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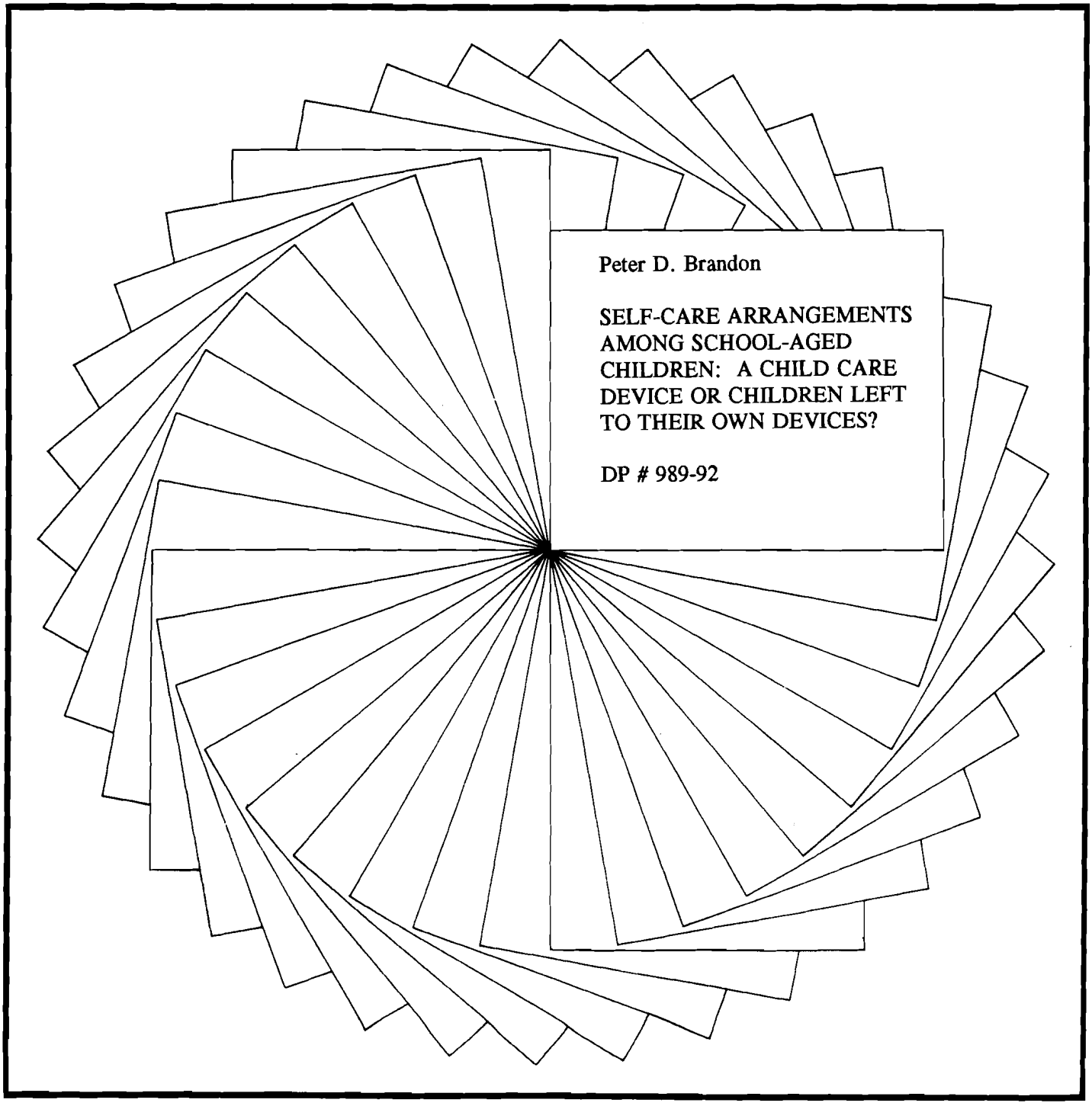

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SELF-CARE ARRANGEMENTS AMONG SCHOOL-AGED CHILDREN: A CHILD CARE DEVICE OR CHILDREN LEFT TO THEIR OWN DEVICES?

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Self-Care Arrangements among School-Aged Children: A Child Care Device or Children Left to Their Own Devices?

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Abstract

This study investigates the incidence of self-care arrangements among school-aged children and it examines why some mothers choose this form of child care. The study finds that the incidence of self-care differs by region and family size, and therefore the relevance of aggregate estimates of self-care to the child care policy debate is questioned. Also, mothers' hours of work are found to increase use of self-care. However, accompanying results suggest that maternal work and use of self-care do not imply that school children are unsupervised (i.e., the "latchkey" child syndrome). Moreover, effects of region, kin, prices, and income may indicate that self-care is a legitimate type of child care that some mothers use.

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"Historically, the word latchkey has carried negative associations: 'The house key tied around the neck is the symbol of cold meals, of a child neglected and shorn of the security of a mother's love and affection'" (Zucker, 1944).

I. INTRODUCTION

Researchers who oppose the feminization of the work force argue that maternal employment leads to school-aged children having to care for themselves (Long and Long, 1982). Although little evidence has established that school-aged children--commonly called "latchkey children"--are truly unsupervised when their mothers work, images of school-aged children caring for themselves, or unintentionally exposing themselves to dangers, have evoked national disquiet. Indeed, this concern has even prompted some legislators to advocate subsidizing child care services for school-aged children in addition to subsidizing child care services for preschool-aged children.

In contrast, however, to the national debate over child care policy for preschoolers, which has been shaped by a multitude of scholarly research, the national debate over child care policy for school-aged children has been much less informed by academic research. Only recently have social scientists begun documenting the incidence of self-care arrangements, characterizing which children use self-care arrangements, and exploring the impact of such arrangements on children's development.[1] Despite this research now under way, little is still known about the incidence of self-care arrangements and about the factors leading some mothers to choose self-care arrangements over alternatives.

The purpose of this study, therefore, is to contribute knowledge on two understudied yet important parts of the child care debate: the incidence and determinants of self-care arrangements

among school-aged children. By addressing these fundamental issues, conclusions--in contrast to those offered by popular commentators--are drawn about the association between maternal employment and self-care arrangements, and about the assumption that self-care arrangements and the latchkey child syndrome are the same phenomenon.

The paper has six sections. Section 2 reviews research on self-care arrangements among school-aged children. Section 3 presents a model of child care choice. Section 4 discusses the data and methods. Section 5 presents results, and then section 6 makes some conclusions.

II. BACKGROUND

Researchers know little about the factors determining choice of self-care. This dearth of knowledge persists despite national surveys suggesting that a large number of children care for themselves, and in spite of some child development literature indicating that lack of adult supervision adversely affects children. And, without more data, differences between the latchkey child syndrome, which connotes parental neglect, and self-care, which could denote a legitimate arrangement, remain unidentified.

