Title: Family-Friendly Occupations and Wage Differentials

I. Background

Labor economists, sociologists and demographers have long observed wage gaps between women and men (see Altonji and Blank 1999 for a summary) and more recently have focused on wage differences between mothers and non-mothers (e.g. Waldfogel 1998, Budig and England 2001, Anderson, Binder and Krause 2002). Additionally, research on occupational sorting shows that female dominated occupations tend to have lower wages than other occupations requiring similar levels of education (see Altonji and Blank 1999 for a summary). Two main theories underlie the research regarding gendered wage gaps.[1] First, human capital theory asserts that wages are a function of both education and experience. Second, the theory of compensating differentials says that job characteristics also play a significant role in determining wages.[2] These two theories are not mutually exclusive; however, the preponderance of literature on gendered wage gaps focuses on the former. For instance, long standing research explores women's delayed human capital accumulation resulting from time spent out of the labor market (job intermittency) due to the demands of childbirth and childrearing (e.g. Polachek 1981). There is less research on which job characteristics influence gendered occupational sorting and wage gaps. When women return to the labor market after childbirth they, and their partners, may prefer jobs that allow them to spend time caring for their children. Various occupations make it easier for mothers (and fathers) to stay in the labor force and simultaneously care for children. Additional research is needed to identify these occupations and to quantify whether the ability to spend time on childcare is a non-pecuniary benefit that constitutes a compensating differential and thus explains some of the aforementioned wage gaps.

Previous research into the wage gaps such as that between mothers and non-mothers often controls for occupational categories or job characteristics (e.g. Glass and Camarigg 1992, Budig and England 2001). However, our understanding of occupational sorting according to family-friendly job characteristics remains underdeveloped. In particular, there has not been enough work to carefully specify time use patterns that are "family-friendly" nor to link these patterns to labor market outcomes. Our study adds to the literature by using time diary data to indentify occupations that are conducive to spending time on both primary and secondary childcare. We are also able to investigate whether parents appear to be trading wages for family-friendly workdays.

II. Data

Using data from the American Time Use Survey (ATUS) (Abraham et al., 2008), a time diary collected by the Bureau of Labor Statistics, we investigate not only total time spent working and on childcare but also the patterns of time use that facilitate a balance between work and family. The ATUS is a nationally representative sample. Pooling surveys from 2003-2009 provides data on 53,538 respondents with

[1] While the relevant theory is not gender specific, it generally argued that childbearing and the associated social expectations constrain women/mothers' choices more so than men/fathers' so much of the literature has focused on women.

[2] A third theory is that the wage gaps are indicative of discrimination. Discrimination, however, is usually measured as a residual after accounting for human capital and compensating differentials.

children who are currently employed. In addition to describing each respondent's daily activities, the ATUS provides rich data on when, where and with whom respondents were throughout the day enabling us to identify family-friendly benefits such as not having to work during key childcare hours (i.e. before and after school) and the ability to work from home. Additionally, the presence of occupational codes and wage data allows us to look at these time use patterns in relation to labor economic outcomes.

The main limitation of the data is that they are cross sectional rather than longitudinal, thus we are unable to control for individual fixed effects (i.e. control for unobserved differences in respondents). However, we exploit the demographic controls available in the ATUS as well as information on the diary day to control for possible confounding observable factors that may be correlated with occupation and wage. Further, we limit the sample to employed parents in occupations where there are at least 50 male or 50 female respondents. This ensures that the cell size for each occupation is sufficiently large for the statistical analysis. This leaves us with 191 occupations that span wage and education levels. The breadth of occupations and the size of the data set allow us to address time use patterns by occupation in more detail than has been done in previous research.

