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ABSTRACT

Although there is a large literature on the effect of AFDC and Food Stamps on labor supply and welfare participation, there has been little work on the effects of Medicaid, despite its importance in the U.S. transfer system. In this paper we use 1986 data from the Survey of Income and Program Participation to examine the effect of Medicaid on the labor supply and welfare participation decisions of female heads of family. A key contribution is the development of a family-specific proxy for the valuation of Medicaid benefits which depends upon the health and other characteristics of the family. We find that Medicaid has strong and significant effects on labor supply and welfare participation that are negative and positive in sign, respectively, but which are concentrated in the tail of the distribution with the highest expected medical expenditures. We also find that the availability and level of private health insurance have very large effects opposite in sign to those of Medicaid.

I. INTRODUCTION

The provision of subsidized or free medical services to members of the low-income population has become a central component of the package of benefits for the poor in the United States over the last twenty years. Prior to 1965 most benefits to the poor were provided in the form of cash payments, but since that time, in-kind benefits in the form of Food Stamps, Medicaid, and housing subsidies have mushroomed to the point of exceeding cash programs in terms of caseloads and payments. The Medicaid program is one of the most important of these, accounting for almost 40 percent of all federal expenditures on means-tested transfers in 1988 (U.S. House of Representatives, 1989, p. 1225).

While there has been a large amount of research on the incentive effects of cash payments under the Aid to Families with Dependent Children (AFDC) program and a smaller amount on the Food Stamp program, there has been very little on the incentive effects of the Medicaid program (see Danziger et al., 1981, and Moffitt, 1987, for surveys of the literature). The two studies completed to date (Blank, 1989; Winkler, 1989) examined, respectively, the impact of Medicaid payments on AFDC participation rates and labor supply. One study (Blank) found insignificant effects of Medicaid while the other (Winkler) found significant effects. The difference in the results of the two has not been resolved to date but, for our purposes, it is important to note that both studies used for their Medicaid variable a state-specfic average Medicaid insurance value for families, which may not accurately proxy the valuation of the Medicaid program by any individual family.

Studying the Medicaid program requires that two issues be addressed that need not be included in the evaluation of cash programs. The first is the development of a variable that accurately proxies the valuation of the program, as just mentioned. Whereas the cash benefit per family is easily obtained from published sources, Medicaid expenditures are rarely available on a family basis in the available microdata sets. We therefore develop a family-specific variable based on expected medical expenditures and health conditions per family which, though not equivalent to the theoretically preferred insurance value of Medicaid, is a proxy for that value. The second issue is the incorporation of the availability of private health insurance if off welfare, a factor that should also be taken into account in analyzing the role of Medicaid. We develop a proxy variable for the expected level and availability of such insurance should a female-headed family be off welfare, and we control for this variable in our model.

The outline of the paper is as follows. In the next section we briefly lay out the background of the Medicaid program and discuss our data and econometric model. We employ a simple reduced-form model of the effects of Medicaid on labor supply and welfare participation. In Section III we discuss the development of our Medicaid and private health insurance "heterogeneity" indexes, and we present our results in Section IV. A summary appears in Section V.

II. PROGRAMMATIC BACKGROUND AND ECONOMETRIC MODEL

A. The Medicaid Program

The Medicaid program provides health care for certain low-income families in the United States. Authorized under Title XIX of the Social Security Act, the program provides benefits to the low-income aged, blind, disabled, families with dependent children, and certain categories of pregnant women and children. The most important characteristic of the program for our purposes is that eligibility is closely tied to the actual or potential receipt of cash transfers, in most cases AFDC or Supplementary Security Income (which provides benefits to the aged, blind, and disabled). Families enrolled in the AFDC program are automatically eligible (or "categorically eligible," in the language of the program) for Medicaid benefits and can retain their Medicaid "card" as long as they are on the program. The AFDC program, in turn, provides benefits primarily to female heads of family--those without an able-bodied male present in the household and with children under the age of 18 in the family.[1] As a consequence, Medicaid receipt, at least among the nonaged and nondisabled, is heavily concentrated in the female head population. We shall therefore focus our study on that group.

Medicaid benefits are sometimes made available to non-AFDC recipients. In 39 states, female-headed families not on AFDC are covered by the Medically Needy program, which provides catastrophic insurance in case of heavy medical expense. All states also cover some low-income female heads who meet the income eligibility requirements for AFDC but are not, for one reason or another, on the program ("categorically needy without cash assistance"). In addition, recent legislation has extended eligibility for a few months to female heads who leave AFDC for specified reasons and to pregnant women and children in certain non-female-headed families. Nevertheless, despite these extensions, among nonelderly female heads almost 80 percent of all Medicaid expenditures go to those on AFDC, and 92 percent of all nonelderly nondisabled Medicaid recipients are on AFDC (U.S. House of Representatives, 1989, p. 1145). Further, our data for 1986 indicate that only 8 percent of all female heads are off AFDC and yet covered by Medicaid. Thus the program remains almost exclusively tied to AFDC.

