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Because of the high rates of employment of mothers, a large and increasing number of preschool children receive regular care from someone else. This article develops and tests hypotheses about the choice of child care arrangements for younger and older preschool children, using data from the National Longitudinal Survey of Young Women. We argue that appropriate care depends on the age of the child. It includes care by the mother or a paid provider in the child's home for children aged 0–2 and mother care and nursery school or center care for those 3–5. We estimate models of the mother's employment and choice of child care separately for younger and older preschoolers. Our results show that need for care, presence of substitutes for the mother, financial resources, and preferences all affect both full-time care by the mother and the type of child care chosen by working women, although they affect these two decisions in different ways.

Over the last three decades, women's levels and patterns of employment have altered substantially. Not only do more women work for pay now than at any point since data have been collected, but women's lifetime patterns of employment have also changed. As a result, 63 percent of all women with children under 6 years old currently participate in the labor force. Three decades ago, fewer than 20 percent did (Bureau of Labor Statistics, 1975, 1987). This phenomenon has generated concern about how the children of working mothers are cared for and how the various alternatives to mother's care may affect their health, development, and general welfare.

In addressing these issues, research has treated infants and preschool children as a single group. Such treatment ignores the fact that as children grow older, their needs change, thereby changing the kinds of care most appropriate for them. Literature on child development suggests that the characteristics of the most appropriate, and potentially the highest quality, care change with the age of the child even during the preschool years. Research cannot fully assess the larger effects of care without understanding these changes and what influences the decisions mothers make about working and the kinds of alternative care their children will receive.

This article addresses both the mother's decision to work (and thus not be the exclusive care provider) and the choice of different types of child care for preschool children, distinguished by ages of the child.[1] We first examine the determinants of labor force participation of married and unmarried women with preschool children. We assume (as does the data set we use) that if the mother supplies no labor to the market, she provides primary care for her children. We then characterize child care options for employed mothers (the only ones for whom our data source obtained child care choice), differentiating by age of the child. In explaining the types of child care chosen, we consider factors relating to the parents' need for care and the availability of informal and formal care.[2]

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Assumptions and Hypotheses of the Study

In our analysis and interpretation of the results, we make certain assumptions about the children's needs and the kinds of care appropriate at different ages. Some psychologists (Fraiberg, 1959; White, 1975) assert that appropriate care requires that the mother provide primary care until the child reaches the age of 3. One characteristic of mother care—a low ratio of children to adults—has been recognized by a large number of studies as an important characteristic of appropriate care for infants and toddlers for nonmaternal care as well (Francis and Self, 1982; Howes, 1983; Howes and Rubenstein, 1985; Ruopp et al., 1979).

We assume that because paid care in the child's home represents one-to-one care, it represents the most appropriate care for infants and toddlers. Further, family day care and center care represent a higher ratio of children to adults and are less appropriate for the youngest preschoolers.[3]

The situation is different for older children, aged 3–5. Research results suggest that older children benefit from interaction with other children and with an adult trained in early childhood education. Trained teachers appear to increase children's verbal interactions, restrict children's activities less, punish less, provide safer environments, and generally deliver better care than those with less training (Berk, 1985; Howes, 1983; Ruopp et al., 1979; Stallings and Porter, 1980). Staff in day care centers have much higher levels of training in early childhood education than those in homes, at least according to parents' reports.[4]

We assume that a center or nursery school represents the most appropriate alternative to mother care for an older preschool child. Providers of family day care most often are not trained in preschool education and therefore provide less appropriate care than centers or nursery schools for the older child. In addition, centers and schools may have more and better educational and play equipment than family day care homes. Because of the greater numbers of child interactions available, however, family day care may provide superior stimulation to care at home for the 3- to 5-year-old child.[5]

Given these assumptions, we accept the hypothesis that children's age partly determines how appropriate particular types of care are for preschoolers. We examine the extent to which characteristics of the child, the mother, the family, and the household affect mothers' decisions about working and about kind of care, especially age-appropriate care. We classify determinants of these decisions into five categories: informal (unpaid) substitutes for the mother's care; need for care; availability of formal care; ability to pay for care; and tastes or preferences.

Informal Substitutes for the Mother's Care. Some women have access to family members living with the mother or nearby, who can substitute for the mother while she works.[6] Presence of an older sibling, a husband, or other relatives in the household may increase access to alternatives to the mother's care.

The Need for Care. This need varies with the number and ages of children. Younger children require more care and care of a different type than older children. Two closely spaced children may call for a different joint decision about child care than two widely spaced preschoolers. The mother's hours of work also affect the demand for child care.

Availability of Formal Care. We hypothesize that availability of formal care, especially centers, will affect the proportion of children using such care. Previous research has pointed to significant regional differences in enrollments in formal day care programs (Duncan and Hill, 1975; Lehrer, 1983) and has found that day care centers are more available, and more widely used, in urban than rural areas and that the South has more centers relative to the preschool population than other regions (Duncan and Hill, 1975, 1977; Ruopp et al., 1979).