Several organizations have estimated the extent of self-care among children. In the 1970s, the Census Bureau estimated that 1.8 million children were caring for themselves while their parents worked (U.S. Bureau of the Census, 1976). A decade later, the Census Bureau (1986) again approximated that 20 percent of children aged five to fifteen were caring for themselves after school. Also in 1982, the Children's Defense Fund projected that about seven million children cared for themselves (Children's Defense Fund, 1982). At the state level, New York state estimated that approximately one million school children needed supplementary care when household adults were away from the home (Fuchs, 1988). And in California, officials stated that programs were needed to cater to the estimated 800,000 "latchkey" children (Fuchs, 1988).

In addition to these agencies, researchers have also estimated the incidence of self-care among school-aged children. In 1983, Zigler and Long (1983) estimated that fifteen million children cared for themselves while their parents were still at work, an estimate twice as large as the one produced by the Children's Defense Fund a year earlier. Later in the 1980s, however, other researchers presented more-conservative estimates. Bruno (1987) used data from the Current Population Survey (CPS) to estimate that about 7 percent of the 28.6 million U.S. children aged five to thirteen were left unsupervised after school. And Cain and Hofferth (1989) used CPS data from 1984 to highlight that "2.4 million children from five to thirteen years old care for themselves or [are] cared for by another child under age 14."

The variability in these estimates suggests that the true incidence of self-care arrangements among school-aged children remains obscure. Most of these estimates are based on surveys of women's labor force participation rates; in computing them, the researchers assumed that if the mothers worked full-time but did not use child care, then their children were unsupervised. But as Presser and Cain (1983) have found, two-earner "blue-collar" couples often stagger work schedules so that one parent can care for the children while the other works. Hence, estimates based on surveys of women's labor force participation rates that cannot account for spouse- or kin-provided child care upwardly bias the incidence of self-care arrangements among school-aged children.

Coinciding with research on the incidence of self-care arrangements is research on the effects of self-care arrangements on children's welfare. This research avenue is still in its embryonic stages. To date, no studies persuasively show that mothers' time in the labor market causes negative outcomes for school-aged children's development.[2] However, related research on preschool-aged children has found that maternal employment may negatively affect children's cognitive acuity (Desai et al., 1989).

Moreover, work on the determinants of self-care arrangements is also still in its primary phases. In fact, beyond Rodman and Pratto's (1987) and Cain and Hofferth's (1989) works, little knowledge is available on what factors lead mothers to choose self-care for children.

Rodman and Pratto (1987) first attempted to investigate factors associated with the amount of time children spend in self-care. Their main findings were that children's age and mother's hours of work were significantly related to greater use of child self-care arrangements. On the other hand, they reported that the mother's religiousity leads to less use of child self-care arrangements. Also they found that the effect of a mother's marital status on self-care use among children was ambiguous.

The results that Rodman and Pratto reported, however, are based on a flawed study design. First, they used a nonrandom sample of working women. The results generated from this nonrepresentative sample compromises the generalizability of the results. Second, their methodology neglected many variables that could influence self-care arrangements. Hence other unaccounted-for sources of variation could have generated the reported significant associations.[3]

In a more sophisticated multivariate analysis of a nationally representative sample of households, Cain and Hofferth (1989), unlike Rodman and Pratto, found that mothers' hours of work were insignificant to their use of self-care. Instead, they found that the most important factor predicting increased use of self-care was the age of the child and that the most important factor predicting decreased use of self-care was the availability of other coresiding adults. Furthermore, contrary to what they expected, mothers' occupation and educational levels had no discernible effect on the likelihood of using self-care. They also found that "there is no difference between self-care by children in one- and two-parent families . . ." (p. 75).

Cain and Hofferth also produced a set of more contentious results. First, they found that self-care arrangements among school-aged children were more common among middle-class children than poorer children. Second, self-care arrangements were more likely among higher-income families than

among lower-income families. And third, after variations in income and family structure were controlled for, white children were more likely than black children to have self-care arrangements.[4] These findings contradict the prevailing view that self-care arrangements are correlated with female-headed families and inner-city poverty.

Cain and Hofferth's study helps explain why some mothers choose self-care arrangements, but their work can be improved upon. For instance, their study could not ascertain how child care prices, regional factors, income sources, and kin networks influenced mothers' decisions to use self-care. This study, equipped with data on individual characteristics and regional information, analyzes the effects of these economic and demographic variables on mothers' choice of self-care. By attempting a fuller specification of the salient determinants of the self-care decision, one can adjudicate whether or not maternal employment does increase the likelihood that mothers will choose self-care.

The literature on self-care arrangements for children is meager. Disagreements persist over the incidence of self-care, over its correlates, and over its effects on children's well-being. This study adds knowledge to two of these three debated areas: the study presents new estimates on the incidence of self-care and it identifies important covariates of self-care.

III. THEORETICAL UNDERPINNINGS OF CHILD CARE CHOICE

For the analysis of child care choice, this model draws upon Becker's (1965), Gronau's (1977), and Brandon's (1991) insights into the allocation of time between market and nonmarket activities. Gronau's model is especially apt because it shows how changes in women's wage rates and changes in nonwage income affect their allocation of time among leisure, home production, and work. Generally, though, most time allocation models can be adapted to show how prices and income affect mothers' child care and labor supply decisions.[5]

In particular, an economic model of time allocation within the household predicts that an increase in the price of market child care should decrease the demand for market child care.[6] Or, given that child care arrangements are in discrete categories,[7] an increase in the price of market child care will positively affect the odds of choosing self-care. Also as the mother's shadow price of time increases, she will devote more time to the labor market. Hence, the odds that self-care will be used should increase with increases in her shadow price of time.

Like Gronau's model, the model here also implies that as nonwage income increases, time in leisure can be substituted for time in either market work or home production. Hence, the model predicts that variations in the opportunity set that are due to changes in nonwage income could also affect child care choices. Hence, with no wage rate changes, the pure income effect leads both nonemployed and working mothers' reallocation of time to occur between leisure and home work. If additional leisure time is time taken away from producing child quality, then the possibility exists for mothers to demand extra hours of nonmaternal child care services. As self-care is considered a form of nonmaternal care, and is shown so in the empirical work, use of self-care should increase along with increases in nonwage income.

An economic model of time allocation within households cannot explain all the variation observed in mothers' child care use patterns, however. For example the economic model's predictions cannot account for an important fact: not all families face the same prices for market child care arrangements. Families face different prices and demand different types of child care as their children develop, and as they have more children to care for. Whereas a six year old may still need adult care after school, a ten year old may simply need a teenager to supervise their after-school activities.