B. Data

The data we use in our study are drawn from the "1984" panel of the Survey of Income and Program Participation (SIPP). The SIPP panel began in October 1983 by interviewing a nationally representative sample of the civilian noninstitutional population of approximately twenty thousand households. Families were interviewed every four months until July 1986; information was collected on income sources and sociodemographic characteristics. The primary advantage of the SIPP for our purposes is that it was designed to collect detailed information on transfer program recipiency and insurance coverage, and it contained a special set of questions on health status and medical utilization in one interview. The recipiency information permits us to determine AFDC participation as well as coverage of Medicaid and private health insurance, while the health and medical utilization questions permit us to construct a family-specific medical heterogeneity index, which is a main feature of our analysis.

We use two interviews in the SIPP in our work. First, we use a set of supplementary questions asked in the third interview, conducted in the spring and summer of 1984, on health and medical utilization to construct a family-specific value of expected medical expenditures if covered by Medicaid and if covered by private health insurance. Second, we use the last wave of SIPP, administered from April to July of 1986, to estimate the effects of Medicaid, private health insurance, and other variables on AFDC participation and labor supply. In both cases we analyze only the female heads in the survey.

In the next section we outline our econometric model for the estimation of the AFDC participation and labor supply equations. Following that we describe the development of the Medicaid and private health insurance variables that are the key regressors in the model. Subsequently we present the estimation results for our AFDC participation and labor supply equations.

C. Econometric Model

The econometric model we use is a simple reduced form based on the conventional economic theory of labor supply and welfare participation (Moffitt, 1983). Assume that the utility function is $U(H,Y,P)$, where H is hours of work, Y is disposable income, and P is a dummy variable equal to 1 if on welfare and 0 if not. Utility is positive in the second argument and negative in the first and third. The inclusion of P in the utility function, the main departure from the textbook theory of labor supply, is designed to provide an explanation for the nonparticipation of families who are eligible for AFDC. The existence of such nonparticipating eligibles, sometimes ascribed to welfare stigma, results in some families not locating on the boundary of their budget sets.

Let the budget constraint be

$$
\begin{aligned}
Y &= WH + N + PB \qquad (1)\\
&= W(1-tP) + N(1-Pt) + PG
\end{aligned}
$$

where W is the hourly wage rate, N is nonwage income, B is the benefit if on AFDC (the sum of the cash benefit plus Medicaid, for example), G is the AFDC guarantee (cash plus in-kind benefits), and t is the tax rate on income in the AFDC program. Maximization of utility then results in two equations, one for AFDC participation and one for labor supply conditional on the participation decision:

$$P^* = V[W(1-t), N(1-t) + G, 1] - V[W,N,0] \qquad (2)$$

$$P = 1 \text{ if } P^* \geq 0; \; P = 0 \text{ if } P^* < 0 \qquad (3)$$

$$H = H[W(1-tP), N(1-tP) + PG] \qquad (4)$$

where V is the indirect utility function with arguments for the net wage, net nonwage income, and AFDC participation.

Estimation of this model in its structural form is difficult for many reasons. First, there are numerous nonlinearities in the constraint arising from the nonlinearities in the positive tax system and in the variation in gross hourly wage rates over the hours-worked range. Second, Medicaid is an in-kind program whose benefits cannot be presumed to have the same value as cash (Smeeding, 1982; Smeeding and Moon, 1980); therefore, its benefits cannot be added in with those of the cash AFDC benefit. Third, it is difficult to estimate the effects of the tax rate in AFDC because the official rate is 100 percent in all states; thus it has no cross-sectional variation.[2] For the same reason, there is no cross-sectional variation in any tax rate for Medicaid; Medicaid benefits are independent of income as long as the family is on AFDC and are lost in their entirety when AFDC participation ends.[3]

Our solution to these problems is to estimate a reduced-form model for the two equations of the following form:

$$P^* = \beta_0 + \beta_1 Y_{P0} + \beta_2 Y_{P1} + \beta_3 Y_{P2} + \beta_4 G_A + \beta_5 G_F + \beta_6 M + \beta_7 K + \underset{\sim}{X}'\underset{\sim}{\alpha} + \varepsilon_1 \quad (5)$$

$$P = 1 \text{ if } P^* \geqslant 0;\ P = 0 \text{ if not} \quad (6)$$

$$E^* = \gamma_0 + \gamma_1 Y_{P0} + \gamma_2 Y_{P1} + \gamma_3 Y_{P2} + \gamma_4 G_A + \gamma_5 G_F + \gamma_6 M + \gamma_7 K + \underset{\sim}{X}'\underset{\sim}{\delta} + \varepsilon_2 \quad (7)$$

$$E = 1 \text{ if } E^* \geqslant 0;\ E = 0 \text{ if not} \quad (8)$$

where $E = 1$ if employed and 0 if not; Y_{Pi} is disposable private income net of taxes at hours point i ($i = 0$ for $H = 0$, $i = 1$ for $H = 20$, and $i = 2$ for $H = 40$); G_A and G_F are the guarantee amounts for AFDC and Food Stamps; M is our proxy for the family-specific valuation of the Medicaid program; K is our proxy for the family-specific valuation of private health insurance if off AFDC; $\underset{\sim}{X}$ is a vector of exogenous socioeconomic characteristics; and ε_1 and ε_2 are normally distributed error terms with mean zero and unit variance.

