

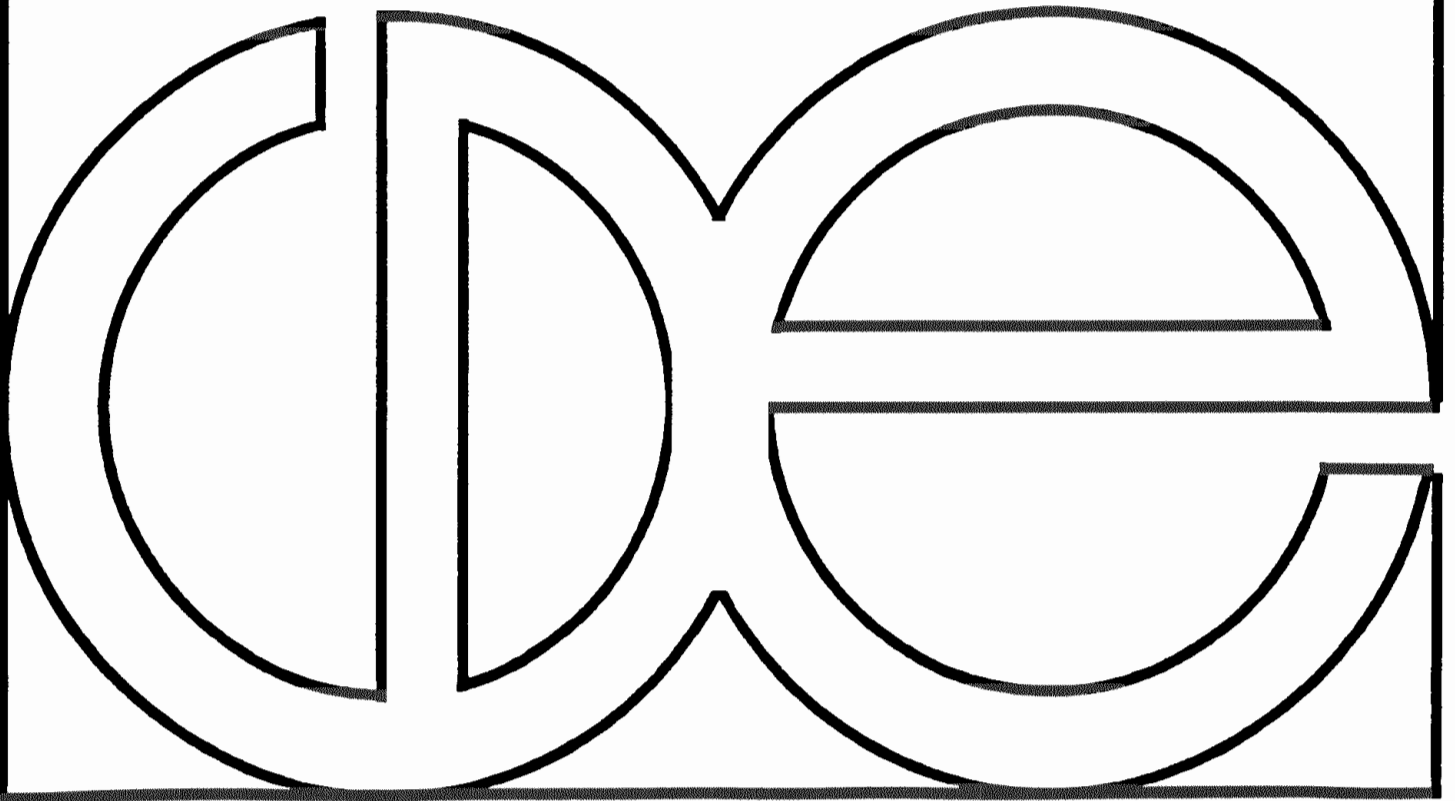
Center for Demography and Ecology

University of Wisconsin-Madison

**Determinants of Self-Care Arrangements Among  
School-Aged Children**

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## **Abstract**

This study investigates determinants of self-care arrangements among school-aged children. The study finds that mothers' hours of work increase the likelihood of self-care arrangements. However, accompanying results suggest that maternal work and use of self-care do not imply school children are unsupervised. In fact, this study suggests that use of self-care is highly dependent on the child's age, presence of older school-aged siblings and availability of kin networks, as well as the price of market care and the type of child care that child experienced in the past, when they were of preschool age.

## Determinants of Self-Care Arrangements among School-Aged Children

### I. INTRODUCTION

With the rise in the number of mothers working outside the home, many fear that the number of school-aged children caring for themselves is growing. This concern has prompted public agencies, as well as researchers interested in child care, to estimate how many school-aged children are left home alone.<sup>1</sup> Bruno (1987) and Cain and Hofferth (1989), for instance, using data from the Current Population Survey, estimated that over two million children between the ages of five and thirteen are left unsupervised at home at some time during the day.

Although estimates for self-care arrangements differ, the numbers do indeed suggest that a significant number of school-aged children are caring for themselves during nonschool hours. For many adults, knowing that a large group of school-aged children care for themselves--some in situations they perhaps cannot handle--is distressing. Yet, with the figures indicating that many parents are allowing their children to be home alone, certain factors must make self-care arrangements a sensible child care alternative. Surely, a positive set of attributes--rather than negative ones, like benign neglect or ignorance of children's needs--better explain why large numbers of parents find self-care arrangements an acceptable child care mode.

The aim of this paper, therefore, is to better understand those familial characteristics and other factors leading parents to choose self-care arrangements, i.e., arrangements in which children care for themselves unsupervised by an adult during nonschool hours. The results contained in this paper suggest that there are certain factors associated with greater use of self-care for children between the ages of six and thirteen, like the child's age and availability of older school-aged siblings to supervise youngsters. These findings and others suggest that families using self-care arrangements do so for reasons other than a lack of resources, social isolation, or indifference to other forms of child care.

