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SOURCES OF THE MOUNTING PRESSURE TO SUBSIDIZE
PRESCHOOL CHILD CARE

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ABSTRACT

There seems to be a consensus that extrafamily preschool child care should be expanded and publicly subsidized. This consensus contrasts with the belief commonly held in the past that young children belong at home. We identify four sources of the mounting pressure for more public involvement in child care. We draw a distinction between these pressures and effective demand. The total demand contains two elements: public demand and effective private demand. The analysis of the policy implications of the four sources of mounting pressure presents the necessary conditions for extensive public intervention in the child care area. Providing day care in order to get welfare mothers to work is suspect from the economic point of view. Except for allowing deductibility of child care costs from taxable income, the sources of pressure, as presented and analyzed, do not provide or deny a justification for subsidization of preschool child care.

SOURCES OF THE MOUNTING PRESSURE TO SUBSIDIZE
PRESCHOOL CHILD CARE

I. INTRODUCTION

Preschool child care has existed for some 120 years in the United States.¹ Throughout the last decade it has increasingly become an issue of popular discussion. Interest in child care programs has become common across the political spectrum. There seems to be a consensus that extra-family child care should be expanded and publicly subsidized. Pressure to provide or at least to subsidize child care has been manifested by the many pieces of legislation concerned with public subsidization of child care services that have been pending in Congress.² This pressure has been reflected in many speeches, articles, books, and addresses that deal with young children, working women, or welfare problems. In "Day Care: A Statement of Principles," issued by the Office of Child Development [1971], we find

This country stands at a crossroads in establishing new day care services and in expanding and improving existing services... The need for expansion of day care services in this country is a growing and compelling concern of every community, of many agencies and organizations and of families and citizens.

G. Y. Steiner [1972] claimed

Public child care programs are likely to become a major social policy innovation of the present decade comparable to medicare and medicaid in the sixties.

These two examples illustrate the increasing pressure for more public involvement in day care.

The current mounting pressure for the creation of a federal policy to provide child care services contrasts with the belief commonly held in the past that young children belong at home and should be taken care of

exclusively by their mothers. Traditionally, the responsibility for the education, care, supervision, and upbringing of preschool children has rested with their parents. Except for protecting children from cruelty, neglect, or exploitation, society has taken part in this responsibility only when the child reaches age six. At that time, compulsory primary education, provided free of charge to all and financed by the public fisc, begins in the public school. Recently the age of admittance to public school has been lowered to five in most states. Significantly, in spite of the fact that public schooling is provided free of charge to all, society's public responsibility has been limited to the education of children, while parents are expected to take care of all other aspects of their offsprings' upbringing. New social trends have brought about a whole new attitude whereby the public is expected to take part of the responsibility for formal education as well as other aspects of care for young children. Hence, the new "spirit of the times" relates to younger children and also extends public responsibility to a broader spectrum of tasks related to the rearing of young children. An additional difference is the inclination to reserve this responsibility for the federal government, while local governments retain full control over public schools.³

In the following presentation, an attempt is made to identify the sources of the increased interest in preschool child care and of the mounting pressure for more public involvement in supplying it. Next, a distinction is drawn between interest in, need for, and pressure for public involvement in child care on the one hand and the effective demand for such care on the other. Then, the sources identified are explicated and

the policy implications of each are analyzed. Evaluation of the overall policy is offered in the summary.

II. IDENTIFYING FOUR SOURCES OF INCREASED INTEREST IN PRESCHOOL CHILD CARE

Throughout the last decade the interest in preschool child care and education has been constantly increasing. This burgeoning interest is an outgrowth of four factors. First, child development experts reached the now universally accepted conclusion that a child's first years are crucial for personality formation and for the determination of intelligence.⁴ Many of these experts claim that early childhood group care, if provided at an accepted level of quality, may help underprivileged children overcome their handicaps. Second, the secular rise in the labor force participation of women, especially of mothers with young children, contributed to the rising interest in the day care centers issue. Many of these mothers are heads of single-parent families. Third, the new emphasis on equality between men and women, the elimination of sex discrimination, has intensified the discussion of preschool child care. Finally, and most important in the context of the present discussion, it has been felt by many that the increasing numbers of welfare mothers are a burden on the taxpayers and that they should be helped and encouraged to find ways to support themselves. This feeling created additional political support for subsidization of child care.

These sources of the increasing interest in child care have contributed to many legislative initiatives in the last three sessions of Congress with regard to federal subsidization of child care. Most of these legislative initiatives have emphasized income-conditioned fee scales.

Moreover, the new income maintenance proposals, or as they are often called, "welfare reforms," contained child care provisions. These child care provisions have played important roles in income maintenance legislation in two ways: (1) The public expenditure involved is estimated to be a large fraction of the total expenditure designed for income maintenance. (2) Child care provisions have been used to gain political support for welfare reform programs.

