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How Does Employment Affect the Timing of Time with Children?

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Abstract

A large body of literature has examined the effect of parental employment--primarily maternal employment--on the amount of time spent with children and in childcare activities, and it is well documented that employed parents spend less time with their children than nonemployed parents. But not all time is equal. Time spent in childcare activities will be less beneficial for children and less enjoyable when parents or children are tired. Thus one would expect parents to engage in enriching childcare activities when it is the most productive--at times when both parents and children are rested and alert. If employment constrains when parents spend time with their children, then differences in the amount of time that employed and nonemployed parents spend in childcare underestimates the effect of employment on parents' quality-adjusted time with their children.

In this study, we examine whether employment results in parents shifting the time spent engaging in childcare activities to times that are less productive. We develop a simple model of timing that predicts that parents will spend more time with their children when it is most productive. We then use data from the American Time Use Survey to compare workdays to nonwork days, and find that employment significantly affects the timing of enriching childcare activities for both mothers and fathers who are employed full time. In particular, these parents shift enriching childcare activities into the evening hours. In contrast, part-time employment among mothers does not impose binding constraints on when mothers spend time with their children. Thus, part-time employment not only allows mothers to spend more time with their children compared to full-time employment, it also allows them to spend that time when it is the most productive.

Introduction

A large body of literature has examined the effect of maternal employment on the amount of time that mothers spend providing childcare. Employed mothers spend less time providing childcare as a primary activity, less time in childcare as a secondary activity, and less total time with children (Bianchi, Robinson, and Milkie 2006). They also read to their children less frequently (Bianchi 2006). However, maternal employment does not reduce time spent with children on an hour-for-hour basis because employed mothers find ways to spend time with their children by cutting back on the time spent in other activities as well. Employed mothers spend considerably less time doing housework and in leisure activities, and a little less time sleeping (Bianchi 2006). But there has been almost no research on when parents provide childcare.¹

Timing matters because not all time with children is equally valuable. Time spent in enriching childcare activities, such as reading to and playing with children, is likely to be less valuable to children and less satisfying for parents when parents or children are tired. If parental employment places binding constraints on when parents can spend time with their children, then the total effect of employment on parent-child interactions is understated by looking only at the amount of time spent in childcare activities because the time spent by employed parents is less “productive.”

There is no research on what times of day are best for parent-child interactions [CHECK THIS]. However, it would stand to reason that these interactions will be least productive when children or parents are tired. A recent study by Kahneman, Krueger, Schkade, Schwarz, and Stone (2004) presents evidence that tiredness in adults has a U-shaped pattern by time of day. Tiredness falls throughout the morning, reaches a trough between 11:00AM and noon, and then

¹ Craig (2006) presents some evidence that employed mothers are less likely to spend time with their children in the morning and the afternoon.

increases for the rest of the day. People are about as tired at 4:00PM as they are at 8:00AM, and they are even more tired late in the evening. Not surprisingly, people who average 6 hours of sleep per day or less are more tired at each point in time than those who average 7 hours or more.²

Less research is available on young children. A survey of nearly 700 elementary school teachers in Minnesota shows that nearly 80 percent of them believed that the best time to start class was between 8:00AM and 8:30AM, with about one-half indicating that 8:30 was the best time. [CITATION] This suggests that children are the most receptive in the morning, but not too early. Young preschool children often take naps in the afternoon, and those who do not nap are often tired toward the end of the day. This also suggests that young children will be at their best early in the day or right after their afternoon nap.

If tiredness reduces the benefits from parent-child interactions, then we would not expect parents to be indifferent with respect to when they spend time with their children. We seek to determine whether employment imposes constraints that cause parents to shift childcare to less-productive times, thus reducing the value of parental time with children.³ We begin by developing a simple model of timing that predicts that parents will spend more time with their children when the benefits are the greatest (that is, when the time is most productive). Although there is no way to directly measure the productivity of childcare time at different times of the day, we can use time-use data to observe when parents choose to spend time with their children. We assume that parents who do not work on their diary days are unconstrained and, based on the

² Another dimension of productivity that is related to the timing issue is the amount of time people sleep. People who are sleep-deprived tend to be more irritable, less sociable, and are less able to handle complex tasks. [GET CITATIONS??]

³ Related to this issue is the amount of time that children and their parents sleep. If sleep time affects the productivity of parental interactions with children (as in Biddle and Hamermesh 1990), then timing may affect productivity indirectly through the effect on when children wake up and go to sleep each day.

predictions of the model, infer that the times that they choose to engage in childcare activities are the most productive. It is important to note that, although we expect the morning hours to be more productive, our analysis does not rely on this assumption. If employment constraints are not binding, then parents should engage in childcare activities at the same time on both work and nonwork days. Because school can also impose constraints on parental time with children, we focus our analysis on parents that have at least one child under 5 and consider only childcare time when at least one child under 5 is present.

A Simple Model of Timing

In this section we present a simple model that illustrates how the value of doing an activity is affected by when it is done.⁴ For convenience and ease of exposition we assume that individuals optimize in two stages. In the first stage, the individual maximizes utility and determines the optimal amount of time to spend in each activity during a given period of time, such as a day. In the second stage, the individual determines how that time spent in each activity is distributed over the sub-periods, such as time of day.⁵ For simplicity, we assume that there are two sub-periods and two activities.

First Stage Optimization: Individuals receive utility from time spent in activity A , which for our purposes is childcare, and all other activities, X , which include leisure and working for pay.⁶ The “productivity” of time spent in each of these activities is given by the functions $\Gamma(\gamma)$

⁴ Our model is most similar to that in a study by Conolly (2006) that looks at the effect of weather on the timing of work and leisure activities. Two other studies examine the timing of work activities (Hamermesh, Knowles, and Pocock 2006) and the coordination of husbands’ and wives’ time with children (Paley 2006), but there is relatively little research on the timing of activities. [CHECK FOR OTHER CITATIONS]

⁵ Technically, it would be more realistic to solve the utility maximization problem in one stage with the time spent in each activity at each time as an argument in the utility function. But it is easier to see the intuition in the two-stage model.

⁶ The utility from X therefore includes utility derived from goods purchased from labor market earnings as well as the utility of leisure and the utility derived from household production. A more traditional model that includes

for activity A and $\Theta(\theta)$ for X , where the arguments γ and θ are vectors of productivities for the sub-periods and $\Gamma_i, \Theta_i > 0$ for $i = 1, 2$. Thus the individual solves the following first-stage optimization program:

$$\text{Max}_{A,X} U(\Gamma(\gamma)A, \Theta(\theta)X) \quad \text{s.t. } A + X = 2T$$

The solution to this program is straightforward and the optimal values of A and X will be denoted as A^* and X^* .

Second Stage Optimization: Individuals distribute the time spent in the two activities to the two time periods based on the productivity of the activities in the sub-periods.

$$\begin{aligned} \text{Max } u &= \gamma_1 f(a_1) + \gamma_2 f(a_2) + \theta_1 g(x_2) + \theta_2 g(x_2) \\ \text{s.t. } a_1 + a_2 &= A^* \\ x_1 + x_2 &= X^* \\ a_1 + x_1 &= T \\ a_2 + x_2 &= T \end{aligned}$$

Substituting in the last two constraints, the Lagrangian is:

$$\begin{aligned} \mathcal{L} &= \gamma_1 f(a_1) + \gamma_2 f(a_2) + \theta_1 g(T - a_1) + \theta_2 g(T - a_2) + \\ &\lambda_A (A^* - a_1 - a_2) + \lambda_X (X^* - [2T - a_1 - a_2]), \end{aligned}$$

and the first order conditions with respect to a_1 and a_2 are:

$$(1) \quad \begin{aligned} \mathcal{L}_{a_1} &= \gamma_1 f'(a_1) - \theta_1 g'(T - a_1) + \lambda_X - \lambda_A = 0 \\ \mathcal{L}_{a_2} &= \gamma_2 f'(a_2) - \theta_2 g'(T - a_2) + \lambda_X - \lambda_A = 0, \end{aligned}$$

which can be written as:

market work and leisure as separate activities, includes consumption of market goods, and explicitly models household production would be more complicated but the important results would not change [CHECK THIS].

$$(2) \quad \begin{aligned} \gamma_1 f'(a_1) &= \theta_1 g'(T - a_1) + \lambda_A - \lambda_X \\ \gamma_2 f'(a_2) &= \theta_2 g'(T - a_2) + \lambda_A - \lambda_X \end{aligned}$$

Combining the equations in (2) yields the following equilibrium condition:

$$(2') \quad \gamma_1 f'(a_1) - \theta_1 g'(T - a_1) = \gamma_2 f'(a_2) - \theta_2 g'(T - a_2)$$

which states that the individual equates the difference between the marginal utilities of the two activities across the two time periods.⁷ We know from (1) that this difference is $(\lambda_A - \lambda_X)$.

