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Jean Kimmel
W.E. Upjohn Institute

Lisa M. Powell
Queen's University

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Jean Kimmel
W.E. Upjohn Institute for Employment Research
Effective August 2001:
Department of Economics
Western Michigan University
jean.kimmel@wmich.edu

and

Lisa M. Powell
Queen's University
and
University of Illinois at Chicago
Powelll@uic.edu

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Abstract

The focus of this paper is to examine the interplay between nonstandard employment and child care choice decisions of married mothers with young children. We draw on the 1992/93 Survey of Income and Program Participation to estimate two related econometric models of child care choice that include the choice among center, sitter, relative and parental care. First, controlling for the potential endogeneity of the nonstandard work decision, we find that being a nonstandard worker significantly reduces the likelihood of using formal modes of child care such as center and sitter care. In our second model, where we jointly estimate the work status and child care choice decisions of mothers, we find that the standard versus nonstandard work decision is more responsive to the price of child care. Finally, we conclude the paper by discussing potential policy solutions to improve the child care options for mothers with young children working in nonstandard jobs.

1. INTRODUCTION

Efforts made by families to meet the often conflicting demands of work and family have been well documented in the social science literature as well as in the popular media in recent years. One specific area of growing concern is the particular set of problems faced by families with one or more workers holding a job with a nonstandard work schedule. In married couple families, more than 17.5 percent of fathers and 10.8 percent of mothers hold nonstandard jobs; that is, jobs outside the "standard" weekday work times of 8 a.m. to 6 p.m. (Beers 2000). The presence of young children in such families further complicates the analysis, and it is this complex interplay between nonstandard employment and child care choices that is the focus of this paper. In our analyses, this paper contributes to the literature by taking into account the potential endogeneity between nonstandard work and child care choice decisions.

Historically, less-educated workers have worked disproportionately in off-hours jobs. And, because of the high correlation between education and earnings, these nonstandard workers tend to be lower income. It is often precisely the families that face the inherent daily stresses of limited budgets and poor quality daycare for their children that must also manage the problems arising from nonstandard employment. Maynard et al. (1990) focus on low-income families and conclude that child care to accommodate nonstandard work schedules serves as a constraint in the child care markets of low-income areas. Further, Collins et al. (2000) in *The National Study of Child Care for Low-Income Families* report that the most frequently reported child care shortage is during nonstandard work hours.

The nature and extent of shift work has multiple implications for working families and their children. Heymann (2000) addresses the issue of nonstandard work in two contexts: the relationship

between the incidence of nonstandard work and family income, and the relationship between parents' nonstandard work and child outcomes. Looking, for example, at evening workers, one will find 20 percent of workers in the lowest income quartile, versus 13 percent in the middle quartiles and 7 percent of those in the highest income quartiles. Turning to child outcomes, Heymann (p. 54) finds a link between negative outcomes and parents' nonstandard work schedules. For example, of parents who had a child scoring in the bottom quartile on math or reading, one in six worked evenings, meaning that the parents were unable to help the child with schoolwork in the evening hours. Staines and Pleck (1983) study nonstandard work and families extensively and conclude that shift workers experience disproportionate work/family conflict. Additionally, Presser (2000) examines the potential link between nonstandard work and marital instability and finds some evidence that couples with at least one nonstandard worker are more likely to suffer marital disruption.

Why do nonstandard workers report working such jobs? Beers (2000) analyzes data that include a self-reported reason for working nonstandard hours. Fifty-one percent report that nonstandard employment is due to the nature of the job. Approximately 4.2 percent of nonstandard workers report that better child care was the motivating factor for working this shift, while 2.8 percent report being motivated by better care for family members. These statistics imply that a fairly large percentage of nonstandard workers are working this shift involuntarily. The report *Child Care Around the Clock* (1995) reveals that the majority of workers report that nonstandard work is not a choice but

rather a consequence of restricted job opportunities. As a consequence, it is likely that procuring child care is a hurdle for a nonstandard worker facing limitations in her child care choices.[1]

Although the percentage of workers holding nonstandard jobs did not grow during the 1990s, it is likely that the trend will increase in the future as job growth is concentrated in precisely those industries characterized by high rates of nonstandard employment. Additionally, there is a growing trend of nonstandard employment in western Europe, as labor laws are relaxed to permit extra shifts to operate in manufacturing and to extend shop-opening hours (International Labour Organization, 1995). The work/family problems exacerbated by nonstandard work will be a growing presence in years to come.

The rest of the paper proceeds as follows. First we summarize the literature on child care choice demand. Then we describe the data used for the empirical work. After the data description, we develop two related econometric models, both of which rely on the multinomial logit estimation technique. To account for the potential endogeneity of the nonstandard work decision, the first model uses a predicted measure of the probability of nonstandard work to estimate the impact of such employment on child care choices. The second model expands on the first by recognizing that work choices may be made simultaneously with child care choices, and thus models the choice of type of employment (as well as non-employment) jointly with the choice of child care mode. After the development of the econometric models, we present the results of our estimation. Finally, we conclude

[1]Shapiro (1996) examines the demand factors influencing the numbers of nonstandard jobs, and finds a cyclicality to these jobs. That is, *ceteris paribus*, shift work tends to grow in expansionary economic times. He finds that "In a typical workweek, one in every four manufacturing production workers in the United States is employed at night. This fraction fluctuates sharply over the business cycle, accounting disproportionately for business cycles changes in employment." (Page 79)

with a series of simulations to highlight the behavioral implications of our models, and a discussion of potential policy solutions to improve the child care options for mothers with young children working in nonstandard jobs.

2. LITERATURE REVIEW OF CHILD CARE CHOICE DEMAND

There exists a growing body of empirical literature that examines the child care choice decisions of mothers with young children. This literature, however, does not account for the endogenous effect of the mother's nonstandard work schedule on the demand across different child care modes. The results to date reveal that there is a broad range of price elasticity estimates for child care demand, but overall there seems to be some consensus that the demand for formal child care modes are relatively more price elastic compared with informal modes. The varied empirical results within the current literature stems, in part, from the differences in approaches to modeling child care choice demand, differences in the categorization of modes of care, and from differences in the approach to sample selection correction and the use of identifying variables in the estimation of supporting child care price equations.

The literature that examines the determinants of the choice of mode of care conditional on working includes studies by Robins and Spiegelman (1978), Liebowitz, Waite, and Witsberger (1988), Lehrer (1989), Hofferth and Wissoker (1992) and Cleveland and Hyatt (1993). The results from those studies that have included child care prices in their models find the demand for care, in particular center care, to be price sensitive. It is important to note that these papers assume that the mother's employment decision is exogenous to the child care choice decision. Controlling for the potential endogeneity of the employment decision, Connelly and Kimmel (2001) examine the demand for

alternative modes of child care, including predicted full-time employment as regressors in their demand model. Based on a multinomial logit choice model, Connelly and Kimmel report own-price elasticities for center, home-based, and relative care of –2.297, –1.068, and 0.250, respectively, for married mothers, and –4.021, –4.426, and 0.270, respectively, for single mothers.

