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The Production of Inequality: The Gender Division of Labor Across the Transition to Parenthood

Using longitudinal time diary and survey data from a community sample of dual-earner couples across the transition to parenthood, the authors examined change in divisions of paid and unpaid work and assessed the accuracy of survey data for time use measurement. Mothers, according to the time diaries, shouldered the majority of child care and did not decrease their paid work hours. Furthermore, the gender gap was not present prebirth but emerged postbirth with women doing more than 2 hours of additional work per day compared to an additional 40 minutes for men. Moreover, the birth of a child magnified parents' overestimations of work in the survey data, and had the authors relied only on survey data, gender work inequalities would not have been apparent. The findings have important implications for (a) the state of the gender revolution among couples well positioned to obtain balanced workloads and (b) the utility of survey data to measure parents' division of labor.

Despite extensive changes to the gender structure over the past few decades, some scholars contend that the gender revolution has stalled (Cotter, Hermsen, & Vanneman, 2011; England, 2010). The gender revolution is considered to be the wide-ranging changes to women's roles, opportunities, and achievements since the 1960s. Although women have entered into previously male-dominated domains such as the labor force and higher education, men have not embraced female-typed activities, such as child care and housework, with similar vigor. Parenthood, in particular, is a realm in which men and women continue to experience unequal responsibilities (Mannino & Deutsch, 2007; Milkie, Raley, & Bianchi, 2009; Offer & Schneider, 2011; Raley, Bianchi, & Wang, 2012; Yeung, Sandberg, Davis-Kean, & Hofferth, 2001; Yoshida, 2012).

The study of parenthood is vital to understanding the state of the gender revolution because of its cyclical ties to the employment sector and potential to produce and strengthen traditional labor arrangements between men and women. However, the following question remains: How complete, or incomplete, is the gender revolution in the United States in terms of the division of labor among new parents? In this study we sought to examine this question by analyzing data from highly

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educated, dual-earner couples at one of the most critical life course transitions: the transition to parenthood (Kluwer, 2010). Because of their high levels of education and spouses working similar hours of paid work, this sample was well positioned to attain equal divisions of labor (Bolzendahl & Myers, 2004; Corrigall & Konrad, 2007; Cunningham, 2008).

The transition to parenthood is rewarding, challenging, and life altering for most couples. The addition of a third person to the household has profound effects on the couple relationship and distribution of household work, with most couples experiencing a decline in relationship satisfaction (especially among women; Kluwer, 2000) and an increase in time spent in housework and caregiving (Gjerdingen & Center, 2005). Yet men and women historically have differentially experienced these changes: Women shoulder the majority of child care. However, most research on this topic has relied on self-reported survey data on a single aspect (i.e., housework) of the division of labor (see Gjerdingen & Center, 2005, and Sanchez & Thomson, 1997, for exceptions) and has not obtained data from both men and women in the same families, or it has focused on the division of labor in families with older children (Bianchi, Sayer, Milkie, & Robinson, 2000; Milkie et al., 2009), long after the initial transition to parenthood has taken place.

Using time diaries and survey data from a contemporary sample of dual-earner couples, in this study we had two aims: (a) compare the division of labor, including market (paid) and nonmarket (unpaid) work, both prior to and across the transition to parenthood, and (b) compare time diary and survey estimates of the division of labor across the transition to parenthood. Because survey responses tend to reflect perceptions of work, whereas time diaries provide more consistent and reliable time pattern reports, a key strength and contribution of this study is the use and comparison of both types of data (Robinson & Godbey, 1997; Lee & Waite, 2005; Press & Townsley, 1998). Indeed, no study to our knowledge has used time diary and survey data to compare U.S. men's and women's contributions to several types of paid and unpaid work across the transition to parenthood.

By studying U.S. couples who are well situated for egalitarian relationships due to their high education and dual-earner statuses (Bolzendahl & Myers, 2004; Corrigall & Konrad, 2007; Cunningham, 2008), we examined the state of gender equality during a crucial stage of couples' lives at which they are at risk of becoming more traditional in their division of labor. In this study we also assessed whether parenthood magnified or minimized women's and men's perceptions of work by examining disparities between survey and time diary data. This has implications for the validity of studies using surveys for estimating time use and housework (e.g., Kornrich, Brines, & Leupp, 2013). Skewed perceptions of work, particularly by fathers who have historically contributed less to the domestic sphere, could contribute to the stalled revolution by masking inequalities.

Literature Review

The gender revolution of the 1960s and 1970s led to significant changes within families. The women's movement, along with men's diminishing earning power, spurred women to increase their participation in the paid labor force. As such, the breadwinner/homemaker traditional model has largely eroded, and most couples, including those with children, are dual earners (U.S. Bureau of Labor Statistics, 2011). Alongside these shifts in the labor market, societal expectations regarding fatherhood and motherhood have also evolved, although men's labor market and domestic roles have not changed as significantly as women's roles (Cha, 2010; Bianchi, Milkie, Sayer, & Robinson, 2012; England, 2010; Sayer, Bianchi, & Robinson, 2004).

Cultural conceptualizations of fatherhood have progressed from a sole focus on economic responsibilities to expectations that fathers be directly involved in the care of their children and form close, emotional ties to their children (Pleck, 2010; Yoshida, 2012). At the same time, mothers' roles have expanded to include economic responsibilities (Garey, 1999). Yet some scholars contend that the gender revolution has stalled and has yet to deliver equitable divisions of domestic labor (England, 2010). Part of the stalled revolution includes new cultural expectations of "intensive mothering." Hays (1996) contended that expectations that motherhood is "child-centered, expert-guided, emotionally absorbing, labor-intensive, and financially expensive" (p. 8) have become more prominent. These intensified expectations are culturally contradictory to the increased market pressures that mothers face.

Because men and women are both putting in longer market hours, parents are experiencing a "time squeeze" (Milkie, Mattingly, Nomaguchi, Bianchi, & Robinson, 2004). Even among couples who hold egalitarian beliefs, the presence of children heightens gender specialization within couples, sometimes for practical reasons (Milkie & Peltola, 1999; Sanchez & Thomson, 1997). In a dual-earner family, time availability perspectives contend that the parent with the most available time outside of market work will conduct the most domestic labor (Becker, 1981; Ishii-Kuntz & Coltrane, 1992). Because of gendered conceptions of motherhood and fatherhood, mothers frequently decrease their paid employment hours, freeing up time for child care responsibilities (Klerman & Leibowitz, 1999; Yeung et al., 2001), while men either do not change or increase their paid employment hours (Gjerdingen & Center, 2005; Jacobs & Gerson, 2009). However, the evidence that lessened time availability for mothers results in increased paternal child care is mixed (Combs-Orme & Renkert, 2009; Yoshida, 2012).

Because many women reduce their employment hours and thus forgo higher wages after the birth of a child, children often reduce women's bargaining power (Sanchez & Thomson, 1997). Exchange and bargaining perspectives focus on the power (generally based on income) that each partner brings to their relationship and can leverage to bargain out of domestic labor (Bittman, England, Sayer, Folbre, & Matheson, 2003; Blood & Wolfe, 1960). However, empirical tests of this theory have also produced mixed results because higher incomes among women do not necessarily increase their partners' contributions to domestic labor (Gupta, 2006), likely because it ignores other power differentials besides income that exist between men and women. Furthermore, this theory is less useful for explaining differences in child care activities given that many parents, particularly mothers, may not want to bargain out of child care because they enjoy taking care of their children or feel pressured to do so, given high cultural standards for parenting in the United States (Hays, 1996; Raley et al., 2012).

Many gender scholars attest that the residual effects of domestic labor disparities within couple relationships are a result of men and women "doing gender" (West & Zimmerman, 1987). Doing gender means repetitiously producing and reinforcing differences between men and women through a series of actions and accomplishments. Women, in part, practice and strengthen their feminine identity by completing housework and by providing care and nurturance for their children (Bittman et al., 2003; Ferree, 1990). Men, in contrast, perform masculinity by securing a breadwinner employment position and by not participating in domestic labor (Speakman & Marchington, 1999). Gender internalizations, partner expectations and negotiations, and institutional policies (e.g., lack of paternity leave provided by employers) all contribute to men's and women's practices of gender in the domestic sphere (Bittman et al., 2003; Greenstein, 2000; Mannino & Deutsch, 2007).