The paper has six sections. Section II reviews research on the determinants of self-care arrangements. Section III presents the conceptual framework, followed by section IV, which describes the data and empirical approach. Section V presents results, and section VI draws some conclusions.

## II. BACKGROUND

Little is known about the factors determining self-care arrangements, despite national surveys suggesting that a large number of children care for themselves.<sup>2</sup> In fact, beyond Rodman and Pratto (1987) and Cain and Hofferth's (1989) works, information on the factors leading mothers to allow children to care for themselves is scant.

Rodman and Pratto investigated 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. They reported that the mother's religiosity led to less use of child self-care arrangements and found that the effect of the mother's marital status on self-care use among children was ambiguous.

The results they reported, however, are based on a flawed study design. First, they used a nonrandom sample of working women. 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.<sup>3</sup>

In a more sophisticated multivariate analysis of a nationally representative sample of households, Cain and Hofferth (1989) found, contrary to Rodman and Pratto (1987), that the relation of mothers' hours of work to their use of self-care was insignificant. Instead, they found that the most important factor predicting increased use of self-care was the age of the child. And the most

important factor predicting decreased use of self-care was the availability of other coresiding adults. Furthermore, contrary to what they expected, mothers' occupations 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's work also contained 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.<sup>4</sup> 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 increased our understanding of the correlates of self-care arrangements. But I improve upon their study by allowing the dependent variable in my models to have more than two possible outcomes. The dependent variable in Cain and Hofferth's models had collapsed all the alternatives to self-care arrangements into one broad category, nonparental care. The subsequent results that their logistic models yielded rested on the assumption that the child-care-choice behavior of parents is fully revealed by specifying these two child care alternatives and that parents choose one of the two.<sup>5</sup>

But the dichotomous dependent variable Cain and Hofferth created, self-care versus non-parental care, masks much of the information about the behavior of parents choosing child care for their school-aged children. To retrieve that information, I create an alternative dependent variable that contains a broader set of possible child care modes for school-aged children from which parents choose one. This redefinition of the dependent variable permits me to use an estimation strategy

which sheds important new information about patterns in the child care arrangements that parents make for their school-aged children.

Apart from refining the dependent variable, I also improve the models on determinants of self-care arrangements by including additional explanatory variables that were previously omitted. Models in Cain and Hofferth's (1989) paper left unanswered questions about the effects of child care prices, sibling ages, and kin networks. My models take such factors into account, thereby leading to a much richer specification of the determinants of self-care decisions.

Both advances to modeling the choice of self-care arrangements lead to more accurate analyses and new information. The final set of results provides a cogent explanation for the high incidence of self-care, adds to the meager literature on the subject, and informs the policy debate about child care for school-aged children.

### III. THEORETICAL PERSPECTIVES AND HYPOTHESES

My theoretical positions are drawn from findings in the child care literature suggesting that parents make age-appropriate child care choices for their preschool-aged children (Leibowitz, Waite, and Witsberger, 1988). There seems no reason why parents would stop making such choices just because their children start school. For many working parents, child care during nonschool hours is a major concern (Hayes, Palmer, and Zaslow, 1990). The logical proposition is that parents continue making age-appropriate child care choices throughout the childhoods of their children. Those choices reflect the developmental needs of their children and the resources parents have to meet those needs.

Hence, I argue that parents choose self-care arrangements because those arrangements meet their children's needs and provide a level of care equivalent to the care that adult kin or market providers could offer. Thus, evaluating the gains from the use of self-care relative to its alternatives

is just like the past evaluations parents made about the benefits and costs of the various child care services that were available for their children when they were preschool-aged.

Results produced by testing two hypotheses should provide the evidence to support my arguments that self-care arrangements are age-appropriate and that they belong to the set of legitimate child care modes for school-age children. The first is that if self-care is a substitute for other modes of care, parental choice of self-care should show a predictable pattern of use that is consistent with the literature. The second proposition is that the availability of adult kin and older school-aged siblings for child care provision should affect the likelihood that self-care is chosen. More precisely, the chance that self-care arrangements are chosen over its alternatives strongly depends upon the configuration of ages among siblings and the strength of adult kin networks.

Dealing with the latter hypothesis, I contend that parents are more likely to let their children provide their own home care if they are older, or if the eldest child in that family has reached early adolescence and can essentially act as the child care provider. However, if an adult kin network is available, or the family has a history of home child care that was exclusively provided by the mother (i.e., in the past it was maternal child care only), then parents will not let their children care for themselves. The effects of these three elements--availability of adult kin, presence of an older school-aged sibling, and past use of maternal care only--are now discussed in detail.

For families with school-aged children, it seems a reasonable extension to view older school-aged siblings, as well as kin, as possible providers of informal child care services, especially since research already shows that kin are potential providers of child care for preschool-aged children (Hogan, Hao, and Parish, 1990). If it is true that an older school-age child can care for his or her younger siblings, then I should find a direct link between the age of the eldest child and the occurrence of self-care. In fact, until a certain threshold (discussed below) is reached in the difference in ages, self-care should occur more frequently as the age of the eldest sibling increases;



basically, as the eldest sibling matures, the supervision he/she provides becomes a close substitute for adult supervision.

As alluded to, however, eldest siblings are not always a source of low-cost child care services. Their availability for child care duties is reduced if they are too much older than their youngest sibling; that is, when the age gap threshold is reached, it is more likely that their own activities compete for their time during nonschool hours. According to my theory, parents encourage their eldest child's involvement in after-school projects and extracurricular activities, even if this necessitates alternative child care for their youngest child. I assume that the eldest sibling's pursuits matter as much to parents as wanting quality care for their youngest child, an assumption certainly compatible with my theory.