III. Research Methods & Preliminary Results

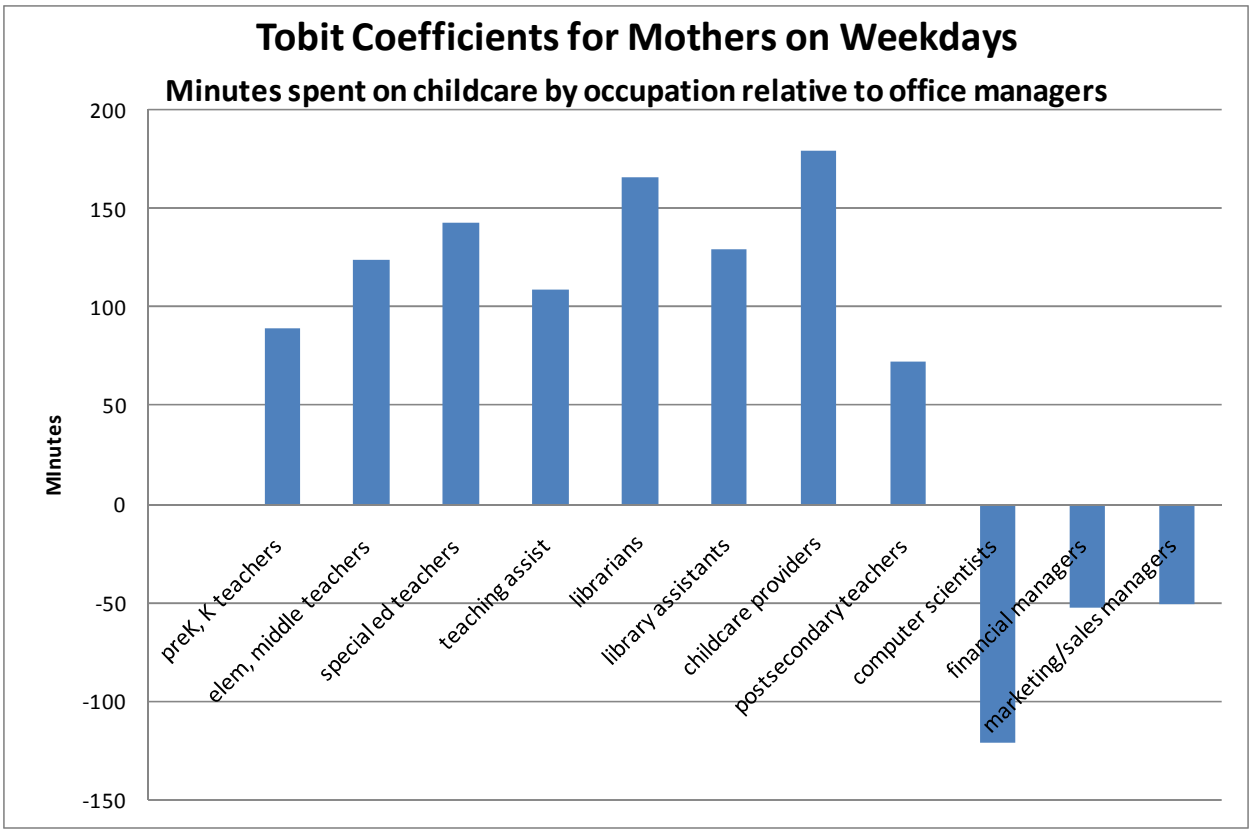
To identify family-friendly occupations we first use individual level regression analysis to see which occupations are correlated with increased time spent on childcare. That is, rather than using job characteristics to classify occupations as family-friendly, we look at the actions of the individual workers in those jobs. We assume that when mothers and fathers are able to spend time on childcare, it is indicative of job characteristics that make the occupation conducive to parenting. Let Tcc be time spent by individual i on primary and secondary childcare then:

$$Tcc_i = \beta + \gamma' Occupation_i + \delta' X_i + \varepsilon$$

Where β is an intercept parameter, γ is a vector of coefficients that relate occupations to time spent on childcare and X is a vector of variables including demographic controls such as education level, descriptors of the household composition (i.e. the number and age of household children and the number of household adults), and other potentially significant variables such as date of the ATUS interview, ε is an individual specific error term. The amount of time spent on childcare is censored at 0 (i.e. you cannot spend negative time on childcare), therefore we prefer Tobit regressions. We conduct the analysis separately for men and women and for interviews that take place on weekdays and weekends. Table 1 shows the mean time spent on childcare and Figure 1 summarizes some preliminary findings. The height of each bar represents the γ coefficient for selected occupations for women with children on weekdays. The omitted comparison group is office managers.