Ability to Pay. Ability to pay for care is an important consideration, since paid care in the child's home is the most appropriate alternative to mother's care for infants and paid care in day care centers is the most appropriate alternative for older preschoolers. Both the mother's wages and other sources of income to the family should increase the likelihood that they will use these sources of care, which are more expensive than the alternatives. We also expect that families will use higher income to purchase the most age-appropriate care for their children. Thus we predict that care in the child's home (by both the mother and paid help) should increase with family income for children aged 0–2 but center care should not, and that choice of center care should increase with family income for those 3–5 years old and care at home should not.

Previous research has found a strong effect of wife's earnings on use of center care (Duncan and Hill, 1975, 1977; Lave and Angrist, 1975; Lehrer, 1983; Lehrer and Kawasaki, 1985), attributing this to the high price of the time of high-wage women and the reliability and long hours of care available through formal day care programs. If families view the wife as *choosing* between home and market but see the husband's employment as given, they may also see the wife's earnings as the appropriate source of payment for child care, since she would provide the care if she did not work. Lave and Angrist (1975) interpreted their results to support similar reasoning. If this is the case, then the chances that a family pays for child care—rather than arranging for care with relatives or trading child care favors with a neighbor—will increase with the wife's earnings.

However, this need not be so. When husbands have high incomes and wives have low incomes, families could allocate part of the husband's income to child care. We test this proposition by examining the independent effects of husband's and wife's earnings on the likelihood of paying for child care.

Another source of income, welfare or Aid to Families With Dependent Children (AFDC), reflects both increased resources to pay for care and, potentially, access to subsidized care for mothers in sponsored work or training programs.

Tastes and Preferences. One could argue that the effect of wife's earnings really reflects educational attainment rather than cost of time. We hypothesize that mothers with more schooling may not only know more about the most age-appropriate care but be more likely to act on that knowledge and make the appropriate choice. If so, educated women should be more likely to choose care in the child's home (by both the mother and paid workers) for younger preschoolers and center care for older preschoolers, net of wage effects. Families with relatively low levels of education not only may be unaware of the most age-appropriate choice but may also value the educational benefits of center care less than better educated families do. They may also define family-based care as more appropriate (Lein, 1979).

Race and ethnicity may affect child care choice through several mechanisms, including availability of informal care and preference for family-based care. In fact, univariate statistics on child care use (U.S. Bureau of the Census, 1982a) show lower use of paid care and more use of relatives among blacks than whites.

We also examine the age of the woman at the first birth to capture the potential years of employment prior to the birth and the assets—physical or human—the family may have accumulated during the period after schooling but before the first child arrived.

Methods

Data and Sample

Our analysis uses data from the National Longitudinal Survey of the Education and Labor Market Experiences of Young Women (NLS). This survey provides information, covering a recent 15-year period, on more than 5,000 young women aged 14–25 in 1968.

In 1977, when sample members were between ages 23 and 34, the NLS asked working mothers with children in the household about their primary mode of child care. Information on child care was reported separately for three different age groups of children: 0–2 years, 3–5 years, and 6 years or older. Employed women were asked about their actual child care arrangements; all other women were asked what kind of child care they would use if they got a job. Because their answers represented hypothetical rather than actual arrangements, we excluded homemakers, students, the unemployed, and women unable to work from the sample used for analyzing determinants of mother care. We limited the sample to mothers of preschool children because after-school arrangements may differ substantially from the type of care needed for children not enrolled in school.[7]

Dependent Variables: Mother's Labor Supply and Child Care Choice of Employed Mothers

The first set of analyses examines the determinants of the mother's work in the labor market; mothers who do not work outside the home usually provide primary care for all preschool children. A second set of analyses examines child care choices made by working mothers.[8] The dependent variables for that analysis come from the respondent's answers to several questions on primary type of child care used and the amount paid for it.

Respondents were asked who usually takes care of their child while they are working; responses generally focused on where the care took place (e.g., day care center, relative's home, nonrelative's home) and whether the caregiver was a relative or nonrelative. Interviewers were instructed to consider only the major source of child care. If the respondent said "school" (here defined only as formal kindergarten or higher grade school), the interviewer coded the main source of care aside from school. The NLS allowed combination responses (e.g., day care center and in relative's home) but only if both sources were used about equally. The response categories to the question grouped nursery schools and day care centers in the same category.

Our analyses grouped reported child care types into three mutually exclusive categories, which differ for younger (aged 0–2) and older (aged 3–5) preschoolers. They reflect three dimensions of child care: where the care occurs, who provides the care, and whether the care is paid for. Our initial models showed substantially different predictors of care type for younger and older children. Day care centers are similar to other paid care outside the child's home for those 0–2 years, but for those 3–5 years, paid care in the child's own home and that in another home are similar to each other but distinct from care in a formal center. In all cases unpaid care, mostly provided by relatives, was distinct in its predictors from the other types.