Figure 1 graphs the equations in (2) and illustrates the equilibrium.

For the question of the timing of activities, we are interested in the effect of a change in the productivity of time spent in activity A in, say, sub-period 1. There are two effects that are akin to substitution and scale effects. Totally differentiating the equilibrium condition for the second stage in equation (2) yields the following:

$$\left. \frac{da_1^*}{d\gamma_1} \right|_{dA=0} = - \frac{f'(a_1)}{\gamma_1 f''(a_1) + \theta_1 g''(T - a_1)} > 0.$$

Thus an increase in the productivity of activity A in sub-period 1 increases the time spent on activity A in sub-period 1 holding the total amount of time spent on activity A constant.⁸ In Figure 1, this is illustrated as an upward shift in the $\gamma_1 f(a_1)$ curve. The $\theta_1 g'(T - a_1) + \lambda_A - \lambda_X$ and $\theta_2 g'(T - a_2) + \lambda_A - \lambda_X$ curves also shift upward, because the first constraint becomes more binding (it is easily shown that $\partial \lambda_A / \partial \gamma_1 > 0$), such that $\Delta a_1 = -\Delta a_2$.

⁷ The inequality of the marginal products is an artifact of the two-stage optimization program. In a single-stage program the constraints would, by construction, not be binding.

⁸ If the daily production function is specified as $f(\gamma_1 a_1)$ instead of $\gamma_1 f(a_1)$, then $da_1^*/d\gamma_1$ is positive as long as the elasticity of marginal product with respect to quality-adjusted time is greater than -1 . If the marginal product function is elastic, then the amount of quality-adjusted time increases, but actual time decreases.

An increase in γ_1 will also affect the total amount of time spent on activity A. Totally differentiating the first-stage equilibrium condition yields:

$$\frac{dA}{d\gamma_1} = -\frac{U_{11}\Gamma_1(\gamma)A\Gamma(\gamma) + U_1\Gamma_1(\gamma) - U_{21}\Gamma_1(\gamma)A\Theta(\theta)}{U_{11}\Gamma(\gamma)^2 - U_{21}\Gamma(\gamma)\Theta(\theta)},$$

which reduces to:

$$\frac{dA}{d\gamma_1} = -\frac{\Gamma_1(\gamma)A \cdot \left(\delta_{U_1, \Gamma A} - \frac{A}{X} \delta_{U_1, \Theta X} + 1 \right)}{\Gamma(\gamma) \cdot \left(\delta_{U_1, \Gamma A} - \frac{A}{X} \delta_{U_1, \Theta X} \right)},$$

where $\delta_{U_1, \Gamma A} < 0$ is the own elasticity of the marginal utility of quality-adjusted time in A (which equals $\Gamma \cdot A$) and $\delta_{U_1, \Theta X}$ is the elasticity with respect to quality-adjusted time in X (which equals

$\Theta \cdot X$). If $-1 < \left(\delta_{U_1, \Gamma A} - \frac{A}{X} \delta_{U_1, \Theta X} \right) < 0$, then $\frac{dA}{d\gamma_1} > 0$. However, if $\frac{A}{X} \delta_{U_1, \Theta X}$ is sufficiently close

to zero then $\frac{dA}{d\gamma_1} > 0$ if $\delta_{U_1, \Gamma A} > -1$. This might be the case if A is small relative to X or if U_{21} is

close to zero. For the remainder of our analysis, we will assume that $\frac{dA}{d\gamma_1}$ is relatively small so

that the primary effect of an increase in γ_1 is to shift time spent in A from other sub-periods to sub-period 1.

Data

We use ATUS data from 2003, 2004, and 2005. The ATUS is a time-diary survey in which respondents are asked to sequentially describe their activities, which are coded according

to a detailed coding lexicon, during a 24-hour period that we refer to as the diary day.⁹ Twenty-six different activity codes describe childcare of household children, and for this analysis, we defined three broad categories of childcare: routine care (such as feeding or bathing), enriching care (such as reading to or playing with children), and other childcare (such as travel) (see Appendix A for detailed definitions).

To isolate the effect of work-related constraints on when parents provide childcare, we restricted our sample to parents aged 18 and older who have at least one pre-school age child (under age 5) living in the household.¹⁰ Approximately 50 percent of these parents also have children that are age 5 or older and so provide childcare to these children as well. For this reason, only childcare activities that were done when a child under age 5 was present are counted as childcare.

How Much Time Do Parents Spend in Childcare?

Table 1 shows the amount of time spent by employed and nonemployed parents. Employed mothers are divided into full-time and part-time workers, and each of these is further divided into workdays and nonwork days. Because parents working at home can provide significant amounts of childcare, workdays are defined as those days respondents reported working somewhere other than at home. Estimates for fathers who work part-time are not presented due to insufficient sample size, leaving estimates for fathers who work full-time and nonemployed fathers.

⁹ If respondents report doing more than one thing at one time (such as cooking while talking to a child), only the activity reported as the “main” activity is coded. However, traveling--even when done in conjunction with another activity, such as feeding a child--is always considered the primary activity.

¹⁰ “Parents” are those with biological children, stepchildren, or adopted children.

Several patterns emerge. First, nonemployed mothers spend more time in childcare (3.1 hours) than either part-time employed mothers (2.7 hours) or full-time employed mothers (2.1 hours). Not surprisingly, full-time employed mothers spend about 45 minutes less in childcare on workdays than on nonwork days. The difference is even greater for part-time employed mothers, with mothers spending about an hour and ten minutes less in childcare on work days than on nonwork days. On nonwork days mothers who work part time spend about the same amount of time in childcare as nonemployed mothers, while mothers who work full time spend about 45 minutes less on nonwork days.

Most of mothers' childcare time is spent in routine care. Mothers who work full time spend a little over two-fifths of an hour in enriching activities on workdays and nearly three-quarters of an hour on nonwork days. In contrast, mothers who work part time spend three-fifths of an hour per day in enriching activities on workdays and over an hour per day on nonwork days--about the same as nonemployed mothers. The fraction of childcare time spent in enriching activities is lower for full-time employed mothers compared to part-time employed and nonemployed mothers. Thus, maternal full-time employment appears to disproportionately affect time spent in enriching childcare activities.

Fathers do considerably less childcare than mothers, but a higher fraction of that time is spent in enriching activities--a little over 40 percent compared with 22 to 34 percent for mothers. Fathers who work full-time spend about the same amount of time in enriching activities (0.5 hours) as mothers who work full time (0.6 hours). For fathers, the fraction of childcare time spent in enriching activities is about the same regardless of employment status.

The Timing of Childcare

Our empirical strategy is to compare the timing of childcare on days when timing is constrained by work to unconstrained days. We have two possible control groups for the unconstrained days—the nonemployed parents and nonwork days of employed parents. Using nonemployed persons as the control group is potentially problematic because the employment decision may be related to unobserved differences in productivity. For example, individuals whose childcare time is relatively productive in the evening may be more likely to be employed full time. If this is the case, we would expect these individuals to concentrate their childcare activities in the evening on their nonwork days as well. This leads us to use the nonwork days of the employed as the control group, which eliminates the endogeneity issue because the two comparison groups have exactly the same characteristics. It is possible that the timing of childcare activities is affected by the fact that the employed do a disproportionate fraction of childcare activities on nonwork days, but this should not be a problem once we control for the amount of time spent in childcare on the diary day. Thus our identification of the work schedule effect comes off of the difference in the timing of childcare on work and nonwork days of employed parents.¹¹

Our first step is to examine the raw data on the timing of childcare activities. Figure 2 shows the fraction of parents that are engaged in childcare by time of day for full-time employed mothers, part-time employed mothers, full-time employed fathers, and nonemployed parents. The first three graphs show the fraction of parents engaged in childcare by work and nonwork days.