Equations (5)-(6) constitute the reduced-form AFDC participation equation and contain as regressors potential private income (nonwage income plus earnings minus taxes) at the point of no work, part-time work, and full-time work. This specification is equivalent to entering both the hourly wage rate over the part-time range and the hourly wage rate over the full-time range, and permits us to avoid having to specify the full nonlinearity of the budget constraint over all hours points. A similar procedure has been used by Fraker and Moffitt (1988). We enter the guarantee amounts for AFDC and for the Food Stamp program separately from each other and separately from private income; their coefficients will all differ from one another if there is welfare stigma or if the different types of income have different unobserved characteristics. The AFDC and Food Stamp tax rates are not entered because they have no cross-sectional variation. The equation also contains our proxies for Medicaid and private health insurance availability described in the next section; they will not have the same units as G_A and G_F, nor should their coefficients be expected to be the same in any case because of the in-kind nature of medical benefits. Note that M is available only if the female head is on AFDC and K is available only if she is off.[4] A vector of exogenous characteristics is also entered, including age, race, health status, education, family size and composition, and region. It is important to include health status in the equation, since the value of Medicaid and private health insurance will be correlated with health. Equations (7)-(8) constitute the labor supply equation, where we examine only the choice to work or not to work at all. Since only 50 percent of female heads work, the work choice dominates the hours choice conditional upon work. The labor supply equation contains the same regressors as the AFDC participation equation, as should clearly be the case (see equations (2)-(3)).

The theoretically predicted signs on most of the income variables are unambiguous:

$$\beta_1 < 0 \quad \beta_2 < 0 \quad \beta_3 < 0 \quad \beta_4 > 0 \quad \beta_6 > 0 \quad \beta_7 < 0$$

$$\gamma_1 < 0 \quad \gamma_2 > 0 \quad \gamma_3 > 0 \quad \gamma_4 < 0 \quad \gamma_5 < 0 \quad \gamma_6 < 0$$

We also hypothesize that $\beta_5 > 0$, because Food Stamps are more often received together with AFDC, though they can be received off AFDC as well, and that $\gamma_7 > 0$, presuming that private health insurance is provided primarily through employers and will therefore be an inducement to work. Note that, while most coefficients are of the opposite signs in the two equations, there is no necessity for their magnitudes or significance levels to be related to one another. The existence of nonparticipating eligibles makes the two equations partially independent of one another, for not working is not equivalent to AFDC participation.

III. CONSTRUCTION OF THE HETEROGENEITY INDEXES

The valuation of in-kind transfers in general and of Medicaid in particular is a difficult problem. Three approaches have been outlined for such valuation (Smeeding and Moon, 1980): (1) the "government cost" approach, whereby government expenditures per recipient or per eligible are used, (2) the cash-equivalent value approach, and (3) the "funds released" approach, whereby in-kind transfers are valued by the funds released for the purchase of other goods. The cash-equivalent approach is the theoretically preferred method, which in our case would require estimating the equivalent cash value of an insurance policy on the private market that yields the same quantity and quality of care as Medicaid. Unfortunately, that task is beyond our capability because we have neither data on medical expenditures and quality of care with which the parameters of the utility function could be estimated nor any suitable exogenous source of medical price information in our cross-section to estimate the necessary price elasticities.

Our approach is instead to attempt to improve upon the traditional method, a modified form of the government cost approach, by incorporating individual and family heterogeneity. The traditional form of government cost method applied to the Medicaid program (e.g., in the two studies referenced in the Introduction) is to use aggregate data on Medicaid expenditures by state--and, sometimes, by family size and aged/nonaged status--together with information on the number of recipients in each state in each category, to calculate an average expenditure per recipient. This is then taken as the "expected" benefit per recipient and is used as a regressor in a sample of individuals in different states. We shall construct such a variable and test it for comparison purposes below, but our aim is to develop a measure that varies more with individual and family characteristics and therefore more closely approximates the value to the individual family. The values obtained with aggregate data miss many important interfamily differences that affect valuations--health status being the most important, but also expected utilization of medical care, the cost of medical care in the community, and so on. The SIPP data allow us to take such differences into account because information is provided on health status, utilization of medical care, Medicaid and private health insurance coverage, and many economic and demographic characteristics of the family. Using this information we can construct with regression methods an "expected" level of utilization of medical care under Medicaid for a family with a given set of health and other characteristics. In conjunction with outside information on prices of care, we can translate this family-specific value of expected utilization into a value of expected expenditure. This Medicaid "heterogeneity" index will be used for the Medicaid variable in the econometric model.