Thus for each age group, we formed three separate categories. For children 0–2 years, they were (1) paid care in own home, (2) paid care somewhere else (including a day care center), and (3) unpaid care. For children 3–5 years, they were (1) paid care in own home or someone else's home, (2) center care, and (3) unpaid care. Table 1 gives the definitions of the dependent variables. Table 2 shows the type of child care chosen for younger and older children. The distribution of children among types differs significantly for younger and older children ($\chi^2 = 23.2$, $p < 0.001$).

We recognize that this classification of child care does not capture all dimensions of these choices. For example, care by relatives is divided between the paid and unpaid categories. Although the measure of child care always refers to the *primary* arrangement, the numbers of hours involved could differ substantially between children. Models quickly become unwieldy, however, when one tries to incorporate information on the caregiver's relationship to the child as well as the location of care and the financial arrangements. Although our preliminary analyses (available on request) showed that many of the same

Table 1. Definitions of Dependent Variables

Variable	Definition
Mother's employment	Employed = 1 if mother is currently working, 0 otherwise
Types of care	
For 0–2 year olds	Unpaid (reference category)—all those with child care costs = 0 except Center
	Paid, Own Home—paid care in child's own home
	Other Paid—paid care outside child's own home (includes unpaid Center)
For 3–5 year olds	Unpaid (reference category)—all those with child care costs = 0 except Center
	Center—care in a day care center or nursery
	Other Paid—paid care in own home or someone else's home, except in a center or nursery school

variables affected both paid care and care by nonrelatives, we felt that payment for services was theoretically the more important differentiation, especially since having to pay for child care constrains women's employment and child care choices.

Independent variables, shown in Table 3, were constructed to represent the concepts of theoretical interest discussed here.

Empirical Methods

We estimate logit regressions to explain the mother's labor supply decision, since the inverse of labor supply—mother's full-time work in the home—represents the child care many psychologists believe is superior, especially for young preschoolers. For the women who work and therefore usually need some nonmaternal care, we estimate polytomous logit models of the three child care types for each age group.[9] The regression coefficients in the polytomous models reflect the effect on choosing the category of interest relative to choosing unpaid care, the reference category. Although some families have access to unpaid care for structural reasons—the presence of another adult in the household or nearby, the availability of the child's father, friendship networks due to long-term residence in the community—all families have the option of trading care with others to acquire unpaid care. In addition, paid care in the child's home, in another home, or in a nursery school or day care center is theoretically available to all.

Table 2. Child Care Arrangements by Age of Child

	Type of child care (%)				
Age of child	Unpaid	Paid, own home	Paid, other home	Center or nursery school	Total sample
0–2	30	18	42	10	414
3–5	32	14	34	21	513

Note: Because of rounding, percentages may not sum to 100.

Table 3. Definitions of Independent Variables

Variable	Definition
	Indicator Variables
Other adult in home	1 if anyone 18 years or older, other than respondent (R) or R's spouse, lives in household [only includes relatives, since NLS did not indicate nonrelatives living in household (HH) in this survey year]
Black	1 if R black
South	1 if R lives in South census region (Del., Md., Va., W.Va., Ky., N.Car., S.Car., Tenn., Ga., Fla., Miss., Ala., Ark., La., Okla., Tex.)
Rural	1 if R lives outside a standard metropolitan statistical area (SMSA)
Central city	1 if R lives in the central city of an SMSA
Metropolitan	(Omitted group) R lives in SMSA, outside central city
Married	1 if R currently married
Education of mother	<12 years; 13–15 years; 12 years (omitted category); 16 or more years
Age of youngest child	0 age group omitted in 0–2 regressions; 1 year; 2 years; 3 years omitted in 3–5 regressions; 4 years; 5 years
Hispanic or foreign origin	1 if Spanish spoken at home as a child or R or R's parents not born in U.S.
Live where grew up	1 if R currently (1977) lives in the same SMSA or county as in 1968
On welfare	1 if any family member received welfare or public assistance in the last year
Missing wage	1 if R had missing earnings data or extremely high or low earnings, both of which were imputed as described below
Missing husband's income	1 if R was married and was missing husband's income, which was imputed as described below
	Continuous Variables
No. of siblings	No. of siblings R had in first survey year (1968—when R was 14–24); variable truncated at 6 (e.g., any values >6 were set to 6)
Weekly hours of work	No. of hours/week R usually works on current job (if missing, no. of hours R worked the interview week substituted)
No. of children <18	No. of own children aged 0–17 living in HH; variable truncated at 3
Log of husband's income	Natural log of husband's total income (wages + self-employment earnings + unemployment income + other income) in past 12 months; total income of <$1000 was set to $1000 before taking log; for unmarried respondents, LgHusInc = 0.[a] Income corrected for regional price variation.
Weekly wage	R's average weekly wage in past 12 months, computed as R's total earnings in past 12 months (wages + self-employment earnings) divided by the no. of weeks R worked in past 12 months.[b] Wages are corrected for regional price variation.
Age at first birth	Mother's age when first child was born
Months between births	No. of months between the births of the two youngest children

[a] About 5 percent of respondents (6 percent of those married) had husband's income data imputed because it was missing. For these respondents, LgHusInc was set to 9.19 (about $9800), the overall sample mean for married respondents.

