Institute for Research on Poverty
Discussion Paper no. 1084-96

The Medicaid Notch, Labor Supply, and Welfare Participation: Evidence from Eligibility Expansions

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April 1996

I thank seminar participants at the University of Chicago, Harvard University, the Institute for Research on Poverty, Massachusetts Institute of Technology, RAND Corporation, the Berkeley, Los Angeles, Santa Barbara, and Santa Cruz campuses of the University of California, and Yale University for helpful comments. Lawrence Katz and an anonymous referee provided extremely useful comments that led to a substantially improved paper. In addition, Janet Currie, David Cutler, Peter Diamond, Leora Friedberg, Jerry Hausman, Caroline Minter Hoxby, Hilary Hoynes, Mark McClellan, Lucia Nixon, Joseph Newhouse, Steven Pischke, Andrew Samwick, Douglas Staiger, Duncan Thomas, and especially Jonathan Gruber, Brigitte Madrian, and James Poterba provided insightful comments. I thank the National Bureau of Economic Research, Health and Aging group for use of their excellent computing facilities and the National Institute of Aging for financial support.

Abstract

I assess the impact of losing public health insurance on the labor market decisions of women by examining a series of Medicaid eligibility expansions targeted toward young children. These targeted expansions severed the historical tie between AFDC and Medicaid eligibility. The reforms allowed a mother's earnings to increase without affecting her young children's public health insurance. Increasing the income limit for Medicaid resulted in a decrease in AFDC participation and an increase in labor force participation among these women. The effects were large for ever-married women, but were negligible for never-married women.

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1. INTRODUCTION

The U.S. welfare system for single-parent families with children offers four main benefits: cash assistance through Aid to Families with Dependent Children (AFDC), health insurance coverage through Medicaid, food subsidies through Food Stamps, and public housing.[1] In the past decade, Medicaid benefits have become more important as medical costs have soared while cash benefits have failed to keep up with inflation. In fiscal year 1991, the combined federal-state Medicaid expenditure of $21.9 billion on 12.6 million AFDC recipients exceeded cash payments of $20.9 billion to this group (U.S. House of Representatives 1993). This paper investigates the hypothesis that losing Medicaid coverage is a deterrent to leaving welfare. If this is true, then proposals which extend health insurance coverage to children in low- and moderate- income families could have the additional effect of getting families off the welfare rolls.

Medicaid provides a basic set of free or subsidized medical services to poor, eligible families. The program is federally subsidized and regulated but administered by the states, which have some leeway in defining the set of services offered. Traditionally, eligibility for Medicaid has been contingent on eligibility for AFDC, that is, one simultaneously qualifies for Medicaid and AFDC by having net income under a state's income eligibility limit. The health insurance is retained as long as the AFDC recipient earns less than the "AFDC break-even level," the point where AFDC benefits are lost. Medicaid is entirely lost once earned income goes beyond the break-even level, generating a marginal tax rate in excess of 100 percent.

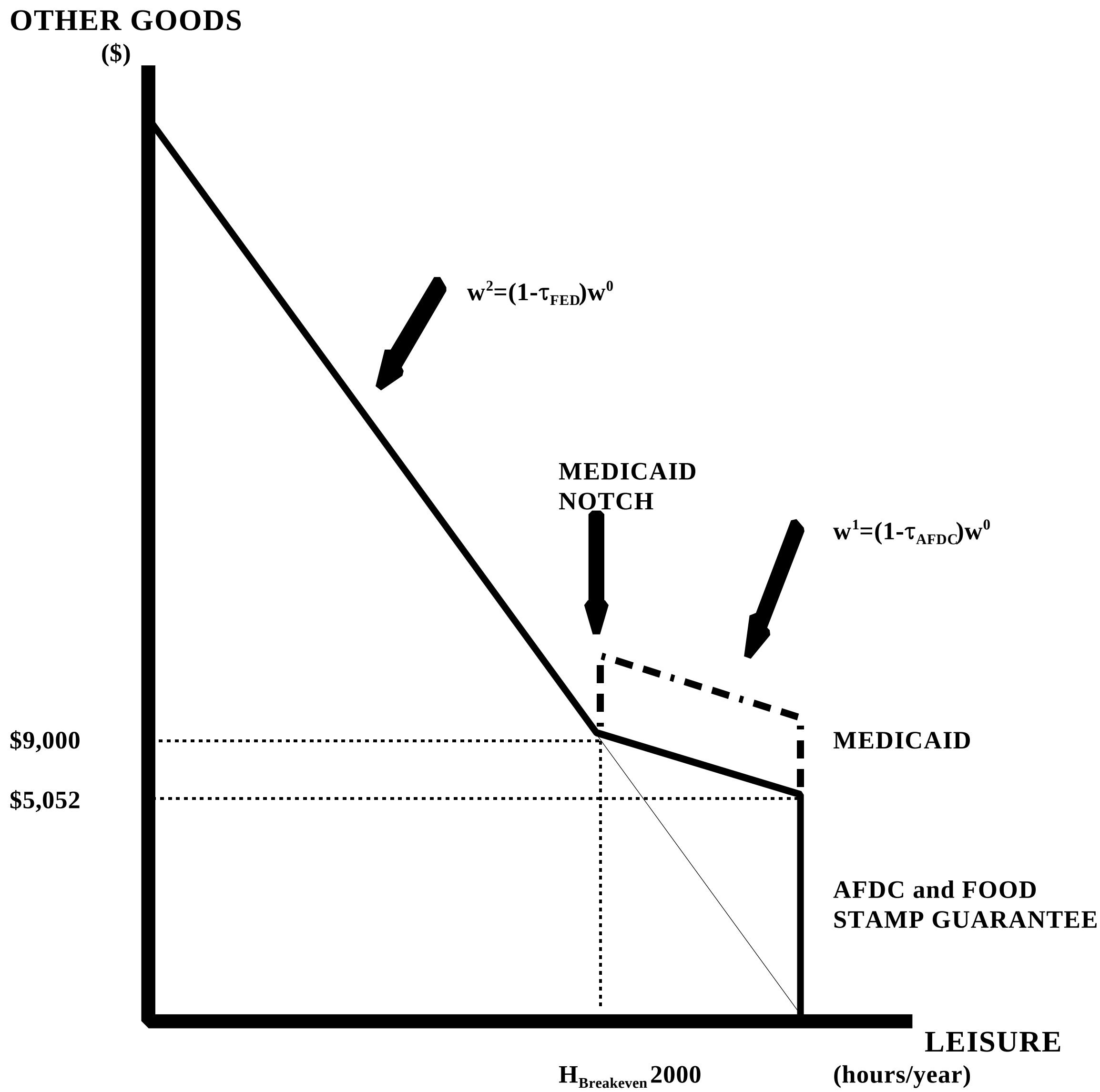
This paper will explore some recent Medicaid expansions for children that explicitly sever the link between Medicaid eligibility and AFDC eligibility and generate sizable exogenous shocks to the budget set of some welfare recipients.[2] Using recent data from the Current Population Survey (CPS), I offer new evidence on Medicaid's impact on labor force and AFDC participation. I find that the fully phased-in Medicaid reforms reduced the probability of participating in AFDC by 1.2 percentage points and increased the probability of working in the labor force by 0.9 percentage points. The effects of the reforms were quite strong among divorced and separated women, but not among never-married women.

The paper is arranged as follows: Section 2 sets up the theoretical framework to analyze Medicaid's effect. Section 3 describes the legislative changes used to identify Medicaid's effect. Section 4 describes the data extract, various years of the March CPS. Section 5 provides reduced form evidence of Medicaid's impact on labor force participation and AFDC participation. Section 6 concludes.