Before we turn to discuss and analyze these four sources of the pressure for increased public provision of child care services and their policy implications, we will look at the distinction between the effective demand for and the increased interest in group child care.

III. A DIGRESSION ON EFFECTIVE DEMAND

Effective private demand can be defined as the extrafamily group child care parents are willing to pay for out of their own resources. This definition demonstrates that the wish to get child care must be backed up with purchasing power. Hence, this term includes both the willingness and the ability to buy such services.

This effective demand is a function of numerous arguments. Among the ten arguments listed here, the first four are quantifiable economic arguments; the next three are mainly demographic, objective, and measurable; the last three may be referred to as "taste" arguments, and we would hardly know how to evaluate them. The economic considerations are (1) total income, (2) total wealth, (3) separate earning capability of both father and mother, and (4) fees (tuition and services) the family is required to pay for day care relative to other child care arrangements. The demographic considerations are number of children, ages of children, and

number of adults in the family. The taste considerations are benefits to children (positive or negative) of day care centers as compared with other forms of child care, preferences with regard to employment of the mother outside of her household, and norms and views accepted relative to extrafamily group child care.

Effective demand, as defined here, is not dealt with in this paper. Effective demand and increased interest create the total demand for group child care. This total demand is constructed of two components: the private effective demand and the public demand. The public demand is the final manifestation of action by the administration, an action that results from the increased interest in public involvement in day care. Elsewhere I have shown that most middle- and upper-income families are not willing to cover the full cost of quality group child care.⁵ Therefore, one may conclude that if the public demand component is significant, the supply of preschool child care will respond to the increased interest in it if and only if part of the cost will be covered by subsidization. The discussion of whether, how, and for whom to subsidize group child care has been dealt with separately.⁶ A necessary condition to decide with respect to subsidization is to identify and understand the sources of the mounting pressure for public involvement in the preschool child care issue.

IV. THE SOURCES - AN EXPLICATION

Four sources of the pressure for increased public provision of child care services as well as their policy implications are discussed and analyzed here. These four sources⁷ are (1) the increase in costs of public assistance to families with young children, especially single-parent

families, that created the eagerness to get mothers off the welfare rolls and to help them get paid employment; (2) the continuous increase in the labor force participation of women, especially of mothers; (3) the rising emphasis on equal employment opportunity for women and the elimination of sex discrimination; and (4) a new interest in early child development, especially recognition that the early years are crucial to personality formation.

A. Getting Welfare Mothers Off the Welfare Rolls

The attitude that welfare recipients should be encouraged to get a paid job and leave the welfare rolls is as old as welfare itself. The increase in the number of welfare recipients and the rise of the amount of support per family has enhanced this attitude. The number of families receiving Aid to Families with Dependent Children rose from 1.3 million in December 1967 to 2.6 million in December 1970.⁸ The commonly held belief that "We need more day care centers so that mothers can go to work and get off the welfare rolls" is part of the rationale for all proposed welfare reform programs; this attitude has created pressure for public provision or subsidization of day care centers, since child care services are a necessary condition for mothers with young children to be able to seek employment and support themselves.

This attitude is reflected in two parts of H.R.1, which was passed by the House of Representatives on May 26, 1971: in the Family Assistance Plan (FAP) and in the Opportunities for Families Plan (OFFP). The same attitude dominates the version tentatively adopted by the Senate Committee on Finance on June 13, 1972 and passed by that Committee on September 22, 1972. Both pending versions of the bill advocated reducing the welfare rolls through the "Workfare" idea. In H.R.1, mothers who are heads of their

families, with children more than six years of age, and--as of 1974--with children more than three years of age, would be required to register for work or training to be eligible for full income support. These mothers would lose one-third of their minimum guaranteed income. A day care provision for their children is incorporated in the bill. In the later version, submitted by the Committee on Finance, a new Bureau of Child Care would be established within the new Work Administration. The bureau's first priority would be to make child care services available to participants in the Employment Program.

There are variations in the degree to which welfare mothers are considered to be "employable" poor. One approach recommends that they be required to work, while a milder approach suggests that they be encouraged to work. It is clear, however, that getting welfare mothers off the welfare roles is a common and strong political sentiment. As long as lack of day care facilities for their children is believed to be the major impediment to increasing the employment of welfare mothers, this sentiment will continue to be a major source of the increased pressure to provide public financing of child care services. Because welfare reform is a national issue, child care services are expected to be handled directly by the federal government.

Two consequences of incorporating into welfare reform this attitude of "encouraging," by means of penalties, are evident: (1) An inequity is created between welfare mothers with husbands at home and those with no husband at home. The work test and the related need for child care for their young children, apply only to the latter. So long as preschool education for all is not considered, is it socially sound to apply pressure on poor families or on single-parent families to enroll their children in such programs? (2) The welfare mother with one child in this age group (3-5)

will have to earn around \$2500 a year before she will increase her take-home income (after paying for child care) above the income support. She will have to earn around \$4500 a year to increase the take-home income⁹ if she has two young children, and between \$2500 and \$4500 if she has one preschooler and at least one school-age child. It is not sound economic policy--in this period of 6 percent unemployment among all women and more than 10 percent among black women--to force day care on the children of welfare recipients, and to expect the mother to find employment and earn enough to cover the direct costs of day care and work expenses.

