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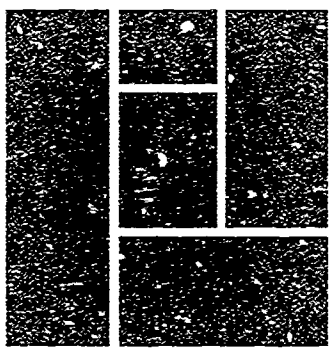
ABSTRACT

This study uses a multinomial logic model to examine the impact of price, quality, family income, and family characteristics on the choice of child care. Price is measured in terms of predicted expenditures on care. Quality is measured by the ratio of children to staff. The following modes of care are examined: (1) day care center or nursery school; (2) care by sitter; (3) care by relative; and (4) care by husband/partner. Statistical data on employed women (i.e., women who were either working, in training, or in school) were drawn from the 1985 wave of the National Longitudinal Survey of Youth for analysis. The following summary findings are reported: (1) price is the most important factor affecting the choice of care; (2) quality of care is a significant factor in the choice of center care; (3) family income affects how much is spent for center care, but does not affect which mode of care is chosen; and (4) the mother's earnings do not affect how much is spent on care, but do affect the mode of care chosen. The following policy implications are outlined: (1) policies that raise family income allow families who use center care to pay more for it, but are not likely to affect the mode of care chosen; (2) policies that increase the mother's income will not affect how much is spent on care, but should encourage the choice of center care over other modes; (3) policies that reduce the price of care should encourage the choice of centers and sitters; and (4) policies that raise the quality of center care are likely to encourage the choice of centers. Statistical data are included on seven tables. A list of 33 references is appended. (FMW)

QUALITY, PRICE, AND INCOME IN CHILD CARE CHOICE



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Project Report

QUALITY, PRICE, AND INCOME IN CHILD CARE CHOICE

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Quality, Price, and Income in Child Care Choice

Abstract

This paper explores the hypothesis that parents consider the price and quality of child care as well as their own resources and needs when they make their child care decisions. Parents are expected to minimize price and maximize quality, controlling for income. Price is measured in terms of predicted expenditures on child care; quality is measured by the ratio of children to staff members. The data come from the 1985 wave of the National Longitudinal Survey of Youth, Ohio State University. Expenditures for each mode of child care are modeled, correcting for selection, and predicted expenditures are obtained for each of four child care modes (center, sitter, relative, and husband/partner). Using a multinomial logit model, the impacts of price, quality, family income, and family characteristics on choice of each of these forms of child care are examined.

The results show that higher total family income raises expenditures for center care but that the mother's earnings alone do not. Controlling for a variety of family characteristics, the higher the price of sitter care, the lower the probability it will be chosen, and the higher the quality (lower child/staff ratio) of center care the greater the probability it will be chosen. After controlling for price of care, higher earnings of the mother increase the probability of using care in a child care center compared with care by a relative. Family income net of the mother's earnings has no effect on choice of care. Implications for the current policy debate are discussed.

Introduction

Child care has become a major policy issue. Over 100 bills introduced into the last (101st) Congress contained provisions to subsidize child care. These proposals can be roughly divided into three categories: 1) those that lower the price of care by subsidizing providers or by providing a subsidy to parents who use and pay for child care, 2) those that increase incomes by providing a tax credit to families with children of a certain age, regardless of whether money is spent on child care, and 3) those that increase the quality of the care provided by requiring that care meet certain standards.

Although the direct economic effects of child care subsidies can currently be estimated (Barnes, 1989), we do not know the behavioral or indirect effects of subsidies. If price reductions induce more parents to pay for care, to pay more for care, or to select higher priced options, then the true cost of the subsidies would be higher than their direct current estimates would allow us to believe. In addition, some policy makers are concerned that increasing the incentives to use paid, formal market care will decrease the reliance of families on their own resources, which may ultimately harm children. Thus we also need to consider the underlying preference structure for child care and how it might be affected by changing the factors affecting choice of one option over another. Finally, are parental choices affected by the quality of the alternatives? If parents do not select higher over lower quality care, then providing more money to parents will not lead to improvements in the quality of care for children, and strong standards will be needed to safeguard the welfare of children.

The three major parameters of interest in this paper are price of care, quality of care, and family income, because these are the three factors that can be affected by policy. The decision to choose one form of care over another involves evaluating the cost and quality of care in each of the modes available, considering family resources, needs, and preferences. Much previous research has looked at the influence of family characteristics on choice of child care type, but only two groups of researchers (Blau and Robins, 1988, 1989;Yaeger, 1979) included price. The unique feature of the present paper is its inclusion of control for quality of child care in examining the effect of cost on choice of care. Previous efforts have discussed the importance of obtaining quality-adjusted measures of price (Heckman, 1974; Blau and Robins, 1988, 1989), but, except for one based upon a small 1977 survey of municipal union members in NYC (Yaeger, 1979), none examined quality of care data. Higher priced options are likely to provide higher quality care. Without controlling for quality, the effect of price on choice will be a combination of price effects (expected to be negative) and quality effects (expected to be positive).

Although changing the price of child care is also likely to affect the labor force participation of mothers, thereby indirectly affecting the demand for different modes of child care (Blau and Robins, 1988), this paper assumes maternal labor force participation as given and concentrates on the choice of non-maternal child care. To answer important policy questions, data are needed not just on the child care choices and characteristics of parents, but on the characteristics of the alternatives parents face. Such data are not available, but data on the characteristics of the alternatives employed mothers use have become available in the past few years.

In this paper we first examine the influence of income and other factors on parental expenditures for child care. Then, controlling for other family and personal characteristics, we use a mixed conditional/multinominal logit model to estimate the effects on choice of child care arrangements of (1) price and quality of child care, and (2) family income and maternal earnings.

The research addresses three questions:

1. Does the amount paid for care vary with income? How does the type of care chosen vary with income, after controlling for price?

2. How does the type of care chosen vary with quality?

3. What is the impact of price of care on type of care used? What is the impact of price of care controlling for quality of care? If price is simply a proxy for quality, it should have no effect on choice after controlling for quality.

Theoretical Model

Our study focuses on women who need non-maternal child care. Although the problem could just as easily be focused on men who need non-paternal child care, policy concerns lie in the nature and cost of the substitute arrangements families make for their children as a result of the increased participation of mothers in the labor force.

The model describes the choice of child care arrangements for families in which the mother is working, in training, or in school. The decision to work, train or be in school is assumed to be independent of the child care decision. Although this assumption is probably unrealistic, we believe that the data available do not permit reliable joint estimation of wages and characterictics of alternatives for a sample of working and non-working mothers.