2. THEORETICAL EFFECTS OF MEDICAID

To analyze the effect of Medicaid on labor supply and welfare participation among potential welfare participants, I use a variant of the static labor supply model, which incorporates taxes and the welfare system.[3] Assume that the consumer maximizes utility, U=u(Leisure, Other Goods). She faces a constant pretax wage, w^0. The welfare and tax system create nonlinearities in the budget set. At zero hours of market work, the mother receives a certain level of AFDC and food stamp benefits, known as the "guarantee," in addition to Medicaid. Figure 1 illustrates this budget set for a welfare recipient in Pennsylvania in 1989. As she begins to work, her AFDC and food stamp benefits are taxed away, so her after-tax wage is $w^1=(1-\tau_{AFDC})w^0$, where τ_{AFDC} is the marginal tax rate for earning income while on AFDC (which varies from 67 to 100 percent).[4] Once she works more than $H_{Breakeven}$, the hours of work where the entire AFDC benefit is taxed away, she loses her AFDC eligibility, and therefore her Medicaid benefits, which creates a dominated part of the budget set. This discontinuous drop in benefits has been called the "Medicaid notch." Once the recipient works more than this level of hours, she faces an after-tax wage of $w^2=(1-\tau_{FED})w^0$, where τ_{FED} is the marginal tax rate in the

FIGURE I
Budget Set for Pennsylvania Recipient (1989) Before Expansion



federal and state income tax codes. To determine which region of hours is dominated, however, we would need to know the value of the benefits she received from Medicaid.

As states have expanded eligibility for Medicaid by increasing the income limit to a higher level than what an AFDC recipient could earn, the notch has moved. The coverage is still means-tested, but at a potentially higher level than the AFDC income limit. The change in the income limit yields several reduced form predictions for those eligible for the expansions by changing the budget set as illustrated in Figures 1 and 2.[5]

- Labor force participation increases (or remains unchanged if no behavioral response occurs), since the new opportunities on the budget set occur where the woman participates. This occurs because some women who were not initially working before the expansion begin to work. No one who is currently working should withdraw from the labor force, because that (Leisure, Other Goods) combination was available before the expansion.
- AFDC participation decreases (or remains unchanged if no behavioral response occurs), because the only new opportunities arise when the woman leaves AFDC.
- AFDC participation decreases more than labor force participation increases. This occurs since some women will be located along the welfare part of the budget set (but not at zero hours of work) before the expansions, implying participation in both AFDC and the labor force. After the expansions these people could increase their hours and locate on the post-expansion part of the budget set, which we observe as exiting AFDC but having no effect on labor force participation. For women initially at zero hours of work, the two effects should be the same, since the only *new* opportunity the expansion offers is to exit AFDC and enter the labor force. For women initially off welfare, their hours of work may decrease, but they will not participate in AFDC, which they could have already done. Therefore, in aggregate, the effect on AFDC participation is larger than the effect on labor force participation.

- The effect on total hours of work is ambiguous. Hours could increase for women initially on AFDC, but could decrease for women initially off AFDC.

Two other points deserve mention. First, the existence of the Medicaid "notch" is predicated upon no feasible insurance alternatives for these households.[6] It may be reasonable to think that with the skill mix that the group possesses, the possibility of employer-provided health insurance coverage is quite low. Second, welfare stigma potentially provides a second explanation for why the effect of extending Medicaid should be smaller on entry into the labor force than exits from AFDC. Households that previously worked because they found collecting AFDC very stigmatizing might withdraw from the labor force when given the opportunity to receive Medicaid without being on AFDC.

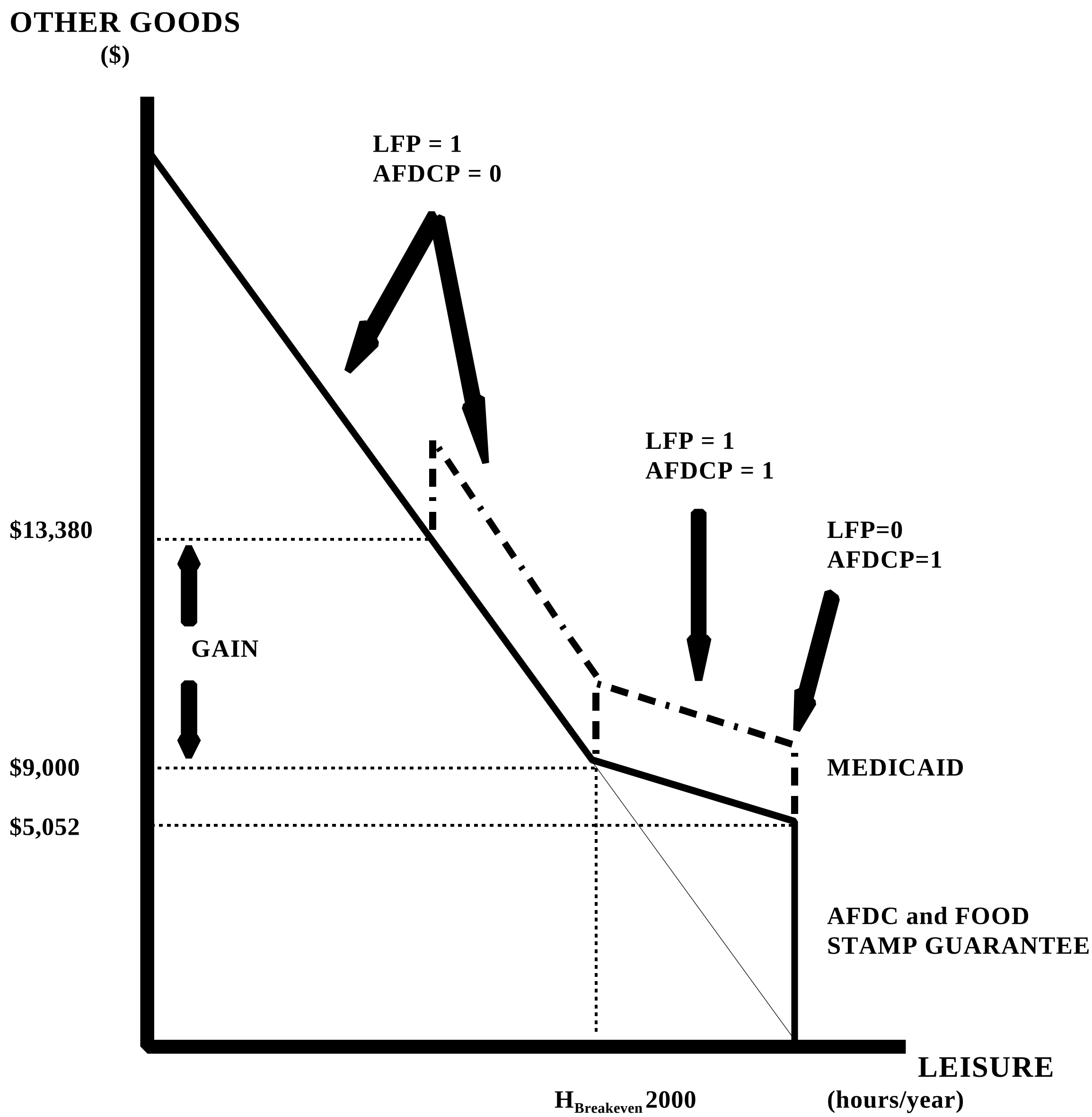
3. LEGISLATIVE HISTORY AND IDENTIFICATION

3.1 Overview of Legislation from 1986 to 1990

The Medicaid expansions were legislated in response to the Omnibus Budget Reconciliation Act (OBRA) 1981, which severely reduced access to health care services for the poor by placing heavy restrictions on AFDC eligibility. As a result, nearly 40 percent of working AFDC families were removed from the welfare rolls and roughly two million people (nearly 500,000 families) lost Medicaid eligibility between 1979 and 1983. Starting in 1984, and especially from 1986 onward, Congress attempted to increase access to health care for pregnant women, infants, and children through a series of Medicaid expansions.[7] The legislation severed the link between Medicaid eligibility and AFDC eligibility by eliminating Medicaid eligibility criteria related to family structure and an individual state's AFDC income eligibility level.