Few papers jointly examine labor supply decisions and the demand for specific modes of child care. Blau and Hagy (1998) use a multinomial logit model to examine the choices among employment, the use of paid versus unpaid care, and the choice of mode of care (center care, family day care, other nonparental modes, and parental care) of mothers with a child under the age of seven. The own-price elasticities of mode of choice range from –0.07 to –0.34, where formal child care modes are found to be relatively more elastic. Michalopoulos and Robins (2000) draw on a pooled U.S./Canadian data set to examine the employment choice (including full-time versus part-time employment) and the choice of mode of care among center, relative, nonrelative, and parent care by mothers with a preschool child under the age of five using a multinomial logit model. The authors find that changes in the price of center care has a substantial effect on the use of center care (with an implied elasticity of –1.0) but that changes in the price of other forms of care have negligible effects on the use of those modes. Powell (forthcoming) estimates both mixed logit and universal logit models to examine jointly the employment and child care (center, sitter, relative, father) choice decisions of married mothers. Based on the mixed logit model, the own-price elasticities for center, sitter, and relative care are reported to be –1.3961, –3.6003, and –0.8032, respectively. Sensitivity analyses reveal that the price elasticities are sensitive to model specification, differing identifying assumptions in the child care price equations, and sample selection correction.

Little research has examined nonstandard work and child care modal choices in an econometric framework. Presser (1986) draws on the 1982 Current Population Survey (CPS) to provide detailed descriptive statistics on marital status, hours of work, shift work, and the mode of child care used by the youngest child in the family. For all employed mothers, both full-time and part-time, she finds that the care of children by relatives is substantially greater when mothers work non-day rather than day shifts. For married mothers working full-time non-day shifts, the greatest reliance is on care by the father (38.7 percent compared to 12 percent for the day shift workers), while their unmarried counterparts continue to rely predominantly on non-relative care (41.5 percent compared to 54.1 percent for day shift workers), though care by grandparents increases to 30.8 percent compared to 23.3 percent for single mothers working day shifts.

Drawing on the 1984 National Longitudinal Survey of Labor Market Experience, Presser (1988) provides further evidence on nonstandard work schedules and child care use distinguishing between mothers with rotating work schedules and those with fixed non-day schedules for young dual-earner families. She shows that the use of nonrelative care as the primary mode of child care for mothers working full-time fixed day shifts drops from 50 percent to 29.6 percent when the mother works non-days. She shows that father care in young dual-earner families is much more likely when the mother is a nonstandard worker. When the mothers works full-time (or, part-time) fixed non-day or rotating schedules 28 percent (or 47.9 percent) and 16.3 percent (or, 36 percent), respectively, of fathers are the primary child care providers compared to 9.7 percent (or, 16.5 percent) when the mother works a full-time (or, part-time) fixed day schedule.

Folk and Beller (1993) examine the effect of variable work schedules for employed mothers on the combination of part-time/full-time employment status and the use of nonmarket versus market child care. Based on a multinomial choice model, their results reveal that mothers with variable work schedules are more likely to combine either part-time work with nonmarket care or part-time work with market care over the reference category of full-time work with market care. Also, they found that being married or having a grandmother nearby increases the likelihood of choosing combinations of work with nonmarket child care. As acknowledged by the authors, this paper does not account for the potential endogeneity of the choice of work schedule and child care arrangements.

Brayfield (1995) and Casper and O'Connell (1998) both examine the impact of nonstandard work schedules on the probability of care by the father in married households. Both papers find that a non-day work shift by the mother significantly increases the probability of care by the father. Brayfield (1995) who includes multiple nonstandard work schedule variables, also finds that weekend work by mothers significantly increases care by the father but that rotating schedules have no significant effect. Similar to the practice of Folk and Beller (1993), both of these papers include the nonstandard work schedule variables as direct regressors and hence do not account for their potential endogeneity.

More recently, examining the choice among center care, home care (sitter), relative care, and parent care, Chaplin et al. (1999) control for the potential endogeneity of the employment decision by including a regressor for predicted employment status. While they do examine the importance to the child care choice decision of whether or not a mother works a non-day job, again similar to the earlier literature, they do not account for the endogeneity of this regressor. The authors report own-price child care elasticities based on a mixed logit model of –0.405, 0.234, and –0.016 for center, sitter, and

relative care, respectively. They also find that mothers who work in a non-day job are significantly more likely to use relative or parent care versus center care.

3. DESCRIPTION OF OUR DATA

We present here a detailed summary of our data. We use a merged file from the 1992 and 1993 panels of the Survey of Income and Program Participation. These data are from a nationally representative survey that collects information on a wide array of employment and income issues. Each panel surveyed a sample of individuals nine times over the course of three years. We pull our employment and child care information from the sixth interview of the 1992 panel and the third interview of the 1993 panel. These interviews overlap the same calendar time, covering the period July to December of 1994. Also, these interviews each contain a special topical module (special set of questions asked only at three of the nine interviews) on child care and nonstandard work.

We start by clarifying some terms. Nonstandard work is defined as any job for which the work is performed outside the "standard" times of 6 a.m. to 6 p.m. Monday through Friday. This will include anyone reporting regular evening or nighttime work, weekend work, irregular schedules, or split shifts. As the descriptive summary will show, nonstandard work as defined this way is fairly common and is relatively more common for lesser-educated workers. We also discuss how the mothers' choices of mode of child care varies by employment schedule. We break the mode of care into four categories: center care, sitter care, relative care, and parent care (including care by the mother herself while at work and care by the father).

Our primary subsample of interest is a sample of married mothers with at least one child under the age of six. Table 1 provides descriptive statistics for different employment states. Our study includes a total of 4,229 married mothers of young children, of whom 2,143, or 51 percent, work. The average age of our full sample is 31.63 years old, with approximately the same age reporting paid employment, but somewhat younger workers reporting nonstandard work. The average mother has 13.37 years of education, but comparing standard workers versus nonstandard workers reveals that the standard workers are slightly better educated. Standard workers also report higher nonlabor incomes, $2,886 versus $2,595 for nonstandard workers. This is consistent with previous studies that have shown nonstandard workers to be less educated and have lower income.

Overall, 37 percent of workers report holding a nonstandard job, and those working part-time are twice as likely to report nonstandard work (48 percent versus 23 percent). Consistent with Beers (2000), we also find substantial differences between standard and nonstandard workers in the distribution of jobs across occupation and industry. Looking first at industry, nonstandard workers are more likely to hold jobs in trade or personal services, while standard workers are more likely to be found in the industries of manufacturing, finance, and professional services. Turning to occupations, nonstandard workers are more likely to work in service occupations while standard workers are more likely to hold jobs in management, and technical, sales, and administrative support.

The two types of workers do not differ substantially in the numbers and ages of children in the household, except nonstandard workers are more likely to have an additional preschooler in the household (31 percent versus 25 percent) and tend to have more older preschoolers and young school-aged children. As expected, nonstandard workers are less likely to report paying for child care (37

percent versus 68 percent of standard workers), but those paying for care tend to pay approximately the same amount. Finally, nonstandard workers differ from their standard working counterparts in the mode of child care chosen for the youngest child. Center-based care is utilized by 24 percent of nonstandard working mothers but by 43 percent of standard working mothers. Additionally, parent care is chosen by 42 percent of mothers holding nonstandard jobs but only by 13 percent of those working standard hours. This is consistent with the work of Brayfield (1995) and Casper and O'Connell (1998), who describe the increased incidence of father care for families with a nonstandard worker.

