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LABOR SUPPLY OF WOMEN POTENTIALLY ELIGIBLE FOR FAMILY ASSISTANCE

DISSERTATION

Presented in Partial Fulfillment of the Requirements for the Degree Doctor of Philosophy in the Graduate School of The Ohio State University

By

Jack A. Meyer, B.A., M.A.

The Ohio State University
1972

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ACKNOWLEDGMENTS

In the preparation of this dissertation I have benefited from the advice and assistance of many people. I am most indebted to Professor Herbert S. Parnes who provided guidance and inspiration throughout the graduate career of the author. As the principal advisor to this dissertation, Professor Parnes offered countless useful and timely suggestions.

I have also benefited greatly from the advice of Professors Peter Mattila and Diran Bodenhorn who served as members of the reading committee and responded thoroughly to numerous drafts of the thesis.

I received assistance in my computer work from Richard Emerine, Keith Stober, John Grasso, and Karen Blackwell. The typing of the manuscript was done by Patricia Buggy. Andrew Kohen provided several helpful suggestions and served as a sounding board for many of my ideas on this subject.

I am also indebted to the Ohio and federal taxpayers who supported my graduate career. In addition, my wife, Barbara, provided confidence and patience when they were most needed.

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GLOSSARY

A = taste for work
B = actual welfare benefits
C = age structure of children
E = educational attainment
F = family size
He = health condition
Hh = hours worked at home
Hm = hours worked in the market
J = training outside of regular school
L = leisure time of the individual
M = maximum potential welfare benefits in the state in which the individual resides, given the size of the individual's family
Mn = maximum benefits under H.R. 16311
N = total work experience since leaving school
R = total family income less individual's earned income—also called "other income"
Ra = race
S = total family income less individual's earned income less actual welfare benefits—"non-welfare other income"

\( t = \) implicit tax rate
T = total amount of time
GLOSSARY - Continued

U = utility of the individual
W_h = home wage rate
W_m = market wage rate
Y = total family income
Y_e = the amount of tax-exempt income
Y_m = maximum income for eligibility under H.R. 16311 or "income cutoff line"
Y_{ns} = AFDC need standard
Y_p = potential other income
I. Introduction

The drive for welfare reform in the United States has emerged from a growing recognition of three major flaws in the existing welfare system—the exclusion from coverage of millions of working poor families, the enormous variation in benefits from state to state, and the high implicit tax rate on earned income.¹

Welfare reform, first proposed by the Nixon Administration in 1969, was designed to alleviate, if not eradicate, these problems. Families with a child in the household would receive public assistance if they are poor irrespective of why they are poor, in particular, irrespective of the sex and labor market status of the head of the household. The state-by-state variation in benefits would be reduced by the Federally-stipulated floor on family income.² Finally, the proposed implicit tax rate was supposed to be considerably lower than the tax rates that characterize the present system.

The impetus for welfare reform has been the growing feeling that

¹ This is not a tax in the usual sense, as welfare recipients do not pay a certain portion of their earnings to the public assistance authorities. However, a tax on earnings is implicit in the system, as welfare benefits are reduced at a specified rate as earnings increase.

² The proposed reform would not eliminate the variation in benefit levels among the states, because supplementation of benefits by the states is permitted. However, the floor on income would reduce this variation.
the AFDC program—the backbone of the current system—is becoming uncontrollable. The cost of AFDC has more than tripled in the past decade, while the caseload has more than doubled. AFDC payments increased by $914 million in 1970 alone, and 2.3 million people were added to the welfare rolls.3

In trying to explain this dramatic increase in dependency, many people have put the blame on the high benefit levels in some states and on the high implicit tax rates. The former are alleged to discourage work effort and to stimulate migration toward high-benefit areas, which become glutted with welfare clients and choked by housing shortages. The latter supposedly discourage work by the poor, gluing them to the welfare rolls. In other words, some critics contend that the present system piles excessive benefits on welfare clients in many states, and then takes away the benefits as the clients start working. What is needed, they claim, is a system with real work incentives which boosts the wages of the working poor, but does not support families headed by an able-bodied man if he is not working.

Other critics have focused on the very low level of benefits in some states, particularly in the South, and have scored welfare administrators for proliferating demeaning regulations and taking punitive actions against the poor. While students of the welfare problem frequently disagree about what is wrong with the present system and about the appropriate remedy, they are in almost unanimous agreement that the present system is severely deficient.

The welfare controversy has focused on the incentive to work which is affected by both benefit levels and the welfare tax rate. In this study, the relationship between hours of work and these two basic features of the welfare system will be examined.

Derivation and Nature of the Data

The data used in this study were obtained through personal interviews with a national probability sample of women 30 to 44 years of age in April 1967. The sample was drawn by the Bureau of the Census from households in the 235 primary sampling units (PSU's) in the experimental Monthly Labor Survey (MLS) conducted between early 1964 and late 1966. This sample was to be used for a five-year study of the labor market behavior of women conducted by the Center for Human Resource Research at Ohio State University under a contract with the United States Department of Labor.4

Blacks were over-represented in the sample of 5083 women; they comprised about 30 percent of this sample, or roughly three times their share of the population. Sample cases were weighted to reflect the different sampling ratios for whites and blacks.

In order to extract a group of poor women from this sample, the eligibility requirements of the original family assistance plan were applied to the sample. The first legislative version of welfare reform, H.R. 16311, contained three eligibility criteria relating to family size, the level of total family income, and the level of net family assets.

These criteria were employed to form a "poverty line"; those respondents whose total family income falls below this line are studied; in other words, the sample includes potential FAP recipients, assuming that H.R. 16311 was in effect when the respondents were interviewed.

In order to qualify for assistance, a family must be composed of at least two persons; at least one person in the family must be either a child under eighteen years of age or a child between the ages of eighteen and twenty-one who regularly attends school or is enrolled in a training program.

The amount of income a family can earn and still qualify for benefits varies directly with family size. The first $840 per year of income is "tax-free"—the level of family benefits would not be reduced at all as a result of the receipt of this income.\(^5\) Further increments of income are taxed at a 50 percent rate, i.e., benefits are reduced by $0.50 for each $1.00 of non-assistance income over $840. A family receiving no income during the year would be eligible to receive $500 for each of the first two family members and $300 for each additional family member. Since the minimum family size for eligibility is two, the formula for maximum benefits under H.R. 16311 becomes:

\[
M_n = \begin{cases} 
1,000 + 300 (F-2) & \text{if } F = (2, \ldots, n) \\
0 & \text{if } F = 1
\end{cases}
\]

\(M_n = \text{maximum benefits under H.R. 16311}\)

\(^5\) The $840 is the sum of a flat deduction of $720 that is given to a family plus a $30 per quarter allowance for infrequent or irregular income. $720 is assumed to approximate the annual cost of holding a job—travel expenses, uniforms, etc.
The formula for the maximum income that a family can receive and still receive some benefits is:

$$ Y_m = \frac{1}{t} M_n + Y_e $$

where:
- $Y_m$ = maximum income for eligibility under H.R. 16311 or income cut-off line
- $M_n$ = the amount of non-assistance income
- $Y_e$ = the amount of tax-exempt income
- $t$ = the implicit tax rate on non-assistance income

Using the particular figures from H.R. 16311, the formula becomes:

$$ Y_m = 2 M_n + 840 $$

$$ = 2 (1,000 + 300 F - 600) + 840 $$

$$ = 2,000 + 600 F - 1,200 + 840 $$

$$ = 1,640 + 600 F $$

Table 1 shows how maximum benefits and the threshold income line vary with family size under H.R. 16311.

<table>
<thead>
<tr>
<th>Family size</th>
<th>Maximum Benefits</th>
<th>Income &quot;cut-off&quot; line</th>
</tr>
</thead>
<tbody>
<tr>
<td>2</td>
<td>$1,000</td>
<td>$2,840</td>
</tr>
<tr>
<td>3</td>
<td>1,300</td>
<td>3,440</td>
</tr>
<tr>
<td>4</td>
<td>1,600</td>
<td>4,040</td>
</tr>
<tr>
<td>5</td>
<td>1,900</td>
<td>4,640</td>
</tr>
<tr>
<td>6</td>
<td>2,200</td>
<td>5,240</td>
</tr>
<tr>
<td>7</td>
<td>2,500</td>
<td>5,840</td>
</tr>
</tbody>
</table>

Under H.R. 1, the most recent version of the bill, the maximum benefits for a family of four is $2,400; under H.R. 1, however, FAP recipients could not receive food stamps, the value of which is about $800 for a family of four. Hence, H.R. 1 guarantees about the same level of real income as H.R. 16311. The implicit tax rate under H.R. 1 is 67 percent, as compared to 50 percent under H.R. 16311.
The third qualification for eligibility requires that net family assets be less than $1,500. The value of the home and of some household goods and personal effects are excluded in the determination of assets in accordance with the language of the bill. Liabilities are then subtracted from non-excludable assets to arrive at net family assets.

Respondents who met all three of these criteria and who answered all income and asset questions were categorized as definitely eligible for FAP and form the sample for this study. Respondents who appeared to be eligible but who did not respond to one or more income or asset questions were excluded from the analysis because of the uncertainty about their true wealth position. For example, a respondent might refuse to disclose her husband's earnings and be eligible if a zero were imputed for this category. However, if her husband actually earned $10,000, including this woman in the sample would clearly be a mistake.

The reader should not make inferences from the data presented in this study about the racial composition of the FAP-eligible population. Because blacks have been oversampled and unweighted sample cases are used in this study, inferences about the relative sizes of black and white female poverty populations are unwarranted. Also, the oversampling of blacks requires that the characteristics be separately presented for the two color groups.