Much of the research on the division of labor has concentrated on parents with toddler-age or older children and has used cross-sectional data (Mannino & Deutsch, 2007; Milkie et al., 2009; Offer & Schneider, 2011; Raley et al., 2012; Yeung et al., 2001; Yoshida, 2012). Scant research exists on the division of labor between parents of infants. Moreover, research on child care has been predominantly conducted on samples of individual men and women, rather than on couples in relationships. Although some economists have tried to approximate couples by using matching procedures (Connelly & Kimmel, 2009), very few U.S. studies have actually used time diary data within families (see Lee & Waite, 2005, for an exception). Instead, research has relied on reports from one person in the household for both self and spouse's time use patterns (e.g., Sayer, 2005). Our study fills this gap by analyzing longitudinal, time diary data on new mothers and fathers from the same families.

The transition to parenthood is a significant shifting point for the gender dynamics of a relationship in that it is a time-intensive period in which infants need constant, inflexible care. The presence of an infant can restructure parents' time across a variety of activities, yet research on this time period has predominantly focused on a single time use category (Combs-Orme & Renkert, 2009; Hook & Wolfe, 2012). Only a handful of contemporary, U.S. empirical studies have examined the effects of transitioning to parenthood on men's and women's time in both paid and unpaid labor using longitudinal (pre- and postbirth) data, and each relied on survey data, not time diaries (Gjerdingen & Center, 2005; Sanchez & Thomson, 1997). Gjerdingen and Center (2005), using survey data

from 128 couples, found that women shouldered the majority of child care and that, after the child's birth women's total work week was 5 hours longer than men's work week. Using longitudinal data from the National Survey of Families and Households collected in the late 1980s and early 1990s, Sanchez and Thomson (1997) found that women decreased their paid work hours by one full employment day, increased their housework hours, and gained twice as many hours of child care across the transition to parenthood as compared to men. Both Gjerdingen and Center and Sanchez and Thomson found that men's employment and housework hours remained stable after the birth of a child. Thus, the biggest change for men's time came in additional hours in child care, not housework. This suggests that new fatherhood expectations may prompt greater involvement with children (see Marsiglio, Amato, Day, & Lamb, 2000, and Raley et al., 2012) but do not necessarily lead to greater participation in the housework that escalates after parenthood. However, both of these studies used survey data, not time diaries; comparison research on these two types of measures indicate that survey data tend to overestimate the time men and women spend on household labor. Therefore, survey studies may over- or underestimate disparities between men and women depending on the degree to which men versus women distort their time use (Lee & Waite, 2005; Press & Townsley, 1998). Our study used time diary data to provide more reliable estimates of time use patterns among new parents and assessed discrepancies between survey and time diary reports, allowing for the analysis and comparison of perceptions and realities of work distributions.

Time Diary and Survey Data Comparison

Time diaries and surveys are two common methods used to examine the division of labor—both paid and unpaid. Time diaries typically ask respondents to reconstruct a specific day by reporting each activity they performed along with how long and where this activity was conducted and who else was present. Researchers then aggregate the time respondents spent on various activities over the course of the 24-hour period. In contrast, surveys ask respondents to estimate the amount of time they typically spend on a specified activity (e.g., doing the dishes) each week. Although both methods have advantages and disadvantages, time diaries are considered the gold standard of time use measurement.

Because time use questions are typically incorporated into larger, more comprehensive surveys that are already being fielded, surveys are less costly and more convenient. However, because surveys rely on respondents' ability to recall information, there may be significant bias in time estimates. It is also difficult for individuals to estimate time spent in multiple brief activities, such as doing the dishes, and to aggregate this time accurately (Bonke, 2005).

The disadvantages of surveys are reflected in recent research indicating that time diaries produce more accurate and reliable time estimates (Lee & Waite, 2005; Press & Townsley, 1998) and provide unbiased estimates of time spent on an activity (Juster & Stafford, 2003). Recall bias is reduced because time diaries are completed on the actual day that is being assessed. In addition, time diaries can account for activities done simultaneously, which cannot be disentangled in surveys. When measuring domestic labor, it is particularly important to capture simultaneous tasks because individuals, particularly women, often multitask while completing housework or child care (Offer & Schneider, 2011). On the other hand, time diaries require a lot of time and energy to complete, which may spur respondent fatigue, and response rates tend to be lower in time diaries than surveys (Bonke, 2005).

Comparisons of these two methods have provided useful insights into the debate on gender equality in the division of household labor. In a study of British couples, Kan (2008) reported that the presence of children magnified the gap between time diary and survey data in estimating housework for both men and women, and women in this sample were more accurate estimators of housework. Bonke (2005), who studied Danish couples, found that women tend to underestimate time spent on unpaid work more than men. Press and Townsley (1998), in a study of U.S. men and women, found that men have a tendency to overreport their housework contributions more than women, especially those who held egalitarian attitudes—presumably to align their behaviors with their ideologies. Accordingly, there is conflicting evidence regarding whether men or women provide less accurate survey estimates, and there is scant research on men and women in the United States that

has compared time use measurements across the transition to parenthood.

This extant research indicates that there may be certain activities for which surveys provide reliable time use estimates and other activities for which they do not. Indeed, studies consistently report that survey reports of housework are higher than time diary estimates (Bianchi et al., 2000; Juster et al., 2003; Robinson & Bostrom, 1994), particularly for those individuals who are more engaged in housework (Bonke, 2005). With regard to paid market work, the evidence is mixed on whether men's and women's survey estimates align with time diary reports. Although some studies indicate that men and women both overestimate their time spent in paid work (Bianchi et al., 2000; Hofferth, 1999, Robinson & Godbey, 1997), Juster et al. (2003) found that gaps between time diaries and survey estimates of paid work differed by sex and depended on the year being examined. In a comparison of U.S. Current Population Survey and U.S. Panel Study of Income Dynamics to U.S. time diaries from 1965 through 1999, Juster and colleagues found that, in the 1960s, 1970s, and 1980s, women overestimated their paid work time, as did men. Yet in the most recent years, women underestimated their paid work time, and men overestimated their paid work hours. Because previous studies have focused on comparing time diaries and survey data on housework and employment (for an exception, see Hofferth, 1999), the accuracy of surveys versus time diaries for child care work is largely unknown. Furthermore, no study to date has compared time diary data to survey data on the division of labor across the transition of parenthood. Our research addresses this gap in the literature, providing important methodological information on the reliability of survey data for dual-earner parents of infants and uncovering the association between the transition to parenthood on perceptions of paid and unpaid work.

Hypotheses

We formulated three hypotheses for this study:

Hypothesis 1: At each wave, men will have spent significantly more time than women in paid work. At each wave, women will have spent significantly more time than men in total work because women will have spent significantly more time on housework and child care (postbirth) than men.

Hypothesis 2: Men will significantly increase their time in total work across the transition to parenthood because of significant increases in paid work along with the addition of child care. Men's and women's housework time will remain unchanged across the transition to parenthood. Women will significantly increase their time in total work across the transition to parenthood because of the addition of child care to their unpaid work despite an expected significant decline in paid work. Overall, women's increases in total work across the transition to parenthood will be significantly greater than men's increases in total work.

Hypothesis 3: Individuals will significantly overestimate their time in paid and unpaid (housework and child care) work in survey measures as compared to time diary measures.

Method

We used data from The New Parents Project, a longitudinal study of 364 parents in 182 dual-earner heterosexual couples residing in a large midwestern city who were becoming first-time parents. Couples were recruited through a variety of sources, including childbirth education, newspaper advertisements, and recruitment flyers posted at health care facilities. Data were collected during the third trimester (Wave 1) and 9 months postbirth (Wave 2) from 2008 to 2010. To be eligible, both parents had to be (a) expecting their first child, (b) in a marital or cohabitating relationship, (c) at least 18 years old, (d) fluent in English, and (e) employed with plans of returning to work postbirth. Respondents were compensated for their time and efforts with cash and gifts.