Each family is assumed to know which child care modes are available and the expected price and quality of those modes. Not every family will have all modes available; for example, unmarried mothers have no husband on whom they might call to provide child care. Although each family faces many possible types of arrangements within each mode, it makes its choice based on the expected price and quality of that mode.

Each family evaluates the utility of each available child care mode and then chooses the mode with the highest utility. The utility of each mode is assumed to depend upon the expected price and quality of the mode, the characteristics of the family (such as income, needs, and preferences), and a purely random component of utility.

To obtain the statistical model, we assume an explicit relationship between the utility of a mode and the characteristics of the mode and the household. The utility of choice n for individual i (V_{in}) is assumed to be a linear function of the characteristics of the individual ($\underline{x}_i$), the price and quality of the mode ($\underline{z}_{in}$), and the random component e_{in}:

$$V_{in} = \underline{z}_{in}' \underline{a}_n + \underline{x}_i' \underline{b}_n + e_{in}.$$

The effects of price and quality on utility are first constrained to be equal across modes. This assumption is then relaxed to allow them to differ across modes, since cost, for example, might not be equally important in determining the utility of relative care and center care. The effects of individual characteristics on utility also vary by mode, reflecting differences in tastes. The individual's characteristics also serve to control for differing access to certain types of care. For example, day care centers may not be as readily available in rural areas.

The individual will choose the option with the highest utility. Option 1 will be chosen if

$$V_1 > V_n \qquad n=2,\ldots,N.$$

To obtain the multinomial logit specification for probabilities, we need to assume that the random components of utility are independent across individuals and modes of care and that each is a draw from the Extreme Value (I) distribution. With this assumption, the probability that mode 1 is chosen may be written

$$P_{1n} = \text{Prob}\ (\ V_1 > V_{n'},\ n'=2,\ldots,N)$$

$$= \exp(\underline{z}_{i1}' \underline{a}_1 + \underline{x}_i' \underline{b}_1) \Big/ \sum_{i=1}^{N} \exp(\underline{z}_{in}' \underline{a}_n + \underline{x}_i' \underline{b}_n).$$

Probabilities for other modes can be calculated in a similar fashion. For identification, one set of the coefficients on $\underline{x}_i$ must be set equal to zero. The remaining parameters of the model can be estimated using maximum likelihood techniques. Our estimates were obtained using the LIMDEP package. (A description of the model can be found in Chapter 3 of Maddala, 1983.)

The distributional assumptions imply that the relative probabilities of two modes do not depend upon the characteristics or availability of other options. We test this assumption below by estimating a nested logit model, which allows a more flexible relationship between various modes of care (Hoffman and Duncan, 1987; Maddala, 1983).

The choice of care depends upon the relative prices of various modes of care. To estimate the model in the absence of data on the prices of each alternative faced, we must predict prices for all alternatives. We follow Lee (1978) in predicting the price of each mode of care, correcting for sample selection. We expect sample selection to be a problem if those who choose a mode of care are likely to face lower prices than the population at large.

Data Source

The data come from the 1985 wave of the National Longitudinal Survey of Youth (NLSY), a nationally representative sample of the population of youth aged 14-21 in 1979, who have been interviewed annually (For more information on the sample see Center for Human Resource Research, Ohio State University, 1987). In 1985, when the youth were 20 to 27 years old, a detailed series of questions on child care were asked of the parents among them who were employed, in school, or in training. Information obtained included the type of child care, expenditures on care, and characteristics of the arrangements used for one child (most frequently the youngest). Because fathers have been found to be less accurate reporters of this type of information and because school-age children do not need full-day care, our analysis was restricted to the 971 mothers whose "target" child was under 6 and who reported using some form of non-maternal child care for that child. Information on the characteristics of the respondents and their families was also obtained. Information from the NLS Geocode tape and from the 1987 County/City Data book were merged with the main data tape to provide additional information on the cost of living and the demand for care in the counties in which the respondents lived in 1985. This wave of the NLS represented the first time a nationally representative household survey that included all income groups attempted to obtain information on both expenditures and characteristics of child care arrangements. Thus, these data represent a unique opportunity to explore correlates of child care patterns in the U.S.

Variable Definitions

Modes of Child Care

We distinguish four categories or modes of child care: care in a day care center or nursery school, care by a sitter (in the child's or the sitter's home), care by the father, and care by another relative.

Center and sitter care are differentiated here because prices paid may differ and the effects on children may also differ. Lehrer (1985) found that a simple market-non-market dichotomy was not adequate because even though day care centers and sitters are both market forms of care, family factors affect parents' choice between the two differently. Small sample sizes did not permit separating the choice of a sitter in the child's home (N=38) from that of a sitter in the sitter's home (day care home)(N=198). However, because the great majority of family day care is small and unregulated, because both forms are market care, and because our main distinction is based upon the relationship between provider and child rather than upon the location of care, for the purpose of this paper these two groups of sitters (in the child's and in the sitter's home) are pooled together.

Contrary to what is often assumed, the decision to work does not necessarily imply the purchase of market child care, such as care in a day care center or by an unrelated babysitter (Blau and Robins, 1988; Hofferth, 1989). In fact, in 1985, half of the preschool children of employed mothers were cared for by relatives, about half of whom were paid and half unpaid (Hofferth, 1987; 1989). Welfare demonstrations such as California's Greater Avenues for

Independence (GAIN) and Massachusetts' Employment and Training Demonstration (ET) have discovered that only a portion of the low-income participants eligible for subsidized child care assistance, in fact, use it (Nightingale et al, 1989) and, as a result, total expenditures for child care have been lower than anticipated (Martinson and Riccio, 1989).

We include paid and unpaid relatives (excluding the husband/partner of the mother) as a single distinct category. Although from a household budget perspective, the crucial distinction may be whether or not parents pay for their child care, from a child development perspective, the important question is whether children are cared for by a relative or whether they are cared for by someone unrelated to them (Brooks-Gunn, 1989).[1] Is child care a function handled within the family or is it managed by social institutions such as centers, day care homes, and babysitters?

The fact that some relatives are paid presents theoretical and methodological problems. Blau and Robins (1988), using a sample of married, spouse-present mothers, included paid relative care under the category of market care (although they included unpaid center care and sitter care as market care). Because we have a sample of young single and married mothers who are highly likely to use relative care, and because we do not know the extent to which paid care by relatives is viewed by parents as similar to market forms of care (the amount of money relatives receive may be nominal), we did not want to combine care by a relative with care by a non-relative. Because we wanted to estimate the effect of price on the probability of use of a particular type of care, we did not want to sort relatives into categories solely on the basis of price.