Table 2 provides further descriptive details broken down by child care mode. For example, somewhat younger and less-educated working mothers and those mothers who work part-time tend to rely on relative or parent care as opposed to center or sitter care. The presence of another adult in the household seems to be a strong influence on the likelihood of choosing relative care. Those using relative care are less likely to be paying for the care, with only 38 percent reporting paying for the care.

Geographic location seems to play a small role in the choice of mode of care. For example, for those reporting center care, 75 percent live in urban areas, but for those reporting parent care, 81 percent live in urban areas. Also, for those reporting center care, 40 percent live in the South, but for those reporting parent care, only 22 percent live in the south. Finally, mode of care also differs by industry. For example, those choosing center care are more likely than their parent care counterparts to report working in the managerial and professional specialty occupation (43 percent versus 27 percent), but are less likely to work in service (10 percent versus 25 percent).

What are the work patterns of these married mothers' husbands? Although not shown in the descriptive tables, this information still provides an interesting glance at the family lives of our sample of married mothers. First, 93 percent of working mothers have husbands who also work. In addition, nonstandard work is quite common for the husbands as well, and is, in fact, more common for the nonstandard working wives. Forty percent of all working mothers have husbands who hold nonstandard jobs, but 46 percent of nonstandard employed married mothers also have husbands who work nonstandard hours.

4. MODELS OF NONSTANDARD WORK AND CHILD CARE CHOICES

To examine the importance of nonstandard work schedules in the child care choice decisions of married mothers with young children, we estimate two separate choice models that incorporate decisions related to nonstandard work. Indeed, it is expected that one of the important factors related to the choice across alternative modes of child care is likely to be not just price but availability and flexibility. In our first model (hereafter referred to as Model 1), we estimated the impact of nonstandard work on the child care choice decisions among center, sitter, relative, and parent care for working married mothers with young children. That is, we expect the choice of care conditional on working to be sensitive to the non-day/shift or weekend work status of the mother. In this model, we use a predicted measure of the probability of nonstandard work status to account for the potential endogeneity of the nonstandard work and child care choice decisions. Hence, this model estimates the impact of nonstandard work status, child care prices, wages, nonlabor income, and other demographic

variables on the modal choice decisions across four child care choice states: center, sitter, relative, and parent care.

In our second model (hereafter referred to as Model 2), we estimate the impact of child care prices, wages, nonlabor income, and demographic variables on the joint employment status and child care choice decisions of married mothers. In this model, the mother chooses among nine states that include our reference alternative of not working and the choice among the four child care modes (center, sitter, relative, and parent) combined with either nonstandard or standard work.

For both Model 1 and Model 2, we estimate mixed logit models where the individual characteristics are allowed to affect the utility of all choices, but choice-specific variables such as child care prices are allowed to affect only the utility of choosing the corresponding mode of care. In Model 1, the *i*-th mother's utility if she chooses child care choice state *j is* given by:

Eq. 1
$$V_{ij} = \beta_{Cj} C_{ij} + \beta'_{Nj} N_i + \beta'_{Wj} W_i + \beta'_{Xj} X_i + \in_{ij}$$

where $j = 1,...,n$, C_{ij} are modal child care prices, N_i is the mother's nonstandard work schedule status, W_i is the mother's wage rate, and X_i is a vector of observed individual/household characteristics and variables relating to the mother's demand for alternative modes of child care.[2]

The mother will choose state V_{ij} if $V_{ij} > V_{is}$ for all other *s* possible outcomes, where the probability that state *j* is chosen by individual *i* is given by:

Eq. 2
$$P_{ij} = \text{Prob}\left(V_{ij} > V_{is} \right)$$

[2]In the multinomial logit model, it is assumed that $\in_{ij}$ are independent and the distribution function of $\in_{ij}$ is given by $\exp\left[-\exp\left(-\in_{ij} \right) \right]$ known as the Type 1 extreme-value distribution which imposes the independence of irrelevant alternatives (IIA) assumption.

In Model 2, the *i*-th mother's utility if she chooses work status/child care choice state *j is*

Eq. 3
$$= \frac{\exp\left(\beta'_{Cj} C_{ij} + \beta'_{Nj} N_i + \beta'_{Wj} W_i + \beta'_{Xj} X_i\right)}{\sum_j \left[\exp\left(\beta'_{Cj} C_{ij} + \beta'_{Nj} N_i + \beta'_{Wj} W_i + \beta'_{Xj} X_i\right)\right]}$$

given by:

Eq. 4
$$V_{ij} = \beta'_{Cj} + \beta'_{Wj} W_i + \beta'_{Xj} X_i + \in_{ij}$$

where C_{ij}, W_i, and X_i are as defined above. And, as in Model 1, the mother will choose state V_{ij} if $V_{ij} > V_{is}$ for all other *s* possible outcomes, where the probability that state *j* is chosen by individual *i* is given by:

Eq. 5
$$P_{ij} = \text{Prob}\left(V_{ij} > V_{is}\right)$$

Eq. 6
$$= \frac{\exp\left(\beta'_{Cj} C_{ij} + \beta'_{Wj} W_i + \beta'_{Xj} X_i\right)}{\sum_j \left[\exp\left(\beta'_{Cj} C_{ij} + \beta'_{Wj} W_i + \beta'_{Xj} X_i\right)\right]}$$

In Model 1, it is expected that working in a nonstandard job will increase the probability of choosing informal child care modes that offer more flexibility compared with formal modes. In both models, the hourly price of child care of mode *j* is expected to reduce the probability of using child care mode *j*. The ages and presence of children and the presence of other adults in the household, age, education, race, and health of the mother, wages and nonlabor income, and indicators for urban and southern residence are also expected to affect the utility of the mother. In particular, in Model 2, the

wage rate is expected to increase the likelihood of choosing any of the working states, while higher levels of nonlabor income are expected to reduce the probability of working.

Before we can estimate either of the two models described above, we must estimate several supporting equations. First, for Model 1 we estimate the probability of nonstandard work for inclusion in our logit model to account for the potential endogeneity of nonstandard work status and child care choice decisions. We estimate a bivariate probit model of the probability of nonstandard work and the employment decision with selection.

Let the reduced form nonstandard work and labor force participation equations be

Eq. 7 $$z_{1i} = \gamma_1' x_{1i} + \in_{1i}$$

Eq. 8 $$z_{2i} = \gamma_2' x_{2i} + \in_{1i}$$

where $z_{2i} > 0$ if the mother works and $z_{1i} > 0$ if she is a nonstandard worker. It is assumed that $\in_{1i}$ and $\in_{2i}$ are distributed normally with zero means, unit variances, and correlation coefficient ρ. The regressors included in the labor force participation equation include the age, education, race, health, and marital status of the mother, nonlabor income, variables related to the age and presence of children and other adults in the household, and geographic and state variables, while the nonstandard work status equation also includes dummy variables for occupation and industry.

Next, for both models we must estimate price equations for each of the three types of nonparental child care (center, sitter, and relative) in order to produce price estimates for each type of care for all mothers in the sample. Father care (or maternal on-the-job care) is assumed to have a

price of zero.[3] That is, we need price estimates for those mothers using and reporting the price for a given mode of care but not the others, and those who are nonpaying users of child care. In the estimation of child care prices, it is assumed that the price of each mode of child care will vary according to a set of family characteristics, state per capita income, and child care regulation variables. In each of the three price equations to be estimated, price is defined as the hourly price of child care for mode j per hour of care used by the youngest child in the family.