Three subsamples were drawn for analysis. The Wave 1 sample ($n = 334$) reported work and nonworkday time diaries for both expectant parents at Wave 1. Eight percent of the original sample had missing time diaries for one or both expectant parents at Wave 1. The Wave 2 sample ($n = 238$) had work and nonworkday time diaries for both parents at Wave 2. Thirty-five percent of the original sample had missing Wave 2 time diaries for one or both parents (17% and 18% were missing because of attrition and nonresponse, respectively). Data from these samples were used to examine time use changes between waves; thus, the third sample included only couples in which both partners reported work and nonworkday time diary data for both Waves

1 and 2 ($n = 222$). Prebirth, 48%, 23%, and 29% of women and 50%, 26%, and 24% of men completed their nonworkday time diaries on Sunday, Saturday, and a nonweekend day, respectively. Postbirth, 45%, 24%, and 31% of women and 48%, 23%, and 29% of men completed their nonworkday time diaries on Sunday, Saturday, and a nonweekend day, respectively.

We conducted sensitivity analyses (logistic regressions) to assess whether respondents in each subsample differed significantly from those who were missing data. No significant differences in race, education, relationship duration, income, or age were found between respondents and those missing data at Wave 1. In both models comparing the Wave 1 sample with the Wave 2 sample and the Waves 1 and 2 sample, parents who had longer relationship durations and were cohabitating, rather than married, were significantly more likely to be missing because of attrition or nonresponse. Between-person analyses comparing the division of labor pre- and postbirth by gender and measurement strategy using the full Wave 1 and Wave 2 samples were sensitive to these selection effects and other potential sources of unobserved heterogeneity. Hence, we conducted within-person models that were less sensitive to selection: clustered fixed effects regression models with difference-in-difference estimates; all sources of time-invariant unobserved heterogeneity were accounted for in these models that also examined the division of labor pre- and postbirth by gender.

Couples in this study were predominately White, in their late 20s (mothers) or early 30s (fathers), college educated, and employed in white collar positions (see Table 1 for descriptive statistics); specifically, 87% of couples in the Wave 1 sample were married, and the median household income was approximately $81,000. The average relationship duration was approximately 4 years. It is important to note that the target population for this study was dual-earner couples making the transition to parenthood. As such, our sample is not representative of families in the United States. However, these data provide an opportunity to examine a common and particularly time-pressured population (Offer & Schneider, 2011) in which expectations for a more equal sharing of paid and unpaid work are high (Bolzendahl & Myers, 2004; Corrigall & Konrad, 2007; Cunningham, 2008).

Table 1. *Descriptive Statistics: Prebirth Assessment*

Variables	*M* (*SD*) or %
Couples married	87%
Union duration (years)	4.1 (2.7)
Couple income (in thousands)	81.0 (40.4)
Couples impoverished	4%
Mothers ($n = 167$)	
Race	
White	89%
Education	
Less than college	25%
Age	28.9 (3.9)
Fathers ($n = 167$)	
Race	
White	86%
Education	
Less than college	34%
Age	30.9 (4.8)

Note: Union duration, income, and percentage impoverished were reported by mothers ($n = 167$).

Procedure

Parents separately completed questionnaires and time diaries at each wave. The time diary data collection and coding was modeled after the American Time Use Survey (ATUS; U.S. Bureau of Labor Statistics, 2006). Parents were asked to record their daily activities on a target day on a paper time diary beginning at 4:00 a.m. and concluding 24 hours later for one workday and nonworkday. Parents recorded the start and end time of each activity, including simultaneous activities, and where the activity took place and who was present. To ensure accuracy, trained interviewers reviewed parents' time diaries with them during a home visit. In accordance with the ATUS, parents were instructed to record activities that they participated in on the target day and not activities that they perform on "typical" days. Trained research assistants entered the time diary data using a more detailed version of the ATUS coding manual.

Variables

Time Diary Variables. To create the time diary variables, we summed the time across similar activities to produce the total time spent in each work category. Because the survey time use questions were assessed by week, we multiplied the weekend time diary variables by 2 and

the weekday variables by 5 to attain weekly estimates for each type of work. Following Craig (2006a), we created our main time diary variables—housework, physical child care, child engagement, and paid work—as follows. If a respondent was performing housework as a primary activity (e.g., cooking) and a secondary activity (e.g., washing dishes), this minute was coded as 1 minute of housework, rather than 2 minutes. We included time in a secondary activity only if the primary activity was not in that specific work category. Therefore, if a respondent was performing physical child care as a primary activity (e.g., feeding the baby) and housework as a secondary activity (e.g.,, cleaning), the minute was coded as 1 minute of physical child care and 1 minute of housework. Thus, each minute could count in up to three time diary variables if the respondent were performing three different activities in three different categories simultaneously (e.g., a minute spent feeding the baby, cleaning, and checking work e-mail would be coded as physical child care, housework, and paid work). Less than 0.50% of minutes included a tertiary work activity. With regard to multitasking, 1 minute of work was coded if the secondary or tertiary activity was a work activity even if the primary activity was a nonwork activity. Including multitasking allowed us to capture the full extent of work that women and men performed. Because women more often multitask (Offer & Schneider, 2011), we contend that capturing women's multitasking hours reflected real differences that resulted in women having higher workloads and responsibilities than their partners and could have potentially detrimental effects. Indeed, Offer and Schneider (2011) found that multitasking by mothers, not fathers, was associated with higher stress, psychological distress, and work–family conflict. Lyn Craig (2007), a leading family and gender scholar, has contended that including only primary activities is an "androcentric measure." Furthermore, although less central to our reasoning, the inclusion of multitasking is more conducive to conducting comparisons between time diaries with survey data because respondents tend to double count tasks that are conducted simultaneously (Juster & Stafford, 1991; Press & Townsley, 1998).

Considering that our multitasking measure could hypothetically allow for a respondent to exceed 24 hours of time because minutes could be counted in more than one category, we conducted supplemental analyses in which we examined the change in work for men and women across the transition to parenthood using non-multitasked time measures. For these non-multitasked time measures, we included time in a secondary or tertiary activity only if the primary or secondary activity, respectively, was not spent in a work category. Thus, if a respondent recorded leisure as a primary activity (e.g., watching television) and housework as a secondary activity (e.g., cleaning), the minute was coded as a minute of housework. If two work activities were performed at the same time (e.g., watching the baby while cleaning), only the primary activity was recorded. Accordingly, this non-multitasked time diary measure was constrained to only the number of minutes available in a 24-hour time period (i.e., 1,440 minutes). These results are contained in Online Appendix Table A1, appearing on the *Journal of Marriage and Family* website (http://onlinelibrary.wiley.com/journal/10.1111/(ISSN)1741-3737); we reference the results where applicable.

Time diary housework. Housework was coded as time spent in routine and nonroutine household tasks. Routine activities included cooking; washing dishes; cleaning house; family shopping; laundry, ironing and mending clothes; financial management; and driving (others). Nonroutine activities included outdoor maintenance and automotive repair. The division of labor literature has focused on both routine and nonroutine tasks because they capture gender differences in flexible (nonroutine) and nonflexible (routine) work (Twiggs, McQuillan, & Ferree, 1999). Routine tasks are often performed on a daily basis and are usually nonnegotiable. Nonroutine tasks allow more discretion regarding when to complete them and are more sporadic.

Time diary physical child care. Time spent on activities such as physical care, feeding, changing diapers, preparing meals or bottles, bathing infant, putting infant to bed, dressing infant, looking after infant, picking up or dropping off infant, organizing and planning for infant, and waiting associated with medical care or other child-related events was coded as physical child care.

Time diary child engagement. The following activities were included in our time measurement of child engagement: reading to infant,

playing with infant, attending infant's events, soothing or holding infant, and talking with infant. In our analyses, we considered engagement activities separately from the physical care of the infant because parents may derive more pleasure from engaging with rather than physically caring for their child. A growing body of recent literature shows that a higher proportion of paternal care is focused on these types of "engagement" activities (Craig, 2006b; Maume, 2011; Sayer et al., 2004). It is conceptually important, therefore, to examine the gender differences between both measures of child care given that men may concentrate their contributions in more pleasurable aspects of child care (Pleck, 1997). Inclusion of engagement activities also allows for a more generous measure of time involvement, particularly for fathers who may allocate more time toward these types of activities.

Time diary child care. To calculate child care, we summed physical child care and engagement child care. Thus, time diary child care captured every activity involving or related to the infant.

Time diary paid work. Paid work was coded as all time spent on paid work activities, including working, checking work e-mail, commuting, and other income-generating activities.