[b] About 11 percent of respondents had this data imputed—about 1/4 of these had missing data in the necessary variables; the remainder had either extremely low (earnings of less than $1 per hour—the vast majority) or very high (earnings of greater than $25 per hour or $700 per week) incomes based on their reported weeks or hours of work in the past year. WklyWage was imputed for these respondents by using their reported weekly hours worked (WkWkHrs) multiplied by an hourly wage of $4 (the sample mean).

Results

Determinants of Mother's Labor Supply

In this section, we examine the factors that predict mother's employment, since those women who supply no labor to the market almost always assume primary responsibility for care of their preschool children. Our sample includes all women with any children of preschool age, 0–5 years old, living in the household. Table 4 presents results from the logit regression of mother's employment on independent variables representing substitutes for the mother's care, the need for care, the availability of formal care, the ability to pay, and tastes or preferences.[10]

Table 4. Determinants of Mother's Labor Supply

Variable	Age of youngest child	
	0–2	3–5
Substitutes		
Live where grew up	0.248*	0.223
Other adult in home	0.339	0.010
No. of mother's siblings	0.048	−0.019
Married	1.144	5.625***
Need for care		
Age of youngest child		
1 yr.	0.368**	
2 yrs.	0.499***	
4 yrs.		0.194
5 yrs.		0.163
Mos. between 2 youngest children	0.006**	−0.004
No. of children <18 yrs.	−0.702***	−0.383***
Availability of formal care		
South	0.540***	0.282
South × black	−0.716**	0.192
Rural	0.228	0.238
Central city	0.109	−0.079
Family resources		
Log of husband's income ($)	−0.186*	−0.729***
Husband's income missing	−0.104	−0.440
Age at first birth	−0.056*	−0.092**
Preferences		
Hispanic or foreign origin	0.438*	−0.140
Black	0.233	−0.693*
Black × married	1.090**	1.409***
Education		
<12 yrs.	−0.711***	−0.934***
13–15 yrs.	0.671***	0.170
16+ years	0.533**	1.250***
Mean of dependent variable	0.43	0.55
n	1002	761

* Logit coefficient is different from zero on a two-tailed test at $0.05 \leq p < 0.10$.
** Logit coefficient is different from zero on a two-tailed test at $0.01 \leq p < 0.05$.
*** Logit coefficient is different from zero on a two-tailed test at $p < 0.01$.

Substitutes. We hypothesized that women who had low-cost sources of child care (from family or friends) would be less likely to provide all child care themselves. Women who live in the area in which they grew up are more likely to have a network of friends and relatives who could substitute for their time in child care than are women who have migrated.

The results in Table 4 show that women with young children (0–2) are more likely to work if they live in the area in which they grew up. (Tabulations not shown support the inference that these women are relying on relatives for child care.) Although mothers living in their home towns were more likely to have relatives caring for their 3–5 year olds, as well, living in the area where they grew up did not affect their decision to work. Apparently most of these relatives do not live in the household, since there is no significant relationship between presence of another adult in the household and mother care for either age group.

Labor force patterns for married and unmarried mothers differed significantly. We have modeled these differences by the interaction of marital status with race. The marital status indicators must also be interpreted in the context of the husband's income variable. Married white women with extremely low husband's income are more likely to work than are unmarried women (who, by definition, have no husband's income). The crossover point at which married white women are less likely to work than unmarried white women corresponds to an income of $466 for 0–2 year olds and $2235 for 3–5 year olds. The crossover points are higher for black women.

Married black mothers of 0–2 year olds are more likely to work than single black mothers at all observed income levels. The crossover for black mothers of 3–5 year olds is $15,437, considerably higher than the crossover for whites. Not only do black married women whose husbands have low earnings have a source of child care in their husbands, but they are also ineligible for support through AFDC for remaining out of the labor force.[11]

Need for Care. As others have found, our results show that women with more children and younger children are less likely to work but that women whose children are widely spaced are more likely to work (Waite, Haggstrom, and Kanouse, 1985; Sweet, 1973). This situation arises because younger children require more care than do older children, and therefore more adults to provide it, and because costs increase with the number of children to be cared for. For children 3–5 years, the age of the child and child spacing have no significant effect on mother's employment, perhaps reflecting constant costs of caring for the older preschooler. Greater numbers of children, however, still impede labor force participation for this group.