The legislation allowed Medicaid coverage to be means-tested to some percentage of the federal poverty line (FPL), usually 100 or 133 percent. As illustrated in Figure 2, a Medicaid

FIGURE II
Budget Set for Pennsylvania Recipient (1989) After Expansion



expansion to 133 percent of the FPL would move the Medicaid notch from $9,000 to $13,380. Before the expansion, this household would lose Medicaid at $9,000 of earnings, and total income does not reach this level again until gross earnings nearly double.[8]

Several pieces of legislation expanded access to health care for children.[9] In 1986 and 1987 federal legislation gave states several options for expanding their Medicaid program, while legislation in 1989 and 1990 mandated more extensive coverage.[10] Table 1 illustrates the generosity of the expansions at the beginning, middle, and end of the period that I analyze, by showing the age limit to qualify for Medicaid and the Medicaid income eligibility limit for an infant (the income limit for older children was usually lower). The earliest legislation gave states the option to carry out the expansions to children under 2. The table shows that by January 1988, half the states had expanded eligibility. By the end of 1989, every state had adopted some form of expansion, although there was a great deal of across-state variation in Medicaid eligibility, which was based on the age of the child. The later mandates increased the income threshold to 133 percent and the age limit to 6. Thirty-two states were required to adjust their income threshold and thirty-seven states were forced to increase their age limit. Finally, the mandates in 1991 expanded eligibility to children over the age of 6 to 100 percent of the poverty line. By December 1991, all states extended Medicaid coverage to children up to age 8, though the income eligibility limits for infants varied substantially.

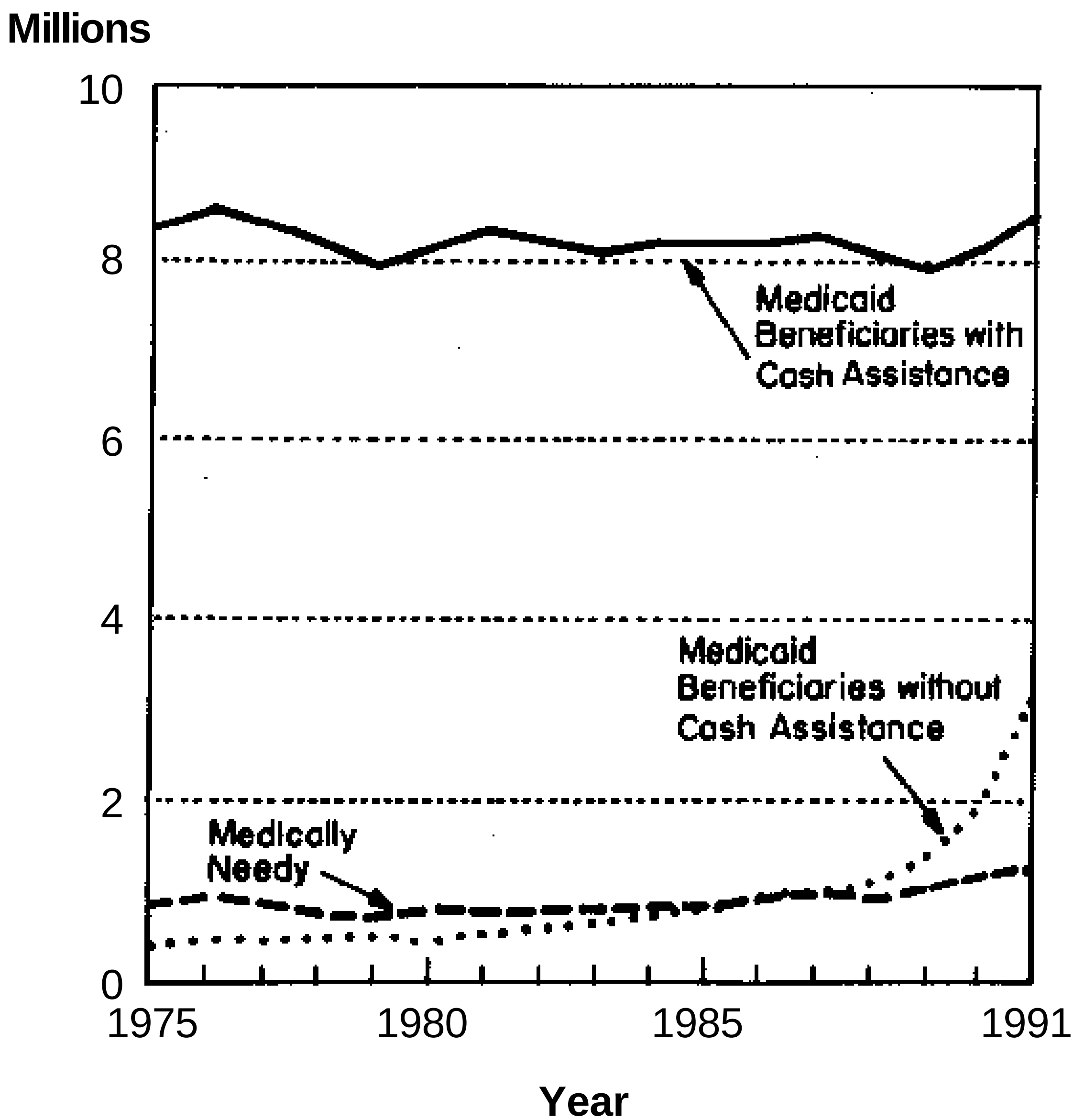
These reforms resulted in a dramatic increase in Medicaid eligibility and coverage. Figure 3 shows a sharp rise in the number of children covered by the Medicaid expansions (beneficiaries without cash assistance) starting in 1988, whereas the number of children enrolled in the Medically Needy program and AFDC program remained quite stable. This data, based on administrative records from the Health Care Financing Administration, shows that by 1991, three million children were covered by Medicaid as a result of the expansions. In addition, Currie and Gruber (1994) find that between 1984 and 1992, eligibility for Medicaid increased by 100 percent. By the end of the period,

TABLE 1
State Medicaid Eligibility Thresholds for Children

State	January 1988 Age Limit	January 1988 MEDICAID%	December 1989 Age Limit	December 1989 MEDICAID%	December 1991 Age Limit	December 1991 MEDICAID%
Alabama			1	185	8	133
Alaska			2	100	8	133
Arizona	1	100	2	100	8	140
Arkansas	2	75	7	100	8	185
California			5	185	8	185
Colorado			1	75	8	133
Connecticut	0.5	100	2.5	185	8	185
Delaware	0.5	100	2.5	100	8	160
D.C.	1	100	2	100	8	185
Florida	1.5	100	5	100	8	150
Georgia	0.5	100	3	100	8	133
Hawaii			4	100	8	185
Idaho			1	75	8	133
Illinois			1	100	8	133
Indiana			3	100	8	150
Iowa	0.5	100	5.5	185	8	185
Kansas			5	150	8	150
Kentucky	1.5	100	2	125	8	185
Louisiana			6	100	8	133
Maine			5	185	8	185
Maryland	0.5	100	6	185	8	185
Massachusetts	0.5	100	5	185	8	185
Michigan	1	100	3	185	8	185
Minnesota			6	185	8	185
Mississippi	1.5	100	5	185	8	185
Missouri	0.5	100	3	100	8	133
Montana			1	100	8	133
Nebraska			5	100	8	133
Nevada			1	75	8	133
New Hampshire			1	75	8	133
New Jersey	1	100	2	100	8	185
New Mexico	1	100	3	100	8	185
New York			1	185	8	185
North Carolina	1.5	100	7	100	8	185
North Dakota			1	75	8	133
Ohio			1	100	8	133
Oklahoma	1	100	3	100	8	133
Oregon	1.5	85	3	100	8	133
Pennsylvania	1.5	100	6	100	8	133
Rhode Island	1.5	100	6	185	8	185
South Carolina	1.5	100	6	185	8	185
South Dakota			1	100	8	133
Tennessee	1.5	100	6	100	8	185
Texas			3	130	8	185
Utah			1	100	8	133
Vermont	1.5	100	6	225	8	225
Virginia			1	100	8	133
Washington	1.5	100	8	185	8	185
West Virginia	0.5	100	6	150	8	150
Wisconsin			1	130	8	155
Wyoming			1	100	8	133