¹¹ As it turns out, it does not make much difference whether we use the nonemployed or nonwork days of the employed as our reference group. Research on the nonemployed (Frazis and Stewart 2005) has shown that the nonwork days of workers are very similar to the average day of the nonemployed. In other results (not presented here), we found the timing of enriching childcare activities of the nonemployed to be similar to that of the employed on nonwork days.

Panel (a) shows the graph for mothers who are employed full time, and this pattern shows some expected differences and some surprising similarities. As expected, workdays and nonwork days are quite different in the morning. Childcare activities start earlier on workdays, and the care is concentrated between 6 and 8a.m. On nonwork days, the fraction providing care is less than 10 percent until about 7a.m., but a relatively large fraction of mothers are providing childcare throughout the morning and there is no pronounced peak between 6 and 8a.m. Not surprisingly, the fraction providing care is higher throughout the day on nonwork days than on workdays. However, from about 4:30 through the rest of the day, the fraction of mothers providing childcare is about the same on workdays and nonwork days.

Compared with mothers who work full time, a higher fraction of part-time employed mothers provide childcare at nearly every time of day on both workdays and nonwork days (Panel b). Part-time employed mothers who worked on their diary days are about twice as likely to be providing childcare in the middle of their workdays compared with full-time employed mothers who worked, although the fraction doesn't rise much above 10 percent until about 3p.m. On nonwork days, 15 percent or more of part-time employed mothers are providing childcare during traditional workday times, with the fraction rising to about 25 percent in mid-morning and mid-afternoon.

The graph for full-time employed fathers is similar to the graph for full-time employed mothers except that the fraction of fathers providing care at any given time is lower (Panel c). The fraction of fathers providing care on workdays is largest in the morning and the evening, with very few providing care in the middle of the day. On nonwork days, the fraction providing care is about 10 percent throughout the day. From about 5p.m. on, the fraction of fathers providing childcare is about the same on workdays and nonwork days.

Panel (d) shows the differences between nonemployed mothers and fathers. A greater fraction of nonemployed mothers provided childcare at all times of the day. The fraction of mothers providing childcare hovered between 15 and 20 percent between 8a.m. and 9p.m. The fraction of fathers ranged between 5 and 15 percent.

Figure 3 shows the same set of graphs for enriching childcare activities. The fraction of parents engaged in enriching activities is much smaller at every time of day, which reflects the fact that most childcare is routine. Panel (a) shows the graph for mothers who are employed full time. Only a small fraction of mothers who worked--about 1 percent--are engaged in enriching activities in the morning through mid-afternoon. The fraction is much higher on nonwork days, between 3 and 7 percent, with the fraction being higher in the mid-morning and late afternoon. The fraction increases in the evening, though it is lower than the evening peak on workdays. Fathers who work full time look very similar to mothers who work full time on both workdays and nonwork days (panel c).

The graph for part-time employed mothers (panel b) indicates that they are much more likely to be engaged in enriching activities earlier in the day on both workdays and nonwork days compared to full-time employed mothers and fathers. On nonwork days, the largest fraction is engaged in enriching activities in the mid-morning and mid-to-late afternoon, with the afternoon fraction being quite a bit higher. The pattern is similar on workdays, although the fraction is lower at nearly every time of day. Nonemployed mothers and fathers are very similar (panel d).

Figure 4 shows the same set of graphs for routine care. On workdays for both fathers and mothers, this care is concentrated in the morning before work and in the evening after work. On nonwork days routine care is more spread out throughout the day, although there are still noticeable peaks in the morning and the evening. The graph for the nonemployed mothers also

shows morning and evening peaks, while the peaks are scarcely noticeable for nonemployed fathers (panel d). The differences in the timing of routine care between workdays and nonwork days suggest that parents have a certain amount of flexibility regarding the timing of some of these activities. Other activities, most notably evening activities associated with putting children to bed, are performed at about the same time of day by all groups on both workday and nonwork days. This, combined with the earlier starting time for routine childcare on workdays, suggests that children get less sleep on workdays than on nonwork days.

Figure 5 shows the fraction of the total time spent in enriching activities at different times of the day. For example, for full-time employed mothers on their workdays (panel a), 20 percent of time spent in enriching activities was between 7 and 8p.m..

Among mothers and fathers who were employed full time, over 60 percent of the time spent in enriching activities on workdays is spent between 5 and 9p.m. compared to less than 34 percent on nonwork days. On nonwork days about half of the time in enriching activities is spent between 8a.m. and 5p.m. versus 15 to 20 percent on workdays. In contrast, the distributions of time spent in enriching activities on workdays and nonwork days are fairly similar to each other for mothers who work part time. On workdays, they spend nearly 40 percent of their time in enriching activities during between 8a.m. and 5p.m., with the fraction increasing to over half on nonwork days. As a point of comparison, nonemployed mothers and fathers spend about half of their time in enriching activities between 8a.m. and 5p.m. and only one-quarter between 5p.m. and 9p.m.

The distributions of time spent providing routine care are shown in Figure 6. When unconstrained by work, routine care activities are distributed much more evenly throughout the

day, although there are still spikes in the morning and the evening. The distributions for nonemployed mothers and fathers are similar to those of employed parents on nonwork days.

For the remainder of the section, we will focus on enriching care and examine whether differences in timing remain after we control for the time spent in enriching care and other factors.

The figures above make it clear that a small fraction of parents are engaging in enriching childcare at any given time, that there are large differences between workdays and nonwork days of employed parents, and that nonwork days of employed parents are similar to average days of nonemployed parents. For the following analysis, it is more convenient to graph the difference between workdays and nonwork days in the fraction of parents engaged in enriching activities at each time of day. These differences are shown in Figure 7 along with their standard errors. In panels (a) and (c) we can see that the lower fraction of full-time employed mothers and fathers engaged in enriching activities during normal working hours is large and statistically significant. For part-time employed mothers, the effect is large and statistically significant in the morning and afternoon, but not during the middle of the day.

However, we know from Table 1 that employed parents spend considerably more time in enriching activities on nonwork days than on work days. Thus it is not surprising that a much smaller fraction of parents engage in enriching care during normal work hours. To correctly estimate the effect of employment on the timing of enriching childcare, it is necessary to control for the time spent in these activities on the diary day. We estimated separate OLS regressions for each time of day between 6:00a.m. and 11:00p.m. at 5-minute intervals (204 equations total).¹² The dependent variable equals one if the parent was engaged in enriching activities at that time

¹² In the next draft of the paper, we will estimate logit equations. Logits have the added advantage that it is easy to express the results as odds ratios.

and the independent variable of interest is a dummy variable that equals one if the individual worked during the day. We included demographic and child-related variables in addition to the time spent in enriching care on the diary day, although only the time spent in enriching care matters. The three graphs in Figure 8 show the coefficient on the “workday” dummy along with upper and lower bounds of the 95% confidence interval.

Comparing Figures 8(a)-(c) and 7(a)-(c), we can see that the difference in the fraction of parents engaged in enriching care at each time of day between workdays and nonwork days is smaller when we control for time spent in enriching care during the day. For mothers who work full time, the difference between workdays and nonwork days during the time between 9:00a.m. and 4:30p.m. falls by about one-half from the 2.0 to 5.1 percentage point range to the 1.0 to 2.5 percentage point range. The differences in Figure 8(a) are statistically significant at the 95 percent level between about 8:30a.m. and 12:00p.m. and between about 2:00p.m. and 3:30p.m. Comparing Figures 8(c) and 7(c), we see a similar reduction for fathers who work full time. The reduced coefficients are statistically significant over a greater range of time compared to full-time employed mothers (between 8:00a.m. and 4:00p.m. except for about an hour around 1:00p.m.), but this is mainly due to the small standard errors in the fathers equations. For mothers who work part time, a comparison of Figures 8(b) and 7(b) shows that virtually all of the differences in the fraction of mothers engaged in enriching care throughout the day are due to differences in the time spent in enriching activities. The coefficient on the workday dummy is statistically significant at only a few times during the day.

