

A RAND NOTE

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Characteristics, Quality, and Costs**

**Linda J. Waite, Arleen Leibowitz,
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Although most children whose mothers work receive some nonparental care, this "child care" varies tremendously in its characteristics, especially quality. Child development researchers and practitioners have explored in detail the characteristics of child care that provide the best environment for children. However, we know virtually nothing about which parents select "high-quality" care for their children, or which arrangements most often have the features associated with the best outcomes for children. This paper explores these issues, using parents' reports of characteristics of their child's care arrangement from the National Longitudinal Survey of Youth. Results show that on several dimensions care in a home—the child's own, a nonrelative's, or a relative's—provides features linked to quality care. However, in general, parents do not pay more for the features of child care associated with high quality in the child development literature. The implications of these results are discussed.

With almost two-thirds of the mothers of preschool children in the labor force (Bureau of Labor Statistics, 1988), and increasing numbers and proportions of children receiving care in organized day care centers (Hofferth & Phillips, 1987), attention of public policymakers has increasingly focused on the implications of child care for the well-being of the children involved. Specific topics studied in recent research include the impact of nonparental care, especially formal group care, on the child's emotional development (Belsky, 1986), lan-

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guage development (Goelman & Pence, 1987), educational attainment (Heyns & Catsambis, 1986), and health (Johansen, Leibowitz, & Waite, 1988).

Although most children whose mothers work receive some nonparental care, this "child care" varies tremendously in its characteristics, especially quality. Child development researchers and practitioners have explored in detail the characteristics of child care that provide the best environment for children (Scarr, 1985). However, little is known about which types of child care arrangements generally have the characteristics associated with the best outcomes for children, or whether parents pay more for care with these characteristics. And virtually nothing is known about which parents select "high-quality" child care arrangements, as identified by child development experts, and which ones select lower quality care.

The research reported here addresses each of these issues with data on types and characteristics of child care arrangements reported by parents in the 1985 wave of the National Longitudinal Survey of Youth. First, the paper reviews the literature on child care quality and identifies those characteristics of care that are best for children. Next, it investigates how various child care arrangements differ in the proportion of instances having these characteristics. Then the amounts that parents report paying for care are regressed on the characteristics of that care, also as reported by the parents. These "hedonic price functions" indicate the amount that consumers, in this case parents, are willing to pay for each individual characteristic of the care that they are purchasing. Finally, we create an index of child care quality based on these characteristics, and use the index as a dependent variable in an analysis of child care quality.

Characteristics of High-Quality Child Care

Although some psychologists and pediatricians argue that only mothers can provide high-quality care for infants and toddlers (Belsky, 1986; White, 1975), much of the child development literature suggests that other care givers can also provide good care. A number of studies indicate that quality care for infants and toddlers requires a low ratio of children to adults (Francis & Self, 1982; Howes & Rubenstein, 1985; Ruopp et al., 1979). In addition, experts recommend that the youngest preschoolers receive care in relatively small groups (Phillips & Howes, 1989; Scarr, 1985), although Whitebook, Howes, and Phillips (1990) found no relationship between group size and quality of care for infants.

One-to-one care, or care in very small groups, also reduces the exposure of infants and toddlers to infectious disease (Johansen et al., 1988; Presser, 1988). Young children in day care centers or family day care homes seem to contract significantly more respiratory and other diseases than children cared for in their own home. Although the effects are not large, care with large numbers of other children does appear to carry health risks for children under age 2½. However,

these health risks are much smaller for older preschoolers—those aged 3–5—and the potential gains from group care are greater.

Research results suggest developmental and educational benefits for older preschoolers from interaction with other children and with an adult trained in early childhood education (Clarke-Stewart, this issue). 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; Ruopp et al., 1979; Stallings & Porter, 1980; Whitebook et al., 1990). Each adult can adequately supervise more older preschoolers than younger ones, so the recommended child/adult ratio increases with the child's age, as does the recommended number of children per group.

However, parents evaluate child care quality based on many more factors than its educational component and implications for the number of colds the child will get. A recent study by Lein (1979) surveyed a group of two-worker couples about the features of various child care arrangements and their importance to the parents. It found that, in addition to effects on cognitive development, parents tend to value reliability of care, with the greatest reliability being offered by formal, full-time, paid centers or care by parents. Informal, unpaid arrangements offer the least reliability. Parents also value warmth and love, which they see as offered most consistently by relatives of the child, but also by individual care givers. The other considerations include the quality of the physical environment and the physical safety of the child, protection from alien values, convenient location of the care, communication with the care giver about the child, and discipline. Parents place a different degree of emphasis on each of these dimensions depending on their values and needs.