In addition, the age structure among siblings will change mothers' demand for market child care services. As older school-aged children are a potential source of informal child care, mothers are more likely to use self-care when older siblings can act as substitute care-givers or monitors.

Besides children's characteristics and numbers, kin networks may also cause the relative price of market child care to vary. For example, relatives nearby may affect the price of market care. Or coresident kin may lower the price of market care and may therefore increase the likelihood that the mother will choose self-care.

Apart from familial characteristics, several maternal attributes are hypothesized to affect child care choice. If mothers spend more hours working, are better educated, are unmarried, work in blue-collar occupations, live in the South, or are black, then they should be less likely to use self-care (see Leibowitz et al., 1988).

The 1981 county property crime rate and numbers of school-aged children within the county who attended private high schools in 1980 are included in the models as well. The numbers of students who attended private schools are included because parents often perceive instruction in extracurricular activities as one of the benefits of a private school education. Hence, paying for private schooling for school-aged children may resemble paying for high-quality market child care for preschool-aged children.

IV. DATA DESCRIPTION, SAMPLE, AND METHODS

The analyses use data from the National Longitudinal Study of the High School Class of 1972 (NLS'72). The NLS'72 is a national probability sample of over 22,000 people who were high school seniors in 1972. The study followed its sample members as they entered college and the job market, and has followed them as they have formed families. The fifth follow-up survey (1986), which

provides the data for this study, was delivered to an unequal probability subsample of 14,489 of the original respondents (see Spencer et al., 1987).

The original sample included only those respondents who attained the senior year of high school. As the survey therefore omitted the population that failed to attain the senior year of high school, the survey is not representative of the national population. This selection bias is a minor issue for white mothers in the sample because data from decennial censuses and Current Population Surveys (CPS) show that few whites fail to reach the senior year of high school (Jaynes and Williams, 1989). But the selection bias is a more serious issue for black mothers in the sample because data indicate that up to 45 percent of blacks can fail to reach the senior year of high school (Fine, 1986; Jaynes and Williams, 1989).

Results reported herein, therefore, pertain only to that subset of the population who reached their senior year in this grade cohort, and the conclusions cannot be generalized to those populations that failed to reach their senior year of high school (Jaynes and Williams, 1989).

Despite their limited generalizability, the fifth follow-up data have several strengths. First, they contain information on child care use, incidence and costs, kin proximity, and sources of income, which makes them well suited for analyzing the importance of these factors to mothers' child care choices. In addition, they contain information on a sample of mothers with school-aged children that is large enough for a reliable analysis. Few surveys have collected such large amounts of information on these mothers' child care decisions to permit in-depth analyses.

Two other features make these data attractive. First, they include information on nonemployed women who use child care. This feature of the data allows for increased confidence in estimated effects because child care decisions are not censored by employment status.[8] Past studies of child care demand and female labor supply have lacked this rarer population of child care users and therefore have had to make sample selection corrections to estimated parameters (Heckman,

1979). Hence, these data obviate the need for correcting for censoring by employment status (Hotz and Kilburn, 1991).

Second, these data identify families' sources of income and pinpoint families' county and zipcode locations up until 1980. Beyond this sample, there are few samples that enable researchers to append individual-level information to county-level data. With these added features, models of child care choice can identify income sources affecting child care demand and can identify county-level variables that can affect the supply of market care.

The fifth follow-up data contain 6,139 females. Of them, 4,281 are mothers who need some form of child care. However, only 4,021 of these mothers (93.9 percent) specified the form of child care used; the other 260 gave no information about their child care use. Further explorations of the data found that of these 4,021 mothers, 1,404 (34.9 percent) only had school-aged children for which child care questions were applicable. Of these 1,404 mothers, 61.9 percent (870) use some form of nonparental child care. In fact, of these 1,404 mothers, 20.1 percent responded that the "child cares for self (without supervision)" for some period of time during non-school hours.[9]

Two other factors further reduced the subsample for analysis to 935 mothers: (1) missing data on income, child care costs, and hours; and (2) a decision to remove from the subsample those mothers whose children were all older than thirteen years. This final subsample, which seems most relevant to the debate over child care policy for school-aged children, consists of 144 mothers (15.4 percent) who use only self-care, 409 mothers (43.7 percent) who use only parental care, and 382 mothers (40.8 percent) who use some form of nonparental market child care.

As the data only contain information on the child care type actually chosen, ordinary least squares (OLS) were used to predict child care prices for competing types of child care modes. This technique is proposed instead of taking the modal regional price for each child care mode as a

representation of the market price of child care. (OLS estimates of prices are available from the author upon request.)

Table 1 defines the variables. Following that table, patterns in these child care data are presented in table 2. Table 3 contains the weighted means and standard deviations of the variables that are included in the models of child care choice. As this table shows, the dependent variables are the child care modes chosen. For the dichotomous-choice models, two dependent variables are distinguished: (1) nonparental care versus parental care and (2) market care versus self-care. This approach assumes that mothers' child care choices are sequential: first, they decide whether to use alternatives to parental care; then, they choose among the alternative modes to parental care. Self-care is considered a form of nonparental child care. Tables 4, 5, and 6 present weighted parameter estimates and their standard errors for the use of these competing child care modes.

V. RESULTS AND DISCUSSION

Knowledge of the determinants of self-care arrangements among school-aged children is limited, especially the linkage between maternal work and self-care arrangements. This section presents estimates on the incidence of self-care, and it helps reveal the roles that maternal employment, family, and region play in mothers' child care decisions for their school-aged children.

First a set of descriptive statistics, cross-classified by child care mode choice, are presented. Then, a set of nonlinear multivariate regressions are repeated on the full sample and on the subsamples of mothers with two children (subsample A) and mothers with only one child (subsample B) to further establish which factors are salient to mothers' child care choices.