Time diary total work—excluding child engagement. To calculate total work prebirth, we summed housework and paid work. Postbirth, housework, physical child care, and paid work were summed. Engagement was excluded from this measure to allow for direct comparisons to the survey data.

Time diary total work—including child engagement. Prebirth, housework and paid work were summed. Postbirth, housework, physical child care, engagement, and paid work were summed.

Survey Variables. Survey data were collected from self-report questionnaires. Each parent estimated the number of hours per week that he or she spent on housework and paid work. Similar to Lee and Waite (2005) and the housework measure used in the National Survey of Families and Households as recently examined by Kornrich et al. (2013), each housework activity was estimated on the following scale: 0, 1, 2, 3, 4, 5–9, 10–14, 15–19, 20–24, 25–50, and 51+ hours. For paid work, the scale was 0–10, 11–20, 21–30, 31–40, 41–50, and 50+ hours. To facilitate comparisons between the time diary and survey data, response options that were a range were recoded to the midpoint of the range (e.g., 22 hours for the response option 20–24).

Survey housework. Survey housework included time in routine and nonroutine household tasks. Routine activities time included time in the following activities: preparing meals; washing dishes and cleaning up after meals; cleaning house; shopping for groceries and other household goods; washing, ironing, and mending clothes; paying bills and keeping financial records; and driving other household members to work, school, or other activities. Nonroutine activities time included time spent on outdoor maintenance and automotive repair.

Survey physical child care. The survey measure of physical child care asked how many hours per week the respondent spent "taking care of baby's physical needs (i.e., feeding, bathing, dressing, and putting him/her to bed)." Because of the specificity of the question, survey child care was compared only to time diary physical child care, not engagement activities.

Survey paid work. Paid work was coded in response to the following question: "How many hours per week do you work?" Response options were 0–10, 11–20, 21–30, 31–40, 41–50, and 50+ hours. We used the midpoints for each response option. For 50+ hours, we assigned respondents 55 hours, although only 11% and 5% of men and women, respectively, reported working more than 50 hours a week.

Survey total work. To calculate total work prebirth, we summed housework and paid work within persons. Postbirth, housework, physical child care, and paid work were summed.

Analytic Plan

We tested Hypothesis 1—that men will spend more time than women in paid work at both waves, and women will spend more time than men in total work because they will spend more time in housework and child care (engagement and physical child care, postbirth only) —with paired *t* tests that accounted for shared variance within our dyadic data (Kenny, Kashy, & Cook, 2006). Effect sizes were also calculated using Cohen's *d* as $M_{\text{men}} - M_{\text{women}}/SD_{\text{women}}$ (Cohen, 1987).

We tested Hypothesis 2—that both men and women will increase their time in total

work across the transition to parenthood and that the magnitude of women's increase in total work will be greater than the magnitude of men's increase—using difference models (Allison, 1990), also known as *change score models* (Johnson, 2005) or *fixed effects regression models*. In these models, only the change in the outcome (i.e., change score) is examined; thus, all time-invariant potential sources of bias are differenced out of these models. These models were conducted in steps. First we conducted fixed effects regression models with Time × Gender interactions. These models tested men and women simultaneously. Thus, the data were clustered by couple so that standard errors were adjusted for the dependence in the data. Following Hojat and Xu (2004), effect sizes were computed for the change in work over time for each gender ($d = B_{\text{women}}/SD_{\text{pooled [men and women] Phase 1}}$). To test for gender differences in the change in work across the transition to parenthood, we conducted difference-in-difference tests by testing the equivalency of B_{men} and B_{women} using F tests. Effect sizes were also computed for these difference-in-difference estimates ($d_{\text{difference between men and women}} = d_{\text{men}} - d_{\text{women}}$) following Becker (1988) and Morris and DeShon (2002). We followed Cohen's (1987) and Hojat and Xu's (2004) guidelines for interpreting d, which state that $d > 0.20$ is a small effect size (trivial practical importance), $d > 0.50$ is a medium effect size (moderate practical importance), and $d > 0.80$ is a large effect size (crucial practical importance).

To test Hypothesis 3, that individuals will significantly overestimate their time in paid and unpaid (housework and physical child care) work in survey measures as compared to time diary measures, we conducted paired t tests that compared the survey and time diary estimates of work time for men and women at Waves 1 and 2.

Results

Testing of Hypothesis 1

Time diary. Prebirth, women and men reported about 14.51 hours of unpaid work in the time diary data (see Table 2). In results not shown, women spent a little over 14 hours on routine housework and less than 1 hour on nonroutine

Table 2. *Wave 1 Prebirth and Wave 2 Postbirth Parental Work Time (Hours per Week) for Survey and Time Diary Data (Wave 1* n = *334, Wave 2* n = *238)*

	Women					Men				
	Time diary		Survey			Time diary		Survey		
Wave and variable	*M*	*SD*	*M*	*SD*	*t* test[a]	*M*	*SD*	*M*	*SD*	*t* test[b]
Wave 1										
Housework	14.51	7.96	21.88	13.83	***	14.51	9.18	21.24	14.21	***
Paid work	41.93	10.35	37.75	9.10	***	44.66	10.81	41.18	8.94	***
Total work	56.45	12.05	59.63	15.11	**	59.24	14.09	62.44	16.72	
Wave 2										
Housework	13.50	6.07	27.39	16.66	***	9.46	6.43	35.02	20.08	***
Child care	21.79	8.36				14.04	7.71			
Physical child care	15.49	6.77	27.90	16.83	***	9.59	6.51	15.03	13.34	***
Child engagement	6.30	3.47				4.45	2.64			
Paid work	42.22	10.18	35.49	9.94	***	45.98	10.73	41.19	8.38	***
Total work—excluding child engagement	71.10	11.76	89.56	27.46	***	65.01	12.98	91.44	32.20	***
Total work—including child engagement	77.35	12.26				69.48	13.37			

Note: There is no survey question that asks respondents to estimate their time spent in engagement with their child; thus, we did not make any survey comparisons for child engagement.

[a]Statistical difference between women's time diary and survey responses within each wave. [b]Statistical difference between men's time diary and survey responses within each wave.

$^{**}p < .01$. $^{***}p < .001$.

Table 3. *Women and Men Division of Labor Comparisons Prebirth and Postbirth Within Each Time-Use Measure (Hours per Week; Wave 1* n = *334; Wave 2* n = *238)*

	Time diary			Survey		
Wave and variable	$M_{female} - M_{male}$	*t*	*d*	$M_{female} - M_{male}$	*t*	*d*
Wave 1						
Housework	0.01	0.01	0.00	0.93	0.63	−0.05
Paid work	−2.87	−2.74**	0.26	−3.21	−3.43***	0.37
Total work	−2.90	−2.37*	0.21	−2.73	−1.61	0.18
Wave 2						
Housework	4.03	4.88***	−0.62	−7.63	−3.32**	0.41
Child care	7.75	7.92***	−0.87	—	—	—
Physical child care	5.90	7.29***	−0.81	12.87	6.65***	−0.78
Child engagement	1.85	4.81***	−0.58	—	—	—
Paid work	−3.64	−2.47*	0.35	−5.40	−4.38***	0.59
Total work—excluding child engagement	6.03	4.18***	−0.48	−2.86	−0.78	0.06
Total work—including child engagement	7.79	5.18***	−0.59			

Note: Cohen's *d* was calculated as *M*Men'sPrebirth – *M*Women'sPrebirth / $SD_{pooled\ (men\ and\ women)\ baseline}$.
*$p < .05$. **$p < .01$. ***$p < .001$.

housework. The majority of women's routine housework was spent cleaning (5.5 hours), shopping (3 hours), and cooking (3 hours). Men spent about 11 hours on routine housework and 3 hours on nonroutine housework. The majority of men's unpaid work was spent cleaning (4 hours), doing outdoor maintenance (3 hours), and shopping (3 hours). These data suggest an egalitarian division of housework prebirth, although it is of note that women completed nearly 3 additional hours of routine tasks compared to men. Scholars contend that routine tasks are more arduous and tend to be less flexible in regard to when they must be completed than nonroutine tasks (Craig, 2006b; Milkie & Peltola, 1999).