Given the small fraction of parents engaged in this type of care at any given time, even the reduced coefficient estimates are economically significant for mothers and fathers who are employed full time. Thus it appears that full-time employment places constraints on when

parents can spend time in enriching childcare on workdays that are independent of the reduction in the time spent in these activities on workdays. On workdays a smaller fraction of parents spend time in enriching activities during the day, when these interactions are more productive, and a larger fraction of parents spend time in enriching activities in the evening, when these interactions are less productive. The small fraction of full-time employed parents who spent time in enriching activities in the mornings suggests that they may not have much flexibility with regard to when they work. In contrast, it appears that part-time employed mothers can and do adjust their work schedules so that they spend more time in enriching activities when those activities are the most productive.

Summary and Conclusions

A large body of literature has studied the effect of parental employment on the amount of time that parents spend with their children and it is well-known that employed parents spend less time in childcare activities. But no studies have examined how employment affects when parents spend time with their children. When childcare activities are done is important because the value of parent-child interactions is not the same throughout the day. Children are more receptive to learning and parent-child interactions are more enjoyable when both parent and child are rested and alert. The research we have uncovered suggests that the best time for parents to engage in enriching care is in the morning and early afternoon. Our theoretical model predicts that, when unconstrained by work, parents spend more time with their children when it is the most productive. Thus we would expect parents to spend more time in enriching activities in the morning and early afternoon unless they are constrained to do so at other times.

We compared the workdays and nonwork days of employed parents, controlling for the time spent in childcare, to examine the effect of work on when parents spend time with their children. For parents who are employed full time, the effect of working on a given day is to shift time spent in enriching activities from the daytime to the evening. For part-time employed mothers, there was very little difference between work and nonwork days in the timing of enriching childcare activities. This suggests that parents who work part time have more flexibility with regard to when they work and therefore when they can spend time with their children, and that this flexibility is what makes part-time employment attractive to mothers.

Our findings imply that the effect of full-time parental employment on the time spent in childcare understates the true effect, because, in addition to doing less childcare, childcare time is shifted from more-productive times of day to less productive times.

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Figure 1(a)

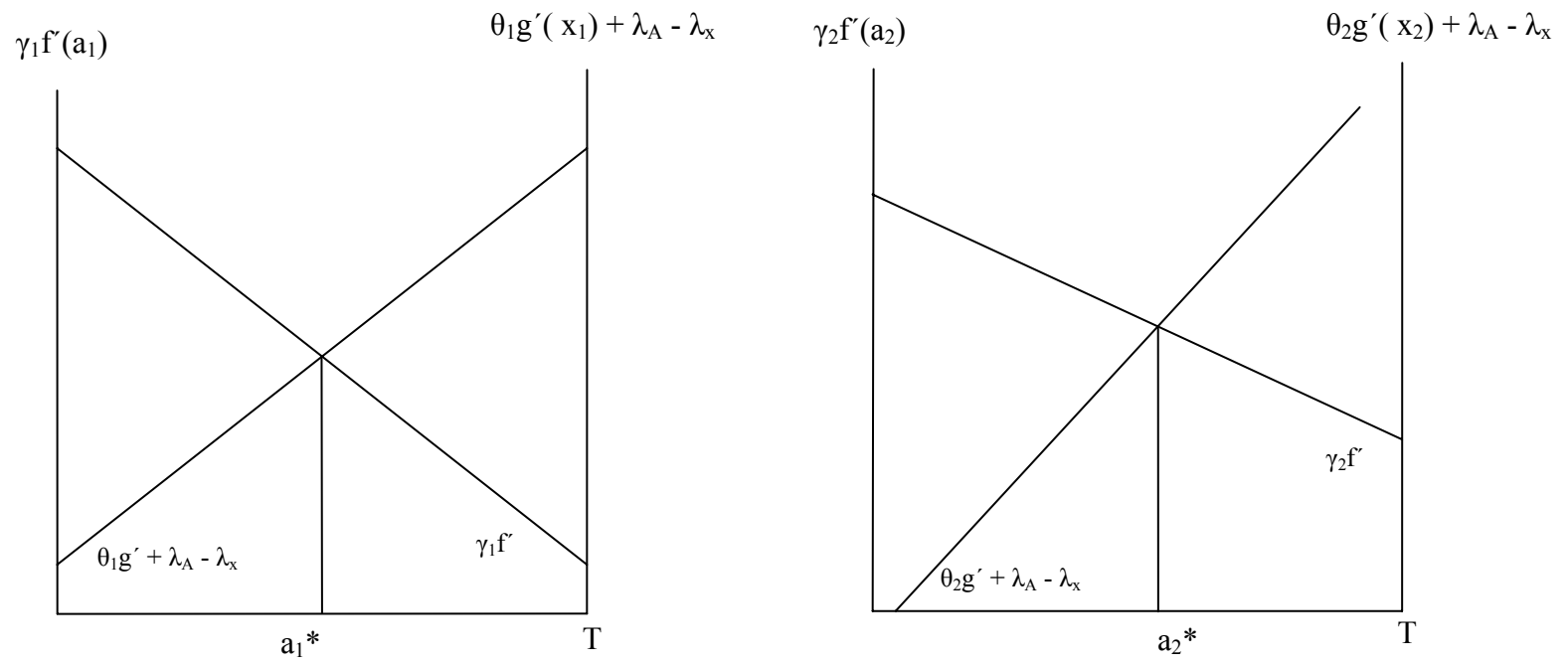


Figure 1(b)

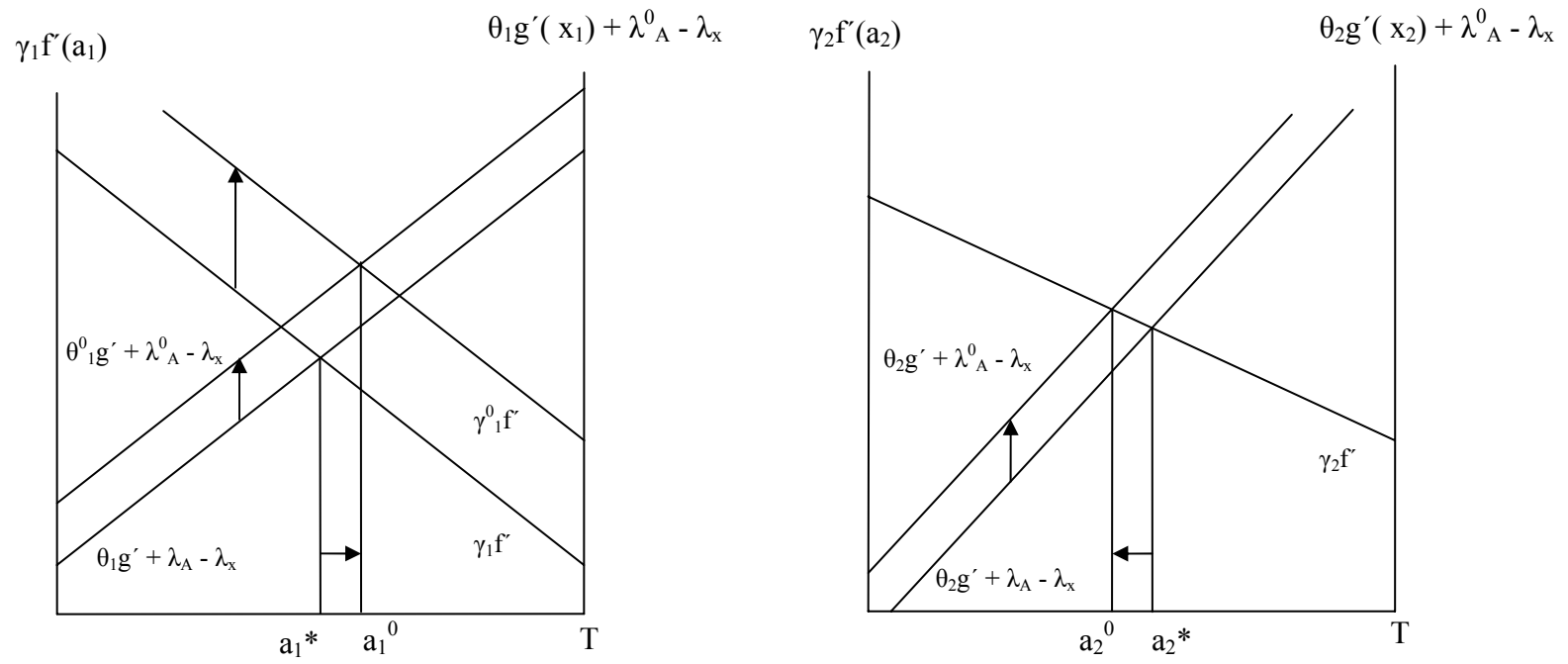


Table 1. Hours spent in selected activities by mothers and fathers on a given day, 2003-2004 ATUS annual averages