In Chapter II a model will be presented and analyzed, and the method of measuring each variable in the model will be explained. In Chapter III the studies related to this subject will be critically evaluated in order to show how this study relates and contributes to the existing literature. In Chapter IV the empirical findings that result
from testing the model will be presented and explained, and the findings will be compared with those from other studies. In the final chapter the conclusions and the implications of the results for income maintenance policy will be discussed.
II. Theoretical Framework and the Measurement of Variables

The Conventional Model

The theory of work-leisure choice is a simple extension of the theory of consumer behavior, which stipulates that an individual derives satisfaction from the consumption of commodities. Including leisure as a commodity yields a framework that is relevant to the analysis of labor supply. The individual's problem is to allocate his time between work -- which provides the means of obtaining market goods -- and leisure in such a fashion as to maximize his satisfaction.

The problem of the consumer can be viewed as one in which he attempts to maximize his utility subject to a budget constraint and a time constraint. This model has been worked out in the literature by, among others, Leuthold.¹

(1) \( U = f(L, Y) \)
(2) \( T = L + H_m \)
(3) \( Y = W_m H_m + R \)

Substituting into the utility function from the time constraint and the budget constraint:

(4) \( U = f(L, W_m(T-L) + R) \)

where

\( U \) = utility of the individual \\
\( L \) = leisure time of the individual \\
\( H_m \) = time the individual spends working in the market \\
\( T \) = total amount of time = \( L + H_m \) \\
\( W_m \) = market wage rate of the individual \\
\( R \) = other income \\

The first-order condition for utility maximization is determined by differentiating the utility function with respect to \( L \), holding \( W_m \) and \( R \) constant.

\[
\frac{\partial U}{\partial L} = f_L - W_m f_Y = 0 \\
\frac{\partial^2 U}{\partial L^2} = f_{LL} - 2W_f f_{YL} + W^2 f_{YY} < 0
\]

The first-order condition states that the market wage rate is equal to the ratio of the marginal utilities. The second-order condition for utility maximization is determined by differentiating again with respect to \( L \).

Assuming that the utility function is twice differentiable and that \( f_L \) and \( f_Y \) are positive, the offer curve for work is:

\[
H_m = H_m(W_m, R)
\]

The amount of time an individual chooses to work is a function of the wage rate and other income. Manipulation of the model yields the
result that the amount of labor supplied by an individual is negatively related to other income and that the sign of the relationship between the wage rate and the amount of time spent working is indeterminate, depending upon the relative strengths of the income and substitution effects of a change in the wage rate.²

² Leuthold has demonstrated that the response of leisure time to a change in other income, holding the wage rate constant, is given by the following expression:

\[ -\frac{f_{LY} - Wf_{YY}}{\Delta} \]

where \[ \Delta = f_{LL} - 2W f_{YL} + W^2 f_{YY} < 0 \]

If we assume that leisure is a normal good, i.e., that more of it is taken as income increases, then \( f_{LY} \) is positive. This, together with the assumption that \( f_{YY} \) is negative—diminishing marginal utility of income—yields the result that the sign of the total expression is positive. In other words, an increase in other income leads to an increase in leisure. It follows from this that an increase in other income leads to a decrease in the amount of time spent working. Under the same assumptions, the income effect of a change in the wage rate, expressed as:

\[ (T - L) \frac{\partial L}{\partial R} (W \text{ constant}) = -(T - L) \frac{f_{LY} - Wf_{YY}}{\Delta} \]

will be unambiguously positive. From this it immediately follows that the income effect is negative under these assumptions if we are examining the response of time spent working to a change in the wage rate. The substitution effect, express as \( f_Y \), is unambiguously negative, from which it can be deduced that the substitution effect of a change in the wage rate is unambiguously positive if we are looking at time spent working. From the expression for the response of leisure time to a change in the wage rate, it is apparent that the sign depends on the relative strengths of the two effects, even with the two key assumptions.
Modification of the Model

The conventional model must be modified in two ways to make it appropriate to a sample of poor women. First, the relevant welfare constructs must be included because the sample is low-income. Second, the option of homework must be included because this activity is an important use of a woman's time.

Low-income sample

To make the model appropriate to a low-income sample, the income constraint expressed in equation (3) must be re-written. First, other income (R) must be divided into welfare benefits (B) and non-welfare other income (S).

\( Y = W_m H_m + S + B \)

where
\( S = \text{non-welfare other income} \)
\( B = \text{welfare benefits} \)
\( S + B = R \)

Welfare benefits are determined by subtracting from the maximum benefits an individual can receive the non-welfare income of the individual multiplied by the rate at which this income is taxed by the welfare authorities.

\( B = M - t(W_m H_m + S) \)

where
\( M = \text{maximum benefits} \)
\( t = \text{implicit tax rate} \)

Substituting for \( B \) into equation (9) yields:

\( Y = W_m H_m + S + M - t(W_m H_m + S) \)

\( Y = W_m H_m (1-t) + S + M - tS \)

\( m - tS = \text{potential welfare benefits} \)
Potential welfare benefits are the maximum benefits an individual could receive (B) minus the non-welfare other income of the individual (S) multiplied by the rate at which this income is taxed (t). The earnings of the individual are excluded from the calculation of potential benefits.

Potential other income (Y_p) is the sum of non-welfare other income (S) and potential welfare benefits (M-tS)

(13) \[ Y_p = S + M - tS \]

where \( Y_p \) = potential other income

Substituting from equation (13) into equation (12) yields:

(14) \[ Y = WmHm(1-t) + Y_p \]

The difference between this statement of the income constraint and equation (3) is that potential other income (Y_p) replaces actual other income (R) and the implicit tax rate is included.

This specification of the budget constraint is more appropriate for a low-income sample for two reasons. First, actual welfare benefits are excluded and replaced by potential benefits. Since the amount of welfare benefits actually received is work-related, i.e., the amount is influenced by the amount of work performed, it is inappropriate to posit that other income determines labor market activity when actual benefits are included.

The second change in the budget constraint that makes it more appropriate to a low-income sample is the inclusion of the implicit tax rate. While the wage rate corrected for the actual tax rate on earned income reflects the tradeoff between work and leisure for a person who is not poor, this is not the case for the poor. An hour
of work by a person who is eligible for public assistance nets him his hourly wage minus the amount by which his public assistance benefits would be reduced as a result of the increment of earnings. Hence, for a poverty group, the wage rate of an individual must be adjusted for the appropriate implicit tax rate.

Two constructs—non-welfare other income (S) and potential welfare benefits (M-tS)—are combined in this study to form a potential other income variable. It must be pointed out at this juncture that these two constructs need not have been combined. It would be legitimate to include them separately in the budget constraint.

However, in this study the goal was to develop a single income variable that would replace the measured or actual other income variable typically (and incorrectly) used in the literature. Accordingly, the two components of potential other income were combined. One disadvantage of this method is that the independent effect of potential welfare benefits on hours worked is obscured.

However, for a low-income sample, potential welfare benefits should comprise a sizeable portion of potential other income, while actual non-welfare other income is expected to be small. The poor typically do not have much income from rental property, stocks, savings accounts, etc. Hence, there is less danger that the association between potential other income and hours worked will result simply from the association between the latter and actual other income.

Sample of women

To make the model more appropriate to a sample of women, the
alternative of home work must be considered. Previous studies have shown that while the income effect of a change in the wage rate out-weighs the substitution effect in the case of prime-age males, the reverse is true for married women.

The theoretical reconciliation of this conflicting evidence by Mincer and Cain centers around the importance of homework—child care, cooking meals, keeping house—in the lives of married women. The "production of home goods" has traditionally been a much more important use of time for married women than for men and single women. When a sample includes married women, it cannot be assumed that leisure is the only alternative to work.

Mincer reasoned that the substitution effect should be larger for married women than for men because homework is a much more important substitute for married women's time. Thus, as earnings rise, adult men and single women may work less and increase their leisure, while married women may reduce their homework and increase their market labor without necessarily reducing their leisure.

To account for the option of homework, the budget constraint is modified to include the implicit income from work in the home.


(15) \( Y = W_m H_m (1-t) + Y_p + W_h H_h \)

where \( W_h \) = the home wage

\( H_h \) = the time the individual spends working at home

This budget constraint is appropriate to a sample of poor women, and is used in the following modified model.

(16) \( U = f(H_m, H_h, Y) \)

(17) \( T = H_m + H_h + L \)

(18) \( Y = W_m H_m (1-t) + Y_p + W_h H_h \)

\[ T \geq H_h \geq 0 \]
\[ T \geq H_m \geq 0 \]
\[ T \geq H_h + H_m \geq 0 \]

Substituting into the utility function for \( Y \) yields:

(19) \( U = f[H_m, H_h, W_m H_m (1-t) + Y_p + W_h H_h] \)

(20) \( \frac{\partial U}{\partial H_m} = f_H + f_W (1-t) = 0 \)

(21) \( \frac{\partial U}{\partial H_h} = f_H + f_W = 0 \)

(22) \( f_{H_m} = -f_Y W_m (1-t) \)

(23) \( f_{H_h} = -f_Y W_h \)

Dividing equation (22) by equation (23) yields:

(24) \( \frac{f_{H_m}}{f_{H_h}} = \frac{W_m (1-t)}{W_h} \)

The ratio of the marginal utility of market work to the marginal utility of home work is equal to the ratio of the market wage rate—adjusted for the implicit tax rate—to the home wage rate.