We also construct a similar family-specific index for private health insurance, using the regression-predicted utilization if covered by private insurance as a measure of expected utilization, and by translating this into an expenditure value using outside information on prices. However, in this case we also predict the probability of being covered by private health insurance if off AFDC which is not necessary for Medicaid because the probability of Medicaid coverage if on AFDC is one. We multiply the probability of private coverage by the expected expenditure if covered to obtain the private insurance variable we use in the AFDC participation and labor supply regressions.

Construction of the Indexes. The design of the heterogeneity indexes involves many details of specification which we have inadequate space to discuss here; the reader is referred to our background report (Moffitt and Wolfe, 1989) for full details. Here we shall summarize our procedures and results.

The aim is to obtain family-specific proxies for medical expenditures under Medicaid and private health insurance for each of the female-headed families in the 1986 cross-section of the SIPP to be used for the estimation of the econometric model. We use the topical module on health care and medical utilization from the third interview of SIPP for our constructions, containing data on 1701 mothers and 3016 children. The module contains information on medical care utilization over the past twelve months of two kinds, the number of in-patient days (i.e., nights in the hospital) and the number of out-patient days (i.e., out-patient visits). While this is an incomplete set of all types of medical utilization, it should adequately proxy for the level of utilization overall (we also impute a value of other medical care, as described below). Using such information first on the female head (i.e., the single mother), we estimate the following two equations:

$$I_1 = X\beta_1 + Z\delta_1 + S\xi_1 + \hat{L}_1\gamma_1 + \hat{L}_2\phi_1 + \varepsilon_1 \qquad (9)$$

$$I_2 = X\beta_2 + Z\delta_2 + S\xi_2 + \hat{L}_1\gamma_2 + \hat{L}_2\phi_2 + \varepsilon_2 \qquad (10)$$

where I_1 is her number of in-patient days; I_2 is her number of out-patient days; X is a vector of health characteristics; Z is a vector of other individual and family characteristics; S is a vector of state variables including AFDC benefits, a dummy for the presence of a Medically Needy program, and state per capita health expenditures; and $\hat{L}_1$ and $\hat{L}_2$ are predicted probabilities of Medicaid and private health insurance coverage, respectively. We use predicted values of the two coverage variables instead of actual values because the latter are endogenous. The predicted values are obtained from a three-category multinomial logit estimation (Medicaid, private insurance, no coverage) as a function of health, individual, and state characteristics.[5]

We then use the 1980 National Medical Care Utilization and Expenditure Survey (NMCUES) to convert utilization for each insurance category to expenditure values. The NMCUES is based on interviews of 6000 households obtaining information on health, use of medical services, charges, and sources of payment for services and health insurance coverage. For each individual in the sample, 554 single mothers and 1033 children in our case, information is available on expenditures over calendar 1980 on in-patient care, out-patient care, and other medical care. The expenditure values are defined as total medical charges minus out-of-pocket costs. Using these variables for each mother together with the NMCUES data on utilization (I_1 = hospital nights, I_2 = out-patient visits) and on insurance coverage (L_1 = Medicaid coverage, L_2 = private insurance coverage), we estimate the following three "value" equations:

$$V_1 = a_1 I_1 + b_{11} L_1 + b_{12} L_2 + c_1 S + \nu_1 \tag{11}$$

$$V_2 = a_2 I_2 + b_{21} L_1 + b_{22} L_2 + c_2 S + \nu_2 \tag{12}$$

$$V_3 = a_3 I_1 + a_4 I_2 + b_{31} L_2 + c_3 S + \nu_3 \tag{13}$$

where V_1 is the value of (i.e., expenditure on) in-patient care, V_2 is the value of out-patient care, and V_3 is the value of other medical care. We include both of the utilization variables in the third equation since we have no specific utilization measure for "other medical care" on the SIPP. Locational characteristics are included in these equations as well.

Using the results from the estimation of (11)-(13), total value amounts are obtained for each mother by inserting her predicted values of $\hat{I}_1$ and $\hat{I}_2$ into equations (11)-(13) and by summing the resulting predicted values of $\hat{V}_1$, $\hat{V}_2$, and $\hat{V}_3$. Separate calculations are performed to obtain separate values for Medicaid and private insurance by appropriately setting $L_1 = 1$ or $L_2 = 1$, and using values of $\hat{I}_1$ and $\hat{I}_2$ under either Medicaid or private insurance coverage, as appropriate.[6]

Unfortunately, the utilization data in SIPP were not collected for children, although insurance coverage is available for them separately from the mother. For children, we use the NMCUES data on children of single mothers to directly estimate the value of Medicaid and private coverage, defined as above, using the child characteristics, the health and other individual characteristics of the mother, insurance coverage, and regional characteristics as regressors. We use the results of this equation to assign expected values of coverage under Medicaid and under private insurance for each child in the SIPP sample, and we aggregate these with those of the mother to obtain a family-specific value for each of the two insurance categories, Medicaid and private insurance.