	Mothers							Fathers				
	Employed full time			Employed part time				Not employed	Employed full time			Not employed
	Total	Worked somewhere other than home	Did not work somewhere other than home	Total	Worked somewhere other than home	Did not work somewhere other than home	Total		Worked somewhere other than home	Did not work somewhere other than home		
Childcare (with child < 5)	2.1	1.8	2.6	2.7	2.0	3.2	3.1	1.2	1.0	1.7	1.6	
Routine childcare	1.2	0.9	1.6	1.4	1.0	1.7	1.7	0.6	0.4	0.8	0.7	
Enriching childcare	0.6	0.4	0.7	0.9	0.6	1.1	1.0	0.5	0.4	0.7	0.7	
Playing with children	0.4	0.3	0.6	0.7	0.4	0.9	0.7	0.4	0.3	0.6	0.6	
Reading to children	0.1	0.1	0.1	0.1	0.1	0.1	0.1	0.0	0.0	0.1	0.0	
Unclassified childcare	0.3	0.4	0.2	0.4	0.4	0.4	0.4	0.1	0.1	0.1	0.2	
Household activities	1.8	1.1	2.7	2.2	1.5	2.8	3.2	1.1	0.6	2.1	2.1	
Eating and drinking	1.0	0.9	1.1	1.0	0.8	1.1	1.0	1.1	1.1	1.3	1.0	
Sleeping	8.4	7.7	9.4	8.5	8.1	8.8	9.0	8.1	7.5	9.2	9.2	
Working	4.7	7.8	0.5	2.8	6.0	0.4	0.0	5.8	8.5	0.5	0.2	
Leisure	2.8	1.9	4.0	3.2	2.3	3.9	4.1	3.6	2.6	5.5	5.7	
Watching TV	1.5	1.1	2.1	1.6	1.2	1.8	2.3	1.9	1.5	2.7	3.3	
Grooming	0.7	0.8	0.6	0.7	0.8	0.6	0.5	0.5	0.6	0.4	0.4	

Note: sample restricted to parents age 18 and over with at least one child under age 5 living in the household

Figure 2. Childcare (with child less than 5)
Percent providing care by time of day

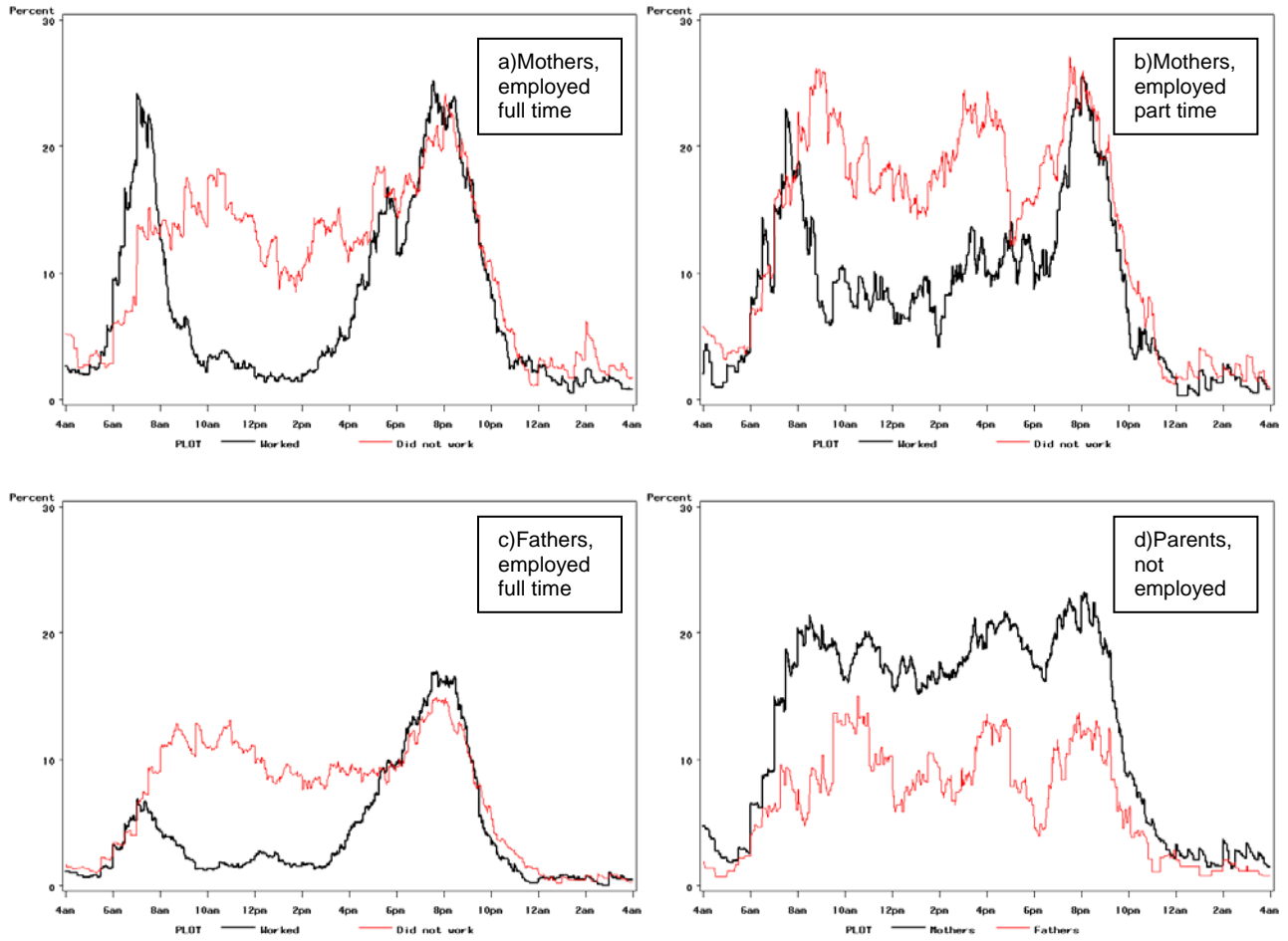


Figure 3. Routine childcare (with child less than 5)
Percent providing care by time of day