Let the child care price equation for each mode of care be given by

Eq. 9 $$P_{ij} = \alpha'_{Dj} D_{ij} + n_{ij}$$

where D is a vector of observed household characteristics, child care regulation variables, and state economic variables, and n_{ij} represents unobserved variation.

The household characteristics include whether the youngest child is an infant, variables related to the presence of other children and adults in the household, race, household nonlabor income, and whether the household is located in an urban or southern region. In terms of child care regulation variables, we account for the state's regulation of child:staff ratios and center teachers' education. Similar to Chaplin et al. (1999) and Powell (forthcoming), we use regional per capita income in addition to the child care regulation variables to identify child care prices.

We account for selection bias for the choice of mode of care in the estimation process of the price equation where the selection is based on a reduced form logit model. In this regard, Lee (1983) describes the computation of a sample-selection correction lambda term $\left(\lambda_{ij}\right)$ to be included as a

[3]This assumption is also made by Hofferth and Wissoker (1992), Chaplin et al. (1999), Michalopoulos and Robins (2000), and Powell (forthcoming).

regressor in the child care price equation to account for selection bias of this form where λ is given by the second term on the right-hand side of Equation 10. The corrected price regression for each mode of child care as derived by Lee (1983) when selection is based on choice = j would be

Eq. 10
$$P_{ij} = \alpha'_{Dj} D_{ij} = \sigma_j \rho_j \frac{\phi\left[J_j\left(\beta_{Xj} X_i\right)\right]}{\Phi\left[J_j\left(\beta_{Xj} X_i\right)\right]} + n_{ij}$$

where ρ is the correlation coefficients between n_{ij} and the error term from the reduced form multinomial logit equation, σ is the standard deviation of n_{ij}, the J function is the inverse of the standard normal cumulative density function evaluated at Prob[$y_i = j$], the functions $\phi(\bullet)$ and $\Phi(\bullet)$ are the probability density function and cumulative distribution functions, respectively, of the standard normal distribution function, and $\beta'_{Xj} X_i$ are estimated from the reduced form logit model. This selection procedure accounts for selection based on the multivariate child care choice decision though it does not account for paid/unpaid selection.

Finally, for both models, we estimate wages where the wage equation is specified as follows:

Eq. 11
$$\log W = \gamma' M + \nu_w$$

where M represents a vector of observed determinants and ν_w represents unobserved variation. The vector M includes variables to account for the age, education, race, and health of the mother, intermittent work history (proxied by the number of own children), urban and southern residence, and the state unemployment rate. We use standard techniques to correct for the labor force participation selection bias by including a Heckit-type correction term (inverse Mils ratio) as a regressor (Maddala 1983).

5. ESTIMATION RESULTS

This section begins with a brief discussion of the results from our supporting equations which include the estimation of the probability of nonstandard work, the wage equation, and the child care price equations. We then present the results from the two choice models, and we present child care price elasticities and simulations based on our results.

5a. Supporting Equations

The results from the bivariate probit estimation of the probability of nonstandard work and labor force participation are found in Table 3. After controlling for the fact that the number of children in the household significantly reduces the probability of labor force participation conditional on working, we find that an increase in the number of own children increases the probability of nonstandard work. This suggests that given the decision to work, mothers with more children use nonstandard work as a means of juggling work and family. Mothers with teenagers, however, are less likely to work a nonstandard schedule. As expected, the age and education variables significantly affect the labor force participation decision, but they do not affect the probability of nonstandard work by mothers of young children.

The remaining key significant variables in the determination of the probability of nonstandard work relate to job occupation and industry. This confirms the descriptive evidence provided by Beers (2000), as discussed earlier. Relative to our omitted category of managerial and professional occupations, mothers who have service occupations, precision production, craft, and repair

occupations, or mothers who are operators, fabricators, and laborers, are significantly more likely to work in a nonstandard job. With respect to industry, compared to the omitted category of agriculture, forestry, fisheries, mining and construction, mothers working in transportation, communication, and other public utilities, wholesale and retail trade, and personal, entertainment, and recreation services industries significantly increases the probability that they are nonstandard workers.

The results from the log wage equation are presented in Table 4. As expected, the mother's age and years of education have a significant positive effect on wages. An increase in the number of children in the household, included as a proxy for labor market interruptions, has a significant negative effect on wages. Mothers living in a metropolitan area receive higher wages, while mothers living in the South and unhealthy mothers receive lower wages. The sample selection term, λ, is statistically significant, suggesting that whether or not the mother works significantly affects her potential wage rate.

The results from the child care price regressions for center, sitter, and relative care are presented in Table 5. The results show that if the youngest child is an infant, price is significantly higher for center and relative care but is unaffected for sitter care. Having an additional preschooler significantly increases the price of care for all modes. While the presence of a teenager or another adult in the household might be expected to be a source of low-cost care by a relative, these variables do not significantly affect relative price.

In all three price equations, mothers with higher levels of unearned income pay significantly more for child care, which suggests that they may be choosing (affording) higher quality care. Living in a metropolitan area significantly increases the price of center and sitter care but does not significantly affect the cost of care by a relative. Higher levels of state per capita income significantly increases the

price of center and sitter care, reflecting the expectation of corresponding higher wages for child care workers. Finally, the selection term in each of the child care price equations accounts for the possibility that those mothers who choose a particular mode of child care may face lower prices than the population as a whole. Lambda is insignificant in all three price equations, suggesting that price selection does not exist for the married mothers in our sample.

5b. Child Care Choice Model Results

This section presents the estimation results from our empirical choice models. In Model 1, where we examine the impact of the nonstandard work on child care choices, our results reveal that after controlling for the price of child care, as expected, the mothers' work patterns play an important role in the decisions regarding the choice of mode of care. In Model 2, where we jointly estimate the work status and child care choice decisions of mothers, we find that the own price of child care differentially affects the choice of mode of child care according to work status: mothers who choose to work in standard jobs are found to be more price sensitive.

Looking first at our results from Model 1, we see from Table 6 that an increase in the probability of nonstandard work significantly reduces the probability of choosing either of the two formal care options of center and sitter care, while it significantly increases the likelihood of using parent care. Clearly, for married mothers, their spouses play a key role in the provision of child care while the mother works, say, in the evening/night or on the weekend. Similarly, for married mothers, Chaplin et al. (1999) find that if the mother works in a non-day job she is significantly more likely to use parent or

relative care versus center care. However, as noted earlier, the authors do not control for the potential endogeneity of the non-day work status of the mother.

With respect to child care prices, we find that, as expected, the own price of child care has a negative effect on the probability of choosing a respective mode of care. The results for center and sitter care are negative and significant and, compared to relative care, are more price elastic. The own-price elasticity values for center, sitter, and relative care, respectively, are –1.2, –1.7, and –0.1. The insignificant own-price effect for relative care is not new to the child care literature. Powell (forthcoming) has suggested that this may stem from the fact that the potentially constrained size of the "relative market" for the family plays an important role in the use of such care compared to the potential size of the markets for center and sitter care. Indeed, our results show that the presence of another adult in the household significantly increases the likelihood of using care by a relative.

Controlling for child care prices, having an infant significantly reduces the likelihood of using center care and significantly increases the probability of choosing care by a sitter or relative. The presence of an additional preschooler aged 0–5 significantly increases the use of center care.