The division of the sample was made because little is known about how patterns of self-care use change when mothers also have to consider the child care needs of additional children. Perhaps patterns of self-care vary because in one-child families mothers cannot draw upon siblings to

TABLE 1
Summary Definition of Variables Used in Modeling Determinants of Child Care Choice

Variable	Definition
Age gap	Age gap between oldest and youngest siblings
B.A. degree	1 if received college degree, 0 otherwise
Big 5	1 if live in 5 most populous counties, 0 otherwise
Black	1 if black, 0 otherwise
Blue-collar worker	1 if works in blue-collar job, 0 otherwise
Ch1sage	Age of oldest child currently coresiding
Coresident kin	1 if lives with kin, zero otherwise
Education	Years of education
Family income	Income from all sources in 1985 (in thousands of dollars)
Hours in care	Number of hours in nonparental care per week
Hours worked/week	Hours worked in the labor market
In private schools	Children enrolled in private schools in 1980 (number of, in thousands)
Kin care	1 if only use kin care, 0 otherwise
Marital status	1 if unmarried mother, 0 otherwise
Market care	Given use of nonparental care: 1 if only use either center, kin, or informal care, 0 otherwise
Midwest	1 if lives in Midwest, 0 otherwise
Mother close by	1 if mother close by, 0 otherwise
Nonemployed but use care	1 if nonemployed but use nonparental care, 0 otherwise
Non-kin care	1 if only use center or informal care, 0 otherwise
Nonparental care	1 if use any mode of care other than parental, 0 otherwise
Northeast	1 if lives in Northeast, 0 otherwise
Only school-aged	1 if children older than 6 but less than 16, 0 otherwise
Other activity	1 if only "other,"[a] 0 otherwise
Over 10	1 if all children are older then 10 years, 0 otherwise
Parental care	1 if only use spouse or self, 0 otherwise
Price of child care	Predicted hourly price of child care
Price of time	Mother's predicted price of time (per hour)
Property crime	Reported property crimes in 1980 (number of, in thousands)
Protestant	1 if Protestant, 0 otherwise
Respondent's own income	Respondent's 1985 income (in thousands of dollars)
Schooling activity	1 if only schooling (i.e., no other activity reported), 0 otherwise
Self-care	1 if only use self-care, 0 otherwise
South	1 if lives in South, 0 otherwise
Spouse's education	Husband's years of education
Spouse's income	Husband's 1985 income (in thousands of dollars)
Unearned income	Non-labor sources of income in 1985 (in thousands of dollars)
Unmarried	1 if unmarried, 0 otherwise
West	1 if lives in West, 0 otherwise
Work experience	Years of full-time work for pay

[a]Question asked respondents what they were doing the first week of February 1986; responses included working, schooling and training, keeping house, and "other," among other things.

informally care for each other. Their demand for market care, therefore, may be relatively less sensitive to increases in the price of market care.

Table 2 shows differences by child care choice. Mothers using self-care are more likely to live in the South, have an older first child, have a larger age gap between the eldest child and the youngest child, have all their children older than ten, have more assets, and work more. But they are less likely to live in the Northeast, have kin nearby, and have a bachelor's degree. Moreover, hours per week spent in self-care are much smaller than hours per week spent in other modes of care. In a typical school week, a child would spend about two hours a day unsupervised.

Table 3 details summary statistics for the full sample and two subsamples of interest. The two subsamples are mothers who have only two children--hereafter called subsample A--and mothers who have only one child--hereafter called subsample B. Table 3 shows that the incidence of nonparental child care differs across families with different numbers of children. It also shows that when nonparental child care is used, the incidence of self-care differs across families with different numbers of children as well. In the subsample of families with only one child, self-care is much less likely.

The incidences of self-care among school-aged children in the full sample of mothers, in subsample A, and in subsample B, are 15.6 percent, 15.6 percent, and 11.6 percent, respectively. These estimates are lower than those documented by certain agencies and higher than those offered by various scholars; they differ because (1) they are not conditioned on mothers' labor force participation decisions and (2) they are computed from one birth cohort only, that is, mothers born in 1955 and who graduated from high school in 1972.

TABLE 2
Selected Statistics by Primary Child Care Arrangements: Mothers with School-Aged Children

	Self-Care	Parental Care	Market Care	
			Kin Care	Non-Kin Care
Mother's characteristics				
Black (%)	16.3	13.8	18.1	9.6
Protestant (%)	39.0	46.4	39.0	39.4
Work experience (years)	5.9	3.8	5.2	6.5
Blue-collar worker (%)	22.1	27.3	21.9	16.6
Education (years)	13.2	13.0	13.3	13.7
Hours worked/week	36.5	14.89	30.5	34.16
Mean price of time[a] (per hour)	1.74	1.72	1.79	1.85
Respondent's own income (in thousands of dollars)	12.48	5.22	10.80	12.64
B.A. degree (%)	4.5	6.9	8.1	13.9
Nonemployed but use care (%)	5.0	n/a	15.0	8.5
Unmarried (%)	27.3	14.1	38.7	38.0
Family characteristics				
Mother close by (%)	9.4	44.0	74.1	43.3
With coresident kin (%)	42.5	10.0	18.4	10.3
Mean number of children	2.0	2.0	1.9	1.7
Price of child care	n/a	n/a	$3.52[a]	$3.41[a]
Spouse's education (years)	13.82	13.7	13.5	14.26
Mean family income (in thousands of dollars)	31.20	31.35	25.19	30.57
Unearned income (in thousands of dollars)	2.12	1.84	1.98	1.54
Spouse's income (in thousands of dollars)	16.18	23.49	12.02	15.69
Hours in care (per week)	9.44	0.00	16.60	21.57
Age of oldest child coresiding	12.22	10.25	10.37	8.69
Age gap between oldest and youngest sibling	2.50	2.33	2.08	1.69
Percentage whose children are all over 10	41.4	17.9	15.2	11.2
Regional characteristics				
Live in South (%)	42.6	27.4	42.1	40.8
Live in West (%)	15.5	12.8	8.2	17.1
Live in Northeast (%)	11.4	22.5	25.0	13.9
Property crime (% reporting)	45.8	42.5	33.3	42.22
Percentage living in 5 most populous counties	8.4	11.4	3.4	6.3
N	144	409	151	231

Source: National Longitudinal Study of the High School Class of 1972, fifth follow-up survey (1986).
[a]Predicted.

TABLE 3

Means and Standard Deviations of Variables for Modeling Determinants of Child Care Choice

	Full Sample	Subsample A	Subsample B
Response variables			
Nonparental care	0.56	0.53	0.66
	(0.49)	(0.49)	(0.46)
Market care	0.72	0.70	0.80
	(0.44)	(0.45)	(0.39)
Predictor variables			
Coresident kin	0.11	0.08	0.18
	(0.31)	(0.27)	(0.38)
Mother close by	0.48	0.46	0.49
	(0.49)	(0.49)	(0.50)
Black	0.13	0.09	0.18
	(0.34)	(0.29)	(0.39)
Education	13.27	13.16	13.49
	(1.69)	(1.65)	(1.79)
Unmarried	0.25	0.21	0.39
	(0.43)	(0.40)	(0.48)
Chlsage	10.19	10.27	9.21
	(2.68)	(2.62)	(2.30)
Over 10	0.23	0.14	n/a
	(0.42)	(0.35)	
Blue-collar worker	0.23	0.23	0.20
	(0.42)	(0.42)	(0.40)
Price of time	1.76	1.74	1.85
	(0.49)	(0.53)	(0.45)
Hours worked/week	24.76	23.81	29.84
	(18.57)	(18.56)	(16.41)
Respondent's own income	8.81	8.29	11.43
	(8.66)	(8.50)	(8.65)
Unearned income	1.83	1.81	1.56
	(4.25)	(3.86)	(3.09)
Price of child care	3.67	3.23	4.05
	(3.50)	(2.62)	(3.29)
South	0.35	0.36	0.36
	(0.47)	(0.48)	(0.48)
West	0.13	0.14	0.14
	(0.34)	(0.35)	(0.35)
Northeast	0.19	0.16	0.20
	(0.39)	(0.36)	(0.40)
Property crime	41.66	34.44	58.05
	(88.82)	(76.11)	(111.49)
In private schools	17.81	16.18	31.41
	(39.85)	(36.96)	(62.08)
N	935	423	326

Source: Author's calculations based on National Longitudinal Study of the High School Class of 1972, fifth follow-up survey (1986).