Note: The age limit represents the oldest that a child could be (at a given point in time) and still be eligible. MEDICAID% represents the maximum income limit for an infant (the maximum for an older child is less).

Figure 3



Source: Figure prepared by the Congressional Research Service based on data from HCFA.

one-third of all children were eligible for Medicaid. They find Medicaid coverage from the expansions was flat until 1988, and rose steeply thereafter. This dramatic increase in coverage is another reason for looking at other possible consequences of the reforms, such as the effects on labor supply and AFDC participation.

3.2 Parameterization of Health Insurance Expansions

The reforms in Medicaid boil down to changing the income limit for eligibility (which I shall measure as a percentage of the poverty line). Figure 2 illustrates the measure I incorporate: how much the Medicaid income limit is increased from the reforms over its previous AFDC level. This is formulated as:

(1) GAIN% = max(MEDICAID% - AFDC%,0)

GAIN% parameterizes the drastic severing of the tie between Medicaid eligibility and AFDC eligibility. MEDICAID% is the income eligibility limit from the Medicaid reforms, while AFDC% is the income limit from AFDC. GAIN% can be equal to zero for two reasons. First, the child may be in a household that is ineligible for the Medicaid expansion (based on the child's age), so that the link between AFDC and Medicaid is not severed. Second, the household might be eligible for the expansion, but MEDICAID% may be less than AFDC%. After the appropriate deductions and tax rates are accounted for, the income level that a recipient can earn from AFDC% can exceed 100 percent of the FPL. GAIN% explicitly models the fact that the expansions should have less impact in a generous AFDC state since the recipient could have worked and earned some amount of money before the expansion.

Measuring MEDICAID% is straightforward: it is equal to zero if the household is ineligible for the expansion, while it is equal to some percentage of the FPL (typically 75, 100, 133, or 185 percent) if the recipient qualifies for the expansion. AFDC% depends on a state's need and payment standard, which are two state-specific income limits used to determine AFDC eligibility. The information used to compute AFDC% changes over time (through changes in the need and payment standards) as well as through changes in the ordering of the deductions for welfare payments, known as disregards. It also varies by family due to family size, work expense deductions, and child care deductions. Furthermore, the Family Support Act of 1988 (FSA) affected the calculation of the AFDC income limit in several ways. After incorporating this detail, AFDC% is calculated as:

(2) AFDC% = [(PAYMENT/BRR) + DISREGARD + WORKEXP + DAYCARE]/POV

where PAYMENT stands for the state's payment standard (one of the income limits used to determine AFDC eligibility), BRR for the benefit reduction rate (which is 2/3 for the first four months of work), DISREGARD for the standard deduction, WORKEXP for work expenses, DAYCARE for total child-care deductions, POV for the dollar amount of the FPL (appropriately adjusted for family size, and inflated by 1.15 for Hawaii and 1.25 for Alaska).[11] DAYCARE expenses are calculated as:

(3) DAYCARE = $(1 + \frac{1}{2} * \mathbb{1}(\text{post-FSA}))$*DEDUCTION*CHILDREN

where $\mathbb{1}(\bullet)$ is defined as an indicator variable equal to one after the passage of FSA and zero otherwise, DEDUCTION is the child care expense deduction while on AFDC, and CHILDREN is the number of children in the family.

3.3 Econometric Model and Identification Strategy

The primary evidence I present on the effect of the Medicaid notch comes from probits that model labor force and AFDC participation. The model is specified as:

(4) $$LFP_{ikjt}^{*} = \beta_0 + \beta_1 GAIN\%_{ikjt} + \beta_2 X_i + \beta_3 TIME_t + \beta_4 STATE_j + \beta_5 KIDAGE_k + \epsilon_{ikjt}$$

where (4) is the underlying index function for the probit (and i indexes mothers, k indexes the youngest child's age, j indexes states, and t indexes time). A similar equation is used with $AFDC^*$ on the left-hand side. Here, GAIN% is the independent variable of primary interest (with β_1 hypothesized to be positive here, and negative for AFDC participation). X_i contains other covariates, including the number of children under age 6, mother's age and its square (divided by 100), mother's education and its square, and dummy variables for family size, black, divorced, separated, and residence in a central city. Dummy variables for time, state, and youngest child's age are represented by TIME, STATE, and KIDAGE. In practice we do not observe the underlying value LFP_{ikjt}^{*}, but instead observe only the discrete outcome:

(5) $$LFP_{ikjt} = \begin{cases} 1 \text{ if } LFP_{ikjt}^{*} \geq 0 \\ 0 \text{ if } LFP_{ikjt}^{*} < 0. \end{cases}$$

Assuming $\epsilon_{ikjt} \sim N(0,1)$ and denoting $\Phi(\bullet)$ as the cumulative normal function gives the following probability:

(6) $$Prob(LFP_{ikjt}) = \Phi(\beta_0 + \beta_1 GAIN\%_{ikjt} + \beta_2 X_i + \beta_3 TIME_t + \beta_4 STATE_j + \beta_5 KIDAGE_k).$$

The reforms in Medicaid create three dimensions of variation that I exploit to identify Medicaid's effect. The laws create variation in the budget constraint for mothers with children of different ages within a state, across states, and over time. The most intriguing dimension is within state. The expansions provided health insurance coverage to a young child that was conditioned on his or her birthday. By conditioning on the child's birthday, the expansions create "treatment" and "control" groups to gauge the effects of moving the income eligibility limit for Medicaid to a higher level. The treatment group is families with children fortunate enough to be born after the birthday cutoff, while the control group is families with children who were born before the birthday cutoff.[12] To illustrate, consider a state that carried out the OBRA 1987 provisions to the maximum extent possible, as soon as possible. Then, the following mothers with children of different birthdays get the following "treatment" on July 1, 1988, in that state.

Child's birthday	Child covered by expansion?	Length of coverage
12/25/88	Yes	8 more years
10/1/83	Yes	3.25 more years
9/30/83 or before	No	0 years

Besides variation in the eligibility and length of coverage, the laws generate variation in the income limit where the recipient loses coverage for her children. For instance, after July 1, 1991, the mother could face the following earnings schedule for losing Medicaid coverage (conditional on her children being eligible for the expansions):

Child's age	Age 0	Ages 1 to 5	Ages 6 to 18	Ages 19 and over
Percentage of FPL	185	133	100	0

In other words, a mother with a 5-year-old can earn up to 133 percent of the FPL before losing Medicaid while a mother with a 6-year-old can only earn up to 100 percent of the FPL.