Table 1. Mean Minutes Spent in Childcare

	Weekday	Weekend
Mothers	303	450
Fathers	188	404



As expected, we find that there are occupations whose workers spend significantly more time on childcare. Mothers in teaching, childcare and library occupations spend more time on childcare during the week than similar mothers in other occupations. Additional results (not reported here) indicate that it is harder to identify broad groups of occupations that are conducive to childcare during the week for fathers. Fathers who are elementary and middle school teachers spend more time on childcare during the week as do pilots and food prep workers. However, there more occupations that are associated with *less* time spent on childcare during the week for fathers, including physicians and surgeons as well as dentists, financial managers and a number of blue collar jobs such as butchers, drywall, auto repair and electrical. On weekends, we find that food services workers including managers, cooks, waiters and waitresses are not able to spend time on childcare. This result is consistent for both mothers and fathers. It is interesting to note that for food prep jobs, fathers may be substituting weekday childcare for weekend childcare. We find a similar pattern for mothers who are hairdressers and other "appearance" workers. Other occupations that make it difficult to spend weekend time on childcare are retail sales and supervisors and cashiers. In summary, it appears that while jobs in education are family-friendly, service jobs are not conducive to childcare.

Due to the cross-sectional nature of our data, it is possible that omitted variable bias is driving our results. This seems particularly plausible for teachers and childcare workers whose unobservable "love of children" may influence both their choice of occupation and their choice to allocate more time to childcare. To better investigate whether the family-friendliness of the occupation drives the relationship between occupation and childcare rather than omitted variables, we plan to construct occupation-specific tempograms to identify time use patterns that support increased childcare. We have defined some summary variables that proxy for time use patterns including (1) the amount of work at home and (2) an indicator for whether a parent is working during prime childcare times. Preliminary

findings show that teachers and childcare workers are more likely to work at home and are less likely to be working during prime childcare times. This suggests that the fact that teachers and childcare workers can be at home before and after school allows them to spend more time on caring for their own children.

Our next question is whether occupations that are family-friendly have lower wages. This would be consistent with the theory of compensating differentials. The method we employ here modifies a standard log-wage equation to include a measure of the family-friendliness of an individual's occupation. That is, we describe wages as a function of both human capital (i.e. education and experience) as well as our job characteristic of interest to investigate whether mothers and fathers appear to be trading increased family-friendliness for decreased wages. Let w be the hourly wage paid to worker i.

$$\ln(w_i) = \alpha + \theta FF_i + \varphi' X_i + \varepsilon$$

FF is a measure of how family-friendly the individual's occupation is (in our preliminary work this is simply total time spent in child care) thus θ is our coefficient of interest. As before, X is a vector of relevant demographic controls including measures of education and experience to control for observable factors that may influence a respondent's wage and ε is an individual specific error term. Table 2 summarizes preliminary findings. The number in each cell is the θ coefficient for the respective Tobit regression, and the starred results are statistically significant.

Table 2. Tobit Coefficients for Total Minutes Spent in Child Care from the Wage Equations

	Weekday	Weekend
Mothers	0.04%*	0.04%*
Fathers	0%	0.03%*

Preliminary results suggest that occupations that allow for more time on childcare are *not* lower paying as predicted. In fact, θ is positive and significant in three of the four regressions indicating a positive relationship between total time spent in child care and wages. This seems contrary to the economic theory discussed above. However, other research in labor economics also finds that the tradeoff between wages and desirable job characteristics may not always be as predicted by theory. For instance jobs that have good benefits also tend to have higher wages (e.g. Currie and Madrian 1999). Similarly, we find evidence that jobs that allow for time on childcare also have higher wages.

IV. Plans

We plan to expand on this preliminary analysis by developing an index to better identify and rank family-friendly occupations. This index will incorporate not only total time on childcare but also time use patters as revealed by occupation-specific tempograms. Additionally, we will use the full ATUS sample (rather than limiting the analysis to mothers and fathers) to compare wage gaps between respondents with and without children conditional on family-friendly job characteristics. We expect that this will support our initial findings namely that there are occupations that are more conducive to balancing work and family, however, it may not be the case that these jobs have lower wages than other, less family-friendly, occupations.

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