When parents are asked about the type of care that they consider ideal for young children, their answers depend in important ways on the age of the child. The majority of parents consider care by relatives to be ideal for children age 3 and under if the child's mother is employed and cannot provide care. Only for children over age 3 do other child care arrangements become more popular than the child's father as a source of care when the mother works (Mason & Kuhlthau, 1989). Care in day care centers, nursery schools, and preschools becomes a more frequently cited ideal as children become older, but it is chosen by as much as half the sample only for the oldest preschoolers—those between 4 and 5.

To summarize, infants less than age 2 appear to benefit from one-to-one care by a trained provider in very small groups. The Federal Interagency Day Care Requirements recommend no more than 3 children per care giver at these ages and no more than 6 children per group. Parents strongly prefer care by relatives—most often either the child's father or grandmother—for children up to age 2.

For 2-year-olds, groups can be larger (up to 12 children) and each adult can supervise more children adequately (one adult for each 4 children). Recom-

mended group sizes and numbers of children per adult increase again for children 3–6 years old—up to 16 children per group and up to 8 children per adult. A care giver trained in early childhood education can enrich the social and educational environment for older preschoolers.

Data and Methods

This research uses mothers' and fathers' reports of child care arrangements from the 1985 interview of the National Longitudinal Survey of Youth (NLSY). Parents answered questions on who cares for their child while they are at work, where this care takes place, and the relationship of the care giver to the child. The NLSY also obtained detailed information from parents about the cost of care, the number of hours the child received care, and the characteristics of the arrangements, including the number of children cared for in the same group as their child, the number of adults who supervised the group, and whether the main person responsible for caring for the child had "education or training specifically related to young children, such as in early childhood education, special education, or child psychology." This last question was asked only if the care giver was not a relative of the child.

These questions provide information about several key characteristics associated with quality of care. It is important to note, however, that the NLSY does not provide direct evidence on characteristics of care, but only on parents' reports of the characteristics of the care that their child receives.

Our analyses of child care arrangements focused on children less than age 5. Type of child care and its quality are more important for children not yet in kindergarten or elementary school than for older children, because child care, in effect, substitutes for time in school for younger children.

The analysis of hedonic price functions, based on hourly child care costs, used multiple regression to indicate the effects of a wide variety of predictor variables, and required further restrictions. Respondents in the NLSY were asked how much they paid for child care and the unit of time (day, week, month) to which the cost referred. As a result of data limitations, we could calculate child care costs for particular types of care accurately only for families whose primary provider cared for only one of their children, and who also did not pay their provider in kind. These restrictions left a sample of 458 families for analysis of hedonic price functions.

The index of child care quality that we created assigned points for a number of attributes associated with high quality in the child development literature. It took into account whether the child was in care that (a) met the Federal Interagency Day Care Requirements for group size for the child's age, (b) met the requirements for number of adult care givers per child for children of that age, and (c)

whether the primary provider had early childhood training.¹ Each of these features added one point to the scale value, which could range from 0 to 3.²

Analyses of the index of child care quality were based on women who were working, going to school, or in a job-training program, whose children received child care while the mother was working. The sample consisted of 777 respondents whose youngest child was less than 3 years old, and 402 respondents whose youngest child was 3 or 4 years old.

Results

Child Care Characteristics

The first analyses describe the characteristics of different types of child care arrangements, comparing care in the following: the child's own home (a) by parents, or (b) by others; (c) the home of a relative; (d) the home of a nonrelative (family day care home); (e) nursery school; and (f) an organized child care center. For each type of care, Table 1 presents the proportion meeting the Federal Interagency Day Care Requirements for children per adult, and for number of children in a group, and the proportion of adult care givers with some education in early childhood. Note that this table includes children whose mother remained at home full time to care for them. The remaining analyses are limited to children of working mothers.