Mothers with higher levels of nonlabor income are significantly more likely to use center, sitter, or relative care and are significantly less likely to use care by a parent. Earned income, however, only has a significant effect on relative care where we find that mothers with higher wages are less likely to rely on care by a relative. Once we control for wages, we might expect the mother's level of education to affect her preferences across different modes of child care. Our results, however, reveal no significant effect of education level on child care choices.

Turning to Table 7, we now examine the results from Model 2, which jointly estimates the work status and child care choices decisions of married mothers with young children. Examining first the impact of child care prices, we see that the own-price effect of child care is found to have differential effects on the joint demand for care and employment decision dependent upon the standard versus nonstandard work decision. Overall, as expected, higher child care prices increase the likelihood that mothers with young children will not work. Higher child care prices reduce the likelihood of working in standard employment and using each respective mode of care though it is significant only for center and sitter care. The own-price effects are not so consistent across modes of care for the nonstandard work decision. In this instance, only the own-price of center care is significant. Also of note is the fact that the demand for center care is slightly more price elastic for standard versus nonstandard employment decisions. The corresponding own-price elasticities for Model 2 for center, sitter, and relative care, respectively, are –1.17, 1.14, and –0.19 for nonstandard employment, and –1.20, –1.47, and –0.34 for standard employment.

Turning to income measures, we see that higher wages increase the likelihood of choosing any of the standard employment states but do not significantly affect the nonstandard employment decisions. Also, consistent with the labor supply literature, higher levels of nonlabor income significantly reduce the probability of choosing any of the working states (except for the standard work/sitter care state).

The presence of a young child aged 0–2 reduces the likelihood of using center care combined with either standard or nonstandard work, while it increases the likelihood of using sitter or relative care in standard employment. Overall, the presence of additional preschoolers in the household reduces the likelihood that the mother will work. And, again, the presence of another adult in the household

significantly increases the likelihood that a mother with young children will choose to use care by a relative combined with either standard or nonstandard employment.

We now present a series of simulations to highlight the implied behavioral features of our two models. In Table 8, based on Model 1, we present child care price simulations to assess the degree to which government subsidies may affect child care choice decisions of working mothers, and we present simulations based on the nonstandard work status of the mother to assess the extent of the implications of work patterns on child care usage. In Table 10, we present the child care price simulations to assess the extent to which child care price subsidies affect the combined work status and child care choice decisions of mothers. For both models, the simulations are performed at the sample means and the "baseline" probabilities are those predicted by the model with no simulated changes.

Focusing first on Model 1, we see from Table 8 that providing conditional subsidies for individual modes of care only, a 10 percent reduction in the price of care conditional on either one of center, sitter, or relative care increases the probability of using that mode of care with the strongest impact on the use of sitter care, which increases by 17 percent from 21.3 percent to 25 percent. The use of center care increases from 36.3 percent to 40.6 percent, while the own-price effects on relative care are negligible. When child care subsidies are provided unconditional on mode of care (all prices reduced by 10 percent), both the use of center and sitter care increase slightly, resulting mainly from a substitution away from parent care.

For Model 1, we also perform simulations with respect to the nonstandard work status of the mother—we simulate the child care choices for a nonstandard versus a standard worker. The results are quite dramatic: if all married mothers worked in nonstandard versus standard jobs, we predict that

58 percent versus 10 percent would choose parental care, while the use of center and sitter care, respectively, would drop from 43 to 18 percent and 30 to 8 percent, with a nonstandard work schedule. While on the one hand, our results show that just over one half of married mothers working in nonstandard jobs may rely on their spouses to provide child care, on the other hand, roughly 40 percent must secure sufficiently flexible modes of nonparental child care to accommodate their work schedules.

Our child care price simulations based on Model 2 are presented in Table 9. In terms of conditional subsidies, the simulations reflect the elasticity results reported earlier, which show that the own-price effect for center care is slightly stronger for standard workers. The simulations also show that the overall effect on employment from a 10 percent reduction in center price is driven by an increase in standard employment, which rises by 4 percent, while nonstandard employment rises by only 0.5 percent. Indeed, overall the results show that the decision to work in a standard versus nonstandard job is more responsive to the price of child care. An overall 10 percent reduction in all child care prices increases the percentage of standard workers by 7.9 percent, which stems mainly from an increase in work by married mothers, but also from a very small substitution from nonstandard work to standard work. This overall increase in standard employment is driven by an increase of approximately 12 percent in both the standard work/center care and standard work/sitter care states.

6. CONCLUSIONS

The key findings in this paper show that the child care choice decisions of mothers are affected by not only price but also by the nonstandard work status of the mother. Controlling for the

endogeneity of the nonstandard work decision and the choice of child care, we find that being a nonstandard worker significantly reduces the likelihood of using formal modes of child care, such as center and sitter care, which are likely to be less flexible. Our simulations reveal that after controlling for the price of child care, a substantial proportion of nonstandard workers are likely to rely on their spouse for care. However, still close to one-half of nonstandard working mothers depend upon securing stable nonparental child care for their young children while they work.

We also show that the joint work status and child care choice decisions of mothers are differentially affected by child care prices and that overall, the standard versus nonstandard employment decision is more responsive to the price of child care. These results imply that child care subsidies are likely to help mothers work in "standard" jobs. But for many mothers, for reasons based on either market demand or their skill sets, jobs that require nonstandard hours of some form may be their only option. How then can we improve the child care options for these nonstandard working mothers?

Solutions to the limited availability of off-hours center-based care include public/private ventures to increase the availability of off-hours care and public commitments to increase the subsidy rates for off-hours care. Blank et al. (2001) outline state strategies that deal with the problem they describe as "odd-hour care." Some examples of state strategies include programs to offer higher child care reimbursement rates to providers offering off-hours care: coordinating private/public funding cooperatives to underwrite the construction of expanded hours day care centers in rural communities; and improvements in the availability of state grants to child care providers who want to expand their hours to off-hours care. This sort of program is likely to ameliorate the problem of unstable child care arrangements that will be particularly problematic for the children of nonstandard workers. The

availability of more flexible child care can be expected to improve both child well-being and child development, and make it easier for mothers to build the job tenure necessary for promotion to better-paying standard hours jobs.

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Table 1 Married Mothers' Variable Means by Work Status
(Standard deviations in parentheses)