From equation (21) the offer curve for home work can be written:

(25) \( H_h = H_h (H_m, W_m, W_h, Y_p, t) \)
Substituting for $H_f$ into equation (20) yields:

$$H_m = H_m(W_m, W_h, Y_p, t)$$

Equation (16) does not hold in the case where no market work is provided. In the normal case, where some market work and some home work are provided, a woman maximizes utility when her indifference curve is tangent to her budget line. At this point, both the first and second-order conditions for a maximum are fulfilled. The slope of the indifference curve equals the slope of the budget line. The slope of the indifference curve is the ratio of the marginal utilities of market work and home work, while the slope of the budget line is the ratio of the wage rates—the net market wage rate and the home wage rate. At this point

$$\frac{f_{H_m}}{f_{H_h}} = (1-t) \frac{W_m}{W_h}$$

The only corner solution that is possible is the case where no market work is performed. In practice, neither home work nor market work can equal the total amount of time; this is physically impossible. Also, their sum cannot equal the total amount of time for the same reason. Hence, we can rule out these three corner solutions. It is also realistic to assume that all women spend some positive amount of time doing home work, even though they may call it by a different name.

There are two situations that could cause the individual to maximize utility by engaging in no market work. First, the indifference curve of the individual could be concave toward the origin, instead of its usual convex shape. This means that it takes successively less and less market work to compensate the individual for giving up a unit of home work, and vice versa, instead of requiring successively more and more, as in the typical case. The optimum position is the corner solution in which no market work is performed.

In the second case, the indifference curve is convex from the origin, but is either everywhere steeper or everywhere less steep than the budget constraint line. The first-order condition cannot be fulfilled, although the second-order condition could be satisfied. Again, the individual maximizes utility by engaging in no market work. For a further discussion of these special cases in the theory of consumer behavior, see James M. Henderson and Richard E. Quandt, Microeconomic Theory (New York: McGraw-Hill Book Co., 1958) p. 15.
The amount of market work in which a woman engages depends upon the market wage rate, the home wage rate, potential other income, and the implicit tax rate. The inclusion of the home wage rate in the offer curve for market work accounts for the special case of women. The inclusion of potential other income and the implicit tax rate in the offer curve accounts for the special case of the poor.

Determinants of the Market Wage Rate

In this study several aspects of human capital—education, health, training, and work experience—are used as proxies for the market wage rate because wage rate data are available only for those women who worked at least one week during the twelve months prior to the survey. Race also affects the market wage rate, and will therefore be included in the model.

Human capital

The greater the stock of human capital a woman accumulates, the greater are her expected earnings. A woman adds to her stock of human capital by investing in herself, by developing her physical and mental capabilities. In this study several aspects of human capital are measured.

One of the ways people build up human capital is by going to school. Additional increments of education increase the labor market productivity of a woman. Also, people with a strong taste for work obtain additional education in order to qualify for more challenging, better-paying jobs. Thus, education is a proxy for both labor market productivity and the taste for work.
A deficient formal education can be compensated for through training outside of regular school. By enrolling in a job training program such as the MDTA - institutional program or a training course offered by a private employer, a woman can build up human capital that enhances her prospects for labor market success.

Another aspect of human capital is health condition. People build up human capital by investing in health care just as they do by going to school. The better the health condition of a woman, the greater is her expected market wage rate. Poor health impairs the labor market productivity of a woman and simply prohibits some women from working at all. Accordingly, a health variable is included in the model.

The total amount of work experience that a woman has had is also a part of her human capital formation. A lack of education and training can be overcome by job experience, which increases one's expected market wage by increasing productivity and by building seniority through job tenure. A variable measuring the amount of time a woman has spent working since leaving school is included.

Race

Black women tend to have lower wage rates than white women. This is not surprising, since blacks are disadvantaged with respect to whites regarding the amount and quality of the education they receive, their job training outside of regular school, their health

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condition, etc.

Previous studies have also indicated that black women work more than white women. Much of this inter-color difference is believed to result from the inter-color difference in other income among married women. However in some studies, such as the ones by Cain and Bowen and Finegan, race has been found to be significantly related to female labor market activity, even after controlling for other income and several other variables. These authors suggest three possible explanations for the persistence of this inter-color difference, although they do not attempt to assess the relative importance of the explanations.

First, they speculate that job discrimination is less rampant against black women than against black men, contributing to the substitution of market work by the wife for market work by the husband in black households. Second, the more crowded housing conditions and more frequent doubling up among blacks reduces the home responsibilities of the black married woman. Third, the more prevalent matriarchal structure in black families is alleged to tie black married women to the labor market as a protection against being left self-supporting.7

Thus, the market wage rate is a function of an array of characteristics influencing the attractiveness of the individual to an employer.

(27) \( W_m = W_m(E, J, H_e, N, R_a) \)
where 
- \( E \) = educational attainment
- \( J \) = training outside of regular school
- \( H_e \) = health condition
- \( N \) = work experience
- \( R_a \) = race

As mentioned above, educational attainment reflects not only the amount of human capital accumulated by an individual, but also the taste for work of an individual. In order to permit an unambiguous interpretation of the education variable, a taste variable will be included in the model. To the extent that the measure of taste used here actually captures the total influence of taste, the coefficient of the education variable will reflect human capital.

Adding a taste variable and dropping the race variable because race will be accounted for by running separate regressions for blacks and whites, equation (27) can be rewritten:

(28) \( W_m = W_m(E, J, H_e, N, A) \)
where \( A \) = taste for work

The Home Wage Rate

There is no way to measure directly a woman's home wage. Some proxy for productivity in the home must be devised. One way to do this is to focus on the child care responsibilities of the mother, making the assumption that the greater are these responsibilities, the greater is her productivity in the home, hence, the higher her home wage.
Thus, the home wage rate is a function of children in the household.

(29) \( W_h = W_h(C) \)

Substituting into equation (26) for both \( W_m \) and \( W_h \):

(30) \( H_m = H_m(C, Y_p, t, E, J, H_e, N, A) \)

This is the equation which is estimated in this study.

The Measurement of Variables

The dependent variable

In this study annual hours worked will be the dependent variable. A justification of the use of this concept instead of a measure which includes unemployment experience is presented in the following section. Annual hours worked is the product of weeks worked per year and usual hours worked per week. The respondents were asked how many hours they usually worked per week immediately following a question about how many hours they worked during the survey week.

Independent variables

Potential other income

For reasons explored above, the relevant concept of other income for a woman in poverty is her potential other income. Potential other income is the sum of non-welfare other income and potential welfare benefits.

Potential benefits are determined by subtracting from the maximum that a State pays to a person with a given family size the amount of "taxable" non-welfare other income that this person has. For example, suppose that a woman with 3 children in State A receives
$3000 if she has no non-welfare other income. If the implicit tax rate is 50 percent and if she actually has $1000 of non-welfare other income, her potential welfare payment is $2500. The maximum potential welfare payment for this woman—her payment if she has no non-welfare other income—is $3000.

The data on maximum potential welfare payments were obtained from the U.S. Department of Health, Education, and Welfare. These data indicate the maximum AFDC income that a woman could receive in the state where she resides, given her family size.8

The data on the implicit tax rates associated with AFDC programs in the 50 states were derived from data furnished by the U.S. Department of Health, Education, and Welfare. This tax rate—the fraction of AFDC benefits that is lost due to an increase in non-welfare income—varies substantially across the states. For an explanation of the derivation of the tax rates, see the Appendix.

Education

A series of dummy variables will be used to ascertain whether the expected relationship between education and hours worked holds at all levels of educational attainment or only within a certain range. Three dummy variables are used for the categories "less than 8 years," "9-11 years," and "12 or more years."

8 The data give maximum payments by state and family size for families of size 1-10. It is assumed in this analysis that the maximum a woman with more than 10 family members could receive is the same as the maximum a woman with exactly 10 family members could receive.
Health

The respondents' self-rating of their health will be used to indicate health condition. Respondents were asked to rate their health relative to other women their ages. There were four possible ratings: excellent, good, fair, and poor. Under the supposition that the distinction between women in poor health and all others is more important for purposes of influencing the extent of labor market activity than the other distinctions that could be used, a dichotomous variable was created in which the respondents were coded 1 if they rated their health "poor", zero otherwise.

Work experience

The amount of work experience that a respondent has had will be measured by the number of years since she left school in which she worked six months or more.

Training

The job training component of human capital will be measured by a dummy variable that distinguishes those women who have participated in at least one training program outside of regular school from those who have not received any training outside of regular school.

Taste

A woman's taste for work was measured by her attitude toward the propriety of work by married women with children. This attitude is
inferred from her responses to a series of questions. These responses are used to give her a ranking on a numerical scale running from a value of 3 to a value of 15. This scale forms a continuous taste variable, and it is expected that the higher the ranking of a woman on the numerical scale, the greater will be her hours worked. The variable formed from this scale will be referred to as the "attitude toward women's role."

Home wage

In this study the home wage is measured in two ways. First, a dummy variable indicating the presence of at least one child under six years of age in the household is employed.

Second, a variable is constructed which incorporates the age structure of the children living in the household. This variable is categorized in the following fashion: 1) children less than 6 years

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9 The question is "I would like your opinion about women working. People have different ideas about whether married women should work. Here are three statements about married women with children between the ages of six and twelve. (Hand card to respondent) In each case, how do you feel about such a woman taking a full-time job outside the home? a) If it is absolutely necessary to make ends meet; b) if she wants to work and her husband agrees; c) if she wants to work, even if her husband does not particularly like the idea. Responses: 1) definitely all right, 2) probably all right, 3) no opinion, 4) probably not all right, 5) definitely not all right.

10 This variable was developed by Sookon Kim, who used the following scale: 1) children under 6 only; 2) under 6 and 6-13; 3) under 6 and 14-17; 4) under 6, 6-13, and 14-17; 5) 6-13 only; 6) 6-13 and 14-17; 7) 14-17 only; 8) none under 18. The first two categories in this study are the same as Kim's; the third group used here is the sum of his fifth, sixth, and seventh categories; the fifth group used in this study corresponds to his eighth group. Furthermore, Kim multiplies his index by the number of children to form a home wage. In the present study this variable will be
old only; 2) children less than 6 and 6-13, but none 14-17; 3) children less than 6 and 14-17, with or without children 6-13; 4) children 6-13 and/or 14-17, but none under 6; 5) no children under 18.