The expansions also created variation across states and over time, because different states carried out the expansions at different times. Examining differences in AFDC and labor force participation across states or over time may not be entirely convincing, however, since other events might occur simultaneously. For example, changes in macroeconomic conditions over time or variation in economic conditions across states could offer incentives to participate in AFDC independent of the Medicaid expansions. By including dummy variables for state, time, and youngest child's age in equation (6), we account for some of these unmodeled stories and obtain the "difference-in-differences" estimator. While it is hard to indict this estimator, interactions between STATE, TIME, and KIDAGE could still drive the observational difference. For example, changing economic conditions may have affected mothers with older children more than mothers with younger children. Also, some states rebounded from the recession more quickly than others. If these stories are driving the differences in the outcomes, then we can include second-order interactions of STATE*TIME, KIDAGE*TIME, and STATE*KIDAGE to gauge the impact of Medicaid. By including these interactions in equation (6), we obtain the "difference-in-difference-in-differences" estimator.[13]

This identification strategy represents an important departure from previous work that has tried to assess Medicaid's effect. Blank (1989), Winkler (1991) and Moffitt and Wolfe (1992) tried to identify Medicaid's effect by valuing health insurance because the tie between AFDC and Medicaid was much stronger for the periods they examined. Valuing an in-kind benefit such as health insurance is a daunting task, because Medicaid's value should incorporate health status, risk aversion, scope of medical services offered, access to care, and insurance copayments and deductibles. In addition, some studies have used health status to value Medicaid, but it is likely that this approach attributes changes in the potential wage and changes in preferences toward work to the value of Medicaid.

4. THE DATA SET

The data set, which consists of repeated cross sections, was constructed using the March Current Population Survey (CPS), from the years 1989 through 1992. These years cover the period when the Medicaid expansions occurred. The CPS is a timely, nationally representative survey interviewing many households (approximately 57,000 per month). Its March annual demographic file contains retrospective information on labor force participation and welfare participation.[14] The sample contains 16,062 single mothers between the ages of 18 and 55 with at least one child under 15 present.[15]

I use a smaller range of children's ages (only up to 14) than previous studies (usually up to 18) for two primary reasons.[16] First, during the four-year window that my data spans, 1988 to 1991, the expansions never affected children over age 8, so using children up to age 14 should provide an adequate control for within state variation in the benefit schedule. Second, and more importantly, I was concerned with the possibility that older teenage children may form their own families and collect welfare benefits independently of their mother, so that modeling the joint labor supply decision might be appropriate when older children are present.

To each mother's record I linked the youngest child's age, which is used to impute eligibility and generosity of the expansions (along with time and state of residence). I therefore compare labor market outcomes of mothers with any child eligible to mothers with no child eligible. The data concerning the Medicaid expansions was compiled from documentation provided by the Intergovernmental Health Policy Project, which contains detailed information on the date of implementation, range of ages the expansions covered, the new Medicaid notch, and any phase-in schedule for the expansion.

To assign eligibility, it was necessary to impute a birth month and birth year to each child, since the CPS asks only the child's age as of March 1 of the survey year. To do this, I assigned each child a birth month, randomly drawn from the year in which they could have been born, based on a uniform distribution. This random assignment is a compromise because it induces measurement error in the independent variable, GAIN%. This measurement error is more important for children born in the year of some birthday cutoff, who then have a chance of being misclassified, while it is less important for children born more than one year above or below the cutoff date.

Table 2 shows the means of the variables used in the estimation. Forty percent of children in these households collect Medicaid, while a smaller fraction of households, 32 percent, participate in

TABLE 2
Summary Statistics

	All Female Heads	Never Married Only	Divorced Only	Separated Only
Obs.	16062	6247	6478	3337
Mother's age	31.5	27.4	34.7	32.9
Youngest child's age	5.74	3.89	7.54	5.73
Oldest child's age	8.47	6.15	10.24	9.38
# children < age 6	0.705	0.96	0.418	0.768
# children $\geq$ age 6	1.13	0.75	1.38	1.35
Years education <12	0.24	0.31	0.156	0.29
Years education >12	0.32	0.23	0.42	0.28
Black	0.29	0.48	0.13	0.25
White	0.66	0.47	0.82	0.71
North	0.22	0.25	0.18	0.25
South	0.33	0.34	0.32	0.35
West	0.21	0.17	0.24	0.21
Child covered by Medicaid through AFDC or expansion	0.40	0.55	0.25	0.39
AFDC participation for household	0.32	0.45	0.20	0.33
Employer-provided health insurance available?	0.36	0.24	0.50	0.30
Labor force participation	0.68	0.55	0.81	0.65
Child eligible for Medicaid expansion based on age and the state Medicaid rules at the time	0.42	0.57	0.26	0.43
Real earnings (1987 dollars)	8154	5144	11468	7353
25th percentile	0	0	2062	0
50th percentile	5045	947	9099	3996
75th percentile	13394	8503	17117	11904
90th percentile	21258	15650	25225	19792

Source: Author's tabulations of Current Population Survey.

AFDC. The labor force participation rate for the mothers is 68 percent, and roughly half of those working, 36 percent, are covered by employer-provided health insurance. While the demographic makeup stays fairly stable across the years (not shown), columns (2), (3), and (4) show that there are observable differences between never-married, divorced, and separated mothers. I therefore include dummy variables for marital status in all specifications. The never-married women are younger and more likely to participate in welfare than divorced or separated women. Slightly less than one-quarter of the mothers in the sample did not complete high school, while slightly less than one-third of the sample attended college.[17] The table also shows that 42 percent of the sample were eligible for the Medicaid expansion based on the state Medicaid rules, time period, and age of the youngest child (but not family income). The takeup rate was 29 percent among all newly eligible families, and was 47 percent among newly eligible families that lacked employer-provided health insurance.[18] These rates are similar to the findings of Currie and Gruber (1994b).

Finally, Table 3 shows the independent variable of policy interest, GAIN%. It is positive for approximately 16 percent of the sample (compared to the 42 percent who have children who are eligible for some expansion coverage). Conditional on GAIN% being positive, its mean is 20.8 percent. When the expansions have “bite,” the notch is moved up, on average, by 20.8 percent of the FPL. The maximum GAIN% is 85 percent, which helps show that the AFDC% can be quite important in reducing the generosity of the expansion. This table also shows how GAIN% evolved over time. The fact that the expansions became more generous is illustrated through the average movement in the income eligibility limit increasing more than six-fold between 1988 and 1991. In addition, different regions of the country had different responses to the expansions. Since the South tended to offer less generous AFDC benefits, it should not be surprising that the expansions had the most impact there. Finally, many of the women in the sample had no change in their budget set

TABLE 3
Summary Statistics for GAIN%

Sample	Obs.	Mean (σ)	Percentiles 10th	25th	50th	75th	90th
Entire sample	16062	0.0337 (0.0971)	0	0	0	0	0.1336
If eligible for expansion	6782	0.0800 (0.1364)	0	0	0	0.1320	0.2779
If GAIN% is positive	2613	0.2077 (0.1477)	0.0321	0.1021	0.1833	0.2799	0.4194
Over time:							
1988	3595	0.0069 (0.0422)	0	0	0	0	0
1989	4063	0.0152 (0.0604)	0	0	0	0	0
1990	4163	0.0476 (0.1145)	0	0	0	0	0.2083
1991	4241	0.0607 (0.1263)	0	0	0	0.0272	0.2552
By region:							
Northeast	3652	0.0091 (0.0517)	0	0	0	0	0
Midwest	3590	0.0261 (0.0746)	0	0	0	0	0.1162
South	5433	0.0690 (0.1371)	0	0	0	0.0779	0.2738
West	3387	0.0118 (0.0505)	0	0	0	0	0

Source: Author's tabulations of Current Population Survey. GAIN%=max{MEDICAID%-AFDC%,0}. GAIN% is the incentive to leave welfare due to the Medicaid expansions, as measured as a percentage of the federal poverty level. MEDICAID% is the percentage of the federal poverty level that the recipient could earn up to from the expansions, typically 100 percent or 133 percent if eligible.

resulting from the expansions. This should be kept in mind when evaluating the actual changes in labor force and AFDC participation during the time span.