Fathers provide a significant proportion of care for their children, particularly a ng young parents (Presser and Cain, 1983). Since no fathers are paid, and since not everyone has access to a second parent, father care is separated from care by other relatives. Mothers who provide care for their own children while they work either at home or elsewhere were excluded from the analysis because we could not assume that everyone has that option available to them and we did not have enough information to predict its availability for those not using it.

Price of Care. The NLS provides data on how much families pay for the type of care they choose. Reported expenditures were used to predict the price a family would face for each type of care, whether the family used it or not.[2] However, selection effects are expected. That is, if families choose the care that is most affordable, only those who have an especially reasonably priced option available to them will choose a given mode. Thus if selection is a significant factor, we would expect that the full distribution of prices available to everyone will be somewhat higher than the distribution of actual expenditures for care in each type. In fact, there is a priori evidence that such selection may be working. Lacking a recent national survey of child care prices, many groups have gathered data from resource and referral organizations that show fairly high prices. Average 1985 weekly prices for care in a variety of metropolitan areas ranged from $50 to $110 for center care and $35 to $160 for family day care for 2-5 year olds (Table 1). On the other hand, expenditures reported by parents have been uniformly low (Table 1). A variety of studies based upon nationally representative household samples have consistently found estimates of parental expenditures on care averaging about $40 to $45 per week

(Hofferth, 1987; O'Connell, 1989). The large inconsistencies between the reports have proved troublesome to policymakers who are looking for a coherent picture of the actual market process. The discrepancies have been especially troublesome to economists, who have been in the uncomfortable position of not being able to explain them. The increased acceptance of parental expenditure reports as proxies for prices (in lieu of provider data) has substantially altered the picture of the child care problem and its potential solutions.

A two-stage procedure is used to correct for this expected selection. Whether a family uses a type of arrangement is regressed on the characteristics of the family. Then a correction factor, lambda, is calculated, and actual expenditures in that arrangement are regressed on characteristics of the family and on the correction factor. Predicted values (excluding the selection term) are used for all households whether they used a type of care or not.

The first stage of the model uses all information about the family and the area in which they live in a series of probit models to predict whether each type of care is chosen. The second stage relates how much families pay for each type of care to those characteristics of families that providers take into account in their fee structures and family preferences. Centers and family providers often adjust their fees according to family income, age of the child, number of children from one family, total family size, and the number of hours per week in care (Kisker et al, 1989). In addition, family providers may adjust their fees depending on their relationship with the family. Variables controlling for these factors, plus indicators of the cost of living (money income per capita; whether or not located in a Standard Metropolitan Statistical Area (SMSA), the demand for care (proportion of the population

under 5) in the county in which they live, and for preferences (race, education of mother), are included in the model. Characteristics of the county in which the respondent lives serve to identify the price effect in the final model.

Quality of Care. In this paper, the indicator of quality of care is the parent's report of the child/staff ratio. The child/staff ratio is one of the measurable characteristics of child care that has been found to affect children's behavior (Phillips, 1987). There are three characteristics of child care settings that research has shown to be associated with outcomes for children: group size, child/staff ratio, and the education/training of the caregiver. The NLS asked parents for information on all three. Since half of the mothers in our sample did not know whether the caregiver had education or training in child development, we were unable to use this measure. We have not replicated the results using group size. However, from a policy perspective, since all states but three regulate child/staff ratio, whereas only a few regulate group size, child/staff ratio is the best regulatable indicator of quality. The NLS obtained parental reports of child/staff ratio only from households using that particular mode. In the present analysis we substituted the mean reported value of child/staff ratio in that mode where the true value was unknown.

Availability of Care. Choices not available to mothers are dropped from their choice set. An unmarried woman has only three choices: center, sitter, or other relatives.[3] Because availability of a relative is not as clearcut as marital status, we also included in the models two indicators of the availability of other relatives. Having other adults in the home or within 30 minutes is expected to increase the probability of using a relative and

decrease the probability of using center or sitter care (Leibowitz et al, 1988; Robins and Spiegelman, 1978; Yaeger, 1979). Having an older child in the household may also increase the chance of using relative care rather than center or sitter care (Lehrer, 1983).

Family Resources. Without controlling for price or quality of care, measures of family income and mother's earnings are asspciated with type of care chosen. Lehrer (1983; 1988); Lehrer and Kawasaki (1985); Duncan and Hill (1977); Robins and Spiegelman, 1978); and Leibowitz et al (1988) found that the higher the wage of the wife, the more likely the family was to choose a center or a babysitter rather than a relative. The effect of husband's income is not as clear. Lehrer (1983; 1988) and Lehrer and Kawasaki (1985) found that the greater the income of the husband the more likely they were to choose a center or a babysitter compared with a relative, whereas Leibowitz et al (1988), Duncan and Hill, 1977), and Robins and Spiegelman (1978) found no impact of husband's income on choice of care. Yaeger (1978) found no effect of family income on choice once characteristics of care (price and quality) were controlled, suggesting that income determines how much a family can pay for care, but after that does not play much of a part in determining which of several equally priced modes is selected.

Family Needs. Different degrees of need for care are represented by variables such as how many hours the mother works, and what time of day those hours are scheduled. Other research shows that the more hours the mother works, the less likely she is to prevail on a partner or relative to help her out. Therefore, she will be more likely to use center or sitter care (Lehrer, 1983;1988); Lehrer and Kawasaki, 1985; Leibowitz et al, 1988). On the other

hand, if she works non-standard hours she may be both more able to share care with a husband and less able to find a center or sitter to take her child (Presser and Cain, 1983).

Preferences. A number of factors, such as child's age, number and ages of other children, race, and parental education may affect parental preferences for care. Parents prefer care by a relative or in a home-like setting for infants and toddlers. However, for 3-5-year olds, group settings like day care centers or nursery schools are preferred (Lehrer, 1983, 1985; Lehrer and Kawasaki, 1985; Leibowitz et al, 1988; Yaeger, 1978). Leibowitz et al (1988) and Duncan and Hill (1977) found large families less likely than small families to use paid care. One study (Robins and Spiegelman, 1978) found that blacks were more likely to select centers and sitters than whites, while others found no race effects (Duncan and Hill, 1977; Yaeger, 1978). More educated mothers may prefer center or sitter care over other forms (Lehrer, 1983; 1988; Leibowitz et al, 1988). Finally, two studies found that residents of the South are more likely to choose center care than residents of other parts of the country (Lehrer and Kawasaki, 1985; Duncan and Hill, 1977). Although these measures are included as measures of preferences, they clearly may also measure availability of care.

Empirical Results

Means and standard deviations for all variables used in the analyses are listed in Appendix Table 1.