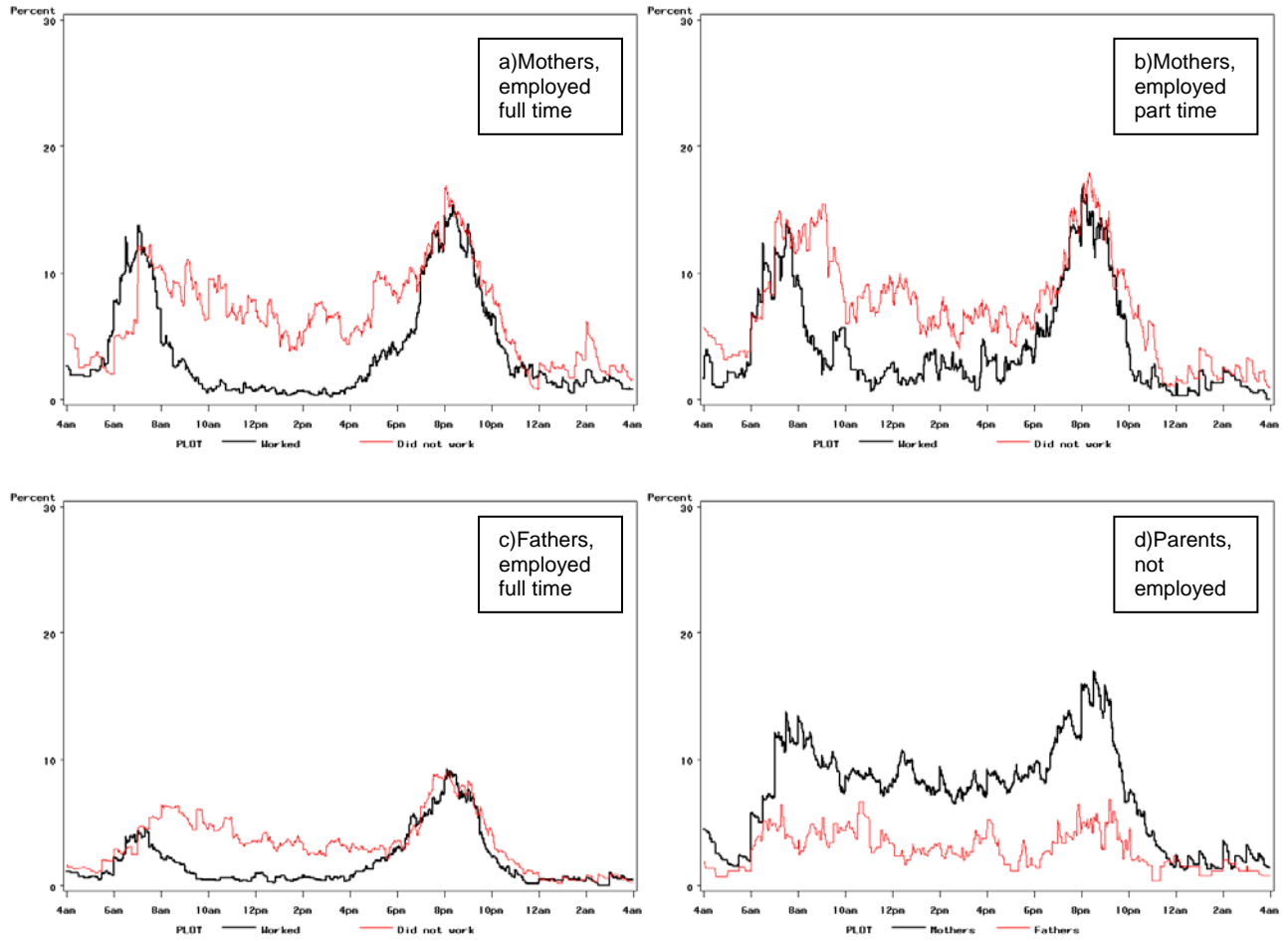


Figure 4. Enriching childcare (with child less than 5)
Percent providing care by time of day

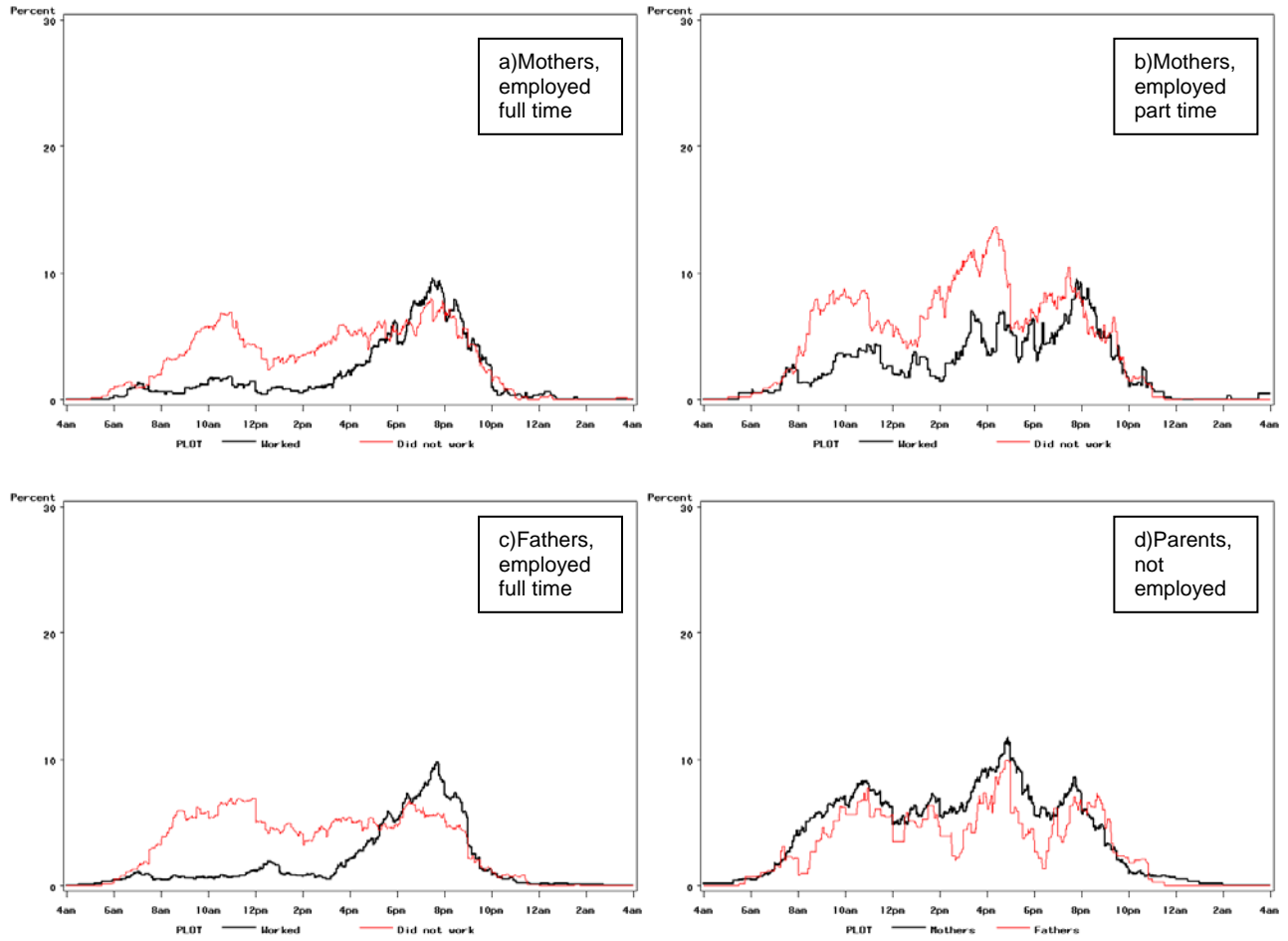


Figure 5. Enriching childcare (with a child under 5 present), 2003-2005 data
 Percent of total care done by time of day