For private health insurance, we also require a predicted probability of coverage if off AFDC, as we noted previously. The multinomial logit estimates obtained for input into the utilization regressions discussed above are suitable for this purpose. The predicted probabilities of coverage are multiplied by the value of private coverage to obtain our "expected" value of coverage if off AFDC. As an additional exercise, we also obtain separate predicted probabilities for workers and nonworkers and construct two separate expected value variables. We will report the results of using the two variables separately in our results section below.

The estimates of the equations we have described are provided in our background report (Moffitt and Wolfe, 1989). Table 1 shows the final estimates of total Medicaid and private insurance values for different groups.[7] As should be expected, those with no insurance coverage have fairly low expected expenditures, but so do those with private coverage. Those with Medicaid coverage have the greater values. Interestingly, the expected value of expenditures for medical care if on Medicaid is higher than under private coverage for all groups regardless of actual coverage. This reflects the full coverage, without deductibles, of Medicaid as against the widespread use of co-insurance by private insurers. The table also shows that expected expenditures are higher for those with worse health conditions, those with low family income, and those with large families.

Table 1

Family Index of Value of Medicaid and Private Insurance, and Factors Influencing Values

	Value of Expected Medical Expenditures if Covered by Medicaid (Annual)	Value of Expected Medical Expenditures if Covered by Private Insurance (Annual)	No. Children < 18	Fraction with Disabled Child	Fraction Reporting Poor or Fair Health
Current Insurance Coverage					
None	$1,973	$1,625	1.71	.066	.539
Medicaid	4,229	3,816	1.99	.188	.576
Private	1,508	1,144	1.62	.085	.379
By Current Health Status					
Good-excellent	1,365	895	1.71	.069	0
Fair-poor	4,113	3,832	1.84	.121	1.0
By Current Income Relative to Poverty Line					
Below poverty line	3,450	3,060	1.88	.095	.56
One to two times the poverty line	1,831	1,439	1.80	.125	.49
More than twice the poverty line	1,715	1,355	1.60	.086	.36

IV. ESTIMATION OF THE ECONOMETRIC MODEL

The econometric model is estimated using the female heads in the SIPP in the last interview, in 1986. All female heads with at least one child under the age of 18 and in the age range 18-64 are selected, and only those also present in the third interview are included (to match with the Medicaid and private health insurance variables). The sample size is 545. The means of the main variables are shown in Appendix Table A-1. Slightly over half the women work and about one-third are on AFDC; work and AFDC are also almost all mutually exclusive, for only 10 percent of those on AFDC work.

Probit estimates of equations (5)-(8) are obtained using the demographic variables shown in Appendix Table A-1 for the X vector. The variables used for M and K are as described in the previous section. We also use AFDC and Food Stamp guarantee amounts equal to the maximum amount paid for different (matched) family sizes with no other income; these values are available from government documents. Private incomes at the three hours points are calculated as the sum of nonwage, nontransfer income plus predicted earnings minus taxes, the latter estimated for the federal income tax (EITC included) and the FICA payroll tax. Pretax earnings at each point are obtained for nonworkers by estimating a selectivity-bias-adjusted equation for the hourly wage and multiplying the predicted values by 20 or 40. The wage-equation estimates are reported in Appendix Table A-2. All income variables are on a weekly basis.

Table 2 shows the results of the estimated equations. Because part-time and full-time private income are highly collinear (correlation

Table 2

Basic AFDC Participation and Employment Status Results[a]

	AFDC Participation		Employment Status	
	(1)	(2)	(3)	(4)
Net Private Income				
Zero hours work	0.001	0.016*	-0.006*	-0.022*
	(0.001)	(0.003)	(0.001)	(0.002)
Full-time work	--	-0.014*	--	0.015*
		(0.002)		(0.001)
AFDC guarantee	0.007*	0.008*	-0.004	-0.005
	(0.003)	(0.004)	(0.003)	(0.003)
Food Stamp guarantee	0.017*	0.024*	-0.009*	-0.013*
	(0.004)	(0.005)	(0.004)	(0.005)
Medicaid index	0.010*	0.007*	-0.012*	-0.006*
	(0.002)	(0.002)	(0.002)	(0.002)
Private insurance index	-0.026*	-0.017*	0.027*	0.016*
	(0.005)	(0.005)	(0.004)	(0.005)
Log likelihood value	-253.6	-203.8	-286.5	-218.5