So, when the gap in ages between eldest and youngest is too large, the eldest child essentially becomes unavailable for child care. In the empirical analyses predicting use of self-care, too large an age gap should reduce the probability of parents choosing self-care.

My theory, which is partly based on the research documenting the link between kin networks and the provision of child care for preschool-age children (Leibowitz, Waite, and Witsberger, 1988), predicts that the presence of kin influences child care decisions for older school-aged children too. I argue that self-care arrangements will not occur when there is a well-established adult kin network, a network containing various mixtures of adult coresident kin and adult nearby kin. Relatives, coresiding or nearby, act as low-cost informal child care providers, and their availability should reduce the use of self-care as well.<sup>6</sup>

Though I argue that older school-aged siblings and kin both act as low-cost informal child care providers, I do not mean to imply that nearby kin and coresident siblings affect the decision to use self-care in the exact same way. In fact, since coresiding school-age siblings in their early adolescence live with their younger siblings, their presence should increase the use of self-care.

Nearby kin, on the other hand, decrease the use of self-care. The reason why the effects of coresiding siblings and nearby kin on the use of self-care are opposite is that school-aged siblings, although they do not provide adult supervision of children, essentially duplicate it. Hence, because school-aged siblings act like low-cost adult care providers while living with the younger siblings needing care, empirical models should display a positive association between their presence and choice of self-care and should exhibit a negative correlation between kin nearby and choice of self-care.<sup>7</sup>

Earlier, I stated that if self-care is considered along with other modes of care, then self-care should also reveal a predictable pattern of use, analogous to patterns of use already documented in the literature. Estimated effects for maternal traits and economic factors, for instance, should parallel findings reported in previous studies.

Effects of maternal characteristics on current child care decisions should operate similarly to their effects on past child care decisions, though some maternal traits could have changed over time. Better-educated mothers, those working longer hours, and those living in the South should still prefer market alternatives for their children, as they did when the children were preschool-aged (Lehrer, 1983). Likewise, no compelling reasons exist to think that black mothers and unmarried mothers no longer prefer kin to other modes of care (Stack, 1974), or that mothers working in blue-collar jobs stop sharing child care duties with their spouses and start using other modes (Presser, 1986).

Nor do grounds exist to think that mothers no longer prefer close substitutes to maternal care, once their children reach school age (Heckman, 1974; Ribar, 1989). Self-care, I argue, is not a close substitute for maternal care for school-aged children and this poor substitutability is indirectly testable. The test involves examining in one-child families the correlation between exclusive use of maternal care in the past,<sup>8</sup> when the child was of preschool age, and use of self-care now. A strong negative correlation between prior use of only maternal care and current use of self-care must hold.

If not, then my theory that mothers still prefer close substitutes for their own care of their school-aged children during nonschool hours lacks validity. My view that self-care is an age-appropriate arrangement would also lack a persuasive piece of evidence.

Because there are market-provided child care services during nonschool hours for school-age children (Hayes, Palmer, and Zaslow, 1990), the demand for child care for these children should be sensitive to changes in the level of parental income and to variations in the price of market child care. The demand for child care for school children should behave like the demand for child care for preschool children: as the price of market child care increases, parents substitute away from market care into self-care--a low-cost child care mode that is largely dependent on the child's age and the presence of elder siblings.

In addition, income levels should affect the demand for self-care. Higher incomes lead parents to demand higher-quality care, which I assume comes through market providers. The notion that higher incomes increase the quality of self-care seems indefensible. It seems unlikely that parents spent lots of money on the self-care setting (i.e., their house) simply to "purchase" better quality self-care.<sup>9</sup>

#### IV. METHODS AND DATA

This section explains the methods and data used to test my predictions that choosing self-care is affected by (1) availability of adult kin and an older school-aged sibling, (2) income levels and the price of market child care, and (3) mothers' preferences for close substitutes for their own care.

My theoretical model emphasizes the role of parental preferences and substitution in determining child care choices; it does not stress the quality dimensions of child care for school-aged children. Issues of quality are put aside because my data--described below--only identify the presence

or absence of particular modes of child care. The model must assume that the decision-making process captures the quality of care used.

The postulated model, therefore, connects parental satisfaction, i.e., parental utility,  $U$ , and the mode of child care chosen. The parents maximize their utility from choosing among several modes of child care. Equation (1) represents the stochastic model that relates the selection probabilities to the attributes of alternative forms of child care and the characteristics of the  $i$ th parent deciding which type to choose:

$$U_{ij} = \bar{U}_{ij} + \mu_{ij} = X_{ij}' \beta + \mu_{ij}, \quad (1)$$

where the vector  $X_{ij}$  is a vector of variables representing the attributes of the  $j$ th child care choice to the  $i$ th parent,  $\beta$  is a vector of unknown parameters, and  $\mu_{ij}$  is a random disturbance.

The parent is assumed to choose that mode of child care that maximizes their utility. If we assume that there are four alternatives,  $j = 1, \dots, 4$ , the probability that the first alternative is chosen is

$$\begin{aligned} P_{i1} &= Pr[U_{i1} > U_{i2} \text{ and } U_{i1} > U_{i3} \text{ and } U_{i1} > U_{i4}] \\ &= Pr[\mu_{i2} < \bar{U}_{i1} - \bar{U}_{i2} + \mu_{i1} \text{ and } \mu_{i3} < \bar{U}_{i1} - \bar{U}_{i3} + \mu_{i1} \text{ and } \mu_{i4} < \bar{U}_{i1} - \bar{U}_{i4} + \mu_{i1}]. \end{aligned} \quad (2)$$

To explain the choice of self-care, I use the multinomial logit formulation of this probabilistic relation, expressed above in (2), and assume that the  $\mu_{ij}$  in (1) are "iid" with Weibull density functions. Thus, to test the hypotheses about the provision of self-care that were discussed in the preceding section the adopted multinomial logistic regression model is<sup>10</sup>

$$P_{ij} = \frac{\exp(X_{ij}'\beta)}{\sum_{j=1}^J \exp(X_{ij}'\beta)}. \quad (3)$$

The data I use to empirically test my predictions come 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 high school seniors in 1972. The fifth follow-up survey (1986), which provides the data for this study, was administered to an unequal probability subsample of 14,489 of the original respondents (see Spencer et al., 1987).