Prebirth, men spent significantly more hours in paid employment as compared to women (see Table 3), although the difference was small ($d = 0.26$); men spent about 45 hours per week in paid work, whereas women spent about 42 hours. Contrary to Hypothesis 1, men spent significantly more hours in total work prebirth (both paid and unpaid work) compared to women. Men's total work week was about 59 hours compared to women's 56 hours.

Postbirth, women spent significantly more time on housework, child care (both physical and engagement child care), and total work, including child engagement, compared to men; the differences were moderate to large, with effect sizes ranging from 0.58 to 0.87. Men, however, spent more time in paid work than women postbirth. Overall, these results supported Hypothesis 1 in that men engaged in more paid work than women, although effect sizes were small, and, postbirth, women engaged in more work overall, in part because of inequities in the division of housework and physical and engagement child care (see Table 3).

Survey. The survey and time diary estimates of the gender discrepancy within each wave were markedly different (see Table 2). The only prebirth gender difference was that women engaged in significantly less paid work than men. Postbirth, men engaged in significantly more housework and paid work compared to women, and the difference between the groups was small to medium. Women engaged in significantly more physical child care, with a large effect size. There were no significant gender differences in total work in the survey data. The survey results supported Hypothesis 1 in that men spent significantly more time in paid work, but they contradicted Hypothesis 1 in that men, according to survey estimates, spent more time than women on housework and a similar amount of time in total work as compared to women (see Table 3).

Testing of Hypothesis 2

The difference-in-difference estimates using data that include multitasked hours are reported

Table 4. *Clustered Fixed Effects Regression Coefficients of the Change in Work Across the Transition to Parenthood and Difference-in-Difference Estimates of Differences by Gender (Hours per Week;* n = *222)*

Predictor	*B*	*SE*	Difference-in-difference estimate	*d*	*F*
Time diary					
Housework					
Men	−5.08***	0.96		−0.59	
Women	−1.20	0.90		−0.14	
Gender difference			−3.88	−0.45	9.47**
Paid work					
Men	0.89	1.21		0.08	
Women	0.70	0.99		0.06	
Gender difference			0.19	0.02	0.02
Total work					
Men	4.85**	1.50		0.36	
Women	14.81***	1.26		1.10	
Gender difference			−9.96	0.74	33.03***
Total work, includes child engagement					
Men	12.54***	1.76		1.02	
Women	21.03***	1.31		1.71	
Gender difference			−8.49	−0.69	27.84***
Survey					
Housework					
Men	15.08***	1.97		1.14	
Women	5.30***	1.26		0.40	
Gender difference			9.78	0.74	15.58***
Paid work					
Men	−0.71	0.71		−0.08	
Women	−3.21**	1.00		−0.36	
Gender difference			2.50	0.28	4.02*
Total work					
Men	29.79***	3.22		1.90	
Women	28.83***	2.22		1.84	
Gender difference			0.97	0.06	0.06

Note: Cohen's *d* for each gender was calculated as $B/SD_{\text{pooled (men and women) baseline}}$; *d* for the difference-in-difference estimate was calculated as $d_{\text{men}} - d_{\text{women}}$. Cohen's (1987) guidelines for *d* state that $d > 0.20$ is small, $d > 0.50$ is medium, and $d > 0.80$ is large.

*$p < .05$. **$p < .01$. ***$p < .001$.

in Table 4. Beginning with the time diary estimates, both women and men decreased in housework across the transition to parenthood, but only men's decrease was significant. This was inconsistent with our second hypothesis and previous survey research that indicated that men's housework remains unchanged and women's housework increases across the parenthood transition (Gjerdingen & Center, 2005; Sanchez & Thomson, 1997). The difference-in-difference estimate suggested that men's housework decreased significantly more than women's across the transition to parenthood, and the effect size was small to medium. Also inconsistent with our hypothesis, women's and men's time in paid work changed very little across the transition to parenthood, and there were no significant gender differences. In contrast, although both women and men significantly increased their total work, including child engagement, across the transition to parenthood, women's total work increased by about 15 hours, whereas men's total work increased by about 5 hours; the significant difference-in-difference estimate for this gender difference was a large effect ($d = 0.74$).

The results for the analyses using non-multitasked hours (see Appendix Table A1) were similar to the results that included multitasking: Men and women both decreased their time spent on housework, although women's decrease in housework time was also statistically significant, as compared to the multitasked analyses in which only men's decrease in housework time was significant. The effect sizes for housework time were comparable between models. For paid work, men and women did not significantly decrease their paid work hours, which is commensurate with the results based on multitasked hours. Last, men and women significantly increased their non-multitasked total work time. In these analyses, however, women's total workload increased by 13 hours rather than by 15 hours as it did in the multitasked model; the increases of men's total work hours remained similar between the two models. Regardless of the type of time measure used—either multitasked or non-multitasked—according to time diaries, women were burdened with a large majority of the increased workload of parenthood.

The survey results painted a different picture. Both women and men self-reported significantly increasing their housework across the transition to parenthood, but men reported a significantly greater increase in housework than women, with a medium to large effect size. For paid work, both women and men reported spending less time in paid work across the transition to parenthood, but only women's estimated decrease in paid work was significant. Furthermore, women's decrease in paid work across the transition to parenthood was significantly greater (small effect size) than men's. Both women and men reported significantly increasing their total work across the transition to parenthood, but there was no significant gender difference between women and men in their self-reported increase in total work. Both parents estimated an increase in total work of almost 30 hours a week.

Testing of Hypothesis 3

Time diary and survey comparisons of estimates of time in paid and unpaid work by gender are reported in Table 2. At both waves, there were statistically significant differences between time diary and survey estimates of work for both women and men. Consistent with Hypothesis 3, women significantly overestimated their housework time in the survey as compared to the time diary data by about 7 and 14 hours, and men by about 7 and 26 hours, at Waves 1 and 2, respectively. In contrast, and inconsistent with our expectations, both women and men significantly underestimated their paid work time by 3 to 4 hours prebirth and by 5 to 7 hours postbirth in the survey as compared to the time diary data.

As expected, both women and men significantly overestimated their time spent on physical child care at Wave 2 by about 12 and 5 hours, respectively, in the survey as compared to the time diary data. We also found that both women and men (at Wave 2 only) significantly overestimated their total work. Women significantly overestimated their total work by about 3 and 19 hours at Waves 1 and 2, respectively, in the survey as compared to the time diary data. Men significantly overestimated their total work by 26 hours at Wave 2. Overall, these results indicated that women and men overestimated unpaid work and underestimated paid work.

Discussion

The transition to parenthood is a pivotal life course transition in which gender performances in the family may be cemented for the next several years. Our results suggest that gender disparities in the work of the family, including paid and unpaid work, were magnified across the transition to parenthood for the primarily highly educated dual-earner couples we studied. According to the time diary fixed effects results, the women in these families experienced a large increase of 3 hours a day in their total work (not including child engagement) across the transition to parenthood, whereas men increased their total work by about 40 minutes a day. This means that, over the course of a year, parenthood increased women's total workload by about 4 1/2 weeks of 24-hour days, whereas parenthood increased men's total workload by approximately 1 1/2 weeks—a 3-week gender difference. If we include child engagement in total work time diary reports, the gender gap narrowed slightly to 2.6 weeks of extra work for women as compared to men over the course of a year. Furthermore, the discrepancies between the survey and time diary estimates of work suggested that the resultant gender inequalities may not be apparent to parents or to researchers who rely on survey data to examine the division of labor (e.g., Kornrich et al., 2013). Men and women both

perceived that they increased their total work by over 4 hours a day across the transition to parenthood in our survey data, and had we relied on only these data, we would have reported no gender discrepancy in men's and women's total workload after the arrival of a child.

Prebirth, the women in our sample were not disadvantaged in terms of work and had achieved largely equitable workloads. In fact, the scales had tipped in favor of these pregnant women; men's total work was actually higher than women's total work by a couple hours because of men's longer hours of paid employment. Of note is that the partners spent approximately equal amounts of time on housework. This finding contrasts with an abundance of previous research indicating that wives spend more time on housework than husbands (see Bianchi et al., 2012, for a review). This suggests that women in this sample were either experiencing the positive effects of the gender revolution, which have spurred equitable sharing of domestic responsibilities among nonparents, or had partners who temporarily picked up the slack in housework because these women were pregnant. We did not have prepregnancy data that would have allowed us to test whether the men increased their housework and/or paid work across the transition to pregnancy.