Dummy variables were formed for each of the first, second, third, and fourth categories. The fifth category was dropped. The expectation is that the above arrangement of these categories is in order of decreasing deterrence to female labor market activity. The coefficients of the dummy variable for children less than 6 only is expected to be greater than the other coefficients. In other words, it is hypothesized that the presence of one or more children under six without any older children is a greater deterrent than the presence of children under six together with older children. The reason for this is that the older children can help care for the young ones, particularly after school hours, freeing the mother for other activities. Moreover, the presence of teenage children in tandem with pre-school age children is thought to be less of a burden than the combination of children under 6 and 6-13. The older children are not only more apt to have the responsibility for handling pre-schoolers, but also more likely to be out of school and available during the day.

The expectation is that all of the coefficients will be statistically significant, i.e., all of the categories will be significantly different from the omitted group.

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III. Review of the Literature

In this chapter the relevant literature will be examined and evaluated with respect to conceptual framework, methodology, and the measurement of variables. An assessment of the weaknesses and limitations of related studies will elucidate the contribution of the present study to the existing literature.

Most of the studies of the labor supply of the poor and the disincentives associated with various welfare programs use samples composed either exclusively of prime-aged men or of both men and women. Raines and Kalachek estimate labor supply functions separately for unrelated groups of men and women, while Leuthold estimates these functions separately for the head of a household and the spouse, where some of the family heads are female.


Only Hausman limits the universe to women, as does the present study. However, Hausman's universe is confined to women who are AFDC recipients in three Southern states, whereas in the present study, poor women in all fifty states who have at least one child in the household are included in the sample, irrespective of whether they are welfare recipients.

The studies fall into three groups according to their basic methodology. One group imposes program parameters on existing data to simulate the wage and income effects of this program on labor supply; another group infers such effects from the existing data through the use of multivariate regression analysis; a third group predicts the effects of income maintenance programs on labor supply by establishing experimental programs in which individuals are actually given subsidies and subjected to varying tax rates.

The simulation experiments are typified by Leuthold's study in which the change in hours worked that would accompany the conversion to a new income maintenance plan is calculated. Leuthold estimates labor supply equations with the implicit tax rate equal to zero and then equal to 0.5, and computes the difference in the value of the dependent variable.

Hausman's work is a good example of the second group of studies. He regresses two measures of labor supply on the implicit tax rate, educational attainment (a proxy for the wage rate), potential other income, and a few other variables.

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The New Jersey project was the first experimental program established to test the effect of alternative welfare plans on work incentives. Program participants are divided into several sub-groups which receive different levels of benefits and are subject to different tax rates. A control group that receives no benefits is also studied.

In the present study multivariate regression analysis is used to determine the impact on hours of work of the variables that have been described in the previous chapter.

An Appropriate Model

Low-Income Sample

A fundamental issue raised by this study involves the choice of an appropriate labor supply model for a sample that is confined to the poor. As argued in the previous chapter, the labor supply of the poor depends upon the net wage rate (the actual wage rate corrected for the implicit tax rate) and potential other income. Accordingly, previous studies of the labor supply of the poor will be evaluated with respect to the appropriateness of their theoretical frameworks to a low-income sample.

A basic weakness of some of these studies is that the models employed completely ignore the key welfare variables. For example, Hill uses a model, developed by Kosters, which omits these welfare variables. This model is not relevant to Hill's study; it was not designed for a low-income sample.

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Both the Greenberg-Kosters study and the Welch-Rosen study fail to consider the implicit tax rate and potential welfare income. The exclusion of these variables cannot be justified by the fact that these studies have income eligibility lines substantially in excess of the "poverty line," as it is usually defined. (Greenberg-Kosters, $15,000; Welch-Rosen, $10,000) Both sets of authors are studying the disincentive effects of various income maintenance plans. The fact that a substantial fraction of the sample is not receiving welfare does not mean that these people did not consider the welfare tax rate and the welfare subsidy in deciding how to allocate their time between work and leisure. Indeed, many people in their samples are undoubtedly above the poverty line because they opted for more work and less leisure.

This is not to argue that these variables must be included in every labor supply study. As argued above, in studies that include all income groups and are not geared to ascertaining the disincentive effects of welfare programs, such as Kosters' dissertation, it is appropriate to exclude the welfare tax rate and welfare subsidies from consideration. However, even though Greenberg and Kosters and Welch and Rosen have included some near-poor and middle-income families in their samples, the nature and basic objectives of their studies would have made the inclusion of these variables desirable.

Leuthold includes an implicit tax rate variable, but does not have a measure of potential other income in her model. For other income she uses a variable which she calls property income that consists of welfare payments and other transfers.

Hausman and Raines and Kalachek include both the implicit tax rate
and potential other income, although Raines and Kalachek combine both concepts into one variable.

**Sample that Includes Women**

As argued in the previous chapter, if a study includes married women, a home wage variable should be included in the model. Leuthold, whose sample includes both married and unmarried women, failed to do this. Hill, Greenberg and Kosters, and Welch and Rosen all justifiably omitted such a variable because their studies were limited to male heads of households. Hausman and Raines and Kalachek included a home wage measure.

Thus, with respect to the appropriateness of the model to the sample being studied, the studies of Hausman and Raines and Kalachek are superior to the others.

**Other Variables**

A few other variables are included in the present study which many of the previous studies in this field have not included. Most previous studies have failed to capture more than one aspect of human capital. Most of these studies include an education variable, but only Hill and Greenberg and Kosters use a health variable. The omission of this variable by Raines and Kalachek is difficult to understand because their sample contains men and women over the age of 65, for whom health condition is undoubtedly an important determinant of the extent of labor market activity. Moreover, none of these studies has variables for training or labor market experience. Thus, the present study involves a more complex attempt to account for the influence of human capital on the labor supply of the poor.
Although both Raines and Kalachek and Hausman include a taste-for-work variable in their models, only the former actually use this variable in their regressions. The other studies do not include a taste variable.

Appropriate Methodology

As mentioned in the introduction to this chapter, the present study employs multivariate regression analysis. There are two alternative approaches to the problem of ascertaining the impact of welfare rules on labor supply -- income maintenance experiments and simulation studies.

There are two basic drawbacks to the approach used in the experiments such as the New Jersey project that will not plague this study. First, the well-known "Hawthorne effect" may cause the subjects of the experiments to behave or respond in a different fashion than they would if they were not aware of being subjects in a research project. Participants in a program that is known to be an income maintenance experiment may respond in a fashion that they believe will provide "what is expected of them." Such effects should not be a problem in the present study where the respondents had no knowledge of the purpose of the study.

Second, there is the problem caused by the fact that the respondents are told that the experiment is temporary; they may treat the new circumstances as temporary or as windfalls. To the extent that this occurs, the responses of the group under study will differ from (and not be good predictors of) their responses to an actual, permanent program.

These problems are acknowledged by the researchers connected with
these studies. For instance, in an article in the *American Economic Review*, Kurz and Spiegelman admonish researchers in this field to be cautious about interpreting results from the Seattle experiment because of these problems.

The families are told that the plans to which they are assigned will provide support for at least three years. But they know that the experiment will terminate. They also expect that some program will ultimately be established for all. These expectations influence in a deep way the long-term response of the families.... Such issues are indeed so serious that all researchers in this field must be extremely cautious in their evaluation of the results.5

The present study will not suffer from this problem. It infers the hours response of individuals to changes in other income and wage rates not from their reactions to a mock program, but from cross-sectional data on these variables.

However, in another respect, the experiments have an advantage over cross-sectional studies. The latter infer the way in which an individual will behave over time in the face of certain changing conditions from the way in which this behavior differs over a cross-section of individuals at a moment in time. Experiments, on the other hand, enable the researcher to make such inferences in a more direct fashion—from the way individuals react over time to a simulated program. This distinction is a specific case of the general difference between cross-sectional and longitudinal research designs.

Policy-makers can benefit from both types of studies. While the experiments may represent a more direct approach to the problem, they are costly not only in terms of money, but also in terms of time; moreover, even when several cities are sampled, the experiments will not be working with national samples of potential recipients, so that there is some danger that the groups being studied will not be representative of future participants in the permanent program.

A simulation experiment is a valid approach to ascertaining the work disincentives of welfare programs, provided that the parameters used in the simulation accurately reflect the parameters of the existing or proposed programs under study. Leuthold estimates labor supply functions with the tax rate equal to zero—to represent the present system—and 0.5—to represent a proposed new scheme.

The fundamental criticism of this approach is not that the methodology itself is incorrect, but that a tax rate of zero is not an accurate representation of the implicit tax rate under the present system. For the people who are eligible for welfare, the implicit tax rate is always positive. Clearly, at least a portion of Leuthold's sample—the families headed by females—contains some people who are eligible for welfare. For these people a change from zero to 0.5 is not representative of a conversion from the present system to a 50 percent rate plan.

Measurement of Variables

The Dependent Variable

Leuthold, Greenberg and Kosters, and Welch and Rosen use hours worked per year as a measure of labor supply. However, Hausman, Hill,
and Raines and Kalachek all use measures of labor supply which include unemployment.

Hill correctly observes that since a labor supply curve traditionally indicates the amount of labor services of a given quality that will be offered at different prices of labor (wages), a theoretically appropriate concept of labor supply would be one that includes labor services offered, but not purchased (unemployment).

However, while employment is theoretically less appealing as a measure of labor supply than a measure which includes both employment and unemployment, in practice, it has two advantages over the constructs found in this literature which include unemployment. First, unlike labor force participation, used by Hausman, hours worked is not an all-or-nothing notion. Labor force participation fails to capture the extent of labor market activity of an individual, revealing only whether he is in the labor force at a given moment in time.