Variable	Full sample	Work	Work nonstandard	Work standard
Sample size	4,229	2,143	785	1,358
Age	31.63	31.54	30.75	31.99
	(5.88)	(5.59)	(5.80)	(5.41)
Education	13.37	13.82	13.38	14.07
	(2.66)	(2.49)	(2.55)	(2.41)
Non-labor income	3013.72	2779.80	2595.27	2886.46
	(2213.57)	(1980.97)	(1810.81)	(2066.12)
Age of youngest child	2.22	2.29	2.26	2.30
	(1.65)	(1.63)	(1.59)	(1.65)
Presence of additional preschoolers	0.34	0.27	0.31	0.25
	(0.47)	(0.45)	(0.46)	(0.43)
Number of children age 0–2	0.64	0.62	0.63	0.62
	(0.61)	(0.59)	(0.60)	(0.59)
Number of children age 3–5	0.75	0.68	0.72	0.66
	(0.63)	(0.59)	(0.60)	(0.57)
Number of children age 6–12	0.60	0.49	0.58	0.45
	(0.81)	(0.71)	(0.76)	(0.67)
Presence of children age 13–17	0.11	0.10	0.10	0.09
	(0.31)	(0.29)	(0.30)	(0.29)
Presence of other adults in household	0.08	0.07	0.09	0.06
	(0.27)	(0.26)	(0.28)	(0.24)
Urban residence	0.76	0.75	0.74	0.76
	(0.43)	(0.43)	(0.44)	(0.43)
Southern residence	0.31	0.31	0.29	0.32
	(0.46)	(0.46)	(0.45)	(0.47)
Nonwhite	0.11	0.11	0.12	0.11
	(0.31)	(0.32)	(0.33)	(0.31)
Proportion employed	0.51	—	—	—
	(0.50)			
Unemployment rate	5.74	5.65	5.62	5.66
	(1.25)	(1.24)	(1.24)	(1.24)
State's average Medicaid expenditure per enrollee	3276.94	3290.06	3327.60	3268.37
	(1168.51)	(1144.68)	(1144.25)	(1144.79)
State's average monthly AFDC payment per family	362.24	359.25	362.08	357.61
	(134.45)	(132.08)	(128.44)	(134.16)
Employers estimated workers' comp. payment by state	3.19	3.17	3.17	3.18
	(0.70)	(0.71)	(0.72)	(0.71)
Proportion paying for care	0.30	0.56	0.37	0.68
	(0.46)	(0.50)	(0.48)	(0.47)
Average hourly price for youngest child	—	2.23	2.15	2.25
		(1.49)	(1.51)	(1.48)
State's regulated child-staff ratio<10:1	0.53	0.54	0.55	0.53
	(0.50)	(0.50)	(0.50)	(0.50)
State regulates center teachers' education	0.39	0.40	0.41	0.39
	(0.49)	(0.49)	(0.49)	(0.49)

Table 1 (Continued)

Variable	Full sample	Work	Work nonstandard	Work standard
Hours of work	—	35.67	33.93	36.67
		(13.92)	(17.98)	(10.79)
Work Part-time	—	0.32	0.48	0.23
		(0.47)	(0.50)	(0.42)
Nonstandard work schedule	—	0.37	1.00	0.00
		(0.48)	(0.00)	(0.00)
Child care mode: center care	—	0.36	0.24	0.43
		(0.48)	(0.43)	(0.50)
Child care mode: sitter care	—	0.21	0.14	0.25
		(0.41)	(0.35)	(0.43)
Child care mode: relative care	—	0.19	0.20	0.19
		(0.39)	(0.40)	(0.39)
Child care mode: parent care	—	0.23	0.42	0.13
		(0.42)	(0.49)	(0.33)
Industries:				
Agriculture, forestry, fisheries, mining and construction	—	0.02	0.01	0.02
		(0.14)	(0.09)	(0.15)
Manufacturing	—	0.12	0.09	0.14
		(0.33)	(0.29)	(0.35)
Transportation, communication, and other public utility	—	0.05	0.05	0.06
		(0.23)	(0.22)	(0.23)
Trade	—	0.18	0.30	0.11
		(0.38)	(0.46)	(0.31)
Finance, insurance, real estate, business and repair services	—	0.13	0.07	0.16
		(0.33)	(0.26)	(0.36)
Personal, entertainment, and recreation	—	0.05	0.09	0.03
		(0.22)	(0.28)	(0.18)
Professional and related services	—	0.41	0.37	0.43
		(0.49)	(0.48)	(0.49)
Public administration	—	0.04	0.03	0.05
		(0.20)	(0.16)	(0.22)
Occupations:				
Managerial and professional specialty	—	0.36	0.27	0.41
		(0.48)	(0.45)	(0.49)
Technical, sales and administration support	—	0.41	0.36	0.44
		(0.49)	(0.48)	(0.50)
Service	—	0.14	0.26	0.08
		(0.35)	(0.44)	(0.27)
Farming, forestry, and fishing	—	2.80E-03	0.01	1.47E-03
		(0.05)	(0.07)	(0.04)
Precision production, craft, and repair	—	0.02	0.02	0.01
		(0.12)	(0.14)	(0.11)
Operators, fabricators, and laborers	—	0.07	0.08	0.06
		(0.26)	(0.27)	(0.25)

Table 2 Married Working Mothers' Variable Means by Child Care Mode
(Standard deviations in parentheses)

Variable	Center care	Sitter care	Relative care	Parent care
Sample size	773	456	412	502
Age	32.67	31.87	29.89	30.83
	(5.31)	(5.42)	(5.49)	(5.83)
Education	14.24	14.28	13.24	13.22
	(2.31)	(2.44)	(2.27)	(2.73)
Nonlabor income	3043.43	2994.18	2518.87	2393.25
	(2075.58)	(2144.76)	(1559.33)	(1900.66)
Age of youngest child	2.86	1.82	1.93	2.11
	(1.65)	(1.45)	(1.49)	(1.62)
Presence of additional preschoolers	0.20	0.29	0.31	0.34
	(0.40)	(0.46)	(0.46)	(0.47)
Number of children age 0–2	0.45	0.74	0.76	0.67
	(0.58)	(0.54)	(0.59)	(0.59)
Number of children age 3–5	0.77	0.57	0.59	0.72
	(0.54)	(0.59)	(0.60)	(0.61)
Number of children age 6–12	0.49	0.48	0.38	0.61
	(0.69)	(0.66)	(0.66)	(0.80)
Presence of children age 13–17	0.09	0.11	0.08	0.10
	(0.29)	(0.31)	(0.27)	(0.31)
Presence of other adults in household	0.06	0.03	0.12	0.09
	(0.23)	(0.18)	(0.32)	(0.29)
Urban residence	0.75	0.71	0.74	0.81
	(0.43)	(0.45)	(0.44)	(0.39)
Southern residence	0.40	0.26	0.31	0.22
	(0.49)	(0.44)	(0.46)	(0.41)
Nonwhite	0.13	0.08	0.14	0.11
	(0.33)	(0.28)	(0.35)	(0.31)
Unemployment rate	5.54	5.65	5.88	5.61
	(1.21)	(1.26)	(1.25)	(1.24)
State's average Medicaid expenditure per enrollee	3236.39	3281.77	3181.88	3469.05
	(1052.85)	(1141.23)	(1146.70)	(1259.46)
State's average monthly AFDC payment per family	342.89	360.32	363.07	380.32
	(132.62)	(128.65)	(137.96)	(126.36)
Employers estimated workers' comp. payment by state	3.18	3.12	3.21	3.17
	(0.73)	(0.68)	(0.70)	(0.71)
Proportion paying for care	0.80	0.95	0.38	0.00
	(0.40)	(0.21)	(0.49)	(0.00)
Average hourly price for youngest child	2.37	2.23	1.66	—
	(1.58)	(1.45)	(0.99)	
State's regulated child-staff ratio<10:1	0.51	0.57	0.48	0.61
	(0.50)	(0.50)	(0.50)	(0.49)
State regulates center teachers education	0.39	0.36	0.44	0.41
	(0.49)	(0.48)	(0.50)	(0.49)

Table 2 (Continued)

