the household and the wife's education are both significant. Most importantly, though, including these covariates does *not* cause the relationship of the respondent to the head of the household to become a significant predictor of women's weekly housework hours.

Although the husband's age is not a significant predictor of either his own housework hours or those of his wife, the wife's age has a p-value of less than 0.01 as a predictor of her own housework hours, and a p-value of under 0.06 as a predictor of her husband's housework hours. Each additional year of a woman's age is predicted to increase her weekly housework hours by 0.20 and to decrease those of her husband by 0.061. Therefore, one might suppose that the effect of the wife's age is not based on any kind of physical ability to do housework (else the husband's age would be expected to be significant, for the same reason), but rather on women's changing attitudes toward division of labor within the household.

**Table 2: Predictors of Spouses' Reported Weekly House of Housework**

| | **Regression 1: Women's Hours (N=2897)** | **Regression 2: Men's Hours (N=2897)** |
|---|---|---|
| **Adjusted R-squared** | 0.1610 | 0.06285 |
| **Intercept** | **17.38 (1.797)** | **5.667 (1.078)** |
| **Wife is respondent** | -0.1645 (0.4611) | **-2.745 (0.2686)** |
| **Spouse's weekly housework hours** | **0.2717 (0.03097)** | **0.09557 (0.01089)** |
| **Age of the head** | -0.01704 (0.05208) | 0.05478 (0.03087) |
| **Age of the wife** | **0.1973 (0.05407)** | -0.06123 (0.03212) |
| **Number of children in the household** | **2.524 (0.1945)** | 0.1913 (0.1186) |
| **Head's education** | -0.2085 (0.1099) | 0.03154 (0.06522) |
| **Wife's education** | **-0.5771 (0.1180)** | 0.07224 (0.07024) |
| **Head's hourly wage (>$15/hr)** | **1.368 (0.4934)** | **-0.7319 (0.2927)** |
| **Wife's hourly wage (>15/hr)** | **-5.138 (0.5118)** | **0.7911 (0.3084)** |

One might at first be surprised that, for men and women both, the number of hours that an individual spends engaged in housework is *positively* correlated to the spouse's hours of housework. Supposing a fixed amount of housework to be done in the household, if a wife does a lot of housework, the husband should be expected to do little, simply because there is not much left to do. However, it might be instead that men and women who place a similar value on cleanliness are more likely to get married (and stay married), and so spouses' housework hours might be positively correlated, which is what we observe here. Alternatively, it may be that married couples develop complementary routines, deriving greater pleasure from doing chores together than separately (Hamermesh, 2003).

It is still possible that the differences in reported housework hours for the two groups of men are due to some real difference between the groups, and not due to a bias incurred by proxy reporting. The reason for this is that the choice of which member of the household is the respondent is not random but is chosen to be the person in the household who can most accurately respond to the majority of the questions asked by the PSID interviewer. Therefore, it seems plausible that the household members who are chosen as respondents are those who spend more time on household matters in general and that this correlates to a greater amount of time spent on housework. To control for this effect, one might add to the regression model the number of hours that the head and the wife each spend weekly working for pay. If the observed differences in housework hours reported by men are due to the fact that men who work more outside the home are both less likely to be chosen as respondents and less likely to do housework, then it is possible that the relation of the respondent to the head of the household would become insignificant if these factors were included. However, the inclusion of these variables poses a problem since they suffer from exactly the same potential for reporting bias that the number of housework hours for men does.

If men are likely to overreport their own housework hours, might they not also overreport their hours spent working for pay? Clearly, if reports of hours spent working for pay have the same propensity to bias, including them in the model could obscure the true effect of proxy responses on husbands' reported housework hours. To make the case for the inclusion of the variables that measure hours engaged in paid work, one might suppose that individuals are better informed about the number of hours that both they and their partner spend working for pay than they are about either partner's housework hours. As Juster, Ono, and Stafford suggest, stylized respondent reports, such as those gathered by the PSID, are less susceptible to bias when asking

about activities that are both regular and controlled by external factors, as many individuals' work hours are. Not only is an individual likely to know well how many hours she or he reports for pay each week, but, for example, the spouse may know the exact shift hours that his or her partner works, or that the employment is for exactly 40 hours per week, or s/he may simply note the time that his/her spouse leaves for and returns from work each day. Comparing self-reported annual hours of paid labor versus spouses' proxy reports of paid labor shows, by t-tests, no significant differences for either husbands or wives (see **Table 3**), since both have p-values of greater than 0.05. Therefore, the null hypothesis that the relation of the respondent to the head does not affect the reported annual hours of paid labor cannot be rejected for either of the spouses, and so the paid work variables are included in the subsequent regression, without fear of obscuring the true effect of proxy response on the husband's reported housework hours. We can observe, casually, that the p-value for women's annual labor market hours is lower than that of men's. It is possible that, because women average fewer paid labor hours than men, the reports of these hours are more subject to bias, for the same reasons suggested earlier in relation to men's housework.