The Role of Prices and Mothers' Ability to Pay

Using county-level data, prior analyses generated price variation across local child care markets.[10] These alternative price measures are then used to examine how prices affect mothers' child care choices for school-aged children.

In the subsamples, variation in the price of market child care affects the mother's choice of self-care. Analyses in tables 5 and 6 detect that for subsamples A and B, mothers' demand for market child care is sensitive to predicted child care prices at the county level. The computed price elasticities of -0.177 and -0.075 show that for a 10 percent increase in the price of child care, the predicted probabilities that mothers in subsample A and subsample B will use market child care decrease by about 1.77 and 0.75 percent, respectively.[11] These results parallel arguments that insignificant price effects on mothers' demand for child care may result from child care prices failing to capture local child care market conditions (i.e., from measurement error).

Apart from revealing child care price effects, the analyses fail to reveal strong price of time effects. Only for subsample A are price of time effects detected (table 5). Albeit price of time effects are as predicted, all but one are insignificant, and therefore the prediction from the household time allocation model--that as the opportunity cost of child care increases, mothers are more likely to choose market child care or self-care--cannot be verified.

Table 5 provides some suggestion that, in families with two children, mothers' price of time affects child care use. What this table and the others do not show, however, is that all mothers' price of time systematically varies across occupations and the type of child care chosen; table 2 shows that mothers' estimated price of time is higher for mothers who use "non-kin" care than for those who use self-care.

TABLE 4

Determinants of Child Care Choices for School-Aged Children: Full Sample (Parameter estimates and standard errors)

	Nonparental Care v/ Parental Care	Market Care v/ Self-Care
Intercept	-2.34***	6.60***
	(0.85)	(1.51)
Coresident kin	0.13	0.81***
	(0.26)	(0.41)
Mother close by	0.24	0.60***
	(0.16)	(0.25)
Black	-0.007	-0.09
	(0.28)	(0.44)
Education	0.10***	0.07
	(0.05)	(0.07)
Unmarried	0.89***	0.41
	(0.20)	(0.27)
Ch1sage	-0.05	-0.59***
	(0.03)	(0.07)
Over 10	-0.18	-0.81***
	(0.20)	(0.27)
Blue-collar worker	-0.37**	-0.20
	(0.19)	(0.29)
Price of time	-0.19	0.29
	(0.17)	(0.29)
Hours worked/week	0.05***	-0.019**
	(0.005)	(0.01)
Respondent's own income	0.04***	-0.02
	(0.01)	(0.02)
Unearned income	-0.004	-0.017
	(0.02)	(0.02)
Price of care	-0.008	-0.03
	(0.02)	(0.04)
South	0.39**	0.36
	(0.20)	(0.31)
West	0.28	0.22
	(0.28)	(0.42)
Northeast	0.18	0.64
	(0.24)	(0.40)
Property crime	0.006***	0.006
	(0.002)	(0.02)
In private schools	-0.01***	-0.008
	(0.005)	(0.006)
N	935	526
Log likelihood	-316.24	-196.44

Source: Author's calculations based on National Longitudinal Study of the High School Class of 1972, fifth follow-up survey (1986).

**p < .05.

*** p < .01.

TABLE 5

Determinants of Child Care Choices for School-Aged Children: Subsample A (Parameter estimates and standard errors)

	Nonparental Care v/ Parental Care	Market Care v/ Self-Care
Intercept	-2.88***	-5.77***
	(1.35)	(2.61)
Coresident kin	0.07	0.85
	(0.49)	(0.72)
Mother close by	0.15	0.81**
	(0.26)	(0.43)
Black	0.01	0.28
	(0.65)	(0.99)
Education	0.12	0.10
	(0.07)	(0.13)
Unmarried	1.32***	1.03***
	(0.37)	(0.45)
Ch1sage	-0.01	-0.58***
	(0.05)	(0.13)
Over 10	-0.08	0.74
	(0.39)	(0.57)
Blue-collar worker	-0.71***	-0.48
	(0.31)	(0.48)
Price of time	-0.44*	0.62
	(0.25)	(0.44)
Hours worked/week	0.05***	-0.029**
	(0.008)	(0.015)
Respondent's own income	0.05***	-0.005
	(0.02)	(0.029)
Unearned income	0.005	-0.02
	(0.03)	(0.05)
Price of care	0.04	-0.20*
	(0.07)	(0.12)
South	0.49	0.49
	(0.31)	(0.46)
West	0.23	0.95
	(0.42)	(0.71)
Northeast	0.16	1.45***
	(0.39)	(0.69)
Property crime	0.009***	0.003
	(0.004)	(0.008)
In private schools	-0.015	-0.020
	(0.009)	(0.018)
N	423	226
Log likelihood	-205.97	-93.48

Source: Author's calculations based on National Longitudinal Study of the High School Class of 1972, fifth follow-up survey (1986).

* $p < .10$.

** $p < .05$.

*** $p < .01$.

TABLE 6

Determinants of Market Child Care Choices for School-Aged Children: Subsample B (Parameter estimates and standard errors)

	Nonparental Care v/ Parental Care	Market Care v/ Self-Care
Intercept	-0.77	12.09***
	(1.43)	(3.01)
Coresident kin	0.15	-0.58
	(0.40)	(0.69)
Mother close by	-0.21	0.72
	(0.29)	(0.54)
Black	0.39	2.04**
	(0.60)	(1.01)
Education	0.09	0.07
	(0.08)	(0.16)
Unmarried	1.12***	0.45
	(0.32)	(0.52)
Chlsage	-0.09	-0.96***
	(0.06)	(0.17)
Blue-collar worker	0.12	-0.72
	(0.33)	(0.58)
Price of time	-0.29	-0.27
	(0.34)	(0.66)
Hours worked/week	0.03***	-0.03
	(0.01)	(0.02)
Respondent's own income	0.07***	-0.013
	(0.02)	(0.026)
Unearned income	-0.02	-0.04
	(0.05)	(0.09)
Price of care	-0.11*	-0.23**
	(0.06)	(0.11)
South	0.06	0.61
	(0.37)	(0.72)
West	-0.30	-1.00
	(0.51)	(0.87)
Northeast	0.19	-0.26
	(0.44)	(0.83)
Property crime	0.01**	-0.002
	(0.004)	(0.006)
In private schools	-0.02***	-0.01
	(0.008)	(0.01)
N	326	217
Log likelihood	-160.20	-60.719

Source: Author's calculations based on National Longitudinal Study of the High School Class of 1972, fifth follow-up survey (1986).