The comprehensiveness of the data gathered on child care makes the NLS'72 suited to analyzing determinants of self-care arrangements. Precise questions produced data on the types of care used, the cost of each type, and the hours utilized in each. The question about self-care specifically asked whether parents' school-aged child(ren) cared for themselves *without supervision* for some period of time *during nonschool hours*.<sup>11</sup>

The data on modes of care chosen enabled me to construct an unordered categorical variable "Care Choice." This variable, which has four mutually exclusive and exhaustive categories of child care (1  $\equiv$  self-care; 2  $\equiv$  parental care; 3  $\equiv$  adult kin care; 4  $\equiv$  market care), is the dependent variable for the analyses.

The NLS'72 provides much data on demographic traits of mothers, their employment histories, and birth histories of their children. These data allow testing the predictions that the age structure between youngest and eldest siblings affects use of self-care, as do mothers' preferences for close substitutes for their own care.

I test the latter prediction by exploiting the employment and education histories that were collected on all females in the fifth follow-up survey. I measure (in one-child families only) the elapsed time between the birth of that only child and the mother's entry (or reentry) into the labor market.<sup>12</sup> Those mothers with longer spans of time spent in full-time mothering (that is, they did not work or attend school) are considered the mothers most likely to prefer close substitutes for their own nurturing when their child reaches school-age and needs alternative care during nonschool hours.

Creating variables to test the former prediction about the effect of the age gap between siblings was straightforward. The survey module on birth histories furnishes each child's age. Once these ages are obtained, the gap between the eldest and youngest child is easily generated.

Apart from the maternal employment histories, I include other variables on mothers' traits, like completed education, marital status, race, and occupation, along with regional controls, so that I can identify the effects of current work effort (hours worked per week) on the likelihood of self-care use.

The NLS'72 also provides detailed information on mothers' kin networks. The survey enumerates the number of coresiding kin, establishes proximity of respondents' parents, and tabulates the frequency of their visits to the homes of the respondents. I use this information to construct two measures of kin availability. One measure indicates the number of coresiding kin. It is recoded as a binary variable that simply records the presence of coresident kin. The second measure indicates the closeness of the respondents' own mothers, i.e., the children's maternal grandmothers. A grandmother is coded as close by if she is within 10 miles and visits more than once a week. I view these two explicit measures of kin availability as primary tests of my theory.

Another strength of these data is the inclusion of nonemployed women using child care. Their inclusion allows for increased confidence in estimated effects because child care decisions are not censored by employment status.<sup>13</sup> Past studies of child care demand have lacked this rarer

population of child care users and have had to make sample selection corrections to estimated parameters (Heckman, 1979; Hotz and Kilburn, 1991).

Finally, as the data also contain ample information on the cost of care chosen, ordinary least squares are used to predict child care prices for competing modes of child care. This technique is used over others<sup>14</sup> because geographic identifiers embedded in the survey allow me to append county-level data to reported child care expenses. This permits me to estimate a predicted price for market child care, under the assumption that adding county-level variables to the regressions mimics market conditions affecting the price of child care for school-aged children. (Results available upon request.) Equation (4) is the regression model used to predict child care prices.

$$PedPrice = X'\beta + Z'\gamma + \mu, \quad (4)$$

where "PedPrice" represents the column vector of the respondent's hourly child care costs;  $X'$  is a vector of variables representing the attributes of the  $j$ th parent,  $Z'$  is a vector of county-level variables;  $\beta$  and  $\gamma$  are vectors of unknown parameters; and  $\mu$  is a vector of random disturbances.

Notwithstanding its many strengths, a weakness in the survey limits the generalizability of results. Because the survey omitted those who dropped out of high school, it is not representative of the national population. This selection bias is a minor issue for white mothers in the sample because high school dropout rates are very low for whites (Jaynes and Williams, 1989; Brandon, 1993). But the selection bias is troubling for the sample of black mothers. Data indicate that up to 45 percent of blacks could have dropped out of high school (Fine, 1986; Jaynes and Williams, 1989; Brandon, 1993). Hence, results reported pertain only to that subset of the population who reached their senior year in this grade cohort.

## V. RESULTS

My findings are based on a sample of 918 mothers who responded to the module on child care arrangements for school-aged children in the fifth follow-up survey and who had children between the ages of 6 and 13.<sup>15</sup> Of this group, 156 mothers (16.9 percent) used only self-care, 380 mothers (41.4 percent) used only parental care, and 382 mothers (41.6 percent) used child care from either kin or market providers.

Table 1 contains definitions of variables used in the empirical analyses. Differences among my sample of mothers become evident when they are grouped according to the modes of care they choose (see Table 2).

Generally speaking, mothers using self-care are more likely to live in the South, have an older first child, have a larger age gap between their eldest and youngest children, and have more income. And their attachments to the labor force--measured in either weekly hours of work or years of work experience--exceed those of mothers using parent or kin care and nearly equal the labor force attachment of those using market care. But they are less likely to live in the Northeast, have a grandmother nearby, or have a college degree. The table also shows that time spent in self-care is less than time spent in either market or kin care; typically, children spend about two hours a day unsupervised.