The results in Table 1 hold some surprises. First, at all ages, preschool children cared for in their own home or in the home of a relative almost always received care in groups no larger than the recommended size, with at least the recommended number of adults. The same was generally true of children cared for in family day care homes, except that about a quarter of the infants and toddlers in these homes did not have enough adult care givers for the number of children (recall that the recommended ratio was one adult for each three children under age 2, and 1 adult to 4 children for 2-year-olds).

However, nursery schools and organized child care centers often failed to

¹The Federal Interagency Day Care Requirements were superseded by the new Social Services Block Grant legislation in the early 1980s, making states and local communities responsible for all licensing and regulation of child care. Only Head Start, which serves only a small proportion of children eligible for its services, remains under federal regulation (Kahn & Kamerman, 1987). State and local regulations vary greatly in child/staff ratios and other requirements for licensing (Coelen, Glantz, & Calore, 1979).

²We also created a summary measure of quality that subtracted points for potentially harmful attributes and added a point, for children less than age 3, for care by a relative, and a point, for children age 3 and 4, for care in a center or nursery school or by a trained provider. However, results from this index were quite sensitive to measures reflecting chances of relative care for the youngest children, and we do not report the results for this expanded index here.

Table 1. Characteristics of Child Care Arrangements by Age of Child and Type of Care (Weighted), 1985

Characteristic	Type of care						Total
	Own home		Relative home	Nonrelative home	Nursery school	Center	
	Parent	Other					
Percent meeting recommended child/adult ratio							
0-1 years	99	97	88	70	35	31	92
2 years	100	99	93	77	35	36	91
3-4 years	100	99	100	94	56	58	92
Percent meeting recommended group size							
0-1 years	100	99	100	97	51	18	97
2 years	100	100	100	100	78	75	98
3-4 years	100	100	100	96	52	55	92
Percent with care-giver education							
0-1 years	—	—	—	27	96	81	38
2 years	—	—	—	12	100	64	32
3-4 years	—	—	—	27	93	88	59
Mean number of children per adult							
0-1 years	1	1	1	2	4.8	4	1.7
2 years	1	1	1.5	3.1	4.8	5	1.6
3-4 years	1	1	1	3	7.5	7.2	1.5
Median number of children per group							
0-1 years	1	1	1	2.3	6	9.2	1.1
2 years	1	1.3	1.3	3.3	11.4	9.6	1.4
3-4 years	1	1	1	3.4	14	14.6	1.2
Unweighted sample size							
0-1 years	972	92	120	125	12	39	1360
2 years	374	53	84	74	14	31	630
3-4 years	388	68	80	81	52	82	751

meet the requirements for group size and number of children per adult; only one-third of the infants and toddlers in centers and in nursery schools had adequate numbers of adult care givers. And only 1 infant in 5 in a center and half of them in a nursery school received care in groups of the recommended size of 6 children per group. About one-quarter of toddlers and about half of preschoolers received care in too-large groups—i.e., over 12 children per group for those age 2, and over 16 per group for ages 3 and 4.

By these criteria, older preschoolers seem to receive higher quality care in centers and nursery schools than do younger children; half or more of 3- and 4-year-olds received care that met group size and child/staff ratio requirements.

But even for older preschoolers on these criteria, the contrast with care in their own home or someone else's home was dramatic and surprising.

However, by the third criterion, the early childhood education of the primary care giver, nursery schools, and child care centers appeared much better than nonrelatives' homes (recall that the NLSY did not ask if care-giver relatives had early childhood training). One must view the results on care giver's education with caution, however, since about one-fourth of the mothers said that they did not know whether the care giver had any special training, or the data were missing. Since education or training is—unlike group size and number of adult care givers—not directly observable by the parents, this measure probably has considerably more reporting error than the other characteristics of care. In addition, classroom aides may have less training than the primary care giver (Whitebook et al., 1990), leading to an overestimate of the amount of education of all the adults who care for the children in a group.

What Do Parents Pay for Child Care Quality?

Next, we calculated the hourly cost of child care for one child, and regressed this hourly cost on characteristics of the care. These hedonic price functions attempt to measure the value to the consumer of features of a purchased good or service. This exercise indicates how much parents pay per hour of care for various attributes of child care. We hypothesized that parents value and pay more for characteristics associated with high-quality care, especially appropriate numbers of care givers per child, appropriately sized groups, and relevant education of the primary care giver. In addition, parents may pay for the educational programs available in nursery schools, and for the reliability and convenience of center care. Although parents may value care by a relative, especially for younger preschoolers, they typically do not have to pay as much for it because relatives charge substantially less, on average, than do nonrelatives of the child.