* $p < .10$.

** $p < .05$.

*** $p < .01$.

Because maternal price of time also varies across occupations, analyses also test whether occupational characteristics independently influence mothers' child care choices. Tables 4, 5, and 6 show the results of this investigation. Occupational characteristics for the full sample and subsample A are indeed important predictors of the basic child care choice: to use parental substitutes. In both these samples, mothers in blue-collar jobs are more likely to rely exclusively upon parental care. Features associated with blue-collar jobs, like shift work or staggered hours, may enable mothers to finish the work day around the time their children are dismissed from school. Presser (1986) has also documented that shift-working mothers are usually blue-collar workers and that they share child care with their spouses.

Besides time and child care price effects, the results in Tables 4, 5, and 6 indicate that mothers' incomes significantly affect their decisions to use nonparental child care. When mothers' own incomes increase, the odds increase that nonparental child care services will be chosen over parental care. For the full sample of mothers, subsample A, and subsample B, a 10 percent increase in their own incomes raises the predicted probabilities of using nonparental child care by about 1.8, 1.9, and 3.1 percent, respectively.

The tables also indicate that mothers' own abilities to pay for child care do not have a significant effect on their choice between market care and self-care. However, signs on these coefficients are consistent with the thesis of Cain and Hofferth (1989) that increases in income will lead to greater use, not less use, of self-care.

The significant income coefficients and the income elasticities support past studies that find that mothers' abilities to pay are the important determinants of the basic child care choice (i.e., of the use of nonparental care). But some of these studies contend that other sources of income do not influence mothers' child care use (Duncan and Hill, 1974; Robins and Spiegelman, 1978; Leibowitz

et al., 1988). That is, these studies argue that when mothers choose an alternative to parental child care, only their earnings affect the choice.

However, studies that concluded that mothers' earnings are the only source of income that affects child care choice have had either insufficient data, which did not allow testing for wealth effects, or data that did not permit distinguishing mothers' earnings from unearned assets. With the NLS'72 data, however, total income can be disaggregated and unearned income is identified. Exploiting this feature of the data, this study tests whether unearned income also affects mothers' choice of self-care.

No table shows that unearned income significantly affects mothers' choice of using self-care, although the estimated unearned income coefficients reflect Cain and Hofferth's (1989) thesis that wealthier families are more likely to use self-care.

Effects for the two income sources may suggest that wealthier families invest in household technologies so that the need for direct adult supervision of school children is minimized and the chance that school-aged children are not at risk is also minimized.[12] Steinberg (1986) makes a similar point. Or, the findings may mean that "richer" mothers live in areas where threats to their unattended school-aged children are very low. Because the income effects here are insignificant, further investigations are needed.

Effects of Maternal and Child Characteristics and Kin

Contrary to Cain and Hofferth (1989), this study finds evidence that family structure and mothers' education levels affect certain child care choices. In line with research on preschool-aged children (Leibowitz et al., 1988), Table 4's results indicate that more highly educated mothers prefer nonparental child care alternatives for their school-aged children. Furthermore, the present analyses go beyond Cain and Hofferth's finding of an indistinguishable effect of family structure on choice of

self-care to argue for a negative effect of family structure on choice of self-care. These data analyses refute the current view that unmarried mothers have a stronger preference for self-care.

On the other hand, the results for mothers' race support Cain and Hofferth's results concerning the effects of mothers' race. Black families with one child were found to be less likely than their white counterparts to use self-care. This finding may echo Stack's (1974) cultural preference hypothesis: blacks relative to other ethnic groups prefer to use kin for child care. (Unreported analyses found that mothers' religiousity had no effect on use of self-care.)

As in previous studies, the effects of mothers' hours of work and children's ages on choice of self-care are tested. This study's findings conflict with those of Cain and Hofferth. In families with more than one child, mothers' hours of work are found to increase use of self-care (Tables 4 and 5); Rodman and Pratto (1987) report a similar association.

When critics have argued that maternal employment has negative consequences (e.g., self-care) on school-aged children, they have often assumed away the potential for informal sources of child care. Yet Brandon (1991) and Blau and Robins (1988) show that informal child care by kin and siblings is exercised among many families. Because past studies of self-care arrangements did not have the benefit of data on kin networks and family composition, kin and sibling effects on self-care arrangements remained unexamined.

Since this study can tap data on children's ages and extended families, it can test whether familial factors affect mothers' child care choices for school-aged children. Strong evidence across all tables shows that as the age of the eldest child increases, mothers are more likely to use self-care arrangements. Further, in the full sample, if mothers' children are all older than ten, the likelihood of using self-care is greatly increased (see Table 4).

Analyses on the full sample support other findings that two significant predictors of decreased use of self-care are availability of coresiding kin and mothers nearby (i.e., the school children's

maternal grandmothers). In subsample A, availability of mothers also lessens use of self-care. These results, and the latter findings on children's age structures, suggest that mothers' decisions to use self-care are also conditioned on the availability of informal sources of familial child care. Even though mothers may permit school children to care for themselves, the potential for informal supervision, when needed, seems to matter as well; so, familial features like school-aged children's grandmothers close by or coresident older siblings sway mothers' decisions on use of self-care.

Critics of self-care imply that this type of child care arrangement is associated with maternal indifference and/or poverty status. Results so far, however, offer an alternative interpretation for use of self-care.[13] Results suggest that use of self-care is associated with access to sources of informal kin oversight, children's ages, and mothers' attachment to the labor force.

Effects of Contextual Variables

Tables 4, 5, and 6 contain other findings that complete the portrayal of factors affecting mothers' use of self-care. Evidence suggests that increases in the number of students enrolled in private schools lower the probability that nonparental care is needed. Across each county, if higher enrollments in private schools reflect higher per capita income, then families that send their children to private schools may either buy after-school activities at these institutions or have the income to buy private after-school child care.[14]

The study also tests whether variation in reported property crimes across counties affects use of self-care for school-aged children. It is thought that when property crimes within counties are high, mothers will not leave children unsupervised after school and therefore choose market child care. This hypothesis is not supported, however, by this study: although the coefficients for the full sample and subsample A have the expected signs, they are not significant. Yet, for families with two children (subsample A), living in the Northeast--a highly urbanized region having high crime rates against persons--significantly lowers use of self-care. This dummy variable, although crude, may

reflect better than does the property crime variable that mothers in the highly urbanized Northeast are more aware of urban crime and therefore demand market care for their school-aged children after school.