Availability of Formal Care. Mothers who live in the South are also more likely to work than women in other regions. The effect is significant for mothers of 0–2 year olds. This regional effect is restricted to white mothers, however, since the coefficient for black mothers living in the South is negative and significant for the younger age group and is roughly equal to the sum of the separate black and South coefficients. The same patterns appear for mothers of older preschoolers but are weaker. We find no significant differences in employment for either age group of children related to central city residence or residence in rural areas.

Family Resources. Table 4 indicates that the higher the family income (excluding the wife's earnings), the less likely is the mother of children aged 0–2 to work outside the home, as other research has shown (Bowen and Finegan, 1969; Schultz, 1980). The income effect is even greater in magnitude for children aged 3–5. Mothers of older preschoolers appear to be more sensitive to financial alternatives to their own earnings in making labor supply decisions than are those with young preschoolers. This is a surprising finding for which we have no ready explanation.

The results also show that mothers who began having children at a later age, as

indicated by age at first birth, are less likely to be employed. Women who delay childbearing may accumulate assets not accounted for by current income of the husband. These assets may allow them to delay labor force reentry. A similar argument with respect to age at marriage was made by Elder and Rockwell (1976).

Preferences. Mothers of Hispanic origin are somewhat more likely to work when they have very young children, but they do not behave differently than other mothers of 3–5 year olds. Black married women were significantly more likely to supply some labor to the market than white married women, a result shown by a number of other studies (Bowen and Finegan, 1969; Shapiro and Mott, 1979). Unmarried black women are actually less likely to be in the labor force than comparable white mothers when they have older preschoolers. Greater labor force participation only among *married* black women suggests greater market opportunities for black women relative to their husbands, rather than any differences in attitudes toward the importance of the mother in providing child care in the early years.

As educational attainment rises, women are less likely to be exclusive providers of care for their children. The effect is strong and nearly monotonic.

We hypothesized that more educated women might place greater value on early investments in children and would be more likely to provide mother care for very young children. Other tabulations not included here show that in spite of their greater opportunity costs, college graduate mothers of children under 1 year old are about as likely to work as are mothers with only high school degrees. Leibowitz (1974) found a similar effect of education on labor force withdrawal in 1960 census data. The effect for women sampled in the late 1970s, however, is concentrated among children less than 1 year old. When the youngest child is 3–5, college graduates are more likely to work than when they have younger children. This may support our hypothesis that more educated women are aware that mother's care is more appropriate for 0–2 year olds but that day care centers provide important social and educational benefits for 3–5 year olds.

Characteristics of Care Used by Working Mothers

Table 5 presents the logistic regression coefficients for the independent variables in the model on use of two types of child care relative to choice of unpaid care, as described earlier. We discuss the results for both age groups together, pointing out differences where they occur.

Substitutes. We hypothesized that women who live in the area in which they grew up have better access to a network of extended family and friends for child care. Perhaps because much of the care provided by relatives occurs outside the home and is not free, we found no statistically significant effect of living in the area of origin on type of child care used, even though it affected the likelihood of mother's employment.[12]

An important substitute for the mother's time in child care—another adult living in the household—affects the provision of child care. It significantly reduces the likelihood of paid care outside the house for age 0–2 and both the use of nursery schools and child care centers and the use of other paid care for older children.[13] Older children also constitute a potential substitute for the mother's time in care of preschool children. We find that the more children less than age 18 a woman has, the more likely she is to use unpaid care for age 3–5. Heckman (1974) and Lehrer (1983) reported similar findings.

The number of the mother's siblings—a potential source of care—bears no relationship to care for young children. Mothers with more siblings, however, use more paid care and more center care for older preschool children, which may reflect competition by the mother's siblings for the grandmother's time in child care.

Table 5. Child Care Choice—Working Women With Children Aged 0–2 and 3–5

Variable	Children 0–2		Children 3–5	
	Paid, own home	Other paid	Other paid	Center or nursery school
Substitutes				
Live where grew up	−0.522	−0.201	−0.231	−0.391
Other adult in home	−1.056	−2.561***	−0.889**	−1.157**
No. of mother's siblings	0.019	0.031	0.210***	0.156*
Married	−2.029	−1.608	0.552	−0.450
Need for care				
Age of youngest child				
1 yr.	0.089	−0.004		
2 yrs.	0.099	0.702*		
4 yrs.			0.439	0.310
5 yrs.			0.094	−0.066
Mos. between 2 youngest children	0.009	0.003	0.009	0.001
No. of children <18 yrs.	−0.121	−0.328	−0.541***	−0.529**
Weekly hours of work	0.022	0.046***	0.016	0.016
Availability of formal care				
South	0.910**	1.185***	0.424	1.057***
South × black	−0.301	−0.724	−0.052	−0.812
Rural	−0.602	−0.205	−0.380	−1.020***
Central city	−0.552	0.271	−0.648**	0.118
Family resources				
Log of husband's income ($)	−0.059	0.002	−0.132	−0.110
Husband's income missing	−0.223	−0.217	−0.581	−0.079
Age at first birth	−0.052	−0.081	−0.043	−0.037
Weekly wage ($100s)	0.859***	0.705***	0.708***	0.833***
Wage missing	−2.174***	−2.474***	−1.011**	−1.126**
On welfare	0.076	1.045*	0.685	0.406
Preferences				
Hispanic or foreign origin	0.216	−0.709	0.085	−0.705
Black	−2.103**	−1.586*	−0.636	−1.508*
Black × married	3.051***	2.386***	0.600	2.276***
Education				
<12 yrs.	0.136	−0.203	−0.198	−0.855**
13–15 yrs.	−0.173	0.207	−0.076	0.673
16+ yrs.	0.926*	0.552	−0.260	0.471
Mean of dependent variable	0.176	0.522	0.478	0.207
n	414	414	513	513