Table 2 presents the definitions of the variables used in our models of child care costs and child care quality (discussed later). Table 3 presents the results of the cost analysis for children of all ages up to 5 years old in all types of care. Model 1 in Table 3 includes the number of hours of care purchased (since we expected economies of scale in production of child care and therefore in its price), region, whether the father or mother reported on costs (to capture gender differences in knowledge of the details of the transaction, since obtaining child care is almost always viewed by families as the wife's responsibility—Flöge, 1986), and whether the parent was a student or in a job-training program (to capture access to low-cost child care through the program). The model also includes characteristics of the child care purchased—specifically the location (child's home, center, or preschool), whether the primary provider was a relative

Table 2. Definitions of Independent Variables

Variable	Definition
MALE RESPONDENT	Respondent (R) is male
STUDENT, TRAINEE	R is full-time student or in training program
Place of principal child care	
OWN HOME	Child cared for in own home
CENTER	Child cared for in day care center
PRESCHOOL	Child cared for in nursery school
(omitted category)	Child cared for in home other than own
PPRELATIVE	Principal provider is a relative (includes spouses and partners)
RECOMMENDED CHILDREN/ADULT	Number of children/adult in child care group meets recommendations
RECOMMENDED GROUP SIZE	Number of children/group meets recommendations
PRINCIPAL PROVIDER EDUCATED	Provider has education in child development
PROVIDER EDUCATION MISSING	Respondent did not know if provider had child development education
Respondent's region of residence	
NORTHEAST	R lives in Northeast census region
SOUTH	R lives in South census region
WEST	R lives in West census region
(Omitted category)	R lives in North Central census region
Race	
BLACK	R is Black
HISPANIC	R is Hispanic (not including Black)
(Omitted category)	R is non-Hispanic White
Marital status	
DIVSEPWD	R is divorced, separated, or widowed
SINGLE	R has never been married
(Omitted category)	R is currently married
Education	
HSGRAD	R has 12 years of education
ED1315	R has 13 to 15 years of education
ED16PL	R has 16 or more years of education
(Omitted category)	R has less than 12 years of education
Mother's average hourly wage during 1984	
Hourly wage = total year's earnings (wages + self-employment income) divided by the total number of hours worked in 1984; hourly wage = 0 if not currently working (students); hourly wage is missing if currently working but had no earnings last year; hourly wage also considered missing if \$.01-\$1.24 or \geq \$60	
WGOT335	Hourly wage \$0-\$3.35
WG335T5	Hourly wage \$3.36-\$5.00
WG10PL	Hourly wage over \$10.00
(Omitted category)	Hourly wage is \$5.01-\$10.00
MSGHRWG	Hourly wage was missing

(continued)

Table 2. (Continued)

Variable	Definition
MSGINC	Welfare income, husband's income, or "other" income data were missing and were imputed (missing income variables were set to the sample means)
HAVE PARTNER	R has live-in partner (not a spouse)
OTHER ADULT	Anyone 18 years or older lives in the household, other than R, a spouse, or a partner
RELATIVE 10-29	Closest relative outside the household is 10-29 minutes away
RELATIVE 30+	Closest relative outside the household is 30 minutes or more away, or R has no relative
(Omitted category)	Closest relative outside the household is less than 10 minutes away
Child's age	
AGE0	Child is < 1 year old (omitted group in 0-2 models)
AGE1	Child is 1 year old
AGE2	Child is 2 years old
AGE3	Child is 3 years old (omitted group in 3-4 models)
AGE4	Child is 4 years old
Continuous variables	
HOURS OF CHILD CARE	Natural log of number of hours/week child receives care
WELFARE INCOME	1984 welfare income (Aid to Families with Dependent Children + other welfare) (in \$000's)
OTHER INCOME	1984 income other than welfare, own or spouse's earnings (child support, alimony, disability, other) (in \$000's)
HUSBAND'S INCOME	1984 husband's income (wages, self-employment earnings, and unemployment compensation); truncated at \$50,000; = 0 if no husband (in \$000's)

of the child, and whether the care met recommended standards for group size and number of children per adult, and whether the primary provider had early childhood education. Also included was a measure indicating that the parent did not know whether the provider had early childhood education, a relatively common response.