Notes: [a]Coefficients on other variables shown in Appendix Table A-3.
Standard errors in parentheses.
*: Significant at 10 percent level.

coefficient = .96), only one of the two is entered at a time.[8] The equations with full-time income are shown; those with the part-time variable are virtually identical and are not presented (see background report). As the table shows, nonwage income (net private income at zero hours) has an insignificant, but surprisingly positive, effect on AFDC participation but has the expected negative and significant effect on employment probabilities. It is possible that the nonwage income variable in our data is quite inaccurate, as is frequently the case in survey data. The full-time net income variable (i.e., the net wage rate) has a negative and significant effect on AFDC participation and a positive and significant effect on employment status, consistent with theory. The employment effects confirm the strong forward-bending labor supply curves found in other studies of female heads of household. The AFDC and Food Stamp benefits have positive effects on AFDC participation and negative effects on employment probabilities, significant or nearly significant in all cases.

The results of most interest are those for the Medicaid and private health insurance variables. The coefficients on both are highly significant for both AFDC and employment, and are of the hypothesized signs. Moreover, the coefficient magnitudes indicate that private health insurance has an effect two to three times larger in absolute value than that of Medicaid. That is, an extra dollar of expected private health insurance has a greater effect on employment than an extra dollar of expected Medicaid benefits has on AFDC participation. This may result from a lower quality of care provided to the insured under Medicaid than to those covered by private health insurance, or from the presence of stigma of AFDC and Medicaid receipt.

Tables 3 and 4 show the results of further tests. The first columns in each table show the effect of using an average state Medicaid value, computed as in prior studies. As the tables indicate, the state-based insurance value coefficients are insignificant in both tables. Thus our data confirm the results of Blank (1989) concerning the apparent insignificance of Medicaid effects when the crude state-specific average is used; apparently it is necessary to allow for individual heterogeneity in the Medicaid variable. The second and third columns show the effects of splitting the family-specific Medicaid variable into separate components for mothers and children, and splitting the private insurance variable into working and nonworking components, respectively. The first exercise shows stronger effects for the mother than for children, perhaps an indication that the children have other health care sources or that the mother is more likely to respond to her own health needs than those of the children. The results of the second exercise indicate that the influence of private insurance is more powerful when it is available to workers than when it is available to nonworkers. No doubt this is partly because nonworking women have the option of Medicaid, whereas working women generally do not.

The final columns in the tables show the effects of allowing a spline in the Medicaid index variable. The variable entered tests whether the coefficient on the index is different for the one-quarter of the sample with the highest values of the index (see footnote to Table 3).

Table 3

AFDC Participation Probit Estimates: Further Results

	(1)	(2)	(3)	(4)
Private income	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)	0.001 (0.001)
AFDC benefit	0.008* (0.003)	0.005* (0.003)	0.008* (0.003)	0.008* (0.003)
Food Stamps	0.017* (0.004)	0.017* (0.004)	0.018* (0.004)	0.017* (0.004)
Medicaid index	--	-- (0.002)	0.007* (0.011)	-0.012
Mothers	--	0.032* (0.015)	--	--
Children	--	0.009* (0.002)	--	--
Medicaid index spline[a]	--	--	-- (0.012)	0.025*
State Medicaid insurance value	0.005 (0.006)	--	--	--
Private insurance index	-0.010* (0.003)	-0.024* (0.005)	-- (0.005)	-0.027*
Working	--	-- (0.008)	-0.036*	--
Not working	--	-- (0.007)	0.006	--

Notes:

Standard errors in parentheses. See text for explanations of column headings.
*: Significant at 10 percent level.
All income variables measured at zero hours.

[a]Defined as Max (0, M–C), where M is the value of the Medicaid index and C is the value of M at the 75th percentile of its distribution.

Table 4

Employment Status Probit Estimates: Further Results

	(1)	(2)	(3)	(4)
Private income	-0.005*	-0.006*	-0.005*	-0.005*
	(0.001)	(0.001)	(0.001)	(0.001)
AFDC benefit	-0.005*	-0.002	-0.005*	-0.005
	(0.003)	(0.003)	(0.003)	(0.003)
Food Stamps	-0.009*	-0.009*	-0.010*	-0.009*
	(0.004)	(0.004)	(0.004)	(0.004)
Medicaid index	--	--	-0.012*	0.003
		(0.003)	(0.009)	
Mothers	--	-0.041*	--	--
		(0.017)		
Children	--	-0.011*	--	--
		(0.002)		
Medicaid index spline[a]	--	--	--	-0.017*
			(0.010)	
State Medicaid insurance value	-0.007	--	--	--
	(0.006)			
Private insurance index	0.007*	0.025*	--	0.029*
	(0.002)	(0.004)	(0.004)	
Working	--	--	0.035*	--
		(0.007)		
Not working	--	--	-0.002	--
		(0.006)		

Notes: Standard errors in parentheses. See text for explanation of column headings.