Second, even though "hours in the labor force," as used by Hill, and "hours worked," as used in the present study, both require imputations, the latter is a better measure. Hours worked per year is calculated by multiplying weeks worked by hours usually worked per week. This involves imputing a figure given by the respondent as an average or typical week to each week worked. However, this is more reliable than Hill's method which imputes numbers determined by Hill—40 hours if the respondent worked full-time and 30 hours if the respondent worked part-time—to each week worked and each week unemployed. Hill presumes that if a respondent works part-time, he is unemployed part-time.
Independent Variables

Potential Other Income

As argued above, the appropriate concept of potential other income is the sum of potential welfare income and the non-welfare components of other income. Potential welfare income is the maximum welfare income a woman could receive if she had no "other income" less the amount of retainable other income that she actually has. The retainable other income is derived by adjusting actual other income for the implicit tax rate.

To illustrate this procedure, let us examine the situation of a mother of six children who lives in Mississippi. The maximum amount of benefits that a family of seven can receive per year in Mississippi is $1140. Suppose that this woman receives $600 per year in alimony payments from her former husband, and that this is the only non-welfare "other income" that the family receives. The implicit tax rate in Mississippi is 30 percent. Accordingly, 30 percent of the alimony payments, or $180, is deducted from the maximum potential benefit to determine the potential benefit of this woman. The remaining $420 in alimony is "retainable." Thus her potential benefit would be $1140 less $180 or $960. Had this same family resided in a state where the implicit tax rate were 100 percent, the entire $600 would have been subtracted from the maximum potential benefit, leaving the family with a potential benefit of $540.

Hausman has a similar concept of potential welfare income, but he uses potential welfare income as a separate independent variable. Actual other income is divided into two components—the dollar value of
food available to the AFDC mother under the surplus commodities or food stamp programs, and all remaining sources of other income. Thus, Hausman has three "other income" variables.

Raines and Kalachek deduct actual welfare payments from other income, and they use three dummy variables to account for variations in potential welfare benefits. These dummy variables, in effect, group the 50 states into categories according to their relative generosity. The bases for creating these categories are the implicit tax rates and maximum potential welfare income figures for the different states.

Hence, what the authors have done is essentially to combine the type of information that is used in the present study to construct two continuous variables into one construct—relative generosity—and measure this through the use of three dummy variables. To the extent that the dummy variables control for the variation by state in potential welfare payments and implicit tax rates, they will accomplish just as much as the method used in this study. However, the variation by state in maximum potential welfare benefits is considerable and complicated, and does not appear to fall neatly into three categories. (See Table 5 in the Appendix.) The method used by Raines and Kalachek probably accounts for part, but not all, of the variation in potential welfare benefits.

The Wage Rate

The studies in this field can be divided into two groups depending upon whether they use actual wage rates or some proxy for wage rates. Hill, Welch and Rosen, Leuthold, Teilla, and Greenberg and Kosters use actual wage rates, while Hausman and Raines and Kalachek develop
measures of potential wage rates. Of the former group, all but Hill calculate wage rates by dividing annual earnings by annual hours worked, the product of weeks worked and hours worked in the survey week. The accuracy of this measure depends upon the extent to which survey-week hours are representative of usual hours worked per week. For some people survey-week hours are unrepresentative of usual hours due to an illness, an unusual opportunity for overtime work, bad weather, etc. This problem is more serious in the case of Leuthold's study because her sample includes married women, for whom hours worked per week tend to be more irregular than for men.

Hill criticizes previous studies for using unreliable data on hours worked in calculating the wage rate. However, while Hill's measure represents a theoretically appealing construct of the wage rate, his assertion that it is more reliable is not supportable. He obtains wage rates by dividing the annual earnings of his respondents by an estimate of annual hours in the labor force. As mentioned above, the latter is determined by multiplying the sum of weeks worked and weeks unemployed per year by either forty hours per week or thirty hours per week, depending upon whether the respondent was a full-time or a part-time worker. In using these imputed hours per week, Hill runs as great a risk of misrepresenting the actual annual hours of his respondents (and hence, their wage rates), as other researchers run when they assume that

6 Tella estimates potential wage rates for non-workers by matching them with workers with like characteristics, whereas Raines and Kalachek estimate potential wages for all respondents.
survey-week hours are representative of usual hours worked per week.

One of the main reasons that these studies use actual wage rates is that they focus on prime-age males, most of whom are either currently or recently employed. In the case of women, however, a substantial proportion are not working and lack any recent labor market experience. Of course, their expected wage rate is not zero, and it would be inappropriate either to assign them a zero wage rate or to drop them from the analysis. Hence, some proxy for the expected wage rate of these women must be used.

Raines and Kalachek meet this problem by estimating wage rates for their entire sample, including those for whom actual wage rates are available. They use multivariate regression analysis to predict wage rates, with age, education, race, and location as independent variables.

As is the case in the present study, Hausman uses educational attainment as a proxy for the wage rate. However, the present study has an advantage over Hausman's. Although Hausman includes a taste-for-work variable in his specification of a labor supply model, he does not develop a taste variable for his regressions. He acknowledges that the apparent wage effect on labor supply "may be exaggerated here by use of a proxy variable which may capture the (perhaps correlated) variation among these women in tastes for market work."

As mentioned in the previous chapter, the inclusion of a taste-for-work variable in the present study permits a more unambiguous interpretation of the coefficient of the education variable than can be

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7 Hausman, *The Impact of Welfare on the Work Effort of AFDC Mothers*, p. 89.
made by Hausman. To the extent that the measure used in this study accurately reflects the taste for work, it will be justifiable to interpret the coefficient of the education variable as reflecting the impact of the market wage on hours worked. Nevertheless, it must be acknowledged that the taste variable probably has more than one aspect, and that the measure used in this study accounts for only part of the variation in tastes for market labor.

The Implicit Tax Rate

The principal issue involved in the measurement of the implicit tax rate is whether it should be measured directly. Both Hausman and this author directly measure the implicit tax rate by collecting state-by-state values for this rate. In Hausman's case three values are used for the three states he studies, while fifty values are used in the present study. These efforts to measure the tax rate directly represent a contribution to the literature, in which the implicit tax rate has been either ignored or measured by proxy.

Raines and Kalachek and Leuthold include an implicit tax rate in their models, but do not employ direct measures of this variable. Raines and Kalachek apparently had data on a state-by-state basis because they were able to place all of the states into three mutually exclusive groups based on the level of their tax rates and maximum benefits. Thus, they failed to take advantage of an opportunity to ascertain how labor supply varies with the implicit tax rate. As is the case with potential welfare benefits, their measure of the relative generosity of the states is much less refined than it could have been, and cannot capture the considerable variation in tax rates among the states.
The fact that Leuthold does not measure the implicit tax rate directly stems from her research design. She conducts a simulation experiment, the object of which is to ascertain the effect on labor supply of a conversion to an income maintenance system with a different tax rate (assuming one tax rate can characterize each system). Hence, she is not interested in the actual variation in the tax rate at a given moment in time.

The Home Wage

Since women do not actually receive wages for work in the home, a "wage rate" for home labor must be imputed. Cain reasons that since child care was such an important aspect of home labor for women, the number of children in the home would be a good proxy for the home wage rate. Bowen and Finegan point out that it is not only the number, but also the age distribution of children that influences the amount of home work that a mother will perform. They argue that the presence of teenage children in the household, in combination with pre-school-age children, would lighten the child care responsibilities of the mother vis-à-vis the duties of mothers with only children under six years of age in the household.

Hausman and Raines and Kalachek, whose samples are composed of women, include a home wage, and they attempt to account for the economies of scale in child rearing by using both the number of children and the number of children squared as independent variables in the same regression. The expectation is that additional children should cause the mother to work less until she has such a large number of children that the older children can help care for the younger ones. However, the
number of children is not necessarily a reflection of their spacing or age configuration. One woman might have four children under ten years old—none old enough to help with child care—while another has two, but one is seventeen years old and can help care for a pre-schooler.

In order to capture the influence of the age structure on labor supply, Hausman uses a set of dummy variables dividing his sample into three groups: mothers with two or more children under 6; with one child under 6 and/or three or more between 6 and 12; with no children under 6 and zero, one, or two between 6 and 12. While this method permits the determination of the effect of the presence of pre-school-age children on female labor market activity, it does not provide a test of the Bowen and Finegan hypothesis since teenagers are excluded completely. It may be somewhat arbitrary to say that children age 14-17 can help in child caring while those 6-12 cannot, and there are undoubtedly exceptions to this proposition. However, it is certainly unlikely that children 6-12 could provide child care that would free their mothers to work, not only because they are so young, but also because they are almost always in school. Among the poor, a substantial fraction of 16 and 17-year-old youth have left school, and could therefore take over some of the home responsibilities of their mothers.

Raines and Kalachek use several variables in addition to the number of children and the number of children squared to measure the home wage. Marital status, the interaction of family size with the family status of the head of the household, and age of children are all used. The first drawback to their approach is that all of these variables are lumped together in the same regression. It seems plausible that these
variables are strongly correlated, making it difficult to be confident about the individual coefficients. Raines and Kalachek do not discuss this problem.

A second problem involves the measurement of the age of children. Two variables are used simultaneously—the number of children under 6 years of age and the number of children 6-13. This does not reveal anything about the effect of having a combination of children in the different age groups and an important age group—14-17—is omitted.

Kim has developed a variable that facilitates the application of the Bowen and Finegan framework. Kim developed a numerical index outlined in Chapter 2 with gradations of increasing child care burden on the mother. He multiplied the value on this index for each woman by the number of children in her household in an effort to account for both the number and age distribution of children simultaneously.