Expenditures on Child Care

To predict the amount paid for center, sitter and relative care, we estimated separate least squares expenditure regressions. Estimates are reported in Table 2. Previous research has shown that child care providers often adjust their fees based upon family income. In this study, higher family income was found to be associated with greater expenditures for child care, as expected, but only for day care center care. The mother's earnings are not significantly associated with greater expenditures for child care of any type. The greater the cost of living, as indicated by the average per capita money income in the county, the greater the expenditures for child care in a center or by a relative. Policies that increase family income will raise expenditures for center care, among those who use it. Family expenditures on care are also shown to vary by the race of the respondent, by hours worked, whether those hours are standard day hours, by whether or not the respondent resides in an SMSA, by age of the child, number of children in the arrangment, ages of the other children in a family, and proportion of the population under age 5. Blacks pay less for center care or care by a relative but more for a sitter than do non-Hispanic whites. Hispanics also pay more than non-Hispanic whites

for a sitter. Expenditures per hour rise for families with reduced work hours, non-standard work hours, younger children, a greater number of arrangements, and older siblings in the home. The greater the pressure on supply, as measured by the proportion of children under 5 in the population, the more the family spends on care.

Finally, the selection term adjusting for the possibility that those who choose an optior may face lower prices than the population at large was found to be statistically significant for expenditures in center and sitter care. In the price equation for relative care, we corrected both for the selection into relative care and the large number of households paying nothing for it, following Tunali (1986).[4] Neither selection term mattered. Parents who select a type of care are the ones who face the lowest price for that care. The selection term corrects for unobservable differences in characteristics of choosers and non-choosers. However, parents who choose a type of care also differ on observable characteristics from those who do not. In our data, the mean predicted price for a type of child care is always lowest for parents who chose that option. This explains why expenditures reported by parents seem low compared with fees reported by child care providers. They are low. Parents face a whole range of fees, as reported in Table 1. However, because parents will not select a type of care unless they can get it for a good price, reported expenditures are lower than reported fees. Other research confirms that provider fees vary depending on family characteristics; it is likely that few parents ever have to pay the highest fees, even though providers may keep such fees on the books.

Our ability to predict expenditures varied considerably among types of care, with adjusted R^2 highest for center care and lowest for care by a relative.

Effect of Income and Earnings on Choice of Care

Table 3 presents the coefficients for cost, child/staff ratio, family income and mother's earnings from the logit models on child care choice. With neither cost nor child staff ratio in the model (Column 1), family income is not related to child care choice, but mother's earnings are strongly related. The higher the income of the mother the less likely she is to use any form of care except a day care center, with use of the husband declining most as her earnings rise. Contrary to expectations, family income has no impact on type of care chosen, even before cost is added to the model. The income of the mother is an important determinant of choice of care, and this holds across all the models. Once price of care is added to the model (Column 2), the impact of mother's earnings decline for sitter and care by a relative, but it remains negative and strongly related to care by the husband. These results support those arguments that child care decisions tend to be restricted by the amount the mother can earn. This makes sense, since it is her employment that leads to the need for child care in the first place. However, it also argues that policies that increase total family income will not affect child care choice among those already employed (although they may affect the decision to work), whereas, those that increase the mother's earnings will affect the kind of care chosen.

Effect of Quality on Choice of Care

The relationship between child/staff ratio and choice of care is in the expected direction (the greater the number of children per staff member, the less likely parents are to select that form of care), but the coefficient is not statistically significant (Table 3, Column 3). However, when the effect of the child/staff ratio is allowed to vary with child care mode (Column 4), we see that the effect varies with type of care. The effect of child/staff ratio is strongly negative and significant for child care centers and strongly positive (but not significant) for care by a relative. This makes sense. The more children per staff member parents expect in a center, the less likely they are to choose it. There is no reason to expect that parents would be reluctant to use care by a relative the larger the number of children they have. Rather, for such families care by a relative may be the only affordable choice and may be part of a barter arrangement. Furthermore, relatives who are already taking care of several children may be quite willing to take on an additional child of the same age. It is somewhat surprising that there is no relationship between child/staff ratio and choice of sitter care. However, most family day care homes and most sitters have small numbers of children anyway (the average is 3) and their standard deviation is smaller than that of centers; there may not be enough variation among arrangements to make the child/staff ratio a good measure of quality among them.

Effect of Price on Choice of Care

Price of care is strongly related to choice of type (Table 3, Column 2). When price is added to a model containing only family characteristics, its contribution is statistically significant. As expected, the more parents pay for a mode of care the less likely they are to choose it. Although we hypothesized that price includes a quality component and that controlling for quality might reduce the effect of price, this does not appear to be the case with these data. When child/staff ratio was added to the model (Column 3), the effect of price on mode choice did not change. It may be that the child/staff ratio is not a sufficient measure of quality, or it may be that price really does not reflect quality. A paper by Waite et al (1988) using hedonic price models did not find that parents paid more for care of "higher quality."

Finally, it was hypothesized that the impact of price may vary by type of care. Column 4 of Table 3 shows that when price of care is allowed to vary, the coefficients for centers, sitters and relatives are all negative, as expected, with the coefficient for care by a relative largest in size, center care next largest, and care by a sitter smallest in size. Since the standard error for center care is large, however, only the coefficients for sitter and relative care are still statistically significant. It makes sense that the cost of care in a center would have a large effect on choice of such care (-.716), with the cost of care by a sitter next (-.605). The large effect of the cost of care by a relative (-.990) is somewhat surprising. This may simply reflect the fact that the advantage of relative care lies in its low cost. Care by a relative loses this major advantage if the parent has to pay for it.

Providers are very aware of the sensitivity of parents to the cost of care, and have been reluctant to raise prices. Evidence from the past decade suggests that small changes in market prices have been enough to induce new supply (Hofferth, 1987). The evidence presented here suggests that increases in the price of center care relative to other alternatives would dramatically shift usage.

Effect of Other Independent Variables on Choice of Care

Table 4 shows the effects of control variables in the model in which cost and quality are unconstrained. As other research has found, families living in the South are more likely to use a child care center than a sitter, net of other factors. This suggests regional differences in tastes. While the age of the child in care does not affect choice of care, once differences in other factors, including price and quality are taken into account, family size and ages of other children are important. Families who have additional children of preschool or school age are much more likely to use a sitter or relative rather than a center for the youngest child, all else equal. Although centers often provide reduced fees for multiple children, there are considerably greater economies of scale in sitter than in center care. Race is apparently not a significant factor in choice of care. Blacks and whites do not differ in type of care chosen, net of other factors. Ethn city makes a difference, however. Hispanics are more likely to use care by a relative than care in a day care center. The mother's educational level affects choice. Mothers with some college are less likely to use care by a relative than care in a day care

center. Availability is an important contributor to choice of care. Families who live within 30 minutes of a relative or who have another adult actually living in their household are much more likely to use care by a relative than care in a center. In addition, families who have another adult living in their household are less likely to use care by the husband than center care and relative care.