Table 4's results show that the southern regional effect increases mothers' use of nonparental child care; yet, this is not the case for the choice between market care and self-care. This effect indicates what others have already found: that the South is known to have a higher supply of low cost, center-based child care (see Brandon, 1991; Leibowitz et al., 1988).

The distinctiveness of regional effects suggests that child care choices for school-aged children differ by region, as do child care choices for preschool-aged children, and that subtle factors within regions must also affect use of self-care. Further, if regional factors shift the incidence of self-care down, then national estimates of the incidence of self-care may be less useful than estimates by locale. Indeed, choice of self-care may be closely linked to neighborhood quality or local services like "neighborhood watch."

VI. CONCLUSIONS

Self-care arrangements for school-aged children are a contentious issue that evokes national apprehension. The concern over this practice is now part of the child care policy debate. But the debate lacks an understanding of self-care's true incidence across families and regions and knowledge about which factors cause mothers to use it. This dearth of knowledge also colors how self-care arrangements are viewed. Presently, school-aged children who care for themselves are still perceived as children living in poor families, left isolated and neglected, and part of one or more minority groups--a perception which is not much different from Zucker's description in 1944.

This study's results cast doubt on this perception, however. Analyses suggest that self-care arrangements among school-aged children do not necessarily imply that as mothers work more, their

children are unsupervised. Indeed the findings are more suggestive of a complex set of familial, regional, and economic factors leading mothers to make purposeful "age-appropriate" decisions about what form of child care is in their best interests. For instance, unmarried mothers lower use of self-care may stem from their longer and greater participation in the work force. Family child care substitutes also matter, like kin and older siblings.

Moreover, if policies are felt essential for dealing with the latchkey child syndrome, then these policies should be grounded in empirical research on its antecedents and should recognize that children in latchkey conditions may be different than children in self-care arrangements. It is important, therefore, for the child care policy debate that some agreement be reached over when self-care arrangements become latchkey child arrangements. Without such a distinction, policy prescriptions may miss the population they are intended to help, like neglected children in latchkey situations.

Overall, as federal financing of child care services has fallen (Robins, 1989), gauging the effects of economic constraints on mothers' child care choices for school-aged children has become important. Unless the effects of prices and income on mothers' child care decisions for all children are determined, the child care policy debate for school-aged children could remain underinformed, and it will be impossible to fully ascertain the effects of specific child care proposals, like subsidizing the supply of after-school care. Evidence in tables 5 and 6 seems to suggest that subsidizing the price of child care for school-aged children would have the same impact on child care demand as subsidizing the price of child care for preschool-aged children. Hitherto, few studies have been able to contribute knowledge on mothers' child care choices for school-aged children and then compare these results to results on mothers' child care choices for preschool-aged children.

This paper's policy implications are relevant to mothers' demand for child care. But policymakers need to also debate whether self-care arrangements for school-aged children are a "good

thing" as compared to other forms of child care. The results here cannot speak to this issue. Nor can they address the possibility that factors like children's maturity and children's own preferences affect mothers' decisions about self-care.

Notes

[1]This study cannot address the effects of this form of care on children's development. In the background section of this paper, studies that address this aspect of self-care arrangements for children are cited.

[2]As stated previously (see endnote 1), this study cannot address the effects of self-care on children's development. For studies on this topic see Long and Long (1982), Rodman et al. (1985), and Steinberg (1986).

[3]The authors fail to address such issues as survey nonresponse rates, item nonresponse, and selection bias. Also they use a set of statistical techniques that are inappropriate for the variation they are trying to explain.

[4]The effect of race on child care choice is unresolved. Some studies find racial differences, other studies do not. (For example, see Lehrer, 1983; Blau and Robins, 1988; Brandon, 1991).

[5]Several assumptions strengthen the model presented here. The assumptions include: mothers are the primary child care givers; prices are exogenously determined; the number of children is exogenous to the production of child quality; and mothers' nonwage income and earnings are allocated between consumption of goods and market child care. See Brandon (1991) for a full discussion of time allocation models and child care choices.

[6]Assuming child care goods are substitutes--which the empirical literature suggests they are.

[7]As child care is a heterogeneous good, mothers are assumed to choose a child care type that has the mix of attributes that yields the greatest welfare.

[8]Other comparable child care data (e.g., SIPP and NLSY) ask child care questions only of working women.

[9]Responses to this survey item identify mothers who solely use self-care and those who use it in conjunction with other modes of care. The number of hours in self-care are reported too.

Unfortunately, though, activities these children pursue, where they go, and whether they are unsupervised before or after school, or a combination of both, is unknown. Additionally, multiple child care arrangements are observed. But analyses are restricted to decisions between primary child care arrangements.

[10]See Brandon (1991). Analyses available upon request.

[11]The predicted probabilities and income and price elasticities are calculated at the sample means of all variables. Sample means are used because they represent the typical family in the sample (Blau and Robins, 1988). The predicted probabilities for choosing nonparental child care are 57.8 percent for the full sample, 51.9 percent for mothers in subsample A, and 61.2 percent for mothers in subsample B. Predicted probabilities for using market care are 68.8 percent for the full sample, 70.8 percent for mothers in subsample A, and 91.5 percent for mothers in subsample B.

[12]Maybe higher-income mothers heavily invested in their children's early development. If so, their children, relative to children of poor or lower-income mothers, may be quite capable of caring for themselves. The children of higher-income parents may possess cognitive skills that insure against danger.

[13]Additional analyses examine how welfare participation and poverty status affect use of self-care. Results show that neither welfare participation nor poverty status increase use of self-care.

[14]It should be noted that private child care for school-aged children can take the form of sports instruction, music lessons, or private tutoring; it does not have to take the traditional form of child care associated with preschool children.

References

Aldrich, J. H. and F. D. Nelson. 1986. Linear Probability, Logit, and Probit Models. Sage University Papers, no. 45. Beverly Hills, Calif.: Sage University Press.

Becker, G. 1965. "A Theory of the Allocation of Time." Economic Journal 75: 493-517.

Becker, G. and H. G. Lewis. 1974. "Interaction between the Quantity and Quality of Children." In Economics of the Family: Marriage, Children, and Human Capital, ed. T. W. Schultz, pp. 81-90. Chicago and London: The University of Chicago Press.

Blau, David M. and Philip K. Robins. 1988. "Child-Care Costs and Family Labor Supply." Review of Economics and Statistics 70(4): 374-81.

Blau, David M. (ed.). 1991. The Economics of Child Care. New York: Russell Sage Foundation.