5. REDUCED FORM RESULTS FROM THE CPS

5.1 Primary Specification: All States

Table 4 presents the primary evidence of the effect of the Medicaid notch on labor force and AFDC participation, through the coefficient estimate on GAIN%. In these specifications, decoupling Medicaid from AFDC results in a significant positive effect on labor force participation and a significant negative effect on AFDC participation.[19] The estimated effect of the fully phased-in Medicaid expansion is calculated by comparing the actual labor force and AFDC participation in 1991 for the sample (66.5 and 34.8 percent respectively) to the predicted rate when GAIN% is set equal to zero and evaluated for the 1991 observations (yielding predicted rates of 65.6 and 36.0 percent for the models that include STATE*TIME effects).[20] Interestingly, this exercise shows that the actual change in the probability of labor force participation was small: around nine-tenths of 1 percent, which translates into an increase of 1.4 percent in the labor force pool. The fully phased-in Medicaid reforms reduced the AFDC caseload by approximately 3.5 percent. This effect is dominated in the aggregate caseload numbers by the effect of the recession and other factors. Between 1988 and 1991, the average number of families that participated in AFDC each month increased 17 percent, from 3.74 million to 4.37 million (U.S. House of Representatives 1993). The reason that the fully phased-in expansions did not generate more exits from the welfare rolls is that only 29 percent of the 1991 observations had their budget constraint changed. The remaining 71 percent either had a child who was too old for the expansion or lived in a generous AFDC state.

TABLE 4
Probit Model from Current Population Survey, 1988 to 1991

	Labor Force Participation		AFDC Participation	
	(1)	(2)	(3)	(4)
GAIN%	0.3840	0.4731	-0.5188	-0.6492
	(0.1509)	(0.1679)	(0.1544)	(0.1714)
Estimated change in participation from the fully phased-in expansions	*0.0075*	*0.0090*	*-0.0099*	*-0.0120*
# kids < age 6	-0.1382	-0.1392	0.1802	0.1829
	(0.0286)	(0.0289)	(0.0290)	(0.0293)
Mother's age	0.0597	0.0618	-0.0007	-0.0012
	(0.0121)	(0.0122)	(0.0124)	(0.0125)
$Age^2/100$	-0.0836	-0.0864	-0.0256	-0.0258
	(0.0177)	(0.0179)	(0.0184)	(0.0185)
Divorced	0.3863	0.3921	-0.3528	-0.3555
	(0.0314)	(0.0317)	(0.0310)	(0.0314)
Separated	0.1742	0.1751	-0.2358	-0.2376
	(0.0322)	(0.0325)	(0.0323)	(0.0326)
Black	-0.0713	-0.0705	0.2168	0.2205
	(0.0301)	(0.0304)	(0.0301)	(0.0303)
Central city	-0.2267	-0.2213	0.1889	0.1888
	(0.0271)	(0.0273)	(0.0271)	(0.0274)
Education	-0.0483	-0.0484	0.1341	0.1335
	(0.0216)	(0.0217)	(0.0217)	(0.0219)
$Education^2$	0.0086	0.0087	-0.0121	-0.0121
	(0.0010)	(0.0010)	(0.0010)	(0.0010)
Log-likelihood	-8196	-8123	-8311	-8226
STATE*TIME	No	Yes	No	Yes

Notes: Standard errors are in parentheses. The sample size is 16,062 observations. The other covariates include: a constant and family size dummies ranging from 3 to 12 (size of 2 is omitted). STATE, TIME, KIDAGE, and KIDAGE*TIME indicators included in all specifications.

The other covariates enter as expected: the number of children under age 6, the square of the mother's age, and the black and central city indicators usually enter the labor force participation equation as negative and statistically significant. The mother's age, divorced, separated, and the square of education enter into the labor force participation equation as positive and significant. These covariates are similar in significance to Winkler (1991), who uses an earlier year of the CPS. When I evaluated the marginal effect of these coefficients, the magnitudes were similar to the results from the linear probability model in column (1) of Table 7. In particular, mother's age, education and education squared all increased labor force participation by less than 2 percentage points. Being divorced or separated (relative to never-married), having one less child under the age of 6, and not living in a central city all increased the probability of labor force participation by more than 5 percentage points.

Table 5 simulates the change in probability from different policy changes (in percentage points) generated by the models that include STATE*TIME interactions in the second and fourth columns in Table 4. Notice that severing the link to AFDC eligibility has stronger effect on reducing AFDC participation than increasing labor force participation. As shown in Section 2, this is an implication of the model since the work and welfare decisions are not mutually exclusive: some women who were on AFDC and working will now leave AFDC, which shows up as no change in labor force participation.

The first row evaluates the effect of increasing GAIN% by 25 percent of the FPL over its current level. This simulation, applied to the whole sample, increases the probability of labor force participation by 3.3 percentage points (a 4.9 percent increase in the labor force pool) and decreases the probability of AFDC participation by 4.6 percentage points (a reduction in the AFDC caseload of 14 percent). The second row presents the estimated change in participation among those for whom the Medicaid expansions changed the budget constraint, meaning that GAIN% is positive. Among this

TABLE 5
Estimated Effects of Policy Reforms

	Labor Force Participation (1)	AFDC Participation (2)
Increasing GAIN% by 25% from its current level	*0.0332*	*-0.0461*
Estimated change in participation for those with GAIN%>0	*0.0295*	*-0.0452*
Means-test Medicaid at $20,000 instead of 1991 AFDC income eligibility limit	*0.0590*	*-0.0760*
Means-test Medicaid at $15,000 instead of 1991 AFDC income eligibility limit	*0.0170*	*-0.0230*
State	Yes	Yes
State*Time	Yes	Yes

Note: Marginal effects measure change in participation in percentage points from models presented in columns (2) and (4) of Table 4.

group (which is 16 percent of the CPS sample), the expansions increased the probability of working by 3.0 percentage points and decreased the probability of welfare participation by 4.5 percentage points. If these movements were applied to all female headed households, they would translate into a 14 percent reduction in the AFDC caseload and into a 4.4 percent increase in the labor force pool. The third and fourth rows, applied to the 1991 observations only, show the result of two final policy changes: means-testing Medicaid at $20,000 and $15,000, instead of at the recipient's current 1991 AFDC income limit.[21] If these policy changes were applied to all female headed households, they imply reductions in the AFDC caseload of 22 and 6.6 percent, respectively. Since many recipients did not, in fact, have their budget constraint changed, these simulations suggest that there is substantial room for additional reform.

In relation to previous work, the movements from the fully phased-in expansions are larger than the effects found by either Blank (1989) or Winkler (1991) (who find very small effects), but less than the effects found by Moffitt and Wolfe (1992). This is not surprising, because the variation that both Blank and Winkler used, average expenditure, may not capture much of the value of Medicaid to any specific family, while the health measures used by Moffitt and Wolfe could partly attribute changes in preferences and changes in the wage that affect labor supply to Medicaid.

Finally, to qualify for AFDC, a recipient faces a benefit reduction rate of 67 percent during the first four months of work and 100 percent thereafter. Therefore, I have also attempted to use a benefit reduction rate of 100 percent in constructing GAIN%. While the substantive findings remain unchanged, the estimated effect from different policy reforms of moving the Medicaid notch falls by approximately 40 percent. It turns out that using the benefit reduction rate of 67 percent is more appropriate to model the income limit where Medicaid is lost, however. The Deficit Reduction Act of 1984 allowed Medicaid coverage for an additional nine to fifteen months to former AFDC recipients who were disqualified for AFDC (and would therefore lose Medicaid) when the benefit reduction rate increased from 67 percent to 100 percent.