Model 2 in Table 3 includes all the above measures of characteristics of care except "meets recommended group size" and the two measures of the education of the primary care giver. We reasoned that care-giver education is not easily observed by parents taking their child to a nursery school or center, and is, for this reason, measured with a good deal of error. Also, the size of the group in which their child receives care (although important to child development specialists) may be less important to parents than is the number of adults to provide care in the group. In Model 2, the measures of the location of care, the

Table 3. Determinants of Log of Hourly Child Care Costs, in Pennies
(Hedonic Price Functions for Hourly Child Care Costs)^a

Variable	Model 1		Model 2	
	Parameter estimate	Standard error	Parameter estimate	Standard error
INTERCEPT	6.875	0.17	6.717	0.15
HOURS OF CHILD CARE (LOG)	-0.623**	0.04	-0.617**	0.04
STUDENT, TRAINEE	-0.075	0.07	-0.066	0.07
NORTHEAST	0.016	0.07	0.024	0.07
SOUTH	-0.094*	0.05	-0.089	0.05
WEST	0.091	0.07	0.094	0.07
MALE RESPONDENT	0.073*	0.04	0.079*	0.04
OWN HOME	0.042	0.07	0.043	0.07
CENTER	0.064	0.07	0.095**	0.06
PRESCHOOL	0.132	0.08	0.160**	0.07
PPRELATIVE	-0.224**	0.06	-0.198**	0.05
RECOMMENDED CHILDREN/ADULT RATIO	0.011	0.06	-0.017	0.05
RECOMMENDED GROUP SIZE	-0.131*	0.07	—	—
PROVIDER EDUCATION MISSING	-0.081	0.06	—	—
PROVIDER EDUCATED	-0.047	0.07	—	—
R ²	.380		.373	

^aMean of dependent variable = 4.54. N = 458.

*p < .10

**p < .05

child/adult ratio, and whether the provider was a relative capture the effects of provider education and group size to the extent that they are correlated with the included measures.

The results in Table 3 show that parents did not pay more per hour for care that met recommended group size levels or recommended child/staff ratios. In fact, the results in Model 1 show that parents paid *less* for care that met recommended group size levels (controlling for other characteristics of the care). Even Model 2, which eliminated characteristics of care difficult to observe (care giver's education) or perhaps not important to parents (meeting the recommended group size), failed to show any higher costs of meeting the child/staff ratio.

Table 3 also shows quite clearly that parents did not pay more per hour for the early childhood education of the primary care giver, but that they paid substantially more for care by a nonrelative. This latter result probably reflects the child care subsidy that relatives provide to the employment of female family members rather than a low valuation by parents of the child care services of their

relatives. However, the low average cost of child care by relatives may not reflect the true cost to the parents; for example, the acceptance of child care services might obligate the child's parents in some ways to those providing the care. And relatives may exact psychic costs—for example giving unsolicited advice or making emotional demands—in the process of providing child care.

The results in Table 3 show few significant effects of characteristics of care on hourly child care costs. Only care in a preschool or a center increased costs compared to care in another home—parents apparently paid more for the educational program offered. But, as expected, parents paid less per hour of care the more hours they purchased, probably reflecting economies of scale in provision of care.

The analysis of hedonic price functions for child care costs contradicts conventional wisdom: parents did not pay more for those characteristics of child care, measured in the NLSY, that have been identified by child development experts as indicating high quality. One might suppose that free or relatively low-cost care offered by relatives—a type of care that often meets guidelines for group size and number of adults—might account for this conclusion, but this was not the case. Even considering only those children cared for in centers and nursery schools, compared with care in a nonrelative's home, parents did not pay more for any of the characteristics associated with high-quality care.

One might speculate that some parents had access to low-cost, high-quality care, subsidized by a state, local, or federal program. However, virtually no respondents in the NLSY reported receiving this type of subsidy. The frequency of this type of subsidy, however, leads to the suspicion that some parents receiving subsidized care did not know that they were getting this benefit. One might also wonder whether hourly child care costs varied too little across families to allow the effects of care characteristics to show up; in fact, however, hourly costs showed a good deal of variation, with a mean of \$1.11 and a standard deviation of \$0.86. We conclude, therefore, that parents who pay for care do not pay more for the characteristics measured here that have been identified by child development specialists as reflecting quality of care. Of course, parents may be purchasing other features of care harder to measure (and to regulate) but just as important to quality—for example, a loving care giver, stable care, inculcation of moral or religious values, reliability of care, safety, or an educational program.