The effects of several variables listed in Table 2 are estimated in models predicting use of self-care. The columns in Table 3 contain the means and standard deviations of those variables first for the full sample of mothers (N=918), then for the subsample of mothers with two children (N=710), and lastly for the subsample of mothers with only one child (N=322). The table shows that the incidence of self-care is lower in one-child families (14.2 percent) than in families with two children (16.3 percent).<sup>16</sup>



### Effects of Kin and Children's Ages on Self-Care Use

The models in Tables 4, 5, and 6 examine how the age gap between youngest and oldest siblings, the age of the eldest sibling, and accessibility of kin affect the likelihood that self-care is chosen.

When other determinants are held constant, the results suggest that an important factor affecting use of self-care is availability of nearby grandmothers for care and supervision of school-aged children. For the full sample of mothers, grandmothers nearby decrease the chance that self-care is chosen over kin-provided care. Across all three tables, the estimated effect of nearby grandmothers is to strongly decrease self-care use in favor of kin care, possibly their care.

If the proximity of grandmothers increased the likelihood of self-care arrangements, then that would suggest that grandmothers nearby are a sufficient requirement for self-care. But this is not supported by these data. In fact, these data bolster past studies arguing that grandmothers are a primary source of child care (U.S. Bureau of the Census, 1987). Here, I add to that assertion by showing that grandmothers are also a source of care for school-aged children.

The estimated effects of coresident kin are weaker than those for nearby grandmothers but still reflect the expected predictions. In Tables 4 and 5, live-in kin lower the likelihood that self-care is used in families with more than one child, presumably because live-in kin are part of the kin network established to care for and supervise children. In Table 6, the estimated coefficients for live-in adult kin in one-child families are positive and increase rather than decrease use of self-care. This is a puzzling result which contradicts findings reported in Tables 4 and 5. Possibly, live-in kin in one-child families increase the probability of self-care because their impact on the use of self-care essentially resembles the impact that an available school-aged sibling has on use of self-care. Or alternatively, live-in kin in one-child families may have been coresiding for longer periods and be

older. It may even be that the older child returns home from school and cares for himself and an elderly relative until the parents return home from work.

Other results support my theory that the eldest child's age and the gap in ages between youngest and oldest sibling affect self-care use. The older the eldest child, or the older an only child, the more likely parents will choose self-care over alternatives. These results in Tables 4, 5, and 6 support my prediction that the older elder siblings become, presumably gaining maturity as they grow, the more they act like adult child care providers. Or, for one-child families (Table 6), the older the only children become, the more likely they are to pursue their own activities and provide their own home care.

The variable measuring the age gap between youngest and oldest siblings produces the predicted effect on use of self-care too. The estimated coefficient for "Sibgap" indicates that when there is too great a disparity in ages between two children, the chances that the elder sibling doubles as child care provider are lowered; parents, by necessity, must choose among the other alternatives to self-care.

The clearest confirmation of this effect is found in two-children families, where the estimated coefficients for "Sibgap" in columns 1 and 2 of Table 5 are large and significant (0.16 and 0.22, respectively). Those coefficients show that a big divergence in ages between the two siblings greatly reduces the chances that self-care is used instead of kin or market care.

Overall, the estimated effects for "Chlsage," "Sibgap," "Coresident kin," and "Grandmother close by" are consistent with my argument that kin networks and eldest siblings provide child care services and affect the use of self-care arrangements. The analyses document that kin remain a source of low-cost informal child care that parents will continue to use over other modes, like self-care, well into their children's formative school years.

### Effects of Maternal Characteristics on Self-Care Use

This section reports results on the association between maternal traits and choice of self-care. First, I find no effect of maternal levels of education on use of self-care. That says more about the data than my theory about mothers' education levels and child care choices, however. In section III, I noted that this sample is conditioned on high school graduation. This truncation of the distribution of education among mothers removes an important source of variation, namely, high school dropouts. The insignificant effect reflects this lack of variability in the data.

Self-care arrangements are generally found to occur less frequently when mothers are black. The effect of race is clearer in families with two children. Blacks more than whites are particularly predisposed to use kin rather than self-care, a result consistent with the existing child care literature (Stack, 1974).

Further, Tables 4 and 5 indicate that unmarried mothers are less likely than married mothers to use alternatives to self-care when those alternatives exist. But, if kin are available, then unmarried mothers are less likely to choose self-care. Again this finding concurs with previous findings showing that low-income mothers prefer informal kin-provided care for their preschool children (Berger and Black, 1992; Connelly, 1990). My contention that child care choices for school-aged children are similar to decisions for preschool-aged children is again reinforced.

Not all of my results are as I predicted. My models show a positive correlation between work hours and use of self-care (recall that Cain and Hofferth [1989] found the opposite). Mothers' hours of work increase use of self-care relative to kin care or parental care. This result, though hard to interpret, may mean that as work hours increase, mothers become less able to work all those hours while their children are in school. Inevitably, expanding work hours must increase the number of working hours overlapping with children's nonschool hours and hence increase the opportunities for

children to go home before their mothers arrive home from work. The variable measuring hours at work may show this dynamic.<sup>17</sup>

Table 6 shows that exclusive use of maternal child care in the past, when the child was preschool-aged, lowers the likelihood of self-care use when the child is school-aged. This effect was expected: longer periods out of the labor force during the child's preschool years diminish the likelihood that self-care is chosen during the child's school-aged years. This is evidence, at least for one-child families, that mothers prefer close substitutes for their care and that self-care is not one of them.

The result also indicates that child care choices early in a child's life may predict future child care choices. The particular case here shows that a mother's past decision not to substitute for her own care while the child was preschool-aged strongly predicts use of adult care providers once the child is in school.

Among the alternative adult providers, it seems reasonable to conclude that the closest possible substitute for her own care once the child is school-aged is probably an adult relative. That conclusion is supported in these data. Table 6 shows that the magnitude of the estimated coefficient for "Mattime" between use of kin care relative to use of self-care (0.24) is much larger than the other two estimated "Mattime" coefficients for parental care (0.011) and market care (0.026).