Overall, the birth of the child dramatically changed the division of labor in our sample. Time diary estimates suggested that women shouldered the majority of physical and engagement child care, and the gender housework gap emerged such that women performed more housework than men; men actually significantly declined in housework by 5 hours across the transition to parenthood. Women, in contrast, largely did not substitute increased engagement and physical child care for less housework time like men; that is, for women, child care was supplemental to existing household burdens. Nevertheless, men perceived they increased their housework by 15 hours across the transition to parenthood, a very large effect and a significantly larger increase in housework than women perceived. According to men's and women's perceptions, both parents increased in total work across the transition to parenthood by about 30 hours, a very large effect size, and there was not a significant gender difference in these perceptions. According to the time diary estimates, men actually increased their total work (including engagement activities) by about 12.5 hours and women by about 21 hours per week, both large effects, although women's increase was nearly 70% higher. This gender discrepancy was significant in our difference-in-difference models.

These findings suggest that scholars should have methodological concerns regarding the accuracy of surveys to estimate new parents' time use, at least for highly educated, dual-earner couples—those couples who are often participants in community research. Although men and women similarly overestimated their total work prebirth by about 3 hours, men overestimated their total work by about 26 hours postbirth, whereas women overestimated total work by about 19 hours. Time diary estimates of the division of labor have been found to be more accurate than survey estimates, but in making the case for survey measures scholars have suggested that the male gender advantage with regard to the division of labor is consistent between time diaries and surveys, even if the magnitude of the gender advantage is not; that is, regardless of the measurement strategy, men have been found to consistently engage in less housework than women (see Bianchi et al., 2012). However, our postbirth survey data suggested that men engaged in significantly more housework than women and similar amounts of total work, whereas our time diary data suggested that women engaged in significantly more housework and total work than men. Hence, in our sample of highly educated, dual-earner couples, survey and time diary data do not appear to be replacements for one another, given that not only were the magnitudes of the differences between men and women significantly different between each measurement strategy, but also the gender of the partner performing more work was inconsistent.

Scholars have suggested that even though women typically engage in more housework than men, the total work is largely similar between men and women, even among dual-earner couples with preschool-age children (Robinson & Godbey, 1997; Sayer, England, Bittman, & Bianchi, 2009). Indeed, national estimates from time diary data collected between 1998 and 2000 suggest that women and men in dual-earner couples without children engaged in 61 and 64 hours of work, respectively, and when the couple had preschool-age children, women and men engaged in 74 and 71 hours of work, respectively (Sayer et al., 2009). Our prebirth time diary results followed a similar pattern

in that women and men engaged in 56 and 59 hours of total work, respectively. However, postbirth, women performed about 77 hours of total work (including engagement), whereas men performed 69; this 8-hour difference translates to more than 1 hour of additional work per day for women (a significant medium effect). This suggests that research on total work in families should be more nuanced. The national data used by Sayer et al. (2009) could have included two types of couples for whom we do not have data in these analyses. First, Sayer et al. could have captured more dual-earner couples who may split child care through shiftwork, hence necessitating that men engage in child care and housework. We had little shift work in our sample. Furthermore, Sayer et al. could have had families with more than one child. In our sample of new parents, it is possible that men were able to forgo more housework and child care because there was only child for whom to care. The arrival of the second child could compel a shift to more housework and child care for men; hence the differences in total work between men and women may become less pronounced.

Survey research has suggested that employed women reduced their employment hours between 9 (Gjerdingan & Center, 2005) and 11 (Sanchez & Thomson, 1997) hours across the transition to parenthood. Consistent with these results, we found that women, not men, perceived that they engaged in 3 fewer hours of paid work across the transition to parenthood in the survey data (see Table 4). Yet the time diary estimates suggested that men and women did not significantly change their paid work across the transition to parenthood. There are three potential explanations as to why our time diary results might differ from non-time-diary studies. First, our sample was not nationally representative, and it overrepresented advantaged couples. Thus, our sample may be skewed toward women who would experience a higher economic cost if they reduced their paid work hours as compared to women who were less educated and earned lower incomes. Second, because the prebirth data were based on women in their third trimester, women may have already reduced their paid work hours from prepregnancy levels and therefore did not further reduce time spent in paid work postbirth. As a result, their perceptions could have been influenced by the decreases in paid work that they had already made relative to prepregancy work hours. A third explanation, in support of gender display perspectives, suggests that women may be reacting to gendered expectations that they prioritize their child over employment in underestimating their time in paid work. These women in highly educated, dual-earner couples may face increasing pressures to fulfill the primary parent role while also continuing high levels of commitment to their paid employment. Women may also have perceived less time in paid work because of their significantly greater burden of child care. In reality, these highly educated mothers' work pressures may not allow them to decrease their employment hours. However, a stronger, more targeted methodological approach is necessary to assess whether discrepancy between time diary and survey responses are due to gender display—an interesting direction for future research to explore. Regardless, our results support Lee and Waite's (2005) assertion that surveys represent perceptions of work hours rather than recorded estimates. Furthermore, our results align with Juster et al.'s (2003) findings that women do not always overestimate their paid work in surveys, suggesting that the differences between parents' employment hours often cited in the literature may be exaggerated, at least for highly educated dual-earner couples.

If the postbirth inequitable unpaid work burdens continue, these women may reduce their employment hours in the future to accommodate both the perceived and real domestic burdens of motherhood (Maume, 2006). This has both short- and long-term economic consequences for women, especially if they ever separate or divorce their spouse or if their spouse ever becomes disabled (Aisenbrey, Evertsson, & Grunow, 2009). Overall, the stalled gender revolution suggests that women's gains in the marketplace have slowed and that women continue to lag behind men economically, in part because they are unable to pursue their careers in the same manner as men because of uneven unpaid work responsibilities. These results from a sample of highly educated, dual-earner couples certainly support the stalled gender revolution.

Although not central to our analyses, other gender inequalities may exist among this sample pre- and postbirth in regard to nonwork time, such as leisure, sleep, grooming, and eating. Prior studies, indeed have shown gender

differences in both quantity and quality (multitasking, presence of children) of free time between U.S. romantic partners; this emerging body of research, however, has predominately focused on either nonparents or parents of children toddler age or older (Mattingly & Bianchi, 2003). To provide a more holistic view of time use among new parents, future research should investigate nonwork time use among men and women across the transition to parenthood.

Although our sample and rich data offered many advantages, there were limitations. First, the sample was not a nationally representative sample of new parents. These couple-level, longitudinal data are onerous and expensive to collect on a large scale; thus, they do not exist on a national level in the United States. Instead, researchers using data sets like the ATUS can only approximate family-level data; Connelly and Kimmel (2009) used propensity score matching in the ATUS to try to approximate spousal level data. Given that our family-based results differ from some national individual-based estimates, we suggest that adding household-based subsamples to large national data sets such as the ATUS would be a worthwhile endeavor and greatly extend our understanding of gendered time use in families. Furthermore, because time diaries are burdensome and time intensive for respondents to complete (reasons as to why longitudinal, nationally representative U.S. time diary data for new parents do not exist), our sample experienced some attrition between Wave 1 and Wave 2. This attrition could have introduced unobserved heterogeneity (unmeasured difference between respondents who were lost to attrition compared to those who were not lost), thereby affecting our results. For example, if attrition was associated with actual time pressure but was not associated with the tendency to overreport survey time estimates, then results may upwardly bias the discrepancy between survey and time diary reports. The between-person analyses presented in Tables 2 and 3 were sensitive to this issue. However, the within-person analyses presented in Table 4 and Online Appendix Table A1 accounted for time-invariant sources of unobserved heterogeneity and were less sensitive to attrition effects.

Another limitation of our study is that our prebirth data were collected when women were in their third trimester of pregnancy. Because of elevated levels of fatigue or physical limitations, women may have decreased their housework and paid employment hours from their prepregnancy levels, and men may have increased their housework and paid employment to pick up the slack. This could mean that these couples appeared to have more equitable divisions of labor prebirth than they actually did prepregnancy.