Brandon, Peter D. 1991. "The Role of Extended Families, Fathers, and Economic Constraints in Mothers' Child Care Choices." Unpublished Ph.D dissertation, University of Chicago.

Bruno, R. R. 1987. "After-School Care of School-Age Children: December 1984." Current Population Reports, Series P-23, no. 149. Washington, D.C.: U.S. Government Printing Office.

Cain, V. S. and S. L. Hofferth. 1989. "Parental Choice of Self-Care for School-Age Children." Journal of Marriage and the Family 51: 65-77.

Children's Defense Fund. 1982. The Child Care Handbook: Needs, Programs, and Possibilities. Washington, D.C.: Children's Defense Fund.

Cleveland, G. 1990. "Choice of Child Care Arrangements: Canadian Evidence." Mimeo, University of Toronto.

Desai, Sonalde, P. Lindsay Chase-Lansdale, and Robert T. Michael. 1989. "Mother or Market? Effects of Maternal Employment on the Intellectual Ability of Four Year Old Children." Demography 26(4): 545-562.

Duncan, Greg J. and R. C. Hill. 1974. "The Child Care Mode Choice of Working Mothers." In Five Thousand American Families--Patterns of Economic Progress, eds. G. Duncan and J. N. Morgan, (4): 301-324. Ann Arbor: Institute for Social Research.

Fine, M. 1986. "Why Urban Adolescents Drop into and out of Public School." Teachers College Record 87: 393-409.

Fuchs, V. 1988. Women's Quest for Economic Equality. Cambridge, Mass.: Harvard University Press.

Garbarino, J. 1981. "Latchkey Children: How Much of a Problem?" Education Digest 46(6): 14-16.

Gronau, R. 1977. "Leisure, Home Production, and Work: The Theory of the Allocation of Time Revisited." Journal of Political Economy 85(6): 1099-1123.

Hayes C., J. Palmer, and M. Zaslow. 1990. Who Cares for America's Children? Washington, D.C.: National Academy Press.

Heckman, J. J. 1974. "Effects of Child-Care Programs on Women's Work Effort." Journal Of Political Economy 82(2, Pt2): S136-63.

_____. 1979. "Sample Selection Bias as a Specification Error." Econometrica 47: 931-960.

Hotz, V. Joseph and M. Rebecca Kilburn. 1991. "Child Care Decisions: Are There Differences by Women's Working Status?" Mimeo, University of Chicago.

Jaynes, G. D. and Robin M. Williams. 1989. A Common Destiny: Blacks and American Society. Washington, D.C.: National Academy Press.

Lehrer, E. 1983. "Determinants of Child Care Mode Choice: An Economic Perspective." Social Science Research 12: 69-80.

Leibowitz, A., L. Waite, and C. Witsberger. 1988. "Child Care for Preschoolers: Differences by Child's Age." Demography 25: 205-219.

Long, T. J. and Long, L. 1982. "Latchkey Children: The Child's View of Self-Care." Washington, D.C.: Catholic University of America. (ERIC Document Reproduction Service No. ED 211 229.)

Mincer, J. 1974. Schooling, Experience, and Earnings. New York: Columbia University Press.

Presser, H. P. 1986. "Shift Work among American Women and Child Care." Journal of Marriage and the Family 48: 551-563.

Presser, H. P. and V. S. Cain. 1983. "Shift Work among Dual-Earner Couples with Children." Science 219(18): 876-879.

Ribar, D. C. 1989. "Child Care and the Labor Supply of Married Women: Structural Evidence." Mimeo, Brown University.

Riccobono, J., L. B. Henderson, G. J. Burkheimer, C. Place, and J. R. Levinsohn. 1981. National Longitudinal Study: Base Year (1972) through Fourth Follow-up (1979) Data File Users Manual. Washington, D.C.: National Center for Educational Statistics.

Robins, P. 1989. "Federal Financing of Child Care: Alternative Approaches and Economic Implications." IRP Discussion Paper no. 890-89, University of Wisconsin-Madison.

Robins, P. and R. Spiegelman. 1978. "An Econometric Model of the Demand for Child Care." Economic Inquiry 16: 83-94.

Robinson, B. E., B. H. Rowland, and M. Coleman. 1986. Latchkey Kids. Lexington, Mass.: Lexington Books.

Rodman, Hyman, David J. Pratto, and Rosemary Smith Nelson. 1985. "Child Care Arrangements and Children's Functioning: A Comparison of Self-Care and Adult-Care Children." Developmental Psychology 21: 413-418.

Rodman, Hyman and David J. Pratto. 1987. "Child's Age and Mother's Employment in Relation to Greater Use of Self-Care Arrangements for Children." Journal of Marriage and the Family 49: 573-578.

Shortlidge, R. L. "Child Care and the Need for Day Care Centers and Homes in 1971." In Dual Careers: A Longitudinal Study of the Labor Market Experience of Women (3): 67-85. Manpower R & D Monograph 21, U.S. Department of Labor. Washington, D.C.: U.S. Government Printing Office.

Spencer, B., P. Sebring, and B. Campbell. 1987. NLS-72 Fifth Follow-Up Sample Design Report. Washington, D.C.: National Center for Education Statistics.

Stack, C. 1974. All Our Kin: Strategies for Survival in a Black Community. New York: Harper and Row.

Steinberg, Laurence. 1986. "Latchkey Children and Susceptibility to Peer Pressure: An Ecological Analysis." Developmental Psychology 22: 1-7.

Stolzenberg, R. and L. Waite. 1984. "Local Labor Markets, Children, and Labor Force Participation of Wives." Demography 21: 157-170.

U.S. Bureau of the Census. 1976. "Daytime Care of Children: October 1974 and February 1975." Current Population Reports, Series P-20, no. 298. Washington, D.C.: U.S. Government Printing Office.

_____. 1982. "Trends in Child Care Arrangements of Working Mothers." Current Population Reports, Special Studies, Series P-23, no. 117. Washington, D.C.: U.S. Government Printing Office.

_____. 1983. County and City Data Book. Washington, D.C.: U.S. Government Printing Office.

_____. 1986. Statistical Abstract of the United States: 1985. Washington, D.C.: U.S. Government Printing Office.

Yaeger, K. E. 1978. "Modal Choice in the Demand for Child Care by Working Women: A Multinomial Logit Analysis with Quality Adjustment." Unpublished Ph.D. dissertation, Princeton University.

Zigler, E. F., and Thomas J. Long. 1983. Testimony before the U.S. Senate Children's Caucus: Policy Forum to Examine Problems Confronting "Latchkey Children" (9 June).

Zucker, H. L. 1944. "Working Parents and Latchkey Children." Annals of the American Academy 236: 43-50.