5.2 Effects of the Expansions on Different Demographic Groups

When targeting a benefit such as Medicaid, it is important to know which demographic groups respond to the expansions. This section attempts to ask whether GAIN% has a different impact based on marital status, educational attainment, and age. First, I reestimate the models by marital status. A priori, there are several competing explanations on which type of single woman should have a larger response to the expansion. One hypothesis is that GAIN% should be weaker for ever-married women than for never married since the former are more likely to have health insurance coverage through the absent father. Only 6.3 percent of never-married women have health insurance coverage through an absent father, compared to 22 percent of separated women and 34 percent of divorced women (U.S. House of Representatives 1994). Since ever-married women are more likely to have health insurance coverage, moving the Medicaid notch might be less important for them. On the other hand, being both never-married and a mother could proxy for long-term welfare dependency. If this is the case, then one could reasonably expect the coefficient on GAIN% for never-married women to be smaller because it takes more drastic changes in the budget constraint to remove them from welfare. Being never married could also proxy for lower earnings prospects and lower levels of nonlabor income. This too could lead to a smaller effect because the never-married mother might not even be able to attain a level of earnings to remove herself from AFDC. Thus moving the Medicaid notch may not matter, because the notch was above the maximum earnings level she could attain from full-time work.

First, I stratify the sample by marital status, and reestimate the participation equations for the models that include STATE*TIME interactions. Stratifying seems reasonable, because there are several plausible stories for why the independent variables should affect labor force and AFDC participation differently based on marital status. For instance, being both black and divorced may signal something different about a woman's outside source of income than being black and never married, white and divorced, or white and never married.[22]

Table 6 shows that the results for labor force participation are dramatic: the fully phased-in expansions had strong effects on ever-married women, and no effect on never-married women. The labor force pool increased 1.6 percent, and the AFDC caseload fell by 4.6 percent for ever-married women. On the other hand, the coefficient on GAIN% is insignificant and negative for never-married women's labor force participation. In addition, the AFDC caseload fell by only 1.7 percent. If the interpretation of welfare dependency is correct, these findings suggest that the health insurance reform might be a useful avenue off of welfare for short-term participants, but would have little impact on long-term participants.

The findings by stratifying on education and age are also consistent with the above explanation concerning welfare dependency. When I stratify on educational attainment (less than high school, some high school, completed high school, and more than high school), I find that the expansions have little effect on those with less than a high school diploma. Low levels of education are likely to be correlated with long-term welfare dependence. The expansions have a large effect on those with a high school diploma, and little effect on those with more than a high school education. The results of stratifying by age groups (less than 25, ages 25 to 29, ages 30 to 34, and over age 34) show weaker effects of the expansions on the youngest women.

5.3 Difference-in-difference-in-differences Specification

To gauge the importance of omitting KIDAGE*STATE interactions in the models presented in previous tables, Table 7 presents the results of a linear probability model that includes KIDAGE*STATE interactions.[23] One source of bias by omitting KIDAGE*STATE interaction could be the effect of child care arrangements or child care prices on labor force and AFDC participation.

TABLE 6
Probit Estimates from Current Population Survey, 1988 to 1991

	Labor Force Participation		AFDC Participation	
	Ever married (1)	Never married (2)	Ever married (3)	Never married (4)
GAIN%	1.0204	-0.0239	-0.9946	-0.3537
	(0.2479)	(0.2568)	(0.2543)	(0.2586)
Estimated change in participation from fully phased-in expansions	*0.0120*	*-0.0030*	*-0.0120*	*-0.0080*
Increase GAIN% by 25% from its current level	*0.0609*	*-0.0019*	*-0.0606*	*-0.0287*
# kids < age 6	-0.0951	-0.1687	0.0956	0.2166
	(0.0433)	(0.0423)	(0.0432)	(0.0432)
Mother's age	0.0505	0.0732	-0.0650	0.0409
	(0.0187)	(0.0201)	(0.0191)	(0.0205)
$Age^2/100$	-0.0750	-0.0898	0.0610	-0.0955
	(0.0260)	(0.0323)	(0.0268)	(0.0329)
Black	-0.0622	-0.1221	0.2688	0.1668
	(0.0447)	(0.0436)	(0.0444)	(0.0435)
Central city	-0.2282	-0.2202	0.2262	0.1345
	(0.0372)	(0.0422)	(0.0374)	(0.0422)
Education	-0.0223	-0.1055	0.0815	0.2203
	(0.0273)	(0.0375)	(0.0280)	(0.0364)
$Education^2$	0.0073	0.0125	-0.0098	-0.0163
	(0.0012)	(0.0018)	(0.0013)	(0.0017)
Log-likelihood	-4433	-3541	-4498	-3557

Notes: Standard errors are in parentheses. Marginal effects measure change in participation in percentage points. The sample size is 9,815 observations for the ever-married group and 6,247 observations for the never-married group. The other covariates include: a constant and family size dummies ranging from 3 to 12 (size of 2 is omitted). STATE, TIME, KIDAGE, STATE*TIME, and KIDAGE*TIME indicators included in all specifications.

TABLE 7
Linear Probability Model from Current Population Survey, 1988 to 1991

	Labor Force Participation		AFDC Participation	
	(1)	(2) DDD	(3)	(4) DDD
GAIN%	0.2444	0.3215	-0.3527	-0.4195
	(0.0492)	(0.0608)	(0.0483)	(0.0595)
# kids < age 6	-0.0962	-0.0919	0.1317	0.1283
	(0.0086)	(0.0086)	(0.0084)	(0.0086)
Mother's age	0.0127	0.0131	0.0080	0.0093
	(0.0038)	(0.0038)	(0.0037)	(0.0037)
$Age^2/100$	-0.0203	-0.0210	-0.0144	-0.0162
	(0.0055)	(0.0055)	(0.0053)	(0.0053)
Divorced	0.1092	0.1086	-0.0994	-0.1022
	(0.0093)	(0.0094)	(0.0096)	(0.0096)
Separated	0.0506	0.0523	-0.0644	-0.0699
	(0.0103)	(0.0103)	(0.0104)	(0.0104)
Black	-0.0305	-0.0295	0.0790	0.0759
	(0.0090)	(0.0091)	(0.0092)	(0.0092)
Central city	-0.0747	-0.0753	0.0659	0.0684
	(0.0082)	(0.0082)	(0.0082)	(0.0083)
Education	0.0205	0.0175	0.0060	0.0100
	(0.0067)	(0.0067)	(0.0064)	(0.0063)
$Education^2$	0.0009	0.0011	-0.0019	-0.0021
	(0.0002)	(0.0002)	(0.0002)	(0.0002)
R^2	0.2039	0.2371	0.1974	0.2365
STATE*KIDAGE	No	Yes	No	Yes

Notes: Huber standard errors are in parentheses. The other covariates include a constant, and family size dummies ranging from 3 to 12 (size of 2 is omitted). STATE, TIME, KIDAGE, STATE*TIME, and KIDAGE*TIME indicators included in all specifications.