Predicted Probabilities of Using Child Care

Based upon the results in Table 3, Column 4, we generated a series of predicted probabilities for the use of each of the four types of child care under different assumptions about the price of center care, the child/staff ratio in centers, family income and mother's earnings, and for married and unmarried mothers (Table 5). Probabilities were evaluated at the sample means for other control variables. Prices examined range from 0 to $4 per hour and the child/staff ratio ranges from 1:1 to 12:1. Probabilities are quite sensitive to price of care. If the cost of care in a child care center were fully subsidized such that no one had to pay for it, then 60 percent of the employed married mothers of preschool children and 63 percent of unmarried mothers would use such care. At child care approaching $4 per hour, only 8 to 9 percent would use child care centers. Because parents may consider both price and child/staff ratio jointly in deciding on care, we also present the probabilities of using each type assuming different combinations of price and child/staff ratio. The actual situation is represented by parents facing an hourly price of $3 and a child staff ratio of 6:1 in centers. Here we can see

more precisely the tradeoffs parents make. We see that price is the more important determinant, with quality of care raising or slightly lowering the proportion who choose care at each level of price.

We also show the relationship of mother's earnings and family income to changes in child care use. Care by the father and by a relative are most responsive to changes in the mother's earnings. As the mother's income rises, care by the father declines and care by another relative or in a center increases. Care by a sitter consistently declines with a rise in the mother's earnings. In contrast, choice of care does not vary by family income, as our earlier models indicated.

Nested Logit Results

Underlying the multinomial logit model is the assumption that the alternatives are independent of one another (the Independence of Irrelevant Alternatives property). If some of the alternatives are closer than others, this assumption is violated and the estimated parameters will not be correct. In our model it is very possible that we actually have two sets of alternatives, a market set (sitter and center) and a non-market set (relative and husband/partner). We posit that a family first makes a choice between market and non-market care based on the value attached to the market modes and the non-market modes and then between sitter or center care or between husband and relative care. Such a model can be described as a nested logit. To test whether the effects of price and child/staff ratio would differ under this hypothesized decision sequence from that assuming four independent choices, we

set up the model as two sets of discrete choices, the first between sitter and center, and the second between husband and relative. We then calculated two inclusive values from these equations and entered the difference into a discrete model of market versus non-market choice. To avoid complications in specifying the husband versus relative care equation, we estimated both the multinomial and nested logit models for the subsample of married women. The results are depicted in Table 6.

While it is clear that some variables have a different effect when estimated using the more flexible nested logit specification than in the multinomial logit model, in general, the coefficient estimates are similar. Since the multinomial logit model that we estimated above is a restricted version of the nested logit model, we can test the appropriateness of the restrictions. If the multinomial logit model is appropriate, we should be able to accept the hypothesis that the cofficient on the difference in the inclusive values is equal to one. Our estimates show that the difference in inclusive values is not significantly different from 1 at the 10 percent significance level. This suggests that this nested model does not significantly improve upon the independent model. There are differences in the coefficients between this model and the independent multinomial logit model. Most importantly, the effects of the price of center care and relative care are substantially reduced in size. Only sitter care is statistically significant; while all three prices have negative effects on the probability that a mode is chosen, sitter care now has the largest effect, followed by relative care and center care. There are only small differences in the effect of child/staff ratio. The comparable coefficient from the nested logit on child/staff ratio for center (-0.097) is

similar in magnitude to the multinomial logit estimate (-.116), and is close to statistical significance.

Finally, instead of entering the difference in inclusive values in the model we entered the two inclusive values from the separate nestings (center vs. sitter and husband vs. relative) (not shown). While the inclusive value for the relative versus husband comparison is not significantly different from 1, the inclusive value for the center versus sitter comparision is significantly different from 1. These results suggest that center and sitter are closer substitutes than relative and husband/partner care are to each other or to market care. While growth in center and sitter care may occur at the same time,[5] their similarity also means that there may be substitution between them. Reducing the price of center care or keeping it low may draw children out of sitter care rather than out of relative or husband/partner care. In practice, state and local policies generally apply to both market options, while they do not apply to non-market options. Centers and sitters differ, of course, in the average number of children per staff member. Parents appear to make this distinction and to use the information in their decision-making.

Summary and Conclusions

Clearly, one of the most important factors affecting parental choice of child care arrangement is its price. Families who face a higher price for a type of care are less likely to use that type, although the effect of price varies in magnitude and is not always statistically significant. Selection effects are important. Families who use care of a given type are the ones who face the lowest prices for that type, on average. This helps explain why there is an apparent discrepancy between what providers charge and what parents say they spend. Even after adjusting for this selectivity, however, price remains an important consideration in child care choice.

The quality of care, as measured by the ratio of children to staff members, is a factor in the decision, but not for all types of arrangements. It has the greatest effect on selection of a child care center as opposed to other modes. Certainly, there are other aspects of quality that would affect parents' choice of a sitter or even a relative. However, they were not measured in this study.

Parents apparently recognize the importance of the number of children that a single caregiver must care for at one time and take it into account in their child care decisions. Since child/staff ratio is one of the major quality measures that can be affected by regulation, it is not only reassuring that centers with low child/staff ratios are found to be associated with better outcomes for children, but also that parents are more likely to select such centers.

Family income affects how much parents pay for center care. Once price is controlled, however, family income does not affect which type of care parents choose. The mother's earnings, on the other hand, do not affect expenditures on care, but do affect the type of care chosen. Mothers with higher earnings are much less likely to name their husband/partner as the primary substitute caregiver than center care.

The policy implications are clear. Policies that raise total family income, such as the Earned Income Tax Credit or other general tax credits that do not depend on having child care expenses, may allow families who use a center to pay more for it; however, they are not likely to change the child care choices families with a mother who is employed, in school or in training make. Policies such as employment and training programs targeted at women, which increase the income of the mother, on the other hand, will not necessarily increase expenditures on care (except insofar as they increase the hours worked). However, they are likely to have an impact on choice of caregiver, with some substitution of center care for care by a sitter or by the husband/partner. Policies that effectively reduce the price of care, such as the Child and Dependent Care Tax Credit or direct monetary subsidies, are likely to have an impact on parental choices. Estimates using the multinomial legit model suggest that child care centers and sitters are the clear beneficiaries of such price reductions. Estimates using the nested logit model suggest that only sitters would benefit from price reductions. Finally, policies such as strong state and local regulation of centers, which raise the quality of child care by reducing child/staff ratios, are likely to increase parental use of centers, though child/staff ratio is only one of the criteria parents use to determine quality. The advantage of the child/staff ratio measure is that it is something parents know and can evaluate.