* Coefficient is different from zero on a two-tailed test at $0.05 \leq p < 0.10$.
** Coefficient is different from zero on a two-tailed test at $0.01 \leq p < 0.05$.
*** Coefficient is different from zero on a two-tailed test at $p < 0.01$.

Need for Care. We reasoned earlier that need for care depended on the mother's hours of work, since she usually cannot care for the child herself during these hours. We also argued that need for care depended on the age of the child, with more intensive care required by younger children. When the model does not include the mother's wages (results not shown), we find that the more hours the mother works per week—and thus the less time to provide child care herself—the more likely she is to pay for care. When weekly earnings are included in the regression (see Table 5), the independent effect of hours is attenuated and

loses significance in three out of four cases, indicating that the hours effect largely reflects the greater income and ability to pay for care by women who work more hours. It also signals the mother's difficulty in trading child care favors if she is already working long hours and the unwillingness of relatives to provide many hours of free care.

Availability of Formal Care. Table 5 shows that women living in the South are more likely than women in other regions to use every alternative to unpaid care except for other paid care for 3–5 year olds. These effects of region exist net of any cost-of-living differences, since wages and income have been adjusted for price differentials across regions of the United States.[14] Lower wage rates for unskilled labor in the South may mean that child care workers are less expensive there. Children in the South are more likely, however, to be cared for outside their own homes, and we hypothesized that much low-cost child care would occur in the child's own home. Further, nursery school–aged children in the South are less likely to attend free public schools (31.5 percent in contrast to 34 percent nationally; U.S. Bureau of the Census, 1982b:29). The average tuition paid in private nursery schools is also higher in the South than in any other region (U.S. Bureau of the Census, 1982b:32).

Group care for preschool children (day care or nursery school) is significantly higher in the South. This may represent greater availability of church-sponsored care in the South, where church-related schools account for 30 percent of the nursery school enrollment in contrast to between 20 and 23 percent of the enrollment in the other three regions (U.S. Bureau of the Census, 1982b:29). Our regressions show that the greater use of day care centers in the South is concentrated among white families, since the lower use of centers by black southerners offsets the higher use of centers by southerners in general.[15] Table 5 also shows that women in rural areas are less likely to use centers for older preschoolers, perhaps because of the greater difficulty in traveling to centralized sources of care.

Preferences and Resources. We hypothesized that preferences for child care most appropriate to the age of the child would increase with the education of the mother. In addition, highly educated women would be more likely than others to perceive age-appropriate care in the ways that this is measured by child educators: child/staff ratio, education of the caregiver, educational component of care, and so on. If this is so, then use of child care centers and nursery schools should increase with the mother's education for older preschoolers, and use of paid care in the child's home should be positively related to mother's education for younger preschoolers.

Table 6 presents effects of mother's education with and without her wages held constant. These coefficients come from the polytomous logit estimations reported in Table 5 (wages controlled) and from identical equations that did not include the mother's wages (wages not controlled).

Equations that do not include wages show that college graduates are significantly more likely than high school graduates to use the most age-appropriate sources of care: nursery schools and centers for age 3–5 and paid care in their own home for younger children. Contrary to our prediction, though, college graduation increases the choice of both types of paid care for younger preschoolers.

When weekly earnings are included, the education effect shrinks in significance, but the pattern moves closer to our expectations. High school graduates remain more likely to use nursery schools and centers for older preschoolers than high school dropouts, even controlling for wages. In addition, college-graduate mothers remain significantly more likely than those with less education to use paid care in the child's home for younger preschoolers.