While this construct is an improvement upon the measures of Hausman and Raines and Kalachek, the use of Kim's index by itself would seem to be superior to the product of this index and family size. The latter method involves a degree of "double-counting," in that the index itself partially accounts for the number of children. For instance, a woman with at least one child under 6, at least one 6-13, and at least one 14-17 has a minimum of three children, whereas a woman with at least one child under 6 and none older has a minimum of one child.

In the present study this index is used by itself and it is not used as a continuous variable. As mentioned above, the eight categories of the Kim index are compressed into four dummy variables so that the effects of different combinations of children with respect to age structure can be inferred.
IV. Results

In this chapter the results of testing the model developed in Chapter 2 are presented and explained. The findings are also compared to those of parallel studies.

The first step in the empirical work was the estimation of the following equation for the universe of all women 30-44 years of age:

\[ H_m = a + B_1 t + B_2 E + B_3 A + B_4 H_6 + B_5 J + B_6 N + B_7 Y_p + B_8 C + u \]

where \( u = \) error term

This model was applied to the poor (Model I, sample A for blacks, Model I, sample B for whites) and the nonpoor\(^1\) (Model I, sample C for blacks, Model I, sample D for whites).

The principal purpose of using the nonpoor sample is to ascertain whether the contention that the welfare tax rate is a concept relevant only to the poor is justifiable. In other words, if it were discovered that this tax rate is an important determinant of the labor supply of all income groups, an important part of the theoretical framework of this study would be denied. Recall that it was argued above that while the omission of this variable from a model of labor supply is justified when all income groups are studied, its omission in the case of the poor is a serious error.

\(^1\) The nonpoor groups consist of samples of women with at least one child in the household, but do not qualify for family assistance according to either the income criterion or the asset criterion.
Another version of the model was run for married women only. In this version, instead of the taste variable "attitude toward women's role," a variable measuring the husband's attitude toward his wife's working was used. Married women were asked about the attitudes of their husbands toward labor market activity on the part of the respondent. This variable is measured by a scale with five values running from the most favorable to the least favorable attitude.

An equation that includes the husband's attitude variable instead of attitude toward women's role, as well as the variables in the original model, was estimated for a universe restricted to poor married women (Model II, sample A for blacks and Model II, sample B for whites) and nonpoor married women (Model II, sample C for blacks and Model II, sample D for whites).

Although most of the expected relationships between hours worked and the independent variables are observed, the relative strength and importance of the variables differ considerably between blacks and whites. In the case of several independent variables, the sign of the relationship is the same for both color groups, but the relationship is much more pronounced for one of the groups. In other cases, the coefficient of the independent variable has a different sign for blacks than for whites.

The group of independent variables explained from 20 to 40 percent of the variation in hours worked, depending on the sample used and the specification of the model. This amount of explanatory power is typical when individual, disaggregated data are used.
One of the principal findings of this study is that there is a significant, negative relationship between potential other income and the hours worked by both black and white poor women. Actually, in every regression, irrespective of whether potential or actual income is used and irrespective of the array of other independent variables included, other income is negatively related to hours worked. Furthermore, within every sample the coefficient of the other income variable is statistically significant.² (See Table 2.)

The elasticity (evaluated at the mean) of hours worked with respect to potential other income is negative in all of the regressions used in this study. (See Table 3.) The elasticity is greater for whites than for blacks, although this inter-color difference is greater among the poor than among the nonpoor.

Among poor blacks, a 10 percent increase in potential other income is associated with a 2.8 percent decline in annual hours worked. The corresponding figure for poor whites is 3.7 percent.

These results are very similar to the findings of Hausman. He reports that the elasticity of the labor force participation rate with respect to potential other income is -0.37, while the elasticity of his labor force intensity rate with respect to other income is -0.39.

² Unless otherwise noted, the criterion for statistical significance will be the 10 percent level. However, in the tables in which the regressions are presented, three levels of statistical significance—10 percent, 5 percent, and 1 percent—are distinguished.
## Table 2

Regressions for the Total Sample  
(Dependent variable: annual hours worked)

<table>
<thead>
<tr>
<th></th>
<th>Poor Blacks Model 1</th>
<th>Poor Whites Model 1</th>
<th>Nonpoor Blacks Model 1</th>
<th>Nonpoor Whites Model 1</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Sample A</td>
<td>Sample B</td>
<td>Sample C</td>
<td>Sample D</td>
</tr>
<tr>
<td>Potential Other Income</td>
<td>0.10 (4.79)***(a)</td>
<td>0.08 (3.36)***</td>
<td>0.06 (4.66)***</td>
<td>0.02 (8.44)***</td>
</tr>
<tr>
<td>Implicit Tax Rate</td>
<td>47.5 (12.29)***</td>
<td>52.7 (6.15)***</td>
<td>30.3 (5.64)***</td>
<td>75.0 (29.20)***</td>
</tr>
<tr>
<td>Work Experience</td>
<td>52.7 (6.15)***</td>
<td>30.3 (5.64)***</td>
<td>75.0 (29.20)***</td>
<td>30.3 (5.64)***</td>
</tr>
<tr>
<td>Health</td>
<td>309.6 (2.50)***</td>
<td>342.0 (1.97)***</td>
<td>923.2 (2.35)***</td>
<td>314.2 (2.24)***</td>
</tr>
<tr>
<td>Training</td>
<td>70.3 (0.78)</td>
<td>30.3 (0.26)</td>
<td>85.2 (0.96)</td>
<td>10.5 (0.31)</td>
</tr>
<tr>
<td>Educ1 (8 yrs)</td>
<td>73.0 (0.71)</td>
<td>143.6 (1.79)***</td>
<td>80.6 (0.82)</td>
<td>68.4 (1.14)</td>
</tr>
<tr>
<td>Educ2 (9-11 yrs)</td>
<td>208.2 (2.61)***</td>
<td>285.4 (2.38)***</td>
<td>186.2 (1.67)***</td>
<td>49.6 (1.04)</td>
</tr>
<tr>
<td>Educ3 (12+ yrs)</td>
<td>193.2 (1.88)**</td>
<td>188.7 (1.91)**</td>
<td>207.4 (2.23)***</td>
<td>148.6 (1.97)***</td>
</tr>
<tr>
<td>Home Wage</td>
<td>115.2 (1.70)**</td>
<td>293.9 (3.15)***</td>
<td>364.1 (4.21)***</td>
<td>397.5 (12.87)***</td>
</tr>
<tr>
<td>Attitude toward Women's Role</td>
<td>-4.8 (0.37)</td>
<td>32.9 (1.74)**</td>
<td>18.0 (1.11)</td>
<td>35.5 (5.79)***</td>
</tr>
<tr>
<td>Constant</td>
<td>808.7 (4.43)***</td>
<td>41.0 (0.13)</td>
<td>577.1 (1.81)**</td>
<td>26.7 (0.23)</td>
</tr>
<tr>
<td>Sample Size</td>
<td>481</td>
<td>273</td>
<td>392</td>
<td>2661</td>
</tr>
</tbody>
</table>
Table 2 - Continued

<table>
<thead>
<tr>
<th>Model 1</th>
<th>Sample A</th>
<th>Poor Blacks</th>
<th>Poor Whites</th>
<th>Nonpoor Blacks</th>
<th>Nonpoor Whites</th>
</tr>
</thead>
<tbody>
<tr>
<td>F ratio</td>
<td>22.56</td>
<td>8.64</td>
<td>11.04</td>
<td>133.81</td>
<td></td>
</tr>
</tbody>
</table>

(a) "t" ratios in parentheses
* 10 percent level of statistical significance
** 5 percent level of statistical significance
*** 1 percent level of statistical significance

Table 3

Elasticity of Hours Worked with Respect to Potential Other Income

<table>
<thead>
<tr>
<th></th>
<th>Poor Blacks</th>
<th>Poor Whites</th>
<th>Nonpoor Blacks</th>
<th>Nonpoor Whites</th>
</tr>
</thead>
<tbody>
<tr>
<td>All Women</td>
<td>-0.28</td>
<td>-0.37</td>
<td>-0.29</td>
<td>-0.30</td>
</tr>
<tr>
<td>Married Women</td>
<td>-0.22</td>
<td>-0.40</td>
<td>-0.21</td>
<td>-0.23</td>
</tr>
</tbody>
</table>

These elasticities, which are estimated for blacks and whites combined, are virtually the same as the elasticities estimated in this study for blacks. This is not surprising, as about three-fifths of Hausman's sample is non-white. The consistency of these findings tends to substantiate and generalize Hausman's tentative conclusions concerning the impact of the potential other income variable.

Raines and Kalachek report that the coefficients of their public assistance dummies are negative and significant. It is probable that these variables are indeed picking up the relationship between potential welfare income and labor supply, which was the intent of the authors.
The health variable is significant for both color groups among the poor and the nonpoor. (See Table 2.) Within all four samples, poor health is associated with less work. The coefficients of the education variables were generally significant. The coefficient of the dummy variable "12 years of education or more" is significant in all four poverty status-color groups.

There is a pronounced positive relationship between work experience since leaving school and hours worked. The coefficient of this independent variable is significant at the 1 percent level in all four samples. (See Table 2.)

The impact of prior work experience on current work activity is larger for whites than for blacks, although it is certainly substantial for both color groups. An additional year in which at least 6 months of work was performed is associated with an additional 52.7 hours of work among poor whites and 75.0 hours of work among nonpoor whites. The corresponding figures for blacks are 47.5 and 30.3.

One criticism of including this variable is that the association between prior labor force activity and current labor force activity is so direct and obvious that little understanding is gained from the insertion of such a variable. While it is obvious that a woman who worked yesterday is likely to be found working today, the measurement of work history used in this study provides more information than this. In other words, the hours worked in the calendar year prior to the survey (1966) are regressed not simply on hours worked in the year before that (1965) but on a measure
of "lifetime work experience" that extends back to the date when the respondent left school.  