It is hard to understand the economic rationale behind forcing more women to actively seek employment. There are two separate issues involved. The first suggests that the net reduction in the welfare rolls as a result of such programs may be insignificant. This is so because a mother's earning enough to increase her take-home income above public assistance levels is highly unlikely, since day care cost will be deducted from her income. The second issue suggests that getting welfare mothers off the welfare rolls by providing them with free child care will, in all probability, be more costly than by providing them with public support. Whether it is cheaper to encourage a mother to work rather than remain on welfare depends on (1) what she could earn if she were employed, (2) her chances of finding and holding a job, and (3) the cost to the taxpayer of providing day care or other services she needs to continue working. What the mother could earn is a function of her previous experience, her skills, and her education. Her chances of finding a job depend on the same three factors and on the unemployment rate for women with her skills in the area in which

she lives. According to studies of AFDC mothers in 1971 and 1968, a majority of these mothers had low earning potential and low employment potential.¹⁰

But even for the high employment and earning potential welfare mothers, the labor market conditions have been discouraging. Unemployment rates of women have been rising relative to those of men for some years, and black unemployment rates are consistently above those for whites.

The cost of providing day care may be well above the cost of continuing welfare payments to enable the mother to stay at home. Not only is her marginal product higher at home, when she is taking care of her children, but, if the welfare department provides the child care, the direct welfare department expense for many families may rise once the mother gets paid employment.

In general, if a mother has more than two children, it is unlikely that the taxpayers would benefit by paying day care costs rather than welfare benefits to the mother. This means that providing day care must be justified on grounds other than saving money by getting AFDC mothers off the welfare rolls.

B. The Rise in the Labor Force Participation of Mothers

The second source of increased pressure to provide extrafamily child care results from the secularly increasing trend in the labor force participation rate of women, especially mothers. As the number of mothers in the labor force continually rises, there is increased concern about the quality of care their children will get. Children of working mothers are cared for in various ways, but most do not receive group care. In 1970 only 16 percent of the working mothers with children under 6 years old were sending them to day care centers or nursery schools.

The rise in the labor force participation rate of women and mothers is presented in Table 1 and Figure 1. An attempt is made here to present the factors contributing to the shift of activities out of the household, among them child care. Further, we seek to evaluate the impact of rising income, changing family structure, and urbanization on the demand for child care services.

Household work versus market work. A well-known and well-documented historical trend has been the shift of activities from the household to the market. With the extension of the division of labor and the consequent rise in productivity, many of the tasks carried out inside households by family members have been shifting out of households and monetized. Child care, especially for preschoolers, is part of this trend. Child care traditionally has taken place inside the family; even today most children under school age are taken care of in the family. However, we can observe from the enrollment rates in Table 2 that child care is also moving outside the home. We assert that child care is a latecomer, but is still part of the shifting of activities from the household to the market and to public and voluntary agencies.

Many related factors have contributed to this shift of activities out of the household, some of them demographic, some economic, and some attitudinal. Both the economic and attitudinal factors are reflected in family structure and life style. Increasing income has contributed to this shift of activities, and indirectly to the rising interest in day care for young children.

There has been a long-run decline in the number of young children per family (Table 3). This long-run decline in the number of young