Last, our data may be upwardly biased for women in terms of total workloads due to the day of the week that women completed their nonwork time diaries. Although there were no significant differences in either physical or engagement child care and paid work by day of the week, in terms of total work, we found that, postbirth, mothers did significantly more total work when their nonworkday was on Sunday and significantly less total work when their nonworkday was on a weekday. Because Sundays were overreported in our sample (approximately half of women completed time diaries on Sunday), total work could be biased upward, although, for almost one third of mothers, total work was biased downward because mothers reported less total work on weekday nonworkdays. There were no significant differences in housework, child care, child engagement, paid work, and total work by nonworkday day of the week for men for either wave. The only significant difference was that men spent significantly more time on physical child care, on average 2.5 hours, on weekday nonworkdays as compared to Saturday and Sunday. Men's increased workloads on weekdays may result from men assuming primary child care responsibility while their partners were participating in paid labor (Gerstel, Clawson, & Huyser, 2007).

England (2010) contended that the gender revolution has stalled and that women, not men, have made most of the changes in the gender system, whereas Goldin (2006) contended that the gender revolution is ongoing but just "quieter" than in previous decades. The current study reveals that motherhood is a key factor to the as-yet-incomplete gender revolution and that, indeed, women make most of the work-related changes at this critical juncture. In as little time as 9 months, the division of labor created a significant deficit for women in total work hours each week—a deficit that accumulated to about 3 weeks of extra work over the course of a year. Although men substituted increased engagement and physical child care for decreased housework time, women,

contrarily, did not make similar concessions in other realms of work, including paid work. Yet our survey data did not capture these realities. This research underscores the importance of using valid time use measures to examine gender inequality; otherwise, we risk minimizing persistent inequalities that can have negative implications for women's career achievements (Maume, 2006), leisure time (Sayer, 2005), mental health (Barnett & Shen, 1997), and relationship satisfaction (Kluwer, 2000). Although 3 weeks is an improvement on Hochschild's (1989) estimations that employed mothers in the 1980s performed an extra month of work each year compared to employed fathers, these findings indicate that parenthood remains an important barrier to a complete gender revolution.

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Supporting Information

Additional supporting information may be found in the online version of this article:

Table A1. *Clustered Fixed Effects Regression Coefficients of the Change in Work Using Non-Multitasked Hours Across the Transition to Parenthood and Difference-in-Difference Estimates of Differences by Gender (Hours per Week;* n = *222)*

References

Aisenbrey, S., Evertsson, M., & Grunow, D. (2009). Is there a career penalty for mothers' time out? A comparison of Germany, Sweden and the United States. *Social Forces, 88,* 573–605. doi:10.1353/sof.0.0252

Allison, P. D. (1990). Change scores as dependent variables in regression analysis. *Sociological Methodology, 20,* 93–114.

Barnett, R. C., & Shen, Y. C. (1997). Gender, high- and low-schedule-control housework tasks, and psychological distress A study of dual-earner couples. *Journal of Family Issues, 18,* 403–428. doi:10.1177/019251397018004003

Becker, G. S. (1981). *A treatise on the family*. Cambridge, MA: Harvard University Press.

Becker, G. S. (1988). Family economics and macro-behavior. *The American Economic Review, 78,* 1–13.

Bianchi, S. M., Milkie, M. A., Sayer, L. C., & Robinson, J. P. (2000). Is anyone doing the housework? Trends in the gender division of household labor. *Social Forces, 79,* 191–228. doi:10.2307/2675569

Bianchi, S. M., Sayer, L. C., Milkie, M. A., & Robinson, J. P. (2012). Housework: Who did, does or will do it, and how much does it matter? *Social Forces, 91,* 55–63. doi:10.1093/sf/sos120

Bittman, M., England, P., Sayer, L., Folbre, N., & Matheson, G. (2003). When does gender trump money? Bargaining and time in household work. *American Journal of Sociology, 109,* 186–214. doi:10.2307/3598347

Blood, R. O., & Wolfe, D. M. (1960). *Husbands and wives: The dynamics of married living*. New York: Free Press.

Bolzendahl, C. I., & Myers, D. J. (2004). Feminist attitudes and support for gender equality: Opinion change in women and men, 1974–1998. *Social Forces, 83,* 759–789. doi:10.2307/3598347

Bonke, J. (2005). Paid work and unpaid work: Diary information versus questionnaire information. *Social Indicators Research, 70,* 349–368. doi:10.2307/27522170

Cha, Y. (2010). Reinforcing separate spheres the effect of spousal overwork on men's and women's employment in dual-earner households. *American Sociological Review, 75,* 303–329. doi:10.1177/0003122410365307

Cohen, J. (1987). *Statistical power analysis for behavioral sciences*. Hillsdale, NJ: Erlbaum.

Combs-Orme, T., & Renkert, L. E. (2009). Fathers and their infants: Caregiving and affection in the modern family. *Journal of Human Behavior in the Social Environment, 19,* 394–418. doi:10.1080/10911350902790753

Connelly, R., & Kimmel, J. (2009). Spousal influences on parents' non-market time choices. *Review of Economics of the Household, 7,* 361–394. doi:10.1007/s11150-009-9060-y

Corrigall, E. A., & Konrad, A. M. (2007). Gender role attitudes and careers: A longitudinal study. *Sex Roles, 56,* 847–855. doi:10.1007/s11199-007-9242-0

Cotter, D., Hermsen, J. M., & Vanneman, R. (2011). The end of the gender revolution? Gender role attitudes from 1977 to 2008. *American Journal of Sociology, 117,* 259–289. doi:10.1086/658853

Craig, L. (2006a). Children and the revolution: A time-diary analysis of the impact of motherhood on

daily workload. *Journal of Sociology, 42,* 125–143. doi:10.1177/0891243205285212

Craig, L. (2006b). Does father care mean fathers share? A comparison of how mothers and father in intact families spend time with children. *Gender & Society, 20,* 259–281. doi:10.1177/1440783306064942

Craig, L. (2007). Is there really a second shift, and if so, who does it? A time-diary investigation. *Feminist Review, 86,* 149–170. doi:10.1057/palgrave.fr.9400339

Cunningham, M. (2008). Changing attitudes toward the male breadwinner, female homemaker family model: Influences of women's employment and education over the lifecourse. *Social Forces, 87,* 299–323. doi:10.1353/sof.0.0097

England, P. (2010). The gender revolution uneven and stalled. *Gender & Society, 24,* 149–166. doi:10.1177/0891243210361475

Ferree, M. M. (1990). Beyond separate spheres: Feminism and family research. *Journal of Marriage and the Family, 52,* 866–884. doi:10.2307/353307

Garey, A. I. (1999). *Weaving work and motherhood*. Philadelphia: Temple University Press.

Gerstel, N., Clawson, D., & Huyser, D. (2007). Explaining job hours of physicians, nurses, EMTs, and nursing assistants: Gender, class, jobs, and families. *Research in the Sociology of Work, 17,* 369–401. doi:10.1016/S0277-2833(07)17012-6

Gjerdingen, D. K., & Center, B. A. (2005). First-time parents' postpartum changes in employment, childcare, and housework responsibilities. *Social Science Research, 34,* 103–116. doi:10.1016/j.ssresearch.2003.11.005

Goldin, C. (2006). The quiet revolution that transformed women's employment, education and family. *American Economic Review, 96,* 1–21. doi:10.1257/000282806777212350

Greenstein, T. N. (2000). Economic dependence, gender, and the division of labor in the home: A replication and extension. *Journal of Marriage and the Family, 62,* 322–335.

Gupta, S. (2006). Her money, her time: Women's earnings and their housework hours. *Social Science Research, 35,* 975–999. doi:10.1177/0891243205282554

Hays, S. (1996). *The cultural contradictions of motherhood*. New Haven, CT: Yale University Press.

Hochschild, A. (with Machung, A.) (1989). *The second shift: Working parents and the revolution at home*. New York: Avon Books.

Hofferth, S. (1999). *Proceedings from "Family Reading to Young Children: Social Desirability and Cultural Biases in Reporting," a National Research Council Workshop on Measurement and Research on Time Use*. Washington, DC: National Research Council.