The result of including the training variable is inconclusive, as there is no particular pattern to the coefficients, and they all fall short of statistical significance. 

One explanation of the absence of a clear relationship between training and hours worked is that the emphasis on serving the disadvantaged in Federally-sponsored training programs has caused training to be given to the least-skilled group of the poor who are still at a disadvantage relative to those without training after completion of the program. 

Hausman also finds a positive relationship between educational attainment and the dependent variable. He employs a series of dummy variables for three categories of attainment, leaving out the lowest group (less than 4 years, or unknown). All of the regression coefficients are positive and significantly different from zero. 

Raines and Kalachek, who used education and other variables to estimate potential wage rates, find a positive relationship between these potential wages and labor supply for males. In the case of females, the coefficients and elasticities are frequently negative in the regressions where weeks worked per year or hours worked per week are the dependent variables. However, when participation, hours, and weeks are combined

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5 Past work experience may also reflect taste for work; since a taste variable is included in the regressions, this source of ambiguity should be removed. However, it is likely that the measures of taste for work used in this study do not account for all aspects of the taste for work. Nonetheless, the work experience variable is, at least to some extent, a measure of the human capital that is developed through on-the-job experience.
into one labor supply variable for women, the expected positive association is observed. The exclusion of women who did not work at all during the year from the weeks and hours regressions might be a partial explanation of these results, although the authors attribute the unexpected results to faulty data.

In this study, a more inclusive concept of human capital is employed, capturing several aspects of human capital.

The Implicit Tax Rate

The implicit tax rate is negatively related to hours worked among poor blacks, but there is no significant association between these two variables among poor whites. Using the regression coefficient from Model I, the elasticity of hours worked with respect to the implicit tax rate is -0.34 for poor blacks. A 10 percent increase in the implicit tax rate is associated with a decline in hours worked of 3.4 percent. This figure falls between Hausman's estimates of this elasticity. Using labor force participation as a dependent variable, Hausman estimates the elasticity with respect to the implicit tax rate as -0.27; with his labor force intensity rate as the dependent variable, the elasticity is -0.43.

As is the case with potential other income, the coefficients generated for blacks in this study are very similar to the coefficients generated by Hausman for his sample which is predominantly non-white. However, the findings of this study indicate that Hausman's results, based on a pooled sample, mask important inter-color differences. The negative relationship between hours worked and the tax rate found by Hausman may result from the fact that his sample contains a large proportion of blacks.
and this negative association clearly holds among blacks.

As mentioned above, the implicit tax rate is actually an adjustment to the market wage rate. Like the wage rate, the tax rate has two effects on labor supply—an income effect and a substitution effect. An increase in the tax rate means that an individual will have less disposable income for the same amount of work; the income effect of the tax rate will cause him to work more. However, this increase in the tax rate reduces the opportunity cost of leisure and home work, causing the individual to substitute these activities for market work. Thus, these two effects work in opposite directions. What the findings of this study indicate is that among poor blacks, the substitution effect of a change in the tax rate outweighs the income effect, with the result that a woman works less as the tax rate rises. Among poor whites, the substitution effect is offset by the income effect, and there is no net effect on hours worked.

This inter-color difference cannot be explained by the inter-color difference of family income available to the women because of the inclusion of the potential other income variable in the model. Attitude toward market labor is also controlled, although admittedly, this measure captures only one aspect of the taste for market labor.

One possible explanation involves the interaction of region and color. Roughly two-thirds of the blacks reside in the South, while only about one-third of the whites live in the South. Preliminary experimentation revealed that the implicit tax rate was too highly correlated with region for the latter to be included in the model.

The relationship between work and welfare rules may be quite different for blacks and whites, and this difference may be especially
important in the South. Future research should concentrate on the regional variation in the response of the poor to various welfare rules. One approach involves testing the same model in several different regions and determining whether the response patterns are significantly different among the regions.

**Taste for Work**

There was a positive relationship between attitude toward women's role and hours worked for poor whites, but not for poor blacks. Among poor blacks, the coefficient was not in the expected direction, but it was not statistically significant.

Husband's attitude toward the propriety of married women working was very strongly related to hours worked for married whites. Among the poor, a favorable attitude on the part of the husband is associated with an additional 393 hours of work per year, while among the nonpoor, this figure is 409 hours. (See Table 4.) As is the case with attitude toward women's role, among poor blacks, the coefficient is not significant, although it is in the expected direction. However, among nonpoor blacks, a favorable attitude is associated with 264 hours of work, and this coefficient is significant.

In a one-period context, it is not certain to what extent the association between favorable attitudes toward work and the amount of work results from a rationalization by women of their current labor market status. In other words, in a static framework it is difficult to determine the direction of causation between these two variables, i.e., whether favorable attitudes cause women to work or the fact that they work causes women to
### Table 4

Regressions for Married Women  
(Dependent variable: annual hours worked)

<table>
<thead>
<tr>
<th></th>
<th>Poor Blacks Model II Sample A</th>
<th>Poor Whites Model II Sample B</th>
<th>Nonpoor Blacks Model II Sample C</th>
<th>Nonpoor Whites Model II Sample D</th>
</tr>
</thead>
<tbody>
<tr>
<td>Potential Other Income</td>
<td>$-0.06$ (1.61) *(^{(a)})</td>
<td>$-0.07$ (2.30) ***</td>
<td>$-0.04$ (2.13) ***</td>
<td>$-0.02$ (5.71) ***</td>
</tr>
<tr>
<td>Implicit tax rate</td>
<td>$-4.3$ (2.14) ***</td>
<td>4.4 (1.46) *</td>
<td>3.9 (1.08)</td>
<td>1.1 (1.19)</td>
</tr>
<tr>
<td>Work Experience</td>
<td>44.5 (7.57) ***</td>
<td>46.7 (4.51) ***</td>
<td>34.6 (5.74) ***</td>
<td>68.4 (25.67) ***</td>
</tr>
<tr>
<td>Health</td>
<td>$-11.9$ (0.55)</td>
<td>$-203.4$ (0.75)</td>
<td>$-984.7$ (1.77) **</td>
<td>$-291.9$ (2.12) ***</td>
</tr>
<tr>
<td>Training</td>
<td>114.4 (0.76)</td>
<td>$-79.3$ (0.51)</td>
<td>97.0 (0.95)</td>
<td>10.8 (0.32)</td>
</tr>
<tr>
<td>Educ(_1) (8 yrs)</td>
<td>74.0 (0.50)</td>
<td>98.2 (0.86)</td>
<td>72.6 (0.48)</td>
<td>42.6 (0.28)</td>
</tr>
<tr>
<td>Educ(_2) (9-11 yrs)</td>
<td>207.0 (1.68) **</td>
<td>261.3 (2.14) ***</td>
<td>106.0 (0.84)</td>
<td>76.8 (0.51)</td>
</tr>
<tr>
<td>Educ(_3) (12+ yrs)</td>
<td>40.5 (0.23)</td>
<td>140.9 (1.76) **</td>
<td>186.7 (1.88) **</td>
<td>133.6 (1.68) **</td>
</tr>
<tr>
<td>Home Wage</td>
<td>$-152.0$ (1.42) *</td>
<td>$-263.2$ (2.15) ***</td>
<td>$-363.6$ (3.92) ***</td>
<td>$-307.8$ (9.96) ***</td>
</tr>
<tr>
<td>Husband's Attitude</td>
<td>67.9 (0.66)</td>
<td>392.9 (3.33) ***</td>
<td>264.1 (2.93) ***</td>
<td>408.6 (12.08) ***</td>
</tr>
<tr>
<td>Constant</td>
<td>692.8 (3.44) ***</td>
<td>$-184.5$ (0.56)</td>
<td>430.2 (1.62) *</td>
<td>196.8 (1.98) ***</td>
</tr>
<tr>
<td>Sample Size</td>
<td>232</td>
<td>182</td>
<td>316</td>
<td>2087</td>
</tr>
</tbody>
</table>
Table 4 - Continued

<table>
<thead>
<tr>
<th></th>
<th>Poor Blacks</th>
<th>Poor Whites</th>
<th>Nonpoor Blacks</th>
<th>Nonpoor Whites</th>
</tr>
</thead>
<tbody>
<tr>
<td>Model II</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample A</td>
<td>.22</td>
<td>.23</td>
<td>.20</td>
<td>.40</td>
</tr>
<tr>
<td>Sample B</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model II</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample C</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Model II</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Sample D</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

R<sup>2</sup> adjusted .22 .23 .20 .40
F ratio 6.85 5.82 8.14 128.95

(a) "t" ratio in parentheses
* 10 percent level of significance
** 5 percent level of significance
*** 1 percent level of significance

have favorable attitudes toward working. In spite of this limitation, it is noteworthy that these attitudes toward market labor are significantly related to hours worked, at least in the case of whites. A challenge for future research is to develop a longitudinal research design that will permit a determination of the direction of influence between these attitudes and labor market behavior.

**The Home Wage**

The two measures of the home wage described in Chapter 2 were separately entered in the regressions. The series of dummy variables accounting for the age distribution of the children in a woman's family yielded results that did not conform to evidence adduced in previous literature. While the response of women with children under 6 years old only to a change in the home wage proved to be significantly different from the response of the omitted group (no children under 18), this was not the case for women with both older and younger children. Although the differences between women with children under 6 and 6-13
or children under 6 and 14-17 and the omitted group were in the expected
direction, the coefficients were not significantly different from zero.

These results contradict the findings of Bowen and Finegan. They
found that the labor force participation rate of women with no children
in the household is lower than the participation rates of women either
with pre-school-age children only or with both pre-school-age and
school-age children. The fact that the coefficients are in the expec­
ted direction, coupled with the Bowen and Finegan findings, leads this
author to be skeptical about these results and to caution against a
rigid interpretation of the tests of statistical significance.