In this paper we have attempted to address some of the key questions that policymakers must address in laying out a coherent child care policy. A number of important questions have been left unaddressed in this paper, including the question of the effect of price on the mother's (and father's) work effort. Current data are not sufficient to adequately address this question. This limitation makes it even more valuable to understand the impact of price and quality on choice of care among young families with a mother who is employed, in school or in training.

Footnotes

1. The child development field has only begun to address this issue; a recent paper finds grandparent care to be associated with higher ability scores for their grandchildren (Baydar and Brooks-Gunn, 1989).

2. In this paper we use the term "expenditures" to denote parental reports of actual expenditures for the child care they use. The term "price" refers to predicted expenditures, what families would expect to pay per child for each type of child care, not just the one they use, based on their own characteristics and that of the area in which they live. Predicted prices are adjusted for differences in payment levels for arrangements covering differing numbers of children.

3. There were 215 women who were neither married nor had a partner. All of the young unmarried women in our sample had access to a relative. All but seven married respondents had access to relatives either within the household or outside the household. The statistical package (LIMDEP) did not allow us to offer a set of three choices to married women with no relatives different than that offered to unmarried mothers with no partners, so we permitted these seven married mothers the choice of a relative but adjusted for degree of access (within 30 minutes) and presence of another relative in the household.

Ideally, we would also liked to have considered the labor force participation of these relatives in determinining availability to provide child care. There are three reasons for not doing so. First, if the employment and

child care decisions of relatives are made jointly, then their labor force participation should be included as part of the choice set (see, for example, Blau and Robins, 1988). Second, the decisions to work and to provide child care are not mutually exclusive. Other research has found that a decision by another family member to work outside the home does not preclude that member from providing child care, since members may choose to work different, non-overlapping hours and to provide child care during the non-working hours (see Presser, 1989). This is particularly true for care provided by fathers and grandmothers. Third, not enough information on work and child care schedules for family members was available to estimate such models.

4. We attempted to estimate the selection into relative care and the subsequent selection into paid relative care as a bivariate probit model with selection. Numerous attempts to estimate that model led to consistently unstable results. Finally, we assumed the two selection mechanisms to be independent and estimated two probits: 1) relative care versus non-relative care (on the full sample), and 2) paid relative versus non-paid relative care on the sample of users of relative care. These were then used to correct for selection in the least squares price equation.

5. Over the past two decades use of care by a relative declined 23 percent and care by a sitter declined 60 percent, while use of family day care increased 37 percent and care in a day care center increased almost 300 percent (Hofferth, 1987).

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Table 1

Panel A:

Weekly Child Care Prices Reported by Providers in Four Major Cities, 1985

	Child's Age	Sitter in Child's Home	Family Day Care	Child Care Center
Boston	Under 2	$260-340	$45-160	$90-150
	2 - 5		40-160	75-110
St. Louis	Under 2	165 & up	45-50	65-80
	2 - 5		35-40	50-70
Dallas	Under 2	165-200	50-70	60-90
	2 - 5		35-70	50-70
San Francisco	Under 2	165-200	55-90	90-120
			55-85	65-90

Source: O'Connell and Bloom, 1987

Panel B:

Weekly Expenditures Reported by Parents Paying for Child Care, by Type of Arrangement, Survey Years, Surveys and Organization

	Relative	Sitter in Child's Home	Family Day Care Home	Center/ Nursery School
1985 Ohio State NLSY <5[1]	$29.62	$42.18	$37.86	$37.40
1985 Census Bur. SIPP[2]	$28.40	$41.10		$43.50
1986 Census Bur. SIPP[3]		$40.70		

Footnotes

[1]Mean expenditure for youngest child <5.
[2]Median expenditure for families with one child <15.
[3]Mean expenditure for families with one child <15.
SIPP stands for the Survey of Income and Program Participation.

Source: Hofferth, 1987; U.S. Bureau of the Census, 1987, 1989.

Table 2 (Cont.)

Parameter Estimates from OLS Regression of Expenditures for Care on a Set of Family And Area Characteristics, by Type of Care Chosen for Youngest Child

	Center (SE)	Sitter (SE)	Relative (SE)
Has Sibling 9-11	.032 (.327)	-.683[b] (.267)	-.007 (.343)
Has Sibling over 11	-.603 (.517)	-.280 (.609)	.398 (.874)
Number of Children in Arrangement = 1	.788[b] (.310)	-.241 (.231)	.260 (.324)
Number of Children in Arrangement = 2+	.372 (.666)	-.219 (.392)	.768 (.472)
College Graduate	.343 (.283)	-.484 (.294)	.137 (.596)
SMSA	--- ---	.628[c] (.176)	--- ---
Missing SMSA	--- ---	-.201 (.283)	--- ---
Lambda[d]	-1.249[b] (.406)	-1.462[b] (.493)	--- ---
Constant	2.698[a] (1.182)	3.607[c] (.985)	.029 (1.207)
Lambda 1[d]	--- ---	--- ---	-.487 (.645)
Lambda 2[d]	--- ---	--- ---	-.301 (.525)
Adjusted R^2	.235 185	.140 225	.029 159

[a] $p < .05$
[b] $p < .01$
[c] $p < .001$

[d] Lambda 1 is derived from the probit estimation of the probability of paying a relative for child care, among those who use a relative.

Lambda 2 is derived from the probit estimation of the probability of using a relative for child care, among all respondents.

Lambda 3 is derived from the probit estimation of the probability of using a center or sitter for child care, among all respondents.