*: Significant at 10 percent level.

All income variables measured at zero hours.

[a]See note "a" in Table 3.

Interestingly, the effect of the index on AFDC participation is insignificantly different from zero for the three-quarters of the sample with the lower values of the index (-0.012, t-statistic = 1.1), but the effect of the index for the highest quarter of the sample is significantly greater (their value is 0.013 = 0.025 - 0.012, t-statistic = 4.8). Similar results hold for employment status: an insignificant effect appears for the bottom three-quarters, but the effect for the top one-quarter is -0.014 (= -0.017 + 0.003) and strongly significant (t-statistic = 5.9). Thus the AFDC participation and employment effects of the Medicaid program appear to be concentrated among those with the highest expected Medicaid expenditures, and are essentially zero for the majority of female heads.

To gauge the magnitude of the results we have obtained, Table 5 reports the results of simulations of changes in Medicaid and private health insurance. The first row shows the effects of an increase in the value of Medicaid coverage of $50 per month (1984 dollars). This represents a sizable increase of approximately one-third. As the table indicates, this would raise the percentage of female heads on AFDC by 2.0 percentage points--implying an increase in the AFDC caseload of 5.9 percent--and would reduce employment rates among female heads by 5.5 percentage points. Thus the caseload and work disincentive effects would not be trivial.

The second row shows the effects on caseloads and work incentives that would result if all female heads were covered by private health insurance if they were to work (37 percent of such women are currently not covered). The results show a 3.5 percentage-point reduction in the

Table 5

Effects of Increases in Medical Benefits on AFDC and Employment

	Change in: AFDC Participation Rate[a] (percentage points)	Absolute AFDC Caseload (percent)	Change in Employment Rate[b] (percentage points)
Increase in Medicaid of $50 per month[c]	2.0	5.9	-5.5
Private insurance for all female workers	-3.5	-10.7	7.6
Increase in private health insurance of $50 per month[d]			
Current coverage levels	-5.3	-15.6	11.7
Coverage for all female workers	-7.3	-21.5	16.0
Increase in private health insurance up to Medicaid levels[e]			
Current coverage levels	-6.0	-17.6	13.3
Coverage for all female workers	-8.3	-24.4	18.1

Notes: Coefficients drawn from second and fourth columns of Table 2.

[a]Base = 34 percentage points.

[b]Base = 56 percentage points.

[c]Represents 34.5 percent increase in Medicaid index.

[d]Represents 56.5 percent increase in private health insurance if covered.

[e]Represents 64.2 percent increase in private health insurance if covered.

AFDC participation fraction (10.7 percent reduction in the AFDC caseload) and a 7.6 percentage-point increase in the employment rate. The next two rows of the table show the effects of increasing the value of private health insurance (if covered) by $50 per month, the same size as the Medicaid increase in the first row of the table. Under current coverage levels (73 percent of workers in the sample are currently covered), this change would have effects in the opposite direction to those of Medicaid that are more than double in size--the AFDC participation rate would fall by 5.3 percentage points (a 15.6 percent reduction in the caseload) and the employment rate of female heads would rise by 11.7 percentage points. These effects are large and show that private health insurance is likely to have stronger effects on caseloads and work incentives than does Medicaid. But if coverage were 100 percent among workers, the AFDC participation rate would fall by 7.3 percentage points and the employment rate would rise by 16.0 percentage points. The AFDC caseload would thus fall by approximately one-fifth. These are much larger and more important effects.

The final row shows the effect of increasing private coverage to equal that provided by Medicaid. This would generate the largest effects of all--up to a one-quarter decrease in the AFDC caseload if all female workers were covered, and an increase in their employment rate of 18 percentage points.

V. SUMMARY

Using data from the Survey of Income and Program Participation in 1984 and 1986, we have estimated the effects of Medicaid and private health insurance availability on the probabilities of AFDC participation and employment for U.S. female heads. A contribution of the study has been the development of family-specific valuations of Medicaid and private health insurance. Our findings are that (1) increases in expected Medicaid benefits strongly increase the likelihood of AFDC participation and strongly decrease the likelihood that the head will work; (2) that, however, only a minority of families, those with high expected medical expenditures, alter their AFDC participation or employment decisions in response to Medicaid levels and availability; and (3) that coverage by private health insurance, especially for workers, exerts a strong negative effect on AFDC probabilities and strong positive effect on employment probabilities, both effects larger in absolute magnitude than Medicaid effects. Our simulations indicate that (1) extension of private health coverage to all working female heads would lower the AFDC caseload by 10 percent and would raise employment probabilities among female heads by almost 8 percentage points, and (2) that a subsequent increase in benefits of private plans up to Medicaid levels would result in an AFDC caseload one-quarter lower and employment probabilities 18 percentage points higher than initial levels.