Table 1

Labor Force Participation Rates of Women
and Mothers: 1890, 1964, and 1970

Year	Women	Mothers
1890	18%	5%
1964	37%	34%
1970	52%	42%

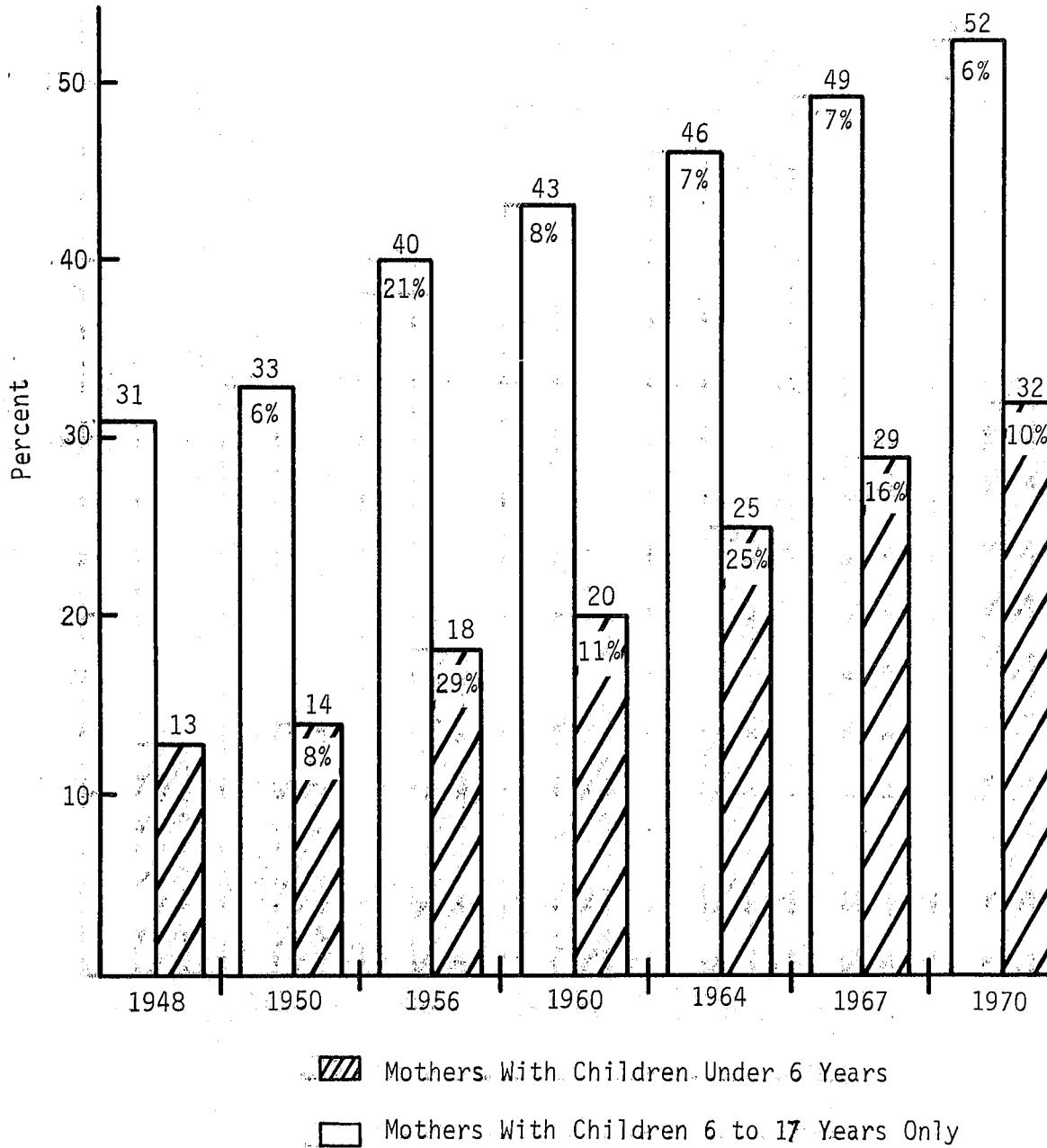
Sources: For 1890, Historical Statistics of the U.S., 1960.

For 1964 and 1970, Manpower Report of the President 1971.

Washington, D.C.: U.S. Department of Labor, 1971.

Figure 1

Percentage of Change in Labor Force Participation of Mothers by Age of Children during Selected Years 1948-1970



Source: U.S. Department of Labor, Bureau of Labor Statistics, and U.S. Department of Commerce, Bureau of the Census.

Note: In top upper part of each histogram, the percent change from the previous selected year is depicted.

Table 2

Enrollment of 3 to 4 Year Old Children 1964-1971
(in thousands and as percentage of total)

Years	Number of children	Number of enrolled	Enrolled as % of total
1964	8386	798	9.5
1965	8387	886	10.6
1966	8242	1033	12.5
1967	8080	1145	14.2
1968	7811	1228	15.7
1969	7423	1195	16.1
1970	7135	1462	20.5
1971	6986	1478	21.2

Sources: For 1964-1970, Table A-II-1 in Shifron [1972].
For 1971, Linda Barker, Preprimary Enrollment, October 1971.
Washington, D.C.: Department of Health, Education and Welfare, 1972.

Table 3

Number of Children Under 5 per Woman
20-44 Years Old and Median Age of Mothers
at Birth of Last Child

	1800	1900	1940	1970
Number of children under 5 per woman	1.3	.7 or .8	.4	.35
Median age of mother at birth of last child	late 30s	early 30s		late 20s

Source: Richard R. Nelson and Michael Krashinsky, "Some Questions of Optimal Economic Organization: The Case of Day Care for Children." Washington, D.C.: Urban Institute, 1971, p. 13.

children per mother and in the median age of the mother at birth of last child, in addition to the increase in life expectancy of women at age 20--20 years since 1800--has caused the opportunity cost of rearing children at home to rise.¹¹

The trend toward fewer children per mother makes it more likely that some economies of scale will follow from extrafamily child care.

The trend of shift in activities from the household to the market is also explained by other demographic trends, i.e., the decline of the extended family and urbanization. In the nuclear family it is more difficult to benefit from any division of labor in performing household chores. One result is an increase in the demand for labor-saving devices for performing these chores. Another result is an increase in the opportunity cost of household activities as a result of a decrease in household productivity. Hence, activities shift from the family to specialized organizations.