Hojat, M., & Xu, G. (2004). A visitor's guide to effect sizes—Statistical significance versus practical (clinical) importance of research findings. *Advances in Health Sciences Education, 9,* 241–249. doi:10.1023/B:AHSE.0000038173.00909.f6

Hook, J. L., & Wolfe, C. M. (2012). New fathers? Residential fathers' time with children in four countries. *Journal of Family Issues, 33,* 415–450. doi:10.1177/0192513X11425779

Ishii-Kuntz, M., & Coltrane, S. (1992). Predicting the sharing of household labor: Are parenting and housework distinct? *Sociological Perspectives, 35,* 629–647. doi:10.2307/1389302

Jacobs, J. A., & Gerson, K. (2009). *The time divide: work, family, and gender inequality*. Cambridge, MA: Harvard University Press.

Johnson, D. (2005). Two-wave panel analysis: Comparing statistical methods for studying the effects of transitions. *Journal of Marriage and Family, 67,* 1061–1075. doi:10.1111/j.1741-3737.2005.00194.x

Juster, F. T., Ono, H., & Stafford, F. P. (2003). An assessment of alternative measures of time use. *Sociological Methodology, 33,* 19–54. doi:10.1111/j.0081-1750.2003.t01-1-00126.x

Juster, F. T., & Stafford, F. P. (1991). The allocation of time: Empirical findings, behavioral models, and problems of measurement. *Journal of Economic Literature, 29,* 471–522.

Kan, M. Y. (2008). Measuring housework participation: The gap between "stylised" questionnaire estimates and diary-based estimates. *Social Indicators Research, 86,* 381–400. doi:10.1007/s11205-007-9184-5

Kenny, D. A., Kashy, D. A., & Cook, W. L. (2006). *Dyadic data analysis*. New York: Guilford Press.

Klerman, J. A., & Leibowitz, A. (1999). Job continuity among new mothers. *Demography, 36,* 145–155. doi:10.2307/2648104

Kluwer, E. S. (2000). Marital quality. In R. M. Milardo & S. W. Duck (Eds.), *Families as relationships* (pp. 59–78). New York: Wiley.

Kluwer, E. S. (2010). From partnership to parenthood: A review of marital change across the transition to parenthood. *Journal of Family Theory & Review, 2,* 105–125. doi:10.1111/j.1756-2589.2010.00045.x

Kornrich, S., Brines, J., & Leupp, K. (2013). Egalitarianism, housework, and sexual frequency in marriage. *American Sociological Review, 78,* 26–50.

Lee, Y.-S., & Waite, L. J. (2005). Husbands' and wives' time spent on housework: A comparison of measures. *Journal of Marriage and Family, 67,* 328–336. doi:10.1111/j.0022-2445.2005.00119.x

Mannino, C. A., & Deutsch, F. M. (2007). Changing the division of household labor: A negotiated process between partners. *Sex Roles, 56,* 309–324. doi:10.1007/s11199-006-9181-1

Marsiglio, W., Amato, P., Day, R. D., & Lamb, M. E. (2000). Scholarship on fatherhood in the

1990s and beyond. *Journal of Marriage and the Family, 62,* 1173–1191. doi:10.1111/j.1741-3737.2000.01173.x

Mattingly, M. J., & Bianchi, S. M. (2003). Gender differences in the quantity and quality of free time: The U.S. experience. *Social Forces, 81,* 999–1030.

Maume, D. J. (2006). Gender differences in restricting work efforts because of family responsibilities. *Journal of Marriage and Family, 68,* 859–869. doi:10.1111/j.1741-3737.2006.00300.x

Maume, D. J. (2011). Reconsidering the temporal increase in fathers' time with children. *Journal of Family and Economic Issues, 32,* 411–423. doi:10.1007/s10834-010-9227-y

Milkie, M. A., Mattingly, M. J., Nomaguchi, K. M., Bianchi, S. M., & Robinson, J. P. (2004). The time squeeze: Parental statuses and feelings about time with children. *Journal of Marriage and Family, 66,* 739–761. doi:10.1111/j.0022-2445.2004.00050.x

Milkie, M. A., & Peltola, P. (1999). Playing all the roles: Gender and the work–family balancing act. *Journal of Marriage and the Family, 61,* 476–490. doi:10.2307/353763

Milkie, M. A., Raley, S. B., & Bianchi, S. M. (2009). Taking on the second shift: Time allocations and time pressures of U.S. parents with preschoolers. *Social Forces, 88,* 487–517. doi:10.1353/sof.0.0268

Morris, S. B., & DeShon, R. P. (2002). Combining effect size estimates in meta-analysis with repeated measures and independent-groups designs. *Psychological Methods, 7,* 105–125. doi:10.1037/1082-989X.7.1.105

Offer, S., & Schneider, B. (2011). Revisiting the gender gap in time-use patterns multitasking and well-being among mothers and fathers in dual-earner families. *American Sociological Review, 76,* 809–833. doi:10.1177/0003122411425170

Pleck, J. H. (1997). Paternal involvement: Levels, sources, and consequences. In M. E. Lamb (Ed.), *The role of the father in child development* (3rd ed., pp. 66–103). Hoboken, NJ: Wiley.

Pleck, J. H. (2010). Paternal involvement: Revised conceptualization and theoretical linkages with child outcomes. In M. Lamb (Ed.), *The role of the father in child development* (pp. 58–93). Hoboken, NJ: Wiley.

Press, J. E., & Townsley, E. (1998). Wives' and husbands' housework reporting: Gender, class, and social desirability. *Gender & Society, 12,* 188–218. doi:10.2307/190530

Raley, S., Bianchi, S. M., & Wang, W. (2012). When do fathers care? Mothers' economic contribution and fathers' involvement in child care. *American Journal of Sociology, 117,* 1422–1459. doi:10.1086/663354

Robinson, J. P., & Bostrom, A. (1994). Overestimated workweek—What time diary measures suggest. *The Monthly Labor Review, 117,* 11.

Robinson, J., & Godbey, G. (1997). *Time for life (2nd ed.): The surprising ways Americans use their time*. University Park: Pennsylvania State University Press.

Robinson, J., & Godbey, G. (1997). *Time for life: The surprising ways Americans use their time* (3rd ed.). University Park: Pennsylvania State University Press.

Sanchez, L., & Thomson, E. (1997). Becoming mothers and fathers: Parenthood, gender, and the division of labor. *Gender & Society, 11,* 747–772. doi:10.1177/089124397011006003

Sayer, L. C. (2005). Gender, time and inequality: Trends in women's and men's paid work, unpaid work and free time. *Social Forces, 84,* 285–303. doi:10.2307/3598304

Sayer, L. C., Bianchi, S. M., & Robinson, J. P. (2004). Are parents investing less in children? Trends in mothers' and fathers' time with children. *American Journal of Sociology, 110,* 1–43.

Sayer, L. C., England, P., Bittman, M., & Bianchi, S. M. (2009). How long is the second (plus first) shift? Gender differences in paid, unpaid, and total work time in Australia and the United States. *Journal of Comparative Family Studies, 40,* 523–545. doi:10.2307/41604549

Speakman, S., & Marchington, M. (1999). Ambivalent patriarchs: Shiftworkers, "breadwinners" and housework. *Work, Employment and Society, 13,* 83–105. doi:10.1177/09500179922117809

Twiggs, J. E., McQuillan, J., & Ferree, M. M. (1999). Meaning and measurement: Reconceptualizing measures of the division of household labor. *Journal of Marriage and the Family, 61,* 712–724. doi:10.2307/353572

U.S. Bureau of Labor Statistics. (2006). *American Time Use Survey user guide: Understanding ATUS 2003, 2004, and 2005*. Retrieved from www.bls.gov/tus/atususersguide.pdf

U.S. Bureau of Labor Statistics. (2011). *Employment characteristics of families in 2010*. Retrieved from www.bls.gov/opub/ted/2011/ted_20110328.htm

West, C., & Zimmerman, D. H. (1987). Doing gender. *Gender & Society, 1,* 125–151. doi:10.1177/0891243287001002002

Yeung, W. J., Sandberg, J. F., Davis-Kean, P. E., & Hofferth, S. L. (2001). Children's time with fathers in intact families. *Journal of Marriage and Family, 63,* 136–154. doi:10.1111/j.1741-3737.2001.00136.x

Yoshida, A. (2012). Dads who do diapers: Factors affecting care of young children by fathers. *Journal of Family Issues, 33,* 451–477. doi:10.1177/0192513X11415358