Table A-1

Characteristics of the 1986 Sample of Female Heads

		AFDC Status[a]		Employment Status[a]	
	All	On	Off	Not Working	Working
Fraction with working head	0.56	0.10	0.80	1.00	0.0
Fraction on AFDC	0.34	1.00	0.0	0.06	0.69
Fraction covered by Medicaid	0.42	1.00	0.14	0.11	0.82
Fraction covered by private health insurance	0.47	0.10	0.66	0.73	0.15
Age of head	33.67	30.98	35.04	34.88	32.11
Education of head	11.74	11.10	12.07	12.21	11.14
Race (1 = nonwhite)	0.42	0.53	0.37	0.37	0.49
Health of head (1 = poor or fair)	0.50	0.57	0.47	0.45	0.57
No. children 0-5	0.50	0.86	0.32	0.29	0.78
No. children 6-12	0.79	0.89	0.74	0.77	0.82
Family size	3.27	3.59	3.10	3.10	3.48
Regional location:					
South	0.37	0.27	0.41	0.40	0.33
Midwest	0.26	0.35	0.21	0.22	0.31
West	0.17	0.17	0.17	0.17	0.16
Medicaid heterogeneity index	33.5	38.1	31.0	30.0	37.9
State Medicaid insurance value	37.8	43.3	35.0	35.3	41.0
Private insurance heterogeneity index	9.6	4.2	12.3	12.4	5.9
AFDC benefit	79.2	91.1	73.1	74.4	85.4
Food Stamp benefit	34.5	45.9	28.7	31.2	38.8
Net private income, H=0	37.2	24.1	43.9	31.8	44.1
Net private income, H=20	132.9	--	--	--	--
Net private income, H=40	216.8	--	--	--	--

Notes: Sample size = 545.

[a]As of month prior to interview.

All income variables are weekly.

Appendix Table A-2

Estimates of the Wage Equation

Education	0.057* (0.009)
Age	0.114* (0.024)
Age Squared/100	-0.164* (0.032)
Experience[a]	0.057* (0.011)
Experience Squared/100	-0.088* (0.038)
Constant	-1.629 (0.359)

Notes: Standard errors on parentheses.
*: Significant at 10 percent level.
Dependent variable: log of hourly wage rate.
Estimated jointly with a probability-of-working equation.

[a]Actual years of labor force experience.

Appendix Table A-3

Probit Coefficients on Non-Income Variables[a]

	AFDC Participation	Employment Status
Age	-0.112*	0.200*
	(0.066)	(0.061)
Age squared/100	0.132	-0.259*
	(0.092)	(0.079)
Race (1 = nonwhite)	0.447*	-0.301*
	(0.146)	(0.138)
Health (1 = poor or fair)	0.278*	-0.335*
	(0.146)	(0.135)
Education	-0.079*	0.079*
	(0.031)	(0.025)
Family size	-0.267*	0.183*
	(0.102)	(0.089)
No. children 0-5	0.409*	-0.437*
	(0.125)	(0.127)
No. children 6-12	0.090	-0.080
	(0.096)	(0.089)
South	0.011	0.129
	(0.258)	(0.237)
Midwest	0.449)	-0.267
	(0.216)	(0.197)
West	0.086	-0.014
	(0.229)	(0.219)
Constant	1.437	-3.413
	(1.089)	(1.092)

Notes: Standard errors in parentheses.
*: Significant at 10 percent level.

[a]For first and third columns of Table 2.

NOTES

1. Under a related program, AFDC-UP, benefits are provided in some states to low-income husband-wife families. The program is small, however, and constitutes only 7 percent of the national AFDC caseload.

2. To be exact, the tax rate is 100 percent after four months of earnings; nevertheless, this still does not provide cross-sectional variation. Effective tax rates may vary across the states, but there are no available estimates of such rates for this time period.

3. For this reason we cannot address the problem of the Medicaid "notch," since there is no cross-sectional variation in its location independent of the AFDC guarantee, the hourly wage rate, and nonwage income. We discuss both the theoretical issues of the Medicaid notch and the empirical issues in estimating its effects extensively in our background report (Moffitt and Wolfe, 1989).

4. Some women on AFDC have private coverage, but the Medicaid program implicitly taxes it at 100 percent by requiring that private benefits be exhausted before receiving Medicaid benefits. However, as we noted previously, it is also now possible to receive Medicaid for a few months after leaving AFDC.

5. The coefficients on the predicted variables are identified by additional state variables that affect eligibility for AFDC, housing tenure, and other variables.

6. We may note at this point that these indexes have the advantage of predicting positive values even for those who happen not to have had care in the last twelve months; use of actual values would assign zero to such women even though their expected levels are positive.

7. The private insurance variables shown in the table are not multiplied by the probability of coverage.

8. In other words, the constraint for private income is sufficiently linear that the net wage is approximately constant over the 0-to-40 range.

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