The traditional economic explanation for this trend of shift in activities when income rises is the substitution effect. Namely, with increased specialization and improved productivity, time becomes more expensive. The opportunity cost of the housekeeper rises; also the real cost of hiring domestic help increases. As a result, the demand for laborsaving technological devices shifts outward and such devices are introduced into the household (as well as to other sectors of the economy). With rising income, due to the rising opportunity cost of time, there is a substitution for less time-intensive technologies of household production, including going to specialists outside the home. Many household activities are carried out more and more by experts, who are trained and paid to work more efficiently with improved tools and equipment.

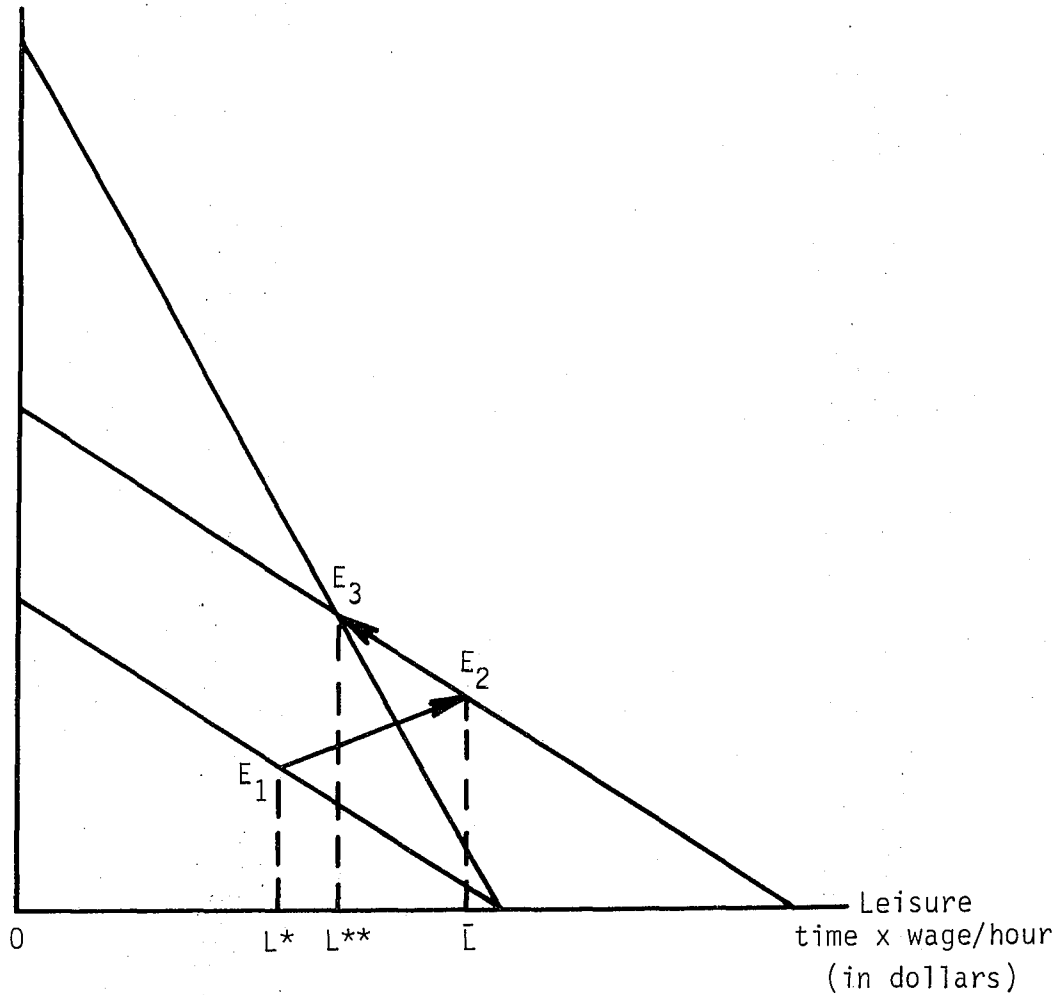
This explanation may be described as a semicircle: When income rises, people want more goods and leisure (the pure income effect in Figure 2, described by the move from E_1 to E_2); but as time, and consequently the opportunity cost of leisure, becomes more valuable, the substitution effect pushes to purchase more conveniences and goods and less leisure (the substitution effect in Figure 2, the shift from E_2 to E_3). The final result in the current context may be that extrafamily child care would be the most rational choice for a family with only one or two small children, when the mother has some skills.