#### Effects of Economic Factors on Self-Care Use

I now turn to the effect of economic variables on the decision to use self-care arrangements. Tables 4, 5, and 6 reveal no effect of income on choice of self-care. The expected direction of an income effect on use of self-care is observed, yet the coefficient is statistically insignificant. This puzzling result may suggest that either nonwage income or earnings from spouse is the source of income affecting use of self-care. Higher earnings of the spouse may decrease the labor supply of mothers, thereby making mothers more likely to provide home care services. If mothers decrease

their work hours, then, most likely, the first hours they cut are those overlapping with children's nonschool hours.

The price of market child care is found to significantly affect use of self-care, however. Tables 4, 5, and 6 show that self-care is sensitive to a predicted market price of child care. This implies that the demand of mothers for market child care for their school-aged children is price sensitive, just as their demand for market child care for younger children is price sensitive (Ribar, 1989; Heckman, 1974; Blau and Robins, 1988).

This price effect is a valuable piece of data confirming that self-care arrangements are a low-cost form of care belonging to the set of child care alternatives from which mothers choose. Also, the estimated price effect is consistent with the economic prediction that a rise in the price of market child care should increase mothers' demand for lower-cost substitute forms of child care. Here, a rise in the price of market child care induces mothers to switch to low-cost alternatives, of which self-care is one.

In summary, many of my predictions receive empirical support. Results advance the argument that self-care is one low-cost, home-care option that parents consider when making child care arrangements for school-aged children. The results in the tables confirm that many of the variables affecting parents' past child care decisions also affect later child care decisions in a similar way, even when the hours of child care demanded have been reduced. Moreover, the empirical tests validate my contention that the unique nature of self-care arrangements necessitates a special set of family and kin conditions.

## VI. CONCLUSIONS

Self-care arrangements for school-aged children is a contentious issue and evoke apprehension among many people. More knowledge about its determinants is needed to allay public disquiet and to

paint a more accurate picture of why parents choose it. Until the public is better informed, many will continue to believe that school-aged children who are caring for themselves are living in poor families, are isolated, and are without recourse to adult supervision.

This study's results cast doubt on this commonly held perception, however. Though some of my results disagree with Cain and Hofferth's (1989) findings, both studies suggest that self-care arrangements do not necessarily imply that working mothers leave their children unsupervised. My findings suggest that a complex set of familial and economic factors lead mothers to make age-appropriate child care decisions, of which self-care is one.

The concern over this child care practice is now part of the child care policy debate. That debate deserves as much new data as possible because without understanding which factors lead mothers to use self-care, it seems hard to know how and where government should aim its intervention.

The study's findings at least suggest that the policies aimed at subsidizing child care for school-aged children may diverge from policies needed to address the "latch-key" child syndrome, where children are left to fend for themselves. Results strongly imply that the number of children in "latch-key" situations is much smaller than commonly thought and that children in "latch-key" conditions are perhaps a very select group which differs from the population of children in self-care arrangements.

Second, as federal financing of child care services has fallen (Robins, 1989), gauging effects of economic constraints on mothers' child care choices for school-aged children is important. Unless a determination is made of the effects of prices and income on mothers' child care decisions for all children, 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 4, 5, and 6 suggests that subsidizing the price of child care for school-aged children has 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 show this connection between different sets of child care choices for the same set of children.

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 such as children's maturity and children's own preferences affect mothers' decisions about self-care.

## Endnotes

<sup>1</sup>Estimates of the number of children caring for themselves has varied widely; some have been as high as fifteen million (Zigler and Long, 1983). In my sample, described later, roughly 16 percent of mothers leave their children at home unsupervised after school. The true number of such children remains uncertain. For a full discussion on estimates of the incidence of self-care arrangements and why there is so much variability in those estimates, see Brandon (1992).

<sup>2</sup>Little is known about the effects of self-care on children's emotional development as well. Some studies covering the subject argue that children in self-care arrangements are more likely than other children to have behavioral problems. But those studies' results are far from persuasive (see Long and Long, 1982; Rodman et al., 1985; and Steinberg, 1986).

<sup>3</sup>The authors failed to address such issues as survey nonresponse rate, item nonresponse, and selection bias. Also, they used a set of statistical techniques that were inappropriate for the variation they were trying to explain.

<sup>4</sup>The affect of race on child care choice is unresolved. Some studies find racial differences, other studies do not (see Lehrer, 1983; Blau and Robins, 1988; Brandon, 1991).

<sup>5</sup>The researchers used data from the December 1984 CPS. They primarily focused on the binary choice of parental versus nonparental care.

<sup>6</sup>A kin network does not perform like an intermittent surveillance device for children who care for themselves. It seems illogical that parents would confine their available relatives just to this role.

<sup>7</sup>Note that in Tables 4, 5, and 6, a negative coefficient means that the likelihood of choosing an alternative to self-care is lowered by the presence of an elder sibling.

<sup>8</sup>Exclusive use of maternal care means that the mother neither worked nor attended school or job-training classes while caring full-time for her child; mothering was the main activity. This variable is fully explained in the methods section.



<sup>9</sup>Steinberg (1986) does, however, note that some parents invest in home items so that children caring for themselves are safe and can contact their parents.

<sup>10</sup>The conditional multinomial logit model can suffer from the property known as the independence of irrelevant alternatives (Judge et al., 1985). This property results from assuming the errors,  $e_{ij}$ , are independent when in fact the assumption is false. To guard against this problem, I extensively explored the data before analyses were conducted, ensuring that the child care alternatives were conceptually distinct. As is usually the case with this problem, the full child care choice set from which a parent can choose is unknown.