These findings suggest that at least some of the effect of education on child care mode reflects the greater financial resources of the highly educated. The results do show some support for our hypothesis that education affects the chances that the mother will choose age-appropriate care. For older preschoolers, high school graduation or more differentiated

Table 6. Effects of Mother's Education on Child Care Choice With and Without Wages Controlled

Education	Children 0–2		Children 3–5	
	Paid, own home	Other paid	Other paid	Center or nursery school
Without wages controlled				
<12 yrs.	0.038	−0.304	−0.288	−0.958**
13–15 yrs.	−0.069	0.255	0.072	0.848**
16+ yrs.	1.236**	0.823**	0.068	0.858*
With wages controlled				
<12 yrs.	0.136	−0.203	−0.198	−0.855**
13–15 yrs.	−0.173	0.207	−0.076	0.673
16+ yrs.	0.926*	0.552	−0.260	0.471

* Coefficient is different from zero on a two-tailed test at $0.05 \leq p < 0.10$.
** Coefficient is different from zero on a two-tailed test at $0.01 \leq p < 0.05$.

mothers who chose the most age-appropriate care. For younger preschoolers, only college graduation increased choice of the most age-appropriate care. We regard these findings as suggestive, but interesting and worthy of further attention.

We hypothesized that women's willingness to pay for high-quality care increased with their earnings and with their husband's income. In our models, we include three measures—husband's income, wife's wages, and hours of work, entered separately to distinguish income effects from the greater needs of women who work longer hours. This reasoning suggests that if families perceive age-appropriate child care as it is measured in the research literature on this topic, earnings and income will increase the chances that they will use paid care in the child's home for younger and center care for older preschoolers.

To test this hypothesis, we estimated several alternative models of type of child care used. First, we compared the effects of husband's income and wife's wages when both were included in the model. Then we dropped wife's wages and reestimated. We found no effect of husband's income—with or without wife's wages controlled—on any of the dimensions of child care type that we considered.

Other studies of child care have differed in the observed effects of husband's income. Like our study, Duncan and Hill (1975, 1977) found insignificant effects. Lehrer (1983) and Lehrer and Kawasaki (1985) reported positive effects of husband's income on use of an organized facility or a sitter rather than a relative, which Lehrer (1983) interpreted as a measure of ability to pay for care.

Table 5 also shows that welfare recipients, who are often eligible for subsidized child care, are more likely than comparable women not receiving welfare to use paid care outside their home for younger preschoolers but are not more likely to use any other type of care.

Marital status did not significantly affect child care chosen by white working women, net of husband's income. The model in Table 5 includes an indicator variable for "black" plus interactions for married blacks and for blacks living in the South. Thus the coefficient for black indexes unmarried black women not living in the South. These women are less likely than whites to use any alternative to unpaid care; these effects are significant except for other paid care for older preschoolers. The interaction for married black women is positive and significant, however, for the two types of care we have identified as highest quality—paid care in the child's home for younger and center care for older preschoolers—as well as for other paid care for preschoolers 0–2 years old. These effects for married blacks more than offset the negative coefficient for black.

Wife's wages had strong positive effects on all alternatives to unpaid care for both older and younger preschool children.[16] As argued previously, many of the women who do not pay for child care are probably in the labor force only because they have access to free care. This finding does not support our hypothesis that choice of high-quality care will increase with wife's wages. Instead, our results suggest that women who can afford to pay for child care tend to do so rather than use unpaid care. The lack of effect of husband's income is not a result of the inclusion of unmarried mothers in our sample, because even among the group of married women, husband's income has no effect on type of child care chosen. This suggests that (1) women give child care a higher priority than men and use their additional income to purchase more age-appropriate care or more hours of care; (2) families consider child care the wife's responsibility either to provide herself or to pay for out of her earnings; or (3) women with high earnings have increased need for features of paid child care, for example, long hours or reliability.

Women with Hispanic or other foreign backgrounds are significantly more likely to have relatives care for their children, even after controlling for the presence of other relatives in the family and other factors (results not shown). This may reflect the special language requirements of these groups, increased availability or proximity of kin, or family-oriented values. This care by relatives has no impact, however, on whether child care is paid for or free (see Table 5).

Conclusions

Various influences affect mothers' decisions to work and their choice of child care alternatives; but the same influences often affect the two outcomes differently. These findings shed some light on the larger issues concerning child care, discussed earlier.

It appears that income and education play a strong role in determining both outcomes. Women who have more education and can earn more are more likely to work, but they are also more likely to provide the most age-appropriate care for their children. When we control for the effect of wages, high school graduates and women with some college education are more likely than high school dropouts to use day care centers or nursery schools for their older preschoolers. Only college graduates, however, are significantly more likely to use paid care in the home for younger preschoolers.

Perhaps knowledge of the educational benefits of nursery school or center care is more widespread than information about appropriate care for younger children. Whatever the case may be, these results suggest that education—perhaps specific information about the advantages and disadvantages of different types of care—does have the potential to help mothers make more age-appropriate child care decisions.

The implications of the education effects are ambiguous for less educated, lower earning mothers. Even if they were informed about the age-appropriate kinds of care for children, their circumstances might not permit them to "buy into" it. Our models of mother's labor supply suggest that it is the availability of unpaid caretakers that permits these low-wage women to participate in the labor force.