Another explanation is a pure income effect that also may have the same result, regardless of any change in the ratio of the cost of home labor and market labor at the margin. This explanation is based on the assumption that the time used in performing household chores can be regarded as an inferior consumption good. The argument is simple and straightforward; it is based on G. S. Becker's [1965] model of time allocation. The argument goes like this: Assume that time used in household work is part of consuming the outcome of this activity. Assume, too, that there is a different method that achieves a similar outcome using less time but more money. It is a sound conclusion, following these two assumptions, that the time used to perform the household chores is an inferior good. Actually, it is a negative good as we regard all work as the reciprocal of leisure. This particular time is not included in the measured work, hence it is part of leisure but will have negative marginal utility. A secular increase in income will, therefore, bring about a decline in the time spent doing household work, i.e., the income effect helps to explain this secular trend of shifting from household activities to market alternatives. Also a pure income

Figure 2

The Impact of Wage Effect on Labor Supply of Women

Goods, Services
and Conveniences
(in dollars)



Note: A change in the labor supply of women as a result of a rise in their earning capability as well as the family's income (simplistic presentation, under regular assumptions). The move from E_1 to E_2 is pure income effect. The move from E_2 to E_3 is a proximity to the substitution effect, when time becomes more precious. Part of the extra services this family might purchase could be child care services.

effect can explain an increase in the labor supply. Note, however, that this increase is not necessarily in hours worked but in measured hours of paid work.

In a recent note, A. G. Holtmann [1970] argued that a more general definition of leisure may lead to the peculiar result that an increase in measured work effort may result from a lump sum subsidy. An intuitive and mathematical explanation of this particular case is presented in the Appendix. However, the effort that poverty-stricken families had been devoting to survival could hardly be referred to as leisure. The rise in their incomes changed the effective constraint they faced enough to allow them to reduce their nonpaid work. Part of the extra time that was gained could be used to get a paid job, with a lower marginal product.¹²

It is possible that an individual will choose to use up less time in "consumption" and have more time to work (for money income) after his income has increased. One should note that the result obtained here is the outcome of the conventional definition of work as that part of the work effort that is directly paid for in the market. That is, a person may well work more in the market but less overall.

The combined effect of the higher opportunity cost of staying home and the availability of labor-saving devices for household work makes paid work an attractive alternative for women and mothers. Moreover, the time freed by labor-saving technology in the household can be used only inside the house, as long as the mother with young children has to provide necessary child care at home. This means that the opportunity cost of family child care is on the increase, at least for the time the mother is free from all other activities except taking care of her young children.

The proportion of her time spent on child care only is rising because of the labor-saving devices at home and the shift of activities from the family to specialized organizations. This type of income effect has, no doubt, an important impact on the increase in the number of women working outside their homes. The relevant questions in the current context are, "Does the income effect have anything to do with the higher enrollment rate of preschoolers in extrafamily child care and educational institution?" and "Does it contribute to the mounting pressure for public provision of child care?" To put it differently: apart from contributing to the increase in the number of working mothers, does it also have the same impact on the private or public demand for extrafamily child care?

The subject of the current section has been the impact of the factors affecting the rise in labor force participation by mothers on the increasing pressure for public provision of child care. I would venture a guess that these factors, along with the "off the welfare rolls" sentiment, have been the two main sources for the increased interest in child care.

C. Equal Opportunities for Women

A third source of the increased pressure for public provision of child care is related to the previously discussed shift of activities from the household to the market. The search for equality of work opportunity has led the women's liberation movement to demand that the government provide full day care services free of charge so that every mother can choose to stay home or go to work.

Usually we believe that it is the mother who must make a rational choice between extrafamily child care and employment versus household.

activities. The fact that this choice is usually considered to be the wife's and not the husband's, or that of both, may be an indicator of a market failure--a result of discrimination against women. Availability of day care centers may help to reduce this market imperfection, but it cannot eliminate discrimination against women, if this discrimination is the source of the market failure. It may, however, be a second best solution that will take care of the effect without dealing with the cause. Thus, a larger supply of day care facilities would enable mothers to more freely make a "rational" decision, and may further the equality of men and women in making free choices, eventually reducing inequality in wages. This line of reasoning justifies, at the minimum, regarding day care costs as work expenses, and therefore allowing deductibility for income tax purposes, or for determining eligibility for income support.

An equity issue related to this is deductibility of child care expenses. The higher the earning potential of the mother, the greater her opportunity cost for staying at home and the value of her child care deductions. This is justified on efficiency grounds. However, there may be an inequity among women: The market failure that resulted from sex discrimination may have weakened or been eliminated for women in high income brackets while unchanged for low income mothers. Apparently allowing the deduction of child care so as to correct for the market failure which results from sex discrimination is a weak second-best solution.

In a discussion of the economic impacts of discrimination against women, Steven H. Sandell [1972] commented that the greatest step women can take toward achieving equal opportunity in the labor market is to achieve real equality in the household. In his words: "If women are liberated

from the crib and the kitchen so that men and women more equally share household chores, or if day care services for children become easily available and socially acceptable, we would expect the market work pattern of men and women to be similar."