Variable	Center care	Sitter care	Relative care	Parent care
Hours of work	37.68	36.71	36.65	30.81
	(12.54)	(11.50)	(13.78)	(16.70)
Work part-time	0.23	0.26	0.28	0.54
	(0.42)	(0.44)	(0.45)	(0.50)
Nonstandard work schedule	0.24	0.25	0.38	0.65
	(0.43)	(0.43)	(0.49)	(0.48)
Industries:				
Agriculture, forestry, fisheries, mining, and construction	0.02	0.02	0.02	0.01
	(0.15)	(0.12)	(0.15)	(0.09)
Manufacturing	0.10	0.13	0.16	0.11
	(0.30)	(0.34)	(0.37)	(0.31)
Transportation, communication, and other public utility	0.06	0.05	0.05	0.06
	(0.23)	(0.21)	(0.22)	(0.24)
Trade	0.15	0.13	0.20	0.25
	(0.36)	(0.33)	(0.40)	(0.44)
Finance, insurance, real estate, business and repair services	0.14	0.17	0.11	0.09
	(0.34)	(0.37)	(0.31)	(0.28)
Personal, entertainment, and recreation	0.04	0.04	0.06	0.08
	(0.19)	(0.19)	(0.24)	(0.27)
Professional and related services	0.45	0.42	0.35	0.38
	(0.50)	(0.49)	(0.48)	(0.49)
Public administration	0.05	0.06	0.05	0.02
	(0.21)	(0.23)	(0.22)	(0.15)
Occupations:				
Managerial and professional specialty	0.43	0.42	0.25	0.27
	(0.50)	(0.49)	(0.43)	(0.44)
Technical, sales and administrative support	0.41	0.41	0.45	0.38
	(0.49)	(0.49)	(0.50)	(0.49)
Service	0.10	0.09	0.16	0.25
	(0.29)	(0.29)	(0.37)	(0.44)
Farming, forestry, and fishing	2.59E-03	4.39E-03	4.85E-03	0.00
	(0.05)	(0.07)	(0.07)	(0.00)
Precision production, craft, and repair	0.01	0.02	0.02	0.02
	(0.09)	(0.13)	(0.14)	(0.14)
Operators, fabricators, and laborers	0.05	0.06	0.11	0.08
	(0.22)	(0.24)	(0.32)	(0.27)

Table 3 Marginal Effects from Bivariate Probit Model of Employment Status and Nonstandard Work

Variable	LFP	Nonstandard work schedule
Constant	–0.815	1.309
Education	0.047	–0.066
Age	0.066*	–0.093
Age^2	–0.001*	0.001
Education × age	–0.002	0.002
Education × age^2	3.830E-05	–2.340E-05
Education^2 × age	1.490E-05	–9.800E-06
Nonwhite	0.029*	0.015
Unhealthy	–0.106***	0.125
Nonlabor income	–2.590E-05***	1.800E-05
Number of children	–0.084***	0.154***
Presence of children age 0–2	–0.011	–0.013
Presence of children age 3–5	0.004	–0.011
Presence of children age 6–12	0.044***	–0.049
Presence of children age 13–17	0.095***	–0.157***
Presence of other adults	0.038**	0.024
Urban residence	0.009	0.003
Southern residence	–0.026	–0.015
Unemployment rate	–0.022***	–0.002
State's regulated child:staff ratio<10:1	–0.003	–0.012
State regulates center teachers' education	0.028**	–0.019
Employers estimated workers' comp. Payment by state	0.009	–0.006
State's per capita personal income	–2.000E-06	9.400E-06
Industries:		
Manufacturing	—	0.099
Transportation, comm. and other public utilities	—	0.293*
Wholesale trade and retail trade	—	0.460**
Finance, insurance, real estate, business and repair	—	0.128
Personal, entertainment and recreation services	—	0.375**
Professional and related services	—	0.237
Public administration	—	0.156
Occupations:		
Technical, sales and admin., support occupations	—	–0.007
Service	—	0.239***
Farming, forestry, and fishing	—	0.505
Precision production, craft, and repair	—	0.194*
Operators, fabricators, and laborers	—	0.149**
State's average Medicaid expenditure per enrollee	–3.856E-06	—
State's average monthly AFDC payment per family	–4.713E-06	—
Rho	–0.746*	

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 4 Determinants of the Probability of Being Employed and the Hourly Wages (Probit model for employment and OLS selection equation for hourly wages)
(Standard errors are in parentheses)

	LFP	Natural logarithm of hourly wage
Constant	–1.387	–2.058***
	(1.029)	(0.387)
Education	0.083	0.105***
	(0.082)	(0.007)
Age	0.110*	0.143***
	(0.063)	(0.023)
Age^2	–0.002*	–0.002***
	(0.001)	(3.487E-04)
Education × age	–0.004	—
	(0.005)	
Education × age^2	6.582E-05	—
	(7.508E-05)	
$Education^2$ × age	2.347E-05	—
	(2.119E-05)	
Nonwhite	0.048*	0.007
	(0.027)	(0.043)
Unhealthy	–0.176***	–0.220***
	(0.037)	(0.079)
Nonlabor income	–4.286E-05***	—
	(4.156E-06)	
Number of children	–0.139***	–0.099***
	(0.014)	(0.021)
Presence of children age 0–2	–0.019	—
	(0.026)	
Presence of children age 3–5	0.006	—
	(0.026)	
Presence of children age 6–12	0.076***	—
	(0.025)	
Presence of children age 13–17	0.159***	—
	(0.033)	
Presence of other adults	0.059*	—
	(0.031)	
Urban residence	0.015	0.101***
	(0.020)	(0.032)
Southern residence	–0.047*	–0.069**
	(0.028)	(0.030)
Unemployment rate	–0.038***	0.024*
	(0.009)	(0.013)
State's regulated child:staff ratio<10	–0.003	—
	(0.026)	
State's regulates center teachers' education	0.044**	—
	(0.022)	

Table 4 (Continued)

	LFP	Natural logarithm of hourly wage
State's average Medicaid expenditure	–1.031E-05	—
	(1.111E-05)	
State's average monthly AFDC payment	–2.341E-05	—
	(1.11E-04)	
Employers estimated workers' compensation	0.018	0.001
	(0.015)	(0.022)
State's per capita personal income	–2.187E-06	—
	(5.322E-06)	
Lambda	—	0.371***
		(0.093)
Adjusted R^2	—	0.267

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 5 Determinants of the Amount Paid for Each Child Care Mode
(Standard errors are in parentheses)

Variable	Center n=618	Sitter n=435	Relative n=155
Constant	–1.922***	–1.093	0.338
	(0.591)	(0.926)	(0.970)
Nonwhite	–0.245	–0.064	–0.044
	(0.189)	(0.233)	(0.212)
Nonlabor income	5.376E-05*	2.312E-04***	1.132E-04*
	(3.215E-05)	(2.778E-05)	(6.784E-05)
Presence of other preschoolers	1.194***	0.684***	0.303*
	(0.143)	(0.130)	(0.172)
Presence of children age 0–2	0.492**	0.049	0.395*
	(0.232)	(0.223)	(0.209)
Presence of children age 6–12	–0.026	–0.267*	–0.121
	(0.131)	(0.144)	(0.185)
Presence of children age 13–17	—	—	–0.152
			(0.347)
Presence of other adults	—	—	–0.026
			(0.327)
Urban residence	0.354**	0.527***	0.195
	(0.141)	(0.139)	(0.184)
Southern residence	–0.221	0.365**	–0.430**
	(0.170)	(0.168)	(0.208)
State's regulated child:staff ratio<10:1	0.063	0.236*	0.007
	(0.156)	(0.137)	(0.207)
State regulates center teachers' education	–0.034	0.163	–0.255
	(0.147)	(0.162)	(0.200)
State's per capita personal income	1.812E-04***	1.169E-04***	1.869E-05
	(3.011E-05)	(3.078E-05)	(3.994E-05)
Lambda	–0.640	–0.643	0.338
	(0.419)	(0.406)	(0.371)
Adjusted R^2	0.235	0.327	0.109