<sup>11</sup>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 when they care for themselves are unknown.

<sup>12</sup>See Spencer et al. (1987) for a full description of the fifth follow-up survey. They provide details on the modules for schooling, employment, and fertility. From data collected in those modules, I can ascertain children's births and mothers' entries into work and/or school.

<sup>13</sup>Other comparable child care surveys (e.g., SIPP and NLSY) ask child care questions only of working women.

<sup>14</sup>Others have used the modal regional price for each child care mode as a representation of the market price of child care (see Stolzenberg and Waite, 1984; Blau and Robins, 1988).

<sup>15</sup>The fifth follow-up survey contains 4,281 mothers. Of them, 4,021 (93.9 percent) specified the form of child care used. The subsample of 1,404 mothers who had only school-aged children are part of that group. Of them, 61.9 percent (870) used some form of nonparental child care. In fact, of the 1,404 mothers, 20.1 percent said that the "child cares for self (without supervision)" for some period of time *during nonschool hours*. Missing data further reduced the sample to 918 mothers.

<sup>16</sup>For families with three or more children, the incidence of self-care rises to 19.2 percent. My estimates are lower and less biased than others because they are not conditioned on mothers' labor force participation decisions. Prior estimates have been based on surveys of labor force participation among women; in computing them, it was assumed that if the mother worked full-time but did not use market child care, then her children were at home unsupervised. 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 (Brandon, 1992).

<sup>17</sup>Another result in Table 4 shows that when the choice is between self-care and parental care, blue-collar mothers are more likely than other mothers to choose self-care. This result supports Presser's (1986) study which found that two-earner blue-collar couples often stagger work schedules so that one parent can care for the children while the other works.

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TABLE 1

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

Variable	Definition
College degree	1 if received college degree, 0 otherwise
Black	1 if black, 0 otherwise
Blue-collar worker	1 if works in blue-collar job, 0 otherwise
Chlsage	Age of oldest child currently coresiding
Coresident kin	1 if respondent 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	Hours worked in the labor market per week
Northeast	1 if lives in Northeast, 0 otherwise
Midwest	1 if lives in Midwest, 0 otherwise
South	1 if lives in South, 0 otherwise
West	1 if lives in West, 0 otherwise
Grandmother close by	1 if mother within 10 miles, 0 otherwise
Sibgap	Difference in years between age of eldest school-aged sibling and age of youngest sibling who is also school-aged
Price of child care	Predicted hourly price of child care
Unmarried	1 if unmarried, 0 otherwise
Work experience	Years of full-time work for pay
Number of children	Number of own children in household
Mattime	Amount of time mother spent in full-time mothering after the birth of her only child (in months)
Self-care	1 if only use self-care, 0 otherwise
Parental care	1 if only use spouse or self, 0 otherwise
Kin care	1 if only use kin care, 0 otherwise
Market care	1 if only use center or informal (nonkin) care, 0 otherwise
Care choice	1 if only use self-care 2 if only use parental care 3 if only use kin care 4 if only use market care

**TABLE 2**

**Selected Statistics of Mothers with School-Aged Children,  
by Primary Child Care Arrangements**

	Self-Care	Parental Care	Kin Care	Market Care
<b><u>Mother's characteristics</u></b>				
Black (%)	17.4	14.5	25.7	11.1
Work experience (years)	5.9	3.7	5.4	6.4
Blue-collar worker (%)	20.7	28.5	23.5	17.3
Education (years)	13.2	13.0	13.3	13.5
Hours worked	36.3	15.9	30.3	35.5
College degree (%)	4.4	4.2	6.4	9.3
Unmarried (%)	27.4	14.9	40.9	40.1
<b><u>Family characteristics</u></b>				
Grandmother close by (%)	41.4	45.3	71.5	45.7
Coresident kin	1.80	2.01	1.96	1.74
Number of children	2.1	2.1	1.9	1.7
Price of child care	n.a.	n.a.	\$4.06*	\$3.30*
Family income (in thousands of dollars)	29.69	30.30	24.86	27.87
Hours in care	9.52	n.a.	16.60	18.32
Chlsage	12.22	10.25	10.37	8.69
Sibgap	2.50	2.33	2.08	1.69
<b><u>Regional characteristics</u></b>				
South (%)	43.8	27.1	46.1	43.3
West (%)	16.8	14.1	7.8	16.7
Northeast (%)	9.9	22.3	19.5	14.5
N	156	380	181	201

\*Predicted.

n.a.: not applicable

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

TABLE 3

## Means and Standard Deviations of Variables Used in Models Predicting Determinants of Self-Care

	Full Sample	Two-Children Families	One-Child Families
<u>Response Variable</u>			
Care Choice			
Self-care	16.9	16.3	14.2
Parental	41.4	37.9	32.3
Kin	19.8	20.7	24.9
Market	21.9	25.1	28.5
<u>Predictor Variables</u>			
Coresident kin	1.91 (0.65)	1.89 (0.69)	1.90 (0.75)
Grandmother close by	0.49 (0.50)	0.50 (0.50)	0.51 (0.50)
Black	0.16 (0.37)	0.16 (0.37)	0.21 (0.41)
Education	13.15 (1.60)	13.21 (1.65)	13.49 (1.78)
Unmarried	0.27 (0.44)	0.31 (0.46)	0.39 (0.49)
Chlsage	10.79 (2.38)	10.32 (2.17)	9.32 (2.10)
Sibgap	2.30 (2.34)	1.76 (1.98)	n.a.
Mattime	n.a.	n.a.	58.8 (39.7)
Blue-collar worker	0.24 (0.43)	0.23 (0.42)	0.21 (0.41)
Hours worked	25.70 (18.54)	27.30 (17.74)	29.70 (16.79)
Family income	28.78 (18.82)	27.52 (16.88)	26.63 (16.57)
Price of child care	3.76 (3.69)	3.63 (3.15)	4.14 (3.41)
South	0.36 (0.48)	0.38 (0.49)	0.38 (0.49)
West	0.14 (0.35)	0.15 (0.36)	0.15 (0.36)
Northeast	0.18 (0.39)	0.17 (0.38)	0.20 (0.40)
N	918	710	322

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

n.a.: Not applicable.