The conclusion is that availability and acceptability of extrafamily child care is one of the necessary conditions for improving opportunities for women. Therefore, the increasing demand for equal opportunities for women is a source of pressure for subsidized child care.

To the extent that mothers are discriminated against when compared to fathers, there may be a suboptimal resource allocation. It does not necessarily follow that the public should take full responsibility for providing child care services for all children. Availability of day care may serve as a tool to diminish such discrimination.

D. Early Child Development

Early childhood development is crucial for personality formation in later years. There is evidence that proper child care in one's early years can result in a difference of 20 to 40 I.Q. points as an adult, P. H. Karser [1971].

Educators agree that children develop intellectual skills and capacities rapidly at young ages. It is claimed that by age three children from poor families, on the average, already lag behind children from more affluent families.¹³ These observations imply that some public programs can reduce the handicap of the poor and help their children attain some degree of equal opportunity in the future.

If and only if the aforementioned observations are correct, it is granted that providing free preschool child care should be considered, and

should be subjected to a benefit-cost test. If children of more affluent families are the yardstick against which the deprivation of children from poor families is measured, however, then recommending day care centers is a non sequitur solution, since affluent children, by and large, do not attend these. The training of parents in various aspects of child rearing and the granting of a certain minimum income follow more directly. The early years being the years when children develop quickly, it is conceivable that if and when preschool education programs are accepted as beneficial to young children, they should be developed and provided for all children, no matter what their parents' income is, in order to improve their capabilities.

V. SUMMARY

This paper has summarized the sources of mounting pressure for larger public responsibility for the care of young children. No attempt was made to prove that the government should indeed take this responsibility. Also nothing was said about which programs should be adopted or toward which families they should be directed. An attempt was made, however, to show that providing day care in order to cope with the "getting welfare mothers to work" attitude is suspect from the economic point of view. The remaining three sources, as presented, did not provide or deny a justification for public subsidization of preschool child care, with the exception of allowing deductibility of child care costs for income tax purposes.

An understanding of the mounting pressures for more public involvement is a necessary condition to understand the public demand for day care. This understanding may help to decide whether, for whom, and in what ways to subsidize preschool child care.

APPENDIX

We will present an intuitive and mathematical explanation of the case where a pure income effect can explain an increase in the labor supply, and hence in the demand for child services. Presentation of an intuitive explanation of this case, and of the analytical model on which it is based follows. We will use, as an example, a family of four whose total money income is very low, say \$1,000 a year. Being this poor probably means (1) they do not buy bread, only flour and the other ingredients needed to bake their own bread, their main food; (2) they wash clothes by hand; (3) they have no appliances in the kitchen; (4) the legs of the family members are their only means of transportation; and (5) they buy in the cheapest stores, though the shopping around, by foot, is time-consuming. Evidently, this family substitutes time-consuming effort for more expensive time-saving goods. Introducing an income maintenance program increases their money income, for example, to \$3,000 (200 percent rise). One of the immediate results is that they change a few of their habits and save time. The saved time may be used partially to go out and seek some additional employment, e.g., the mother may work a few hours a week as a domestic helper.

In such cases the measured paid work will increase. However, the effort this poverty-stricken family previously devoted to survival can hardly be referred to as leisure.

This mathematical presentation of this case makes use of the fixed production coefficients and a budget and time constraints.

The Utility Function:

$$(1) \quad U = U(Q_1, Q_2)$$

$$(2) \quad T_1 = t_1 Q_1$$

$$T_2 = t_2 Q_2$$

$$X_1 = b_1 Q_1$$

$$X_2 = b_2 Q_2$$

where

Q_1, Q_2 = goods

T_1, T_2 = time required to consume goods Q_1, Q_2

X_1, X_2 = amounts of goods required to consume goods Q_1, Q_2

t_1, t_2, b_1, b_2 = technical coefficients

The Budget Constraint:

$$(3) \quad (p_1 b_1 + \bar{w} t_1) Q_1 + (p_2 b_2 + \bar{w} t_2) Q_2 = B + \bar{T} \bar{w}$$

$$p_1 b_1 + \bar{w} t_1 = g_1, p_2 b_2 + \bar{w} t_2 = g_2$$

$$g_1 Q_1 + g_2 Q_2 = B + \bar{T} \bar{w}$$

where

\bar{w} = constant wage rate

p_1, p_2 = fixed prices of Q_1, Q_2

B - other income

\bar{T} = total amount to time

Maximization of the utility function subject to the budget constraint:

$$\text{Max } Z = U(Q_1, Q_2) + \lambda (B + \bar{T}w - g_1 Q_1 - g_2 Q_2)$$

First Order Conditions:

$$(4) \quad \partial Z / \partial Q_1 - U_1 - \lambda g_1 = 0$$

$$\partial Z / \partial Q_2 = U_2 - \lambda g_2 = 0$$

$$\partial Z / \partial \lambda = B + \bar{T}w - g_1 Q_1 - g_2 Q_2 = 0$$

Second Order Conditions:

(5)

$$D = \begin{vmatrix} U_{11} & U_{12} & -g_1 \\ U_{21} & U_{22} & -g_2 \\ -g_1 & -g_2 & 0 \end{vmatrix} > 0$$

The impact of a lump-sum subsidy is found by differentiating (4) totally with respect to B:

$$(6) \quad \frac{d(\partial Z / \partial Q_1)}{dB} = U_{11} \frac{dQ_1}{dB} + U_{12} \frac{dQ_2}{dB} - g_1 \frac{d\lambda}{dB} = 0$$

$$\frac{d(\partial Z / \partial Q_2)}{dB} = U_{21} \frac{dQ_1}{dB} + U_{22} \frac{dQ_2}{dB} - g_2 \frac{d\lambda}{dB} = 0$$

$$\frac{d(\partial Z / \partial \lambda)}{dB} = -g_1 \frac{dQ_1}{dB} - g_2 \frac{dQ_2}{dB} + 0 = -1$$

$$(7) \therefore \frac{dQ_1}{dB} = \frac{U_{12}g_2 - U_{22}g_1}{D} \begin{matrix} > 0 \\ < 0 \end{matrix}$$

$$\frac{dQ_2}{dB} = \frac{-U_{11}g_2 + U_{21}g_1}{D} \begin{matrix} > 0 \\ < 0 \end{matrix}$$

Indeed, Q_1, Q_2 may be inferior or normal goods. Assume Q_1 to be an inferior good and Q_2 to be a normal good. (Q_1 may be one of the above five examples, say baking their own bread. Q_2 is, say, consuming purchased bread.) The subsidy, dB , will change the time used in "consumption" in the following way:

$$\frac{dQ_1}{dB} t_1 + \frac{dQ_2}{dB} t_2 \begin{matrix} \geq 0 \\ < 0 \end{matrix}$$

when $t_1 > t_2$, i.e., time is saved by switching to purchased bread.

Although I find it awkward to include goods like Q_1 in "consumption" and to refer to the time required to "consume" Q_1 as leisure, that is precisely what economists do. Conceptually, a distinction between baking the bread and eating it is appropriate. But, in the "consumption" as treated here we include both, and the time used to bake the bread, like the time used to eat it, is included in the leisure part of the housewife's day.

NOTES

1. S. M. Rothman [1973]. Also Senn's testimony before the House of Representatives, Committee on Education and Labor, Comprehensive Preschool Education and Child Care Act (CPECC) of 1969, p. 51.
2. See a detailed discussion in G. Shifron [1972], pp. 80-112.
3. Nelson and Krashinsky [1971] claim on page 24 that the federal government should subsidize child care if society believes that inadequate care is purchased by parents. Similar views can be found among the testimonies regarding the CPECC [1969] and Headstart Child Development [1972].
4. Bloom's often quoted "about 50 percent of intellectual development takes place between conception and age four: as cited in U. Bronfenbrenner [1972]. Also B. Bettelheim's testimony before the House of Representatives in CPECC [1969].
5. G. Shifron [1972], pp. 47-50.
6. G. Shifron [1972], Ch. V and Ch. VIII.
7. C. L. Schultze [1972], G. Y. Steiner [1971], E. R. LaCrosse [1971], Institute for Interdisciplinary Studies [1972] and Nelson and Krashinsky [1971] all have their own list of what is referred to here as sources for the mounting pressure for providing child care. It seems that their listed sources are included in the four categories mentioned here except one often mentioned source: the increased proportion of single-parent families. This source is not included as there is no short-run increase in this proportion, around 10 percent throughout the last 12 years.
8. Child Care Data and Materials [1972], Tables 4 and 5.
9. Assuming that annual cost of preschool child care is \$1,600-2,000 per child, the cost for the school-age child is \$600, and the working mother has some work related expenses, say, \$500 a year.
10. C. L. Schultze, [1972], p. 276-278. Also Hunt and Craig [1972].
11. Nelson and Krashinsky [1972], pp. 13-15.
12. Assuming that wages (w) equal the value of marginal product (VMP), we may conclude that the marginal product of this paid job is lower than the marginal product of the previous household work--otherwise rational behavior would have forced the housekeeper to get this job before. The lower $VMP=w$ is compensated for by less disutility of effort.
The problem with the interpretation above is that presumably whatever paid job the housekeeper can get, it is more specialized than what she

did before--for example, baking bread--and hence, is expected to have higher marginal product. The solution to this dilemma can be hidden in the underlying assumption of $VMP=w$. If $VMP>w$, VMP could have risen while w is lower than original VMP . Therefore, to retain the basic assumption of rational choice we conclude either the marginal product of the paid job would be lower than the marginal product of home activity or $VMP>w$, which indicates some monopoly power of employers.

13. C. L. Schultze [1972], pp. 254-55.

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