Table 2

Parameter Estimates from OLS Regression of Expenditures for Care on a Set of Family And Area Characteristics, by Type of Care Chosen for Youngest Child

	Center (SE)	Sitter (SE)	Relative (SE)
Black	-.820[c] (.221)	.771[b] (.275)	-.571[a] (.252)
Hispanic	-.452[a] (.225)	.636[a] (.272)	-.421 (.369)
Proportion of Population in County Under 5 (x100)	.121 (.071)	-.154[a] (.068)	.115 (.123)
Money Income Per Capita in County (in thousands)	.036 (.040)	--- ---	.135[a] (.062)
Total Family Income (in thousands)	.024[c] (.007)	.000 (.006)	-.004 (.009)
Mother's Earnings from Wages and Salary (in thousands)	-.021 (.020)	.003 (.015)	.023 (.024)
Mother's Work Hours	-.026[c] (.008)	-.006 (.007)	-.016 (.012)
Missing Work Hours	-1.077[b] (.350)	-.535 (.332)	.083 (.506)
Mother Was Non-Day Job	1.816[c] (.452)	-.024 (.222)	.544 (.342)
Age of Child is 3-5	-.833[c] (.236)	.187 (.167)	.073 (.206)
Has Sibling less than 2	.848[a] (.376)	.531 (.296)	.074 (.416)
Has Sibling 3-5	-.334 (.319)	.356 (.231)	-.356 (.367)
Has Sibling 6-8	-.220 (.199)	.615[b] (.209)	.248 (.286)

Table 3

Maximum Likelihood Logit Estimates of the Effect of Income, Earnings, Price of Care, and Child/Staff Ratio on Choice of Arrangement[d]

Variable	(1) Characteristics of Families Only	(2) With Price (Constrained)	(3) With Child/Staff Ratio and Price (Constrained)	(4) With Child/Staff Ratio and Price (Unconstrained)
Price of Care				
Center	---	-.659 (.166)[c]	-.658 (.166)[c]	-.716 (.597)
Sitter	---	-.659 (.166)[c]	-.658 (.166)[c]	-.605 (.186)[b]
Relative	---	-.659 (.166)[c]	-.658 (.166)[c]	-.990 (.393)[c]
Husband	---	-.659 (.166)[c]	-.658 (.166)[c]	---
Child/Staff Ratio				
Center	---	---	-.022 (.017)	-.053 (.021)
Sitter	---	---	-.022 (.017)	.005 (.030)
Relative	---	---	-.022 (.017)	.095 (.076)
Husband	---	---	-.022 (.017)	-.064 (.099)
Family Income				
Center	[e]	[e]	[e]	[e]
Sitter	.014 (.011)	-.003 (.012)	-.003 (.012)	-.005 (.020)
Relative	-.0003 (.010)	-.015 (.010)	-.015 (.010)	-.016 (.019)
Husband	-.0000 (.015)	-.017 (.016)	-.017 (.016)	-.019 (.022)
Mother's Earnings				
Center	[e]	[e]	[e]	[e]
Sitter	-.053 (.024)[a]	-.039 (.025)	-.039 (.025)	-.039 (.027)
Relative	-.054 (.022)[a]	-.020 (.024)	-.020 (.024)	-.009 (.028)
Husband	-.112 (.032)[c]	-.099 (.032)[b]	-.099 (.032)[b]	-.099 (.035)[b]
Log Likelihood	-1056.4	-1046.9	-1046.6	-1045.1
X^2	455.65	474.78	475.21	478.25
N	971	971	971	971

[a] $p < .05$
[b] $p < .01$
[c] $p < .001$
[d] Other variables included in the model are listed in Table 4.
[e] Center is the omitted category.
[f] Asymptotic standard errors in parentheses are not corrected for prediction of price.

Table 4

Parameter Estimates for all Variables in Model Allowing Effects of Price and Child/Staff Ratio to Vary Across Modes

	Center (SE)	Sitter (SE)	Relative (SE)	Husband/ Partner (SE)
Price	-.716 (.597)	-.606[c] (.186)	-.990[b] (.293)	--- ---
Child/Staff Ratio	-.053[b] (.021)	.005 (.031)	.095 (.076)	-.065 (.100)
Family Income		-.005 (.020)	-.016 (.019)	-.019 (.022)
Mother's Earnings		-.039 (.027)	-.009 (.028)	-.099[b] (.035)
Mother's Work Hours		.020 (.020)	.009 (.019)	-.005 (.020)
Missing Work Hours		.670 (.898)	.734 (.837)	.344 (.876)
South		-.606[a] (.309)	.129 (.298)	-.512 (.388)
North		.132 (.344)	.355 (.326)	.583 (.388)
Black		-.122 (.562)	-.166 (.579)	-.392 (.642)
Hispanic		.303 (.508)	1.005[a] (.476)	.046 (.602)
Child is 3-5		-.593 (.561)	-.481 (.568)	-.880 (.592)
Has Sibling $\leq$ 2		1.013 (.796)	.641 (.776)	1.101 (.814)
Has Sibling 3-5		.825[a] (.424)	.404 (.406)	.579 (.455)
Has Sibling 6+		.992[b] (.330)	.703[a] (.314)	1.111[b] (.381)

Table 4 (Cont.).

Parameter Estimates for all Variables in Model Allowing Effects of Price and Child/Staff Ratio to Vary Across Modes

	Center (SE)	Sitter (SE)	Relative (SE)	Husband/ Partner (SE)
Some College		-.000 (.254)	-.633[b] (.249)	-.033 (.329)
Non-Day Job		.244 (1.103)	.424 (1.107)	1.662 (1.127)
Has Relative w/in 30 mins.		-.048 (.295)	1.047[c] (.298)	.344 (.383)
Has Relative ≥ 18 in household		-.341 (.355)	.736[a] (.305)	-1.003 (.526)
Constant		-.151 (2.628)	-2.083 (2.504)	-1.143 (2.569)
Log Likelihood	-1045.1			
X^2	478.25			
N	971			

[a] $p < .05$
[b] $p < .01$
[c] $p < .001$
[d] Asymptotic standard errors in parentheses are not corrected for prediction of price.

Table 5

Predicted Probabilities of Child Care Use, For Children Under 6, Under Selected Conditions, by Marital/Partner Status[a]

Condition	Unmarried Mothers			Married Mothers			
	Center	Sitter	Relative	Center	Sitter	Relative	Husband/Partner
Price of Center Care Per Hour							
$0	.630	.108	.262	.602	.125	.189	.084
1	.455	.159	.386	.425	.180	.274	.121
2	.289	.208	.503	.266	.230	.350	.155
3	.166	.244	.591	.150	.266	.405	.179
4	.089	.266	.645	.080	.289	.438	.194
Center Child/ Staff Ratio							
1:1	.297	.205	.498	.192	.253	.384	.170
3:1	.275	.212	.513	.177	.258	.392	.173
6:1	.245	.221	.535	.155	.265	.402	.178
12:1	.191	.236	.573	.118	.277	.420	.186
Center Price and Child/Staff Ratio							
0 3:1	.674	.095	.231	.647	.111	.168	.074
0 6:1	.638	.106	.256	.611	.122	.185	.082
0 12:1	.563	.128	.310	.533	.146	.222	.098
1 3:1	.503	.145	.352	.473	.165	.251	.111
1 6:1	.463	.157	.380	.434	.177	.270	.119
1 12:1	.386	.179	.435	.358	.201	.306	.135
2 3:1	.331	.196	.474	.305	.218	.331	.146
2 6:1	.297	.205	.498	.272	.228	.346	.153
2 12:1	.235	.223	.542	.214	.246	.374	.165
3 3:1	.194	.235	.570	.177	.258	.392	.173
3 6:1	.171	.242	.587	.155	.265	.402	.178
3 12:1	.131	.254	.616	.118	.277	.420	.186
4 3:1	106	.261	.633	.095	.284	.431	.191
4 6:1	.091	.265	.643	.082	.288	.437	.193
4 12:1	.068	.272	.660	.061	.294	447	.198
Mother's Earnings							
$ 2,000	.226	.244	.530	.126	.272	.356	.245
6,000	.239	.221	.540	.146	.268	.396	.190
10,000	.252	.199	.549	.165	.259	.431	.145

Table 5 (Cont.)