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 6 Partial Derivatives of the Probability of Choosing Among Modes of Child Care
(Standard errors are in parentheses)

	Married (n=2,143)			
Variable	Center care	Sitter care	Relative care	Parent care
Predicted wage	0.134 (0.085)	0.006 (0.072)	–0.108* (0.061)	–0.031 (0.067)
Predicted price of center care	–0.139*** (0.026)	—	—	—
Predicted price of sitter care	—	–0.121** (0.050)	—	—
Predicted price of relative care	—	—	–0.013 (0.049)	—
Predicted probability nonstandard work	–0.229*** (0.076)	–0.240*** (0.066)	0.030 (0.058)	0.439*** (0.058)
Education	0.003 (0.011)	0.007 (0.010)	–0.005 (0.008)	–0.004 (0.009)
Nonwhite	0.015 (0.036)	–0.031 (0.031)	0.053* (0.032)	–0.036 (0.029)
Nonlabor income	1.700E-05** (1.000E-05)	3.530E-05*** (1.000E-05)	1.510E-05* (1.000E-05)	–3.720E-05*** (1.000E-05)
Presence of other preschoolers	0.092** (0.040)	–0.027 (0.030)	–0.027 (0.029)	–0.037 (0.030)
Presence of children age 0–2	–0.187*** (0.030)	0.091*** (0.026)	0.078*** (0.026)	0.018 (0.024)
Presence of children age 6–12	–0.039 (0.026)	0.033 (0.026)	–0.053** (0.021)	0.059*** (0.022)
Presence of children age 13–17	–0.039 (0.037)	0.061* (0.036)	–0.036 (0.030)	0.014 (0.033)
Presence of other adults	–0.104** (0.042)	–0.116*** (0.029)	0.151*** (0.044)	0.069* (0.042)
Urban residence	–0.012 (0.032)	–0.034 (0.032)	–0.013 (0.026)	0.060** (0.025)

Note: *, **, and *** indicate significance at the 10%, 5%, and 1% levels, respectively.

Table 7 Partial Derivatives of the Probability of Choosing Among Modes of Child Care
(Standard errors are in parentheses)

		Non-standard workers				Standard workers			
Variable	Non-workers	Center	Sitter	Relative	Parent	Center	Sitter	Relative	Parent
Predicted wage	–0.317***	0.025	–3.712E-04	–0.035**	–0.045*	0.170***	0.125***	0.042*	0.034*
	(0.051)	(0.021)	(0.016)	(0.025)	(0.025)	(0.035)	(0.027)	(0.022)	(0.019)
Predicted price of center care	0.0390	–0.016***	—	—	—	–0.047***	—	—	—
	(0.0070)	(0.006)				(0.010)			
Predicted price of sitter care	0.0148	—	0.010	—	—	—	–0.035***	—	—
	(0.0076)		(0.007)				(0.011)		
Predicted price of relative care	0.0124	—	—	–0.005	—	—	—	–0.016	—
	(0.0120)			(0.013)				(0.017)	
Education	–0.007	0.002	0.003	0.005**	0.004	2.748E-04	–0.003	–0.005	8.73E-05
	(0.007)	(0.003)	(0.002)	(0.002)	(0.004)	(0.005)	(0.004)	(0.003)	(0.003)
Nonwhite	–0.017	0.010	–0.004	0.023*	–0.005	0.006	–0.016	0.009	–0.006
	(0.027)	(0.011)	(0.008)	(0.012)	(0.013)	(0.016)	(0.012)	(0.013)	(0.008)
Nonlabor income	4.260E-05***	–3.08E-06*	–5.06E-06**	–4.36E-06*	–1.26E-05***	–2.33E-06	5.13E-06	–6.98E-06**	–1.33E-05***
	(1.000E-05)	(1.76E-06)	(2.21E-06)	(2.27E-06)	(2.65E-06)	(2.68E-06)	(3.49E-06)	(2.91E-06)	(1.74E-06)
Presence of other preschoolers	0.082***	0.010	–0.014**	–0.010	–0.014	–0.15	–0.012	–0.023**	–0.005
	(0.022)	(0.011)	(0.006)	(0.007)	(0.009)	(0.017)	(0.011)	(0.009)	(0.006)
Presence of children age 0-2	–0.022	–0.031***	0.009	0.011	0.005	–0.055***	0.050***	0.028***	0.006
	(0.020)	(0.009)	(0.006)	(0.008)	(0.010)	(0.013)	(0.009)	(0.010)	(0.006)
Presence of children age 6-12	0.091***	–0.010	0.005	–0.015**	0.023**	–0.053***	–0.006	–0.030***	–0.005
	(0.018)	(0.006)	(0.006)	(0.006)	(0.010)	(0.011)	(0.009)	(0.008)	(0.006)
Presence of children age 13–17	0.031	–0.008	0.011	–0.007	–0.017	–0.011	0.019	–0.023**	0.005
	(0.027)	(0.009)	(0.010)	(0.009)	(0.012)	(0.016)	(0.016)	(0.010)	(0.010)
Presence of other adults	–0.019	–0.008	–0.010	0.025*	0.029	–0.026	–0.044***	0.042**	0.011
	(0.031)	(0.011)	(0.009)	(0.014)	(0.019)	(0.018)	(0.012)	(0.019)	(0.014)
Urban residence	0.002	–0.005	–0.021**	–0.009	0.034***	–0.004	–0.014	0.004	0.010
	(0.022)	(0.008)	(0.011)	(0.008)	(0.009)	(0.014)	(0.013)	(0.010)	(0.007)

Table 8 Simulations of the Child Care Choices for Married Mothers

	Married mothers			
	Center	Sitter	Relative	Parent
Baseline	0.363	0.213	0.197	0.227
Center price (–10%)	0.406	0.187	0.195	0.213
Sitter price (–10%)	0.346	0.250	0.188	0.216
Relative price (–10%)	0.363	0.212	0.199	0.227
All prices (–10%)	0.388	0.221	0.188	0.204
Nonstandard worker	0.182	0.078	0.162	0.578
Standard worker	0.425	0.298	0.173	0.104

Table 9 Simulations of the Work Status and Child Care Choice Decisions of Married Mothers

Variable	Non-workers	Non-standard Center	Non-standard Sitter	Non-standard Relative	Non-standard Parent	Standard Center	Standard Sitter	Standard Relative	Standard Parent
Baseline	0.524	0.042	0.027	0.036	0.080	0.121	0.073	0.060	0.037
Center Price (–10%)	0.512	0.047	0.026	0.035	0.078	0.136	0.071	0.059	0.037
Sitter Price (–10%)	0.519	0.041	0.024	0.035	0.079	0.120	0.084	0.059	0.037
Relative Price (–10%)	0.523	0.042	0.027	0.036	0.080	0.121	0.073	0.062	0.037
All Prices (–10%)	0.505	0.046	0.023	0.035	0.077	0.135	0.082	0.060	0.037