TABLE 4

Reduced Multinomial Logit Analysis Predicting Use of Self-Care: Full Sample  
(Parameter estimates and standard errors)

	Kin Care v/Self-Care	Market Care v/Self-Care	Parental Care v/Self-Care
Intercept	3.21** (1.33)	5.62*** (1.30)	7.45*** (1.25)
Coresident kin	0.62* (0.35)	0.31 (0.37)	0.10 (0.36)
Grandmother close by	1.10*** (0.25)	-0.18 (0.25)	0.11 (0.22)
Black	0.38 (0.35)	0.32 (0.44)	-0.23 (0.36)
Education	0.08 (0.07)	0.09 (0.07)	-0.03 (0.07)
Unmarried	0.39** (0.30)	0.30 (0.30)	-0.66** (0.29)
Chlsage	-0.39*** (0.06)	-0.60*** (0.06)	-0.36*** (0.06)
Sibgap	0.10* (0.05)	0.09 (0.05)	0.05 (0.05)
Blue-collar worker	0.54* (0.29)	0.23 (0.30)	0.69** (0.26)
Hours worked	-0.03*** (0.01)	-0.01 (0.01)	-0.06*** (0.01)
Family income	-0.01 (0.01)	0.01 (0.01)	-4.43e-b (0.01)
Price of care	-0.01 (0.02)	-0.11** (0.05)	-0.0003 (0.02)
South	0.31 (0.31)	0.17 (0.30)	-0.26 (0.27)
West	-0.75* (0.43)	-0.21 (0.37)	-0.68** (0.35)
Northeast	0.42** (0.41)	0.12 (0.42)	-0.01 (0.38)
N	918		
Log likelihood	-964.98		

\*p < .10  
\*\* p < .05  
\*\*\* p < .01

TABLE 5

**Reduced Multinomial Logit Analysis Predicting Use of Self-Care: Two-Children Families  
(Parameter estimates and standard errors)**

	Kin Care v/Self-Care	Market Care v/Self-Care	Parental Care v/Self-Care
Intercept	3.88*** (1.59)	7.09*** (1.54)	8.48*** (1.51)
Coresident kin	0.38 (0.39)	0.13 (0.41)	-0.10* (0.40)
Grandmother close by	1.10*** (0.30)	-0.36 (0.29)	0.16 (0.27)
Black	1.47*** (0.58)	1.23** (0.58)	0.62 (0.58)
Education	0.12 (0.08)	0.10 (0.08)	-0.003 (0.08)
Unmarried	0.61* (0.35)	0.51 (0.34)	-0.81** (0.34)
Chlsage	-0.48*** (0.08)	-0.74*** (0.08)	-0.47*** (0.08)
Sibgap	0.16** (0.07)	0.22*** (0.08)	0.08 (0.07)
Blue-collar worker	0.49 (0.33)	0.05 (0.35)	0.50 (0.31)
Hours worked	-0.03*** (0.01)	-0.01 (0.01)	-0.06*** (0.01)
Family income	-0.01 (0.01)	0.01 (0.01)	-0.01 (0.01)
Price of care	-0.14** (0.07)	-0.23*** (0.06)	-0.11* (0.06)
South	0.49 (0.35)	0.47 (0.34)	-0.07 (0.32)
West	-0.74 (0.48)	-0.11 (0.41)	-0.47 (0.39)
Northeast	0.47 (0.48)	0.40 (0.48)	0.18 (0.44)
N	710		
Log likelihood	-747.02		

\* p &lt; .10

\*\* p &lt; .05

\*\*\* p &lt; .01

TABLE 6

Reduced Multinomial Logit Analysis Predicting Use of Self-Care: One-Child Families  
(Parameter estimates and standard errors)

	Kin Care v/Self-Care	Market Care v/Self-Care	Parental Care v/Self-Care
Intercept	8.43*** (2.68)	11.66*** (2.63)	11.96*** (2.60)
Coresident kin	-1.13* (0.57)	-0.34 (0.59)	-0.85 (0.57)
Grandmother close by	1.87*** (0.50)	-0.42 (0.48)	0.55 (0.45)
Black	2.36*** (0.87)	1.56* (0.84)	1.22 (0.84)
Education	0.05 (0.12)	0.01 (0.12)	-0.07 (0.11)
Unmarried	1.09** (0.55)	0.58 (0.53)	-0.41 (0.50)
Chlsage	-0.87*** (0.17)	-1.07*** (0.17)	-0.70*** (0.16)
Mattime	0.24*** (0.01)	0.026*** (0.01)	0.011* (0.01)
Blue-collar worker	0.44 (0.56)	-0.08 (0.56)	0.18 (0.52)
Hours worked	-0.07*** (0.02)	-0.03 (0.01)	-0.08*** (0.01)
Family income	0.01 (0.01)	0.03 (0.01)	0.01 (0.01)
Price of care	-0.13 (0.09)	-0.21** (0.09)	-0.09 (0.09)
South	0.10 (0.63)	0.29 (0.60)	-0.08 (0.59)
West	-1.75** (0.81)	-1.02 (0.71)	-0.95 (0.69)
Northeast	-1.02 (0.80)	-1.24 (0.81)	-0.97 (0.75)
N	322		
Log likelihood	-327.43		

\* p &lt; .10

\*\* p &lt; .05

\*\*\* p &lt; .01

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