In the final regressions the presence of children under 6 years of
age is used as a proxy for the home wage. A dummy variable is employed
to indicate the presence of at least one child under 6 in the household.
Women with children under 6 work less than other women, and this dif­
ference is significant in all four poverty status-race groups. (See
Table 2.)

Most of the expected relationships were observed. In some cases
the associations were pronounced and the coefficients of the indepen­
dent variables were statistically significant at the 1 percent level.
In other cases, the associations were weak and the coefficients were
not significantly different from zero and the 10 percent level.
V. Conclusions and Policy Implications

The purpose of this study was to examine the relationship between hours of work and key welfare variables that have been omitted from other studies of the determinants of the labor supply of the poor.

In the first chapter, the main elements of the welfare controversy were presented, and the nature and derivation of the data were discussed. In Chapter 2 a model was specified that is appropriate to a sample of poor women, and the differences between this model and others used in the literature were explained. The literature was critically reviewed in the third chapter, with the focus on the appropriateness of the models, methodology, and measurement of variables. Throughout Chapter 4 the empirical results were presented and explained. In the previous chapters the contribution of this study to the literature was highlighted by emphasizing the ways in which this study modifies or extends previous approaches.

In this chapter the conclusions of this study will be presented and the policy implications of the findings will be discussed.

One of the most significant findings of this study is that there is a significant negative relationship between potential other income and hours worked. The elasticity is -0.28 for poor blacks and -0.37 for poor whites. An increase of 10 percent in the amount of potential other income available to a woman is
associated with a 2.8 percent decline in hours worked by black women in this cohort and a 3.7 percent decline in hours worked by white women.

It can be safely concluded from these findings that among this cohort of women the amount of time spent working is inversely related to the level of potential other income. This is an important finding; many policy-makers and lawmakers are currently interested in the extent to which the amount of time spent working would respond to changes in the level of a subsidy incorporated in various income maintenance schemes. In the debate over welfare reform that has taken place in Congress over the past three years, many legislators have argued that the proposed subsidies are insufficient to guarantee a decent standard of living to the poor, while others have argued that the proposed subsidies are too high to encourage the poor to work. Results such as these give lawmakers an indication of the changes in work by one segment of the poor that could be expected to accompany such revisions of subsidy levels.\footnote{The conclusion depends upon the assumption that an individual's behavior over time in the face of changing other income conditions can be inferred from the cross-sectional variation in that behavior with cross-sectional variations in other income. However, this assumption is commonly employed when a cross-sectional, rather than a longitudinal, research design is used.}

The negative relationship between potential other income and hours worked has an interesting implication for public policy. One of the principal components of the cost of an income maintenance program is the dollar value of the subsidies that will be paid to program participants. What these findings indicate is that such subsidies would
elicited a reduction in hours worked by women in their thirties and early forties. The reduction in family earnings resulting from this decline in working time would make the families of these women eligible for an additional increment of benefits. Hence, these findings indicate that the estimated costs of proposed programs are less than the true costs of such programs to the extent that they ignore the hours-of-work response to changes in other income. Greenberg and Kosters reached the same conclusion in their study of males. The present study and Hausman's work, viewed in tandem with the Greenberg-Kosters study, would seem to indicate to policy-makers that ignoring the labor supply response to subsidy income from a new welfare program will cause an underestimation of the actual cost of the proposed program.

According to the most recent version of the Family Assistance Plan (H.R.1) a floor on family income will be established ($2,400 for a family of four) and supplementation by the states will be optional. However, sponsors of the bill and government officials believe that most states which were paying benefits in excess of the income floor will supplement FAP benefits up to the level that welfare clients were previously receiving. To the extent that this occurs, the poor should realize a net increase in potential other income, as in low-benefit states there will be an increase in benefits without a corresponding decrease in benefits in high-benefit states.

The findings of this study and other recent studies indicate that if this net increase occurs, there will be a corresponding decline in time spent working. Moreover, this effect will vary by region, being the strongest where welfare payments are currently the lowest. An
examination of Table 5 in the Appendix reveals that potential welfare benefits are lowest in the South. A mother of three in Mississippi is eligible for $840 per year if she has no non-assistance income. Under H.R. 1 such a woman would be eligible for $2,400, a sizeable increase in other income. This gap is comparable in size for several other Southern states.

The findings concerning the implicit tax rate also have interesting policy implications. It was observed that the elasticity of hours worked with respect to the implicit tax rate was -0.34 for poor blacks. A 10 percent increase in the implicit tax rate would result in a 3.4 percent decline in hours worked among women in this cohort. Among poor whites, the implicit tax rate is not significantly related to hours worked. It is also noteworthy that the implicit tax rate variable was not significant for nonpoor blacks and whites, confirming the expectation that while this variable is an important determinant of the labor market activity for the poor, it can justifiably be omitted for the nonpoor.

Under H.R. 1, the implicit tax rate is zero for the first $720 per year of non-assistance income and 67 percent on any non-assistance income in excess of $720. However, there are several modifications of this scheme being considered by lawmakers which involve different

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2 This assumes that FAP benefits will not vary by region, as is presently the case under H.R. 1. However, some economists are arguing that benefits should vary by region and size of place of residence according to a cost of living criterion. This would equalize real income, or purchasing power (ignoring the optional state supplements). However, it would create administrative problems resulting from "border-hopping" and other occurrences.
tax rates. Some argue for a lower rate above $720, while others argue for eliminating the $720 disregard. Some proponents of the latter strategy claim that the disregard, coupled with a high tax rate beyond it, encourages part-time, and discourages full-time, employment. They advocate no disregard and a tax rate that declines as weekly hours of work rise. A high tax rate would obtain when the family head worked only a few hours per week, but this rate would be progressively lowered as one approached a 40-hour week.

As the debate over the various income maintenance schemes continues, policymakers will be quite interested in the effects of changes in the level of the implicit tax rate on hours worked. With respect to black women, the results of this study support and generalize Hausman's conclusion that a lower implicit tax rate would elicit more work from poor women. However, the absence of a relationship in the case of whites indicates that Hausman's results may only apply to the black welfare mothers in his sample.

Education and health are positively related to hours worked for women in this sample. The implication of this finding is that investments in human capital will pay off for poor women in this age group. The additional work that would result from such investments would doubtless carry some of these families across the poverty line.

The expectation that pre-school-age children are a deterrent to female labor market activity was supported by the regression results. Both black and white women with children under 6 years of age worked less than their counterparts without children under 6. The impact on working of school-age children in the household does not emerge clearly
from the findings of this study. The results appear to contradict the findings of Bowen and Finegan regarding the age structure of children in the household.

These results have implications for manpower policy and the public service employment aspects of proposed welfare reform packages. For instance, in H.R. 1, $800 million is earmarked for public service employment. State and local governments would be subsidized by the Federal government to hire welfare clients who cannot be placed in the private sector. To the extent that participation in this placement service or in various other training or employment programs is voluntary, the findings of this study indicate that women with children under 6 years of age are less likely than other women to enroll in these programs.

If a goal of manpower policy and welfare reform is to facilitate the movement of large numbers of low-income women into the labor force, the findings of this study indicate that provisions will have to be made for child care arrangements. Several schemes for subsidizing child care on a large scale are being considered by government policymakers, such as a voucher system in which mothers receive a subsidy which they can use to pay for the day care arrangement of their choice, including informal, neighborhood arrangements.

Hopefully, the conceptual framework and results of this study will make a useful contribution to the continuing debate over welfare reform. This study complements prior cross-sectional studies which have focused on different segments of the poor or upon particular regions of the country. As the results of the experimental programs in different sections of the country become available, it will be interesting to
determine the extent to which they support the conclusions of cross-sectional studies such as this one.
### Table 5

**Title:** Maximum AFDC Benefits by State and Family Size

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Appendix

Potential Other Income and the Implicit Tax Rate

State welfare agencies determine the benefits of their clients in the following fashion. A need standard is defined for each family size based on the agency's best estimate of the amount of money necessary to subsist in that state. From that need standard is subtracted the earnings and the non-welfare other income of the family. The difference represents a need gap or deficit for that family. The state then pays some proportion of that deficit to the family. Thus, the formula for the benefits paid is:

\[ B = t(Y_{ns} - W_m H_m - S) \]

where \( Y_{ns} \) = the need standard
and the other symbols are defined as in Chapter 2. The state pays the fraction "t" of the gap between the needs and the resources of the family.

Equation 1 can be re-written as follows:

\[ B = t Y_{ns} - t(W_m H_m + S) \]

If the family has no earnings and no non-welfare other income, it is apparent that \( B = t Y_{ns} \). Thus \( t Y_{ns} \) represents the maximum welfare payments that an individual can receive.

Let \( M = t Y_{ns} = \) maximum benefits
Then

\[ B = M - t(W_m H_m + S) \]

This is the formula for welfare benefits specified in Chapter 2.
The implicit welfare tax rate refers to the rate at which welfare benefits change as income (from either work or non-work sources) changes. From equation 3 the rate of change of benefits as earnings change and the rate of change of benefits as non-welfare other income changes can be determined.

\[
\frac{\partial B}{\partial \ln M_m} = -t
\]

\[
\frac{\partial B}{\partial \bar{O}} = -t
\]

These equations show that the two implicit tax rates are both \((-t)\).

In this study the values of \((t)\) and \((M)\) were obtained from the Department of Health, Education, and Welfare, which collected the data in the summer of 1970. This was the first time that such state welfare data—which is apparently often closely guarded by state welfare agencies--had been relinquished by the states to the federal government.

Of course, this data pertains to 1970, while the respondents in the samples used in this study were interviewed in 1967. However, states have typically changed their benefit levels very infrequently, and it is likely that these data approximate very closely the actual welfare constraints that faced the women in these samples in 1967.
Bibliography