Who Gets Quality Child Care?

The final data analysis used characteristics of the parents and child to predict child care quality, as measured by the index described earlier. Table 4 presents the results of this multiple regression analysis separately for children less than 3 years old and for those aged 3 and 4.

Beginning with the findings for infants and toddlers, only three variables

Table 4. Determinants of Index Score of Child Care Quality

Variable	Children 0-2 years		Children 3-4 years	
	Parameter estimate	Standard error	Parameter estimate	Standard error
INTERCEPT	1.942**	0.00	1.941**	0.00
BLACK	0.077	0.12	0.047	0.56
HISPANIC	0.072	0.20	0.097	0.28
MALE RESPONDENT	-0.007	0.87	0.086	0.28
DIVSEPWD	-0.119	0.20	-0.034	0.77
SINGLE	-0.016	0.85	0.041	0.74
HS GRAD	0.082	0.15	-0.014	0.87
ED1315	0.005	0.94	0.025	0.81
ED16PL	0.015	0.86	-0.220	0.18
STUDENT, TRAINEE	0.063	0.45	0.253**	0.05
WGOT335	0.023	0.68	-0.010	0.91
WG335T5	-0.091*	0.07	0.006	0.94
WG10PL	-0.028	0.69	-0.050	0.73
MSGHRWG	0.115	0.10	-0.071	0.50
MISSING INCOME	-0.081	0.33	0.062	0.65
WELFARE INCOME	-0.026	0.20	0.016	0.59
OTHER INCOME	0.010	0.50	0.017	0.44
HUSBAND'S INCOME	0.001	0.74	0.002	0.66
HAVE PARTNER	-0.118	0.27	0.236	0.11
NORTHEAST	-0.021	0.73	0.134	0.18
SOUTH	-0.121**	0.02	-0.052	0.54
WEST	0.022	0.72	0.026	0.79
OTHER ADULT	0.068	0.24	0.029	0.74
RELATIVE 10-29	-0.039	0.37	0.071	0.31
RELATIVE 30+	-0.036	0.49	0.010	0.91
AGE1	-0.193**	0.00	—	—
AGE2	-0.032	0.53	—	—
AGE4	—	—	-0.205**	0.00
R^2	.0713		.0857	
Mean of dependent variable	1.86		2.00	
N	777		402	

* $p < .10$.

** $p < .05$.

significantly affected the score on the quality index. The first was a mother's wage in the moderate range (\$3.36-\$5.00 per hour), which negatively affected child care quality compared to wages between \$5.01 and \$10.00 per hour (the reference category). However, women who earned more than \$10.00 per hour did not obtain care that scored higher on this index than women earning \$5.01 to \$10.00 per hour. (Whitebook et al. (1990) also found that families with either high or low socioeconomic status obtained higher quality child care than families in the middle socioeconomic range.) Parents in the South obtained lower scoring

care, all else being held constant, and 1-year-olds received lower scoring care than did infants less than 1 year old. None of these patterns was predicted from the literature.

As noted earlier, care in the child's home, or by a relative in the relative's home, more often provided the small group sizes and low child/adult ratios associated with quality care than did care in a center, nursery school, or family day care home. Consequently, we examined the index of child care quality to see whether convenient access to relatives increased the chances of parents arranging for high-quality care. The lack of any effect in Table 4 of marital status, distance to nearest relative, or presence of other adult in the household indicated that, although these measures of convenient access to relatives for child care directly affected the occurrence of care by relatives (results not presented in table), they had no effect on the quality of care, as measured by the 3-point index used here. So although care by relatives most often provides the small groups and low child/adult ratios associated with high-quality care, relatively few people can arrange for relative care, even under favorable circumstances, and some of its benefits are balanced in the index used here by the lack of formal early childhood education of most relatives. We conclude that parents may choose relative care for reasons of cost, convenience, reliability, or a loving environment, but that, in general, its use did not lead to higher scores on the measures of quality identified by child development experts.