For infants, this kind of care is probably as good as paid care in the home. Some research suggests that it is better for their health than care in a day care center, where exposure to large numbers of children increases their chances of illness (Johansen, Leibowitz, and Waite, in press; Doyle, 1976). Older preschoolers, however, require a more stimulating environment for optimal development. These older preschoolers, whose mothers can afford neither to stay home nor to provide stimulating day care for their children, may be most at risk of developmental harm under existing circumstances.

Notes

[1] A number of studies (Duncan and Hill, 1975, 1977; Lehrer, 1983; Robins and Spiegelman, 1978) explored the kinds of child care arrangements parents make, but none of these considered the ways in which appropriate child care changes with the age of the child and the effects of these changes on child care decisions. Although supply of child care and its cost both affect women's decisions to participate in the labor force (Blau and Robins, 1987; Stolzenberg and Waite, 1984), in this article we examine only the outcome of this process—the child care arrangements made by employed women with preschool children. We do not explicitly consider supply of or demand for child care or the simultaneity between women's employment decisions and availability and cost of child care.

[2] Our purpose is to characterize the type of child care actually used, so we are not interested in the type of nonmaternal care that would have been chosen by women who are not currently employed. Therefore, we do not estimate a selection model. Thus we estimate child care choice models *conditional* on the employment of the mother.

[3] Tabulations from the 1985 interview of the National Longitudinal Survey of Youth show that the mean number of children aged 0–4 in child care centers is 15.8 children in a group; in family day care, 2.7 children per group; in their own home, 1.4 children per group. The differences in group size are significant at $p < 0.01$.

[4] Work in progress on the 1985 wave of the National Longitudinal Survey of Youth shows that 70 percent of parents with children in centers and nursery schools report that the staff have training in early childhood education versus 9 percent of parents with children in homes. These figures presume that relatives caring for children have no special training, a presumption that guided data collection in the NLS.

[5] In unpublished analyses of the National Health Interview Survey, we find that women with college education are equally likely to send their 4-year-old children to nursery school whether or not they work. This suggests that these women perceive the advantages of at least some care with an educational component over full-time care by the mother for older preschoolers.

[6] Presser (1986) found that although the majority of mothers who work part time rely on the father for care of the youngest child, they also most often report that the lack of child care keeps them from working as many hours as they would like. Heckman (1974) found that the quality-adjusted price of child care decreases with length of residence in the current standard metropolitan statistical area and is lower for those who have another relative living in the household.

[7] Our sample includes 5 year olds, who may be enrolled in kindergarten. Since the vast majority of these programs last no more than two or three hours, kindergarten by itself cannot serve as the "primary" care arrangement for very many working women. Our models control the age of the child to capture some of the effect of kindergarten enrollment.

[8] A small number of women report that they take care of their child themselves at work. One might suspect that most of these women care for their own child while acting as care providers for the children of others, but this is not the case in our data. None of the two dozen mothers who care for their child at work report an occupation that might include child care provision for others.

[9] We estimate the models with an ordinary least squares approximation to polytomous logit (Haggstrom, 1983). This technique gives results virtually identical to those obtained from maximum-likelihood estimation of polytomous logit models but is less expensive.

[10] To save space we do not report intercepts in Tables 4 and 5.

[11] In some states families with an out-of-work male head are eligible to receive AFDC.

[12] Families pay for much of the care provided by relatives—66–70 percent for young children. Nearly all of the care provided by nonrelatives is paid for (96–97 percent). For the older preschooler, 94–98 percent of the care provided by nonrelatives is paid for, but 52–60 percent of the care provided by relatives is paid for. Women who use nonpaid care earn less on average (mean weekly wage, $101) than women who pay for care (mean weekly wage, $149). On average, child care costs women who do not use free care $23.71 per week. Thus even after paying for care, these women have greater earnings than women with free care. Because women with higher earnings potential are more likely to work, it is likely that many of the women who use free care would not be in the labor market at all if free care were not available.

[13] We investigated treating the presence of another adult in the home as endogenously determined, since we believed that families may invite a grandmother to live with them to provide child care. We did not find any variables, however, that predicted presence of another adult well enough to allow two-stage least squares estimates. Since this variable has only a low correlation with the other independent variables in the model, their coefficients are not affected. The significance of the other adult variable may, however, be overstated.

[14] The black × South interaction is significantly different from zero for 3–5 year olds if earnings are not included in the model, but the qualitative conclusion holds for the point estimates when earnings are included.

[15] Women whose wage was imputed because it was missing (most often because it was unrealistically low) are significantly less likely to pay for care or use nonrelatives than the women with average earnings.

[16] We adjusted wages and income for regional cost-of-living differentials using the family budgets for families of four produced by the Bureau of Labor Statistics for major metropolitan areas and nonmetropolitan areas in each

region (McCraw, 1977). We created weights for metropolitan areas and nonmetropolitan areas in the South and non-South and used these to adjust wages and income.

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