Predicted Probabilities of Child Care Use. For Children Under 6, Under Selected Conditions, by Marital/Partner Status[a]

Condition	Unmarried Mothers			Married Mothers			
	Center	Sitter	Relative	Center	Sitter	Relative	Husband/Partner
Total Family Income							
$10,000	.233	.220	.546	.127	.243	.430	.200
20,000	.257	.230	.513	.143	.259	.413	.185
30,000	.281	.239	.480	.160	.275	.394	.171
Mean Values							
All variables	.238	.222	.539	.150	.266	.405	.179

[a]All other variables are set to their means.

Table 6

Comparison of Parameter Estimate from Independent and Nested Logit Models, Unconstrained Price and Child/Staff Ratio, Married Mothers Only[f]

	Independent Logit				Nested Logit		
Variable	Centers (SE)[h]	Sitter (SE)	Relative (SE)	Husband/ Partner(SE)	Sitter (1) vs Center (0)(SE)	Husband/Partner (1) vs Relative (0) (SE)	Market (1) vs Non-Market (0)(SE)
Price of Care:							
Center	-.432(.661)	-.645(.194)[a]	-1.219(.444)[b]	--	.098(.386)	-	--
Sitter					.839(.330)[b]	-	--
Relative					--	.356(.586)[g]	--
Husband/Partner					--	--	--
Child/Staff Ratio							
Center	-.116(.057)[c]	.053(.067)	.125(.119)	-.067(.232)	.097(.054)	-	--
Sitter					.040(.083)	-	--
Relative					-	-.191(.139)[g]	--
Husband/Partner					-	-.132(.218)[g]	--
Family Income	d	.011(.021)	-.011(.021)	-.014(.022)	.012(.027)	.000(013)	.006(.007)
Mother's Earnings	d	-.043(.030)	-.026(.033)	-.111(.035)[b]	-.063(.033)[a]	-.052(.0.4)	.066(.019)[c]
Difference in Inclusive Values	--	--	--	--	--	--	.607(.245)[e]
Log Likelihood	-840.69				-176.12	-223.44	-444.19
N	756				322	434	756

a p<.001
b p<.01
c p<.05
d omitted category
e significantly different from 0 at p<.01. Significantly different from 1 only at levels >.10.
f other variables in the model are the same as in Table 4. Results available on request.
g the sign of this coefficient should be reversed to compare it with the coefficients in column 5.
h asymptotic standard errors in parentheses are not corrected for prediction of price.

Appendix Table 1
Means of Variables for Total Sample and Sample Subgroups

	Total Sample		UnMarried Mothers		Married Mothers	
	Mean	SD	Mean	SD	Mean	SD
Center	0.204	0.403	.284	.452	.181	.386
Sitter	0.243	0.429	.237	.426	.245	.430
Relative	0.383	0.486	.451	.499	.364	.481
Husband/Partner	0.164	0.376	---	---	.210	.408
Cost of Center	2.859	1.079	2.236	1.041	2.999	1.049
Cost of Sitter	3.259	0.659	3.397	.650	3.220	.657
Cost of Relative	0.672	1.150	.575	.351	.699	.368
Cost of Husband/Partner	---	---	---	---	0[b]	0[b]
Child/Staff Ratio-Center	6.518	1.723	6.653	2.198	6.480	1.561
Child/Staff Ratio-Sitter	3.051	1.130	2.979	.942	3.072	1.178
Child/Staff Ratio-Relative	1.633	0.723	1.630	.832	1.634	.696
Child/Staff Ratio-Husband/Partner	1.739	0.360	1.740	.000	1.738	.397
Total Family Income (in 1000s)	21.834	14.184	12.178	9.742	24.580	14.053
Mother's Earnings from Wages and Salary (in 1000s)	6.666	5.779	5.748	5.893	6.928	5.723
Mother's Weekly Work Hours	29.680	16.290	29.014	18.078	29.869	15.752
Missing Work Hours	0.124	0.329	.181	.386	.107	.310
Mother has non-day Job	0.137	0.345	.163	.370	.130	.336
Black	0.309	0.462	.507	.501	.253	.435
Hispanic	0.150	0.358	.102	.304	.164	.371
South	0.426	0.495	.423	.495	.427	.495
North	0.373	0.484	.391	.489	.368	.483
Age of Child is 3-5	0.610	0.488	.754	.432	.569	.496
Has Sibling Less than 2	0.074	0.262	.061	.239	.078	.268
Has Sibling 3-5	0.176	0.381	.154	.361	.183	.387
Has Sibling 6-8	0.200	0.400	.191	.394	.202	.402
Has Sibling 9-11	0.077	0.267	.098	.298	.071	.258
Has Sibling over 11	0.014	0.119	.014	.118	.015	.120
Has Relative Within 30 Minutes	0.843	0.364	.833	.374	.847	.361
Other Adult Lives in Household[a]	0.207	0.405	.321	.468	.175	.380

Appendix Table 1 (Cont.)
Means of Variables for Total Sample and Sample Subgroups

	Total Sample		UnMarried Mothers		Married Mothers	
	Mean	SD	Mean	SD	Mean	SD
SMSA	.713	.453	.749	.435	.702	.458
Missing SMSA	.094	.292	.047	.211	.107	.310
Money Income Per Capita in County (in thousands)	10.387	2.146	0.415	2.247	10.380	2.117
Proportion of Population in County under 5 (x100)	7.415	1.086	7.388	1.038	7.423	1.103
Mother is College Graduate	.066	.248	.023	.151	.078	.268
Mother has had some College	0.300	0.458	.302	.460	.299	.458
N	971		215		756	

[a] Other than husband or partner.

[b] Assumed zero