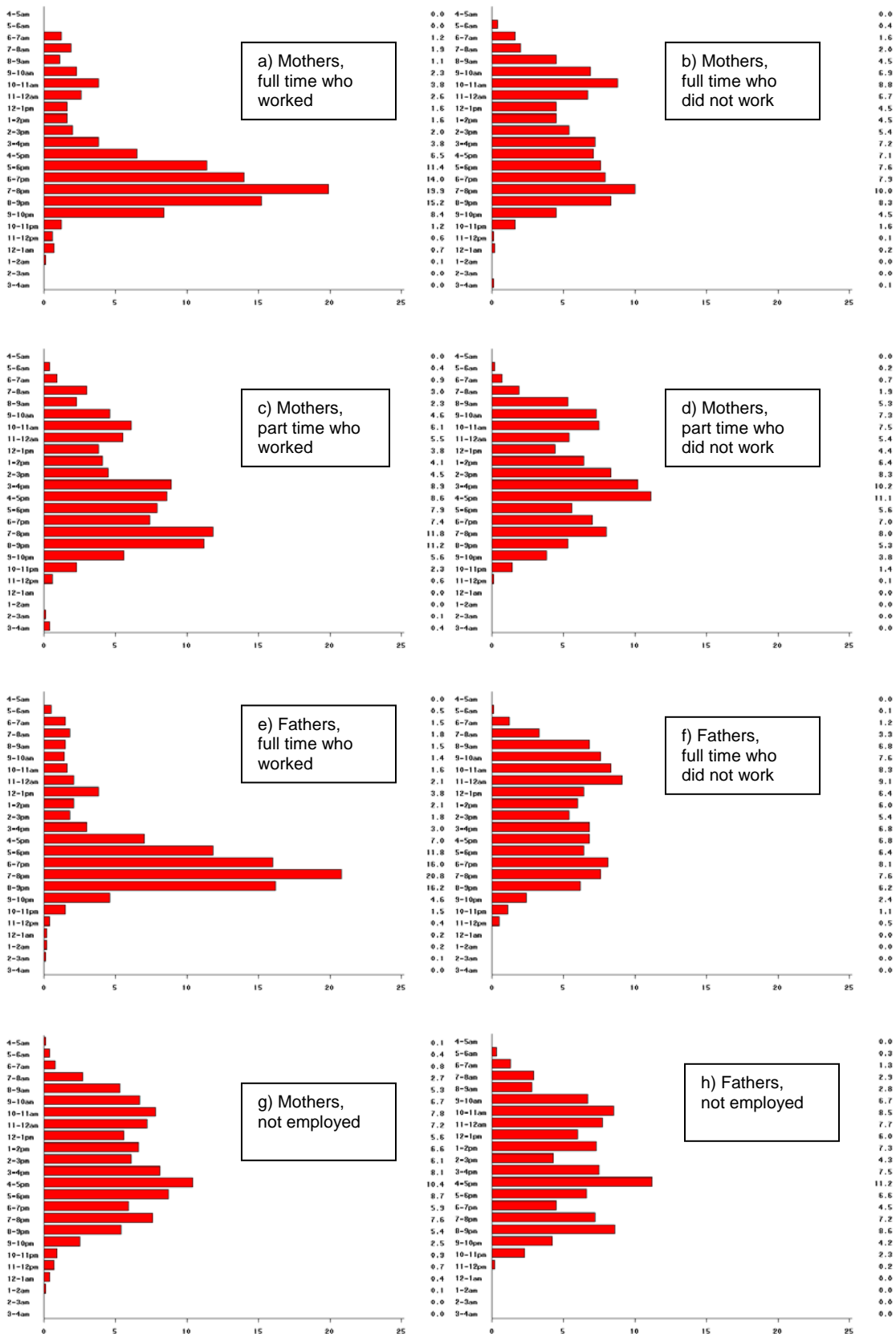


Figure 6. Routine childcare
Percent of total care done by time of day

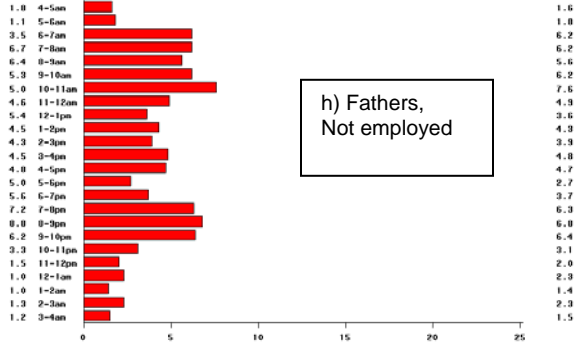
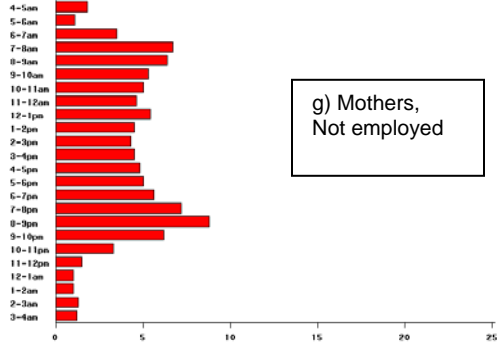
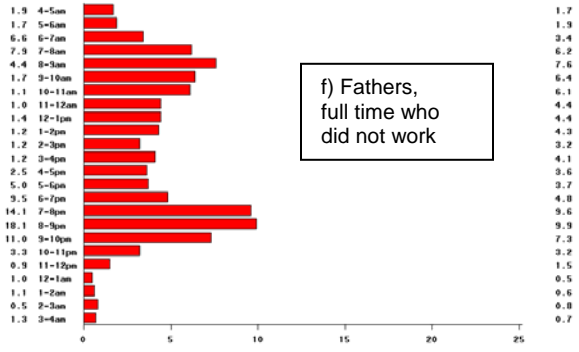
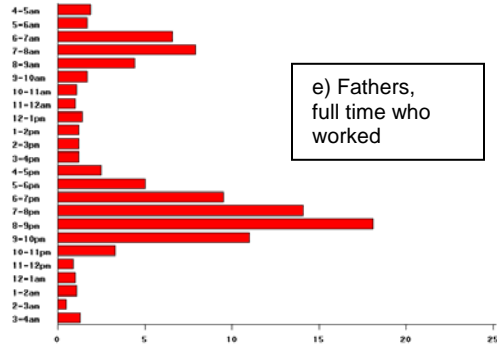
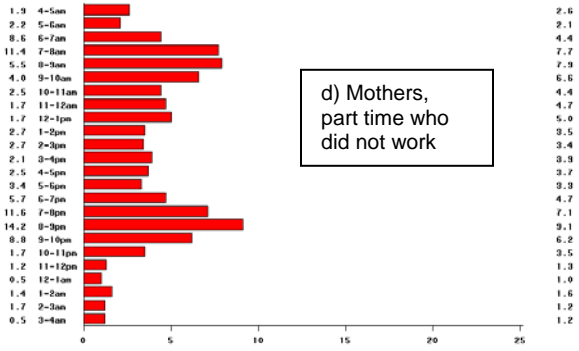
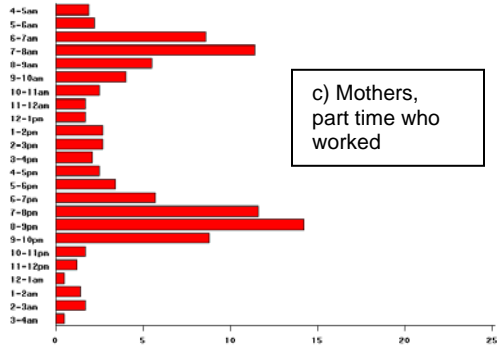
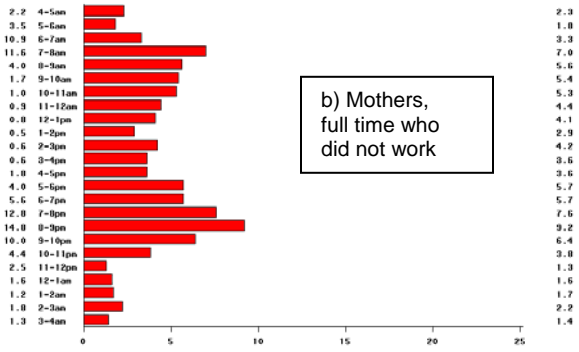
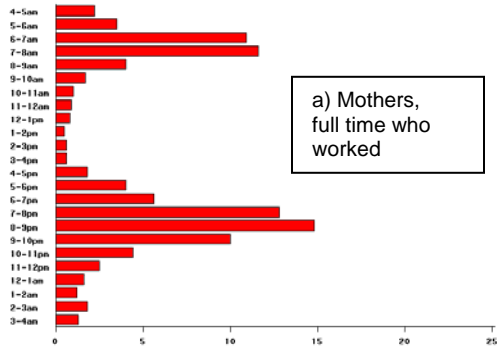
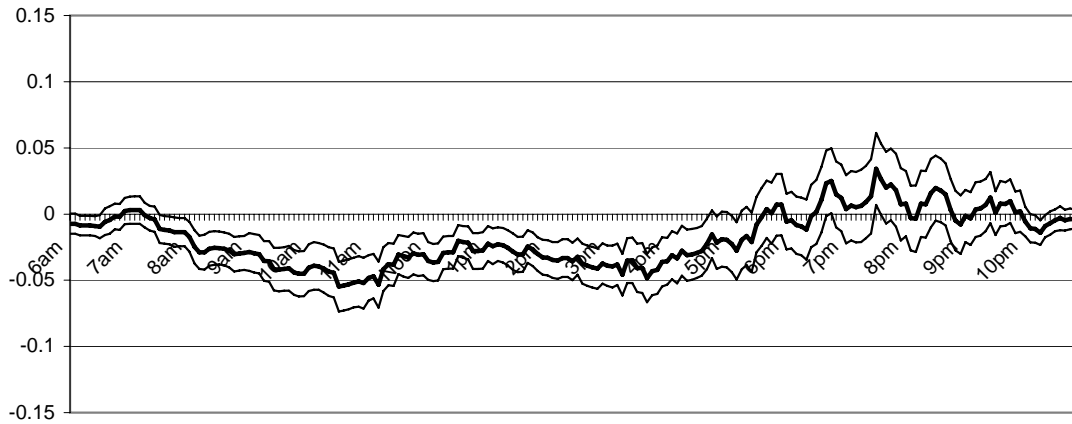
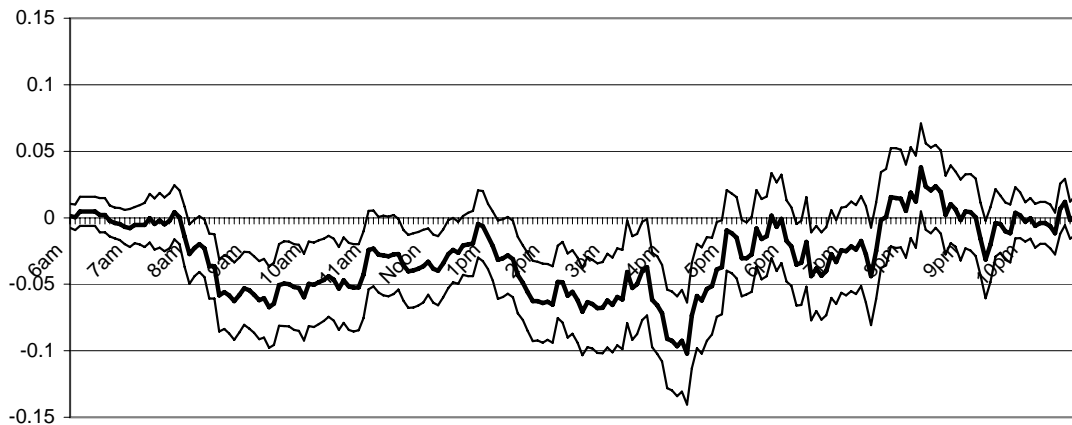