**Table 3: Men and Women's Reported Annual Paid Labor Hours**

| | **Women respondents (N=1664)** | **Men Respondents (N=1233)** | **P-value of no difference in means** |
|---|---|---|---|
| **Women's Labor** | 1428 (920.4) | 1366 (920.8) | 0.07239 |
| **Men's Labor** | 2135 (812.0) | 2176 (758.0) | 0.1646 |

Indicator variables were added for whether each spouse worked in 2000, and whether each spouse worked more than part-time[6]. In the model shown in **Table 4**, the relationship of the respondent to head of the household remains insignificant as a predictor of women's housework, yet it remains highly significant for men's household hours, with a p-value of $1.428 \times 10^{-26}$ and a coefficient of -2.849, which means that the effect of proxy response on men's housework hours has only increased in both statistical and practical significance with the inclusion of the labor variables.

**Table 4: Extended Model of Predictors of Men's and Women's Housework Hours**

| | **Regression 1: Women's Hours (N=2897)** | **Regression 2: Men's Hours (N=2897)** |
|---|---|---|
| **Adjusted R-squared** | 0.2757 | 0.09442 |
| **Intercept** | **21.04 (2.050)** | **6.187 (1.304)** |
| **Wife is respondent** | 0.4786 (0.4297) | **-2.849 (0.2644)** |
| **Spouse's weekly housework hours** | **0.3376 (0.02901)** | **0.1329 (0.01142)** |
| **Age of the head** | 0.02149 (0.04878) | 0.02883 (0.03060) |
| **Age of the wife** | **0.1345 (0.05033)** | -0.04782 (0.03160) |
| **Number of children in the household** | **1.909 (0.1835)** | **0.2672 (0.1172)** |
| **Head's education** | **-0.2510 (0.1022)** | 0.05682 (0.06417) |
| **Wife's education** | **-0.4521 (0.1098)** | 0.05183 (0.06908) |
| **Head's hourly wage (>$15/hr)** | -0.1684 (0.4804) | -0.04495 (0.3014) |
| **Wife's hourly wage (>$15/hr)** | **-1.919 (0.5019)** | 0.1027 (0.3157) |
| **Head works for pay** | **3.108 (1.492)** | -1.817 (0.9364) |
| **Wife works for pay** | **-5.615 (0.7435)** | **1.120 (0.4706)** |
| **Head works more than part-time** | 1.906 (1.170) | **-1.648 (0.7338)** |
| **Wife works more than part-time** | **-6.232 (0.6101)** | **2.079 (0.3878)** |

[6] Working "more than part-time" is defined here as having worked more than 1000 hours for pay in 2000.

As would be expected, each spouse's hours of weekly housework are expected to decrease if s/he works, and to further decrease if s/he works more than part-time, while they are expected to increase if his/her spouse works, and to increase further if the spouse works more than part-time. While this set of variables helped to predict both men's and women's housework hours, the coefficients of the variables as predictors of women's hours were larger, including a predicted drop of 5.6 hours if the woman works and of 6.2 hours if she works more than part-time (**Table 4, Regression 2**). Although in these cases men's housework hours are expected to increase by 1.1 and 2.2 hours (**Table 4, Regression 1**), respectively, this is not enough to compensate for the drop in women's hours.

Similarly, once labor variables are included for both spouses, the effects observed for wage disappear in all but the impact on women's weekly housework hours of the wife having a job paying more than $15/hr. Having such a job is predicted to decrease a woman's weekly housework hours by about 1.9 hours per week (see **Table 4, Regression 1**). Since there is no corresponding increase in housework hours for men when their wives have such jobs, it does not appear that housework hours are being transferred to men. This may mean that women who work, and especially those who work in high-paying jobs, cut back the amount of time they spend on cooking and cleaning by living with a little more dust and baking fewer homemade cookies, or simply that, because both spouses work, these families are more likely to be able to hire someone to do housework while both spouses maintain careers.

## 5. Conclusion

The significance of the respondent's relation to the head in predicting men's housework hours remains, with or without the inclusion of the husband's and wife's hours spent engaged in paid work. This difference is not only statistically significant, but practically as well, as it is predicted to change the reported housework hours for men by close to 3 hours. It is not clear whether men are overreporting their own hours ("I help out around the house all the time!"), or whether their wives are underreporting ("He never lifts a finger to help me!"), or both. Knowing the answer to this question might be necessary in order to minimize reporting bias, but it is not necessary in order to simply raise the concern that the data on this question may suffer from bias.

One might argue that all data from research on human populations are likely to be plagued by some inaccuracy. What is investigated here is whether the inaccuracies not only exist, but also have a systematic bias, and therefore may create the appearance of causal relationships between housework hours and other variables, where none in fact exist. Furthermore, we are clearly not only interested in the discrepancies that arise in men's reported housework hours, but, because the PSID frequently asks the respondent to give information on a spouse, the integrity of all proxy responses in a wide range of domains. This concern over bias must, of course, be balanced against the cost of gathering data; it is clearly much easier to interview a single member of each household than to interview each member, and so the decision of a researcher to use proxy reports will necessarily depend on available resources as well as on the susceptibility of the data of interest to bias from proxy reports.

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