It is interesting that highly educated women did not obtain higher quality care for their young preschoolers than did women with less education. Also, most dimensions of family financial resources did not increase quality; for example, neither husband's income nor other family income affected the quality index. Women with especially high earnings did not use these resources to obtain quality child care, at least as this index measured it.

The findings for older preschoolers—those age 3 and 4 years—showed that very few characteristics of the family or child affected the index of child care quality. Again, women with more education or higher family incomes from any source did not obtain higher quality care for their older preschoolers. However, women in school or training did obtain higher quality care for their 3- and 4-year-olds, while 4-year-olds in general got lower quality care than 3-year olds. Again, no measure of access to relatives had any effect on quality of care. Very small group sizes and low child/adult ratios become less important as children reach age 3 and 4, and this lessens the advantage of relative-provided care for older preschoolers.

Discussion and Conclusions

Many people pay lip service to the idea that child care by someone other than the mother is acceptable as long as it is "high-quality" care. But little is known about what kinds of arrangements provide "quality" child care, as child

development specialists have defined it. We presume that higher quality child care is more expensive than lower quality care, but there is little available information about parents' willingness to pay for higher quality child care. No one has examined the premise that more educated and higher wage women secure higher quality care for their children. Our empirical results challenge the conventional wisdom in all three of these areas. Our data indicate that both care in the child's own home (by a relative or a nonrelative) and care in a relative's home most often satisfy criteria from the Federal Interagency Day Care Requirements for high-quality care.

Child care licensing agencies often set criteria for group size and number of adult care givers to protect the safety and promote the development of preschool children. Arrangements where a child is cared for at home or in a relative's home generally fall outside the purview of these child care licensing agencies. Ironically, these private arrangements are more likely to satisfy the criteria than are child care centers and nursery schools. A substantial proportion of preschoolers in nursery schools and child care centers are cared for in groups that are too large, with too few adult caretakers, at least according to federal standards, although these centers and schools may meet state or local licensing requirements.

With regard to costs, we expected that higher quality care would cost more because it requires greater ratios of care givers to children, and care givers who are more highly trained. However, when child care costs were related to a variety of factors, the results showed that parents were not paying more for care that scored as higher quality. We are struck by the apparent unwillingness of parents to pay for characteristics of care that correspond to professionally defined high quality, and the lack of relationship between a family's resources and the quality of care obtained for their children. The preceding analyses of the quality ratings of care show that families with more resources (higher earnings, more education, more income, intact families) do not typically obtain higher quality care, as measured here.

One possible explanation for the lack of relationship between either price or greater family resources and quality of child care comes from the literature on quality of health care. One popularly used framework (Donabedian, 1980) distinguishes between structure, process, and outcome. Structure, reflected most often in licensing regulations (e.g., number of nurses per bed), is the crudest measure of quality, but the easiest to legislate and regulate. Consumers, however, are much more concerned with process and outcome than with structure.

In contrast to the lack of relationship between price and structural measures in our analyses, Whitebook et al. (1990) found in an observational study that parents paid higher fees for child care that scored higher on a process measure, an index of "appropriate care giving." Unfortunately, structure is not always highly associated with process and outcome; structural characteristics of child

care, such as size of group, number of children per adult, and care-giver education, may not reflect process and outcomes as perceived by the parents and the child. Child care that parents assess as high quality may not have the easily observed structural characteristics on which licensing agencies focus, and which we have examined in this paper.

Process characteristics, such as a secure and loving environment, and outcomes, such as emotional and intellectual growth, may weight more heavily in parents' decisions than do structural counts of children and adults. Child care by relatives potentially may provide the small group sizes, loving environment, and transmission of family cultural and religious values that most closely correspond to mother care. In spite of its advantages, however, this source of care will continue to diminish in importance in the future (Hofferth & Phillips, 1987). The rising employment of women of all ages not only increases the demand for child care, but also diminishes the number of older relatives who can supply high-quality child care at a low price.

Thus, relative care is likely to be replaced by paid care by nonrelatives, either in centers and schools or in family day care homes. Child care is shifting increasingly away from the mother's or other relative's responsibility, and into the marketplace. Licensing agencies attempt to safeguard the quality of child care provided in the marketplace. Yet our results suggest that the structural elements that are currently the focus of licensing are, in fact, largely irrelevant in terms of what parents demand from child care.

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