Figure 7: The Timing of Enriching Childcare Activities - Workdays and Nonwork Days (no controls)

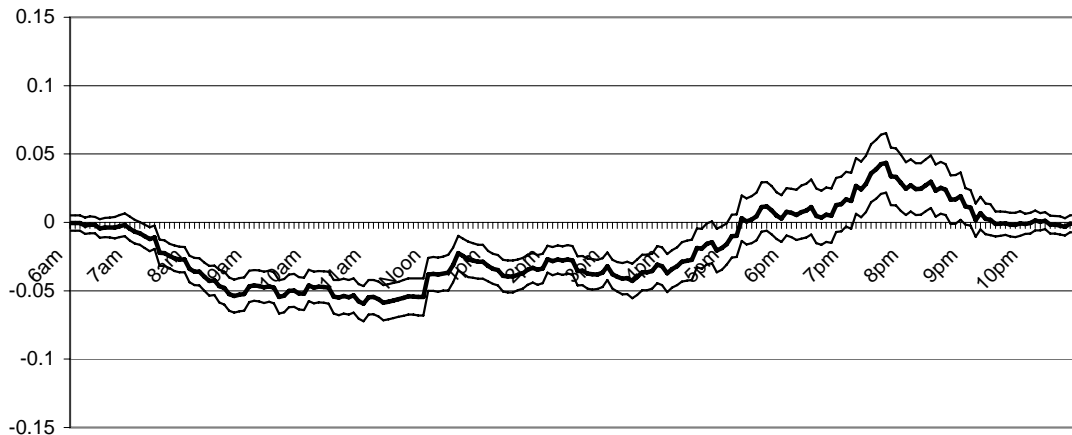
(a) FT Mothers



(b) PT Mothers



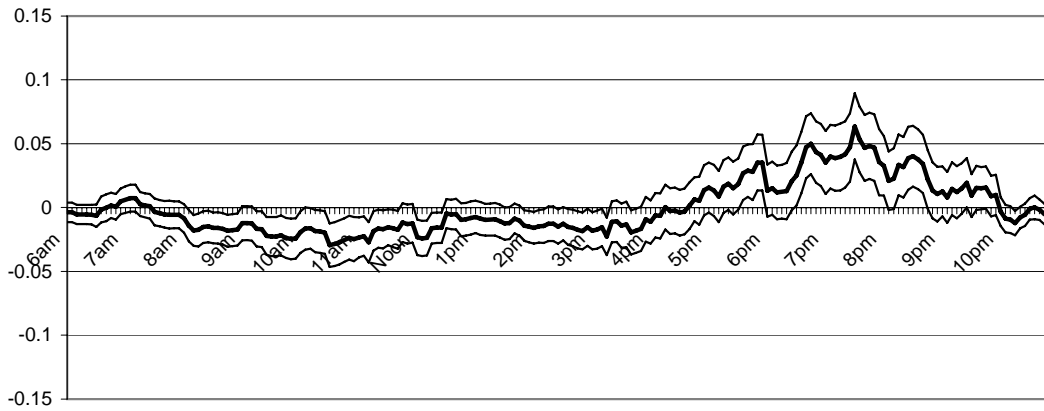
(c) FT Fathers



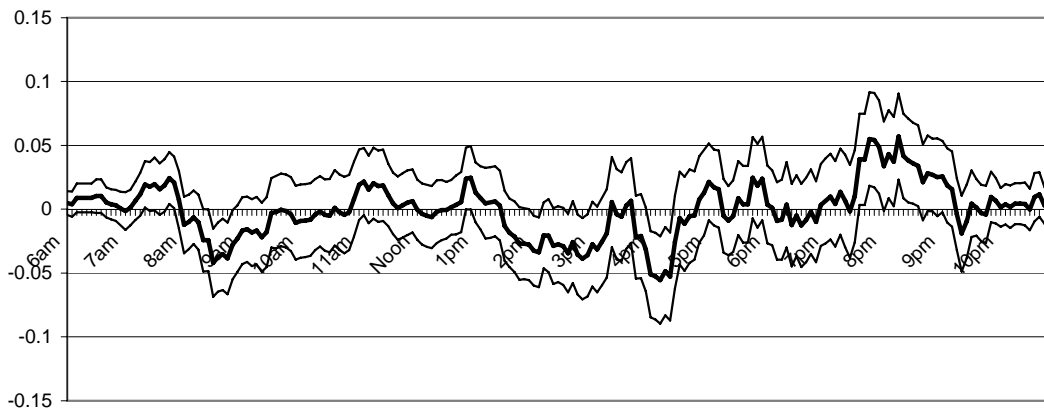
— Coefficient on Workday — 95% CI — 95% CI

Figure 8: The Timing of Enriching Childcare Activities - Workdays and Nonwork Days (with controls)

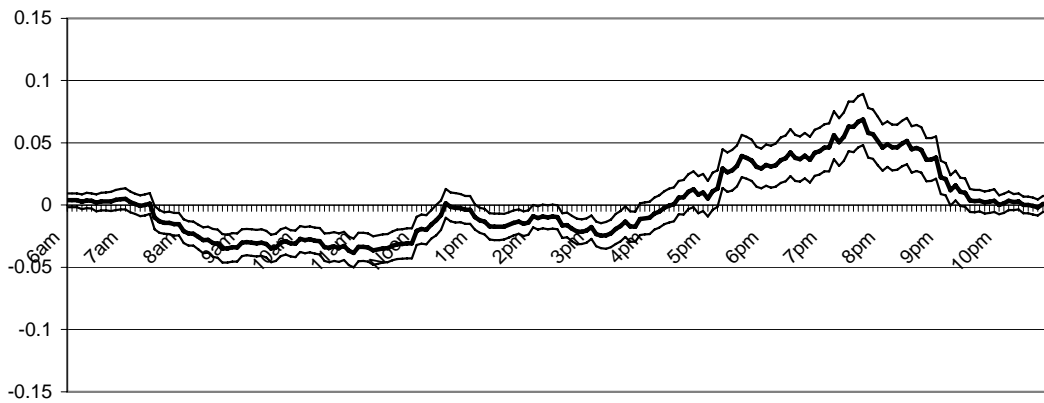
(a) FT Mothers



(b) PT Mothers



(c) FT Fathers



— Workday — 95% CI — 95% CI