Clearly, child care affects the labor force participation of mothers with young children differently than mothers with older children, and this market could vary considerably by state. By including STATE*TIME and KIDAGE*TIME interactions, columns (1) and (3) are the analog to columns (2) and (4) in Table 4. I also include family size, number of children under age 6, mother's age and its square, mother's education and its square, and dummy variable for black, central city, divorced, and separated in all specifications. Columns (2) and (4) build upon these models by including KIDAGE*STATE interactions, which corresponds to the difference-in-difference-in-differences (DDD) estimator. Columns (1) and (3) tell much the same story as the previous probit models: moving the Medicaid income eligibility limit continues to have a significant positive effect on labor force participation and a significant negative effect on AFDC participation. Moving from column (1) to (2), and from (3) to (4), the coefficient on GAIN% gets stronger from including the KIDAGE*STATE interactions. In particular, the coefficient on labor force participation increases considerably.

6. CONCLUDING REMARKS

This paper has shown that decoupling Medicaid eligibility from AFDC eligibility significantly affects labor supply and welfare participation. Using recent Medicaid health insurance expansions for children which severed the link to AFDC, I show that a substantial decrease in the AFDC caseload could occur from completely severing the link between AFDC and Medicaid eligibility. The recent law changes reduced the probability of AFDC participation by 1.2 percentage points. The results also show that means-testing Medicaid $15,000 or $20,000 instead of the AFDC limit (which was $7,440 in the average state in 1991) could result in more substantial outflows from AFDC. While my findings would suggest that the AFDC caseload should have decreased, the caseload actually increased. At least two factors are responsible for this. First, worsening economic conditions at the state and national levels increased the welfare caseload. Second, not all families were eligible for the reforms. Moreover, even among those who were eligible, the budget constraint might not have been drastically changed. In the aggregate numbers, these factors mask the importance of health insurance in the decision to leave welfare.

These findings have consequences for the cost of health care reform. Expanding eligibility for Medicaid could result in reduced expenditure for current welfare recipients by encouraging them to exit AFDC. These exits could reduce current AFDC expenditure and result in some growth in the taxable base due to increased hours of work. Several notes of caution are appropriate, however. While reductions in the welfare rolls may be possible from severing the link between Medicaid and AFDC, such an expansion presents new work disincentives for households initially off of welfare (for both single- and dual-earner families). This could discourage work and reduce the taxable base. More importantly, the government would be responsible for paying the health care costs for newly eligible children.

The reforms in Medicaid during the 1980s had consequences on three other outcomes as well. First, the reforms severed the link to another AFDC requirement, family structure. Yelowitz (1995) finds that severing this link encourages marriage. He also finds outflows from marriage, however, by changing the single woman’s budget constraint. Second, the expansion of health insurance for both pregnant women and for children could affect child health. Currie and Gruber (1994a, 1994b) find that a 20 percentage-point increase in eligibility for women of childbearing age was associated with a decrease in infant mortality of 7 percent. Among children, extending Medicaid was associated with large increases in care for children delivered at physicians’ offices. Third, the reforms might have had an effect on the demand for private insurance. Cutler and Gruber (1995) find evidence that public insurance crowds out private insurance.

APPENDIX A: Legislative Changes in the 1980s

Sixth Omnibus Budget Reconciliation Act, 1986 (SOBRA 86): Permitted states to extend Medicaid coverage to children under age 2 with incomes below 100 percent of the federal poverty line effective April 1987. Beginning July 1988, states could increase the age level by one in each fiscal year until all children under age 5 were included.

Omnibus Budget Reconciliation Act, 1987 (OBRA 87): Effective July 1988, states could immediately cover children under age 5 (rather than phasing in coverage) who were born after September 1983. Effective October 1988, states could expand coverage to children under age 8. Allowed states to extend Medicaid eligibility for infants up to 185 percent of the federal poverty level.

Medicare Catastrophic Coverage Act, 1988 (MCCA 88): Required states to cover infants on a phased-in schedule: to 75 percent of the federal poverty level, effective July 1989 and to 100 percent, effective July 1990.

Family Support Act, 1988 (FSA 88): Effective April 1990, required states to continue Medicaid coverage for twelve months for families who received AFDC in three of the previous six months, but became ineligible for assistance because of increased earnings. Families whose incomes exceeded 185 percent of the federal poverty level would not qualify. Families with incomes between 100 and 185 percent of the poverty guidelines could be charged a premium during the second six months.

Omnibus Budget Reconciliation Act, 1989 (OBRA 89): Required states to extend Medicaid coverage to all children under age 6 with family incomes up to 133 percent of the federal poverty level. Effective April 1990.

Omnibus Budget Reconciliation Act, 1990 (OBRA 90): Starting July 1991, states are required to cover all children under age 19 who were born after September 1983, to 100 percent of the federal poverty level.

APPENDIX B: Construction of AFDC% Variable

This appendix explains the construction of AFDC%. This example follows the U.S. House of Representatives (1993). Under AFDC, each state establishes a “need standard” and a “payment standard” (which may be equal to or lower than the need standard); these standards are adjusted by family size. To receive AFDC payments, a family must pass two income tests, a gross income test and a countable income test. Families with gross incomes that exceed 185 percent of the state’s need standard are ineligible for AFDC. Benefits are generally computed by subtracting countable income (i.e., gross income less certain amounts known as disregards) from the payment standard. The maximum benefit, which is the amount paid to a family with no other income, may be lower than the payment standard; as of January 1, 1992, this was true for nine states.

The gross income test is

(A1) Gross Income $\leq$ (1.85*Need Standard).

To be eligible for an actual payment, the family’s counted income also be below the state’s payment standard. Counted (“net”) income test:

(A2) Net Income = (Gross Income - Deductions) $\leq$ Payment Standard,

which implies,

(A3) Gross Income $\leq$ (Payment Standard + Deductions).

AFDC% is then determined by minimum of equations (A1) and (A3):

(A4) AFDC% = min{1.85*Need Standard, Payment Standard + Deductions}/POV

where POV stands for the poverty limit in dollars. Equation (A3) is further complicated because the treatment of deductions has changed over time, and varies by the number of months that a recipient has been off of welfare. To show this, the following table taken from the U.S. House of Representatives (1993), illustrates the calculation on an AFDC payment during different regimes. To calculate the Medicaid notch, we would find the level of gross earnings such that net countable income is zero.

Consider the column containing information on the first 4 months after the Family Support Act is enacted. To calculate the income level where Medicaid eligibility is lost (based on the payment standard), we find the level of net countable income that equals the payment standard.

(A5) (Gross Income - Initial Disregards) - 1/3*(Gross Income - Initial Disregards)
- Child Care = Payment Standard

Solving this in terms of Gross Income gives us:

(A6) Gross Income = 3/2*(Payment Standard + Child Care) + Initial Disregards.

For the $680 payment standard, and $100 child care costs, the Medicaid notch is $1,290 per month based on the payment standard. If the need standard is greater than $697 (=1290/1.85) then the payment standard binds. Otherwise the Medicaid notch is simply given by equation (A1). This corresponds to equation (2) in the text. One could perform this same exercise for the first 4 months after the Deficit Reduction Act.

The need and payment standards vary by state, time, and family size. The information on the need and payment standards (as of July 1 of each year) was obtained from documents provided by the National Governors Association for the years 1988 to 1991.

Calculation of Monthly AFDC Benefits for a Worker with Low Earnings under Deficit Reduction Act and Current Law

	Deficit Reduction Act (DEFRA) 1984			Current law (FSA)		
	First 4 months	After 4 months	After 12 months	First 4 months	After 4 months	After 12 months
Income						
Gross earnings	581	581	581	581	581	581
EITC	...	...	...	...	...	...
Gross income	581	581	581	581	581	581
Disregards						
Initial disregards[1]	-105	-105	-75	-120	-120	-90
One-third of rest	NA	NA	NA	-154	NA	NA
Child care	-100	-100	-100	-100	-100	-100
One-third of rest	-125	NA	NA	NA	NA	NA
Other expenses	NA	NA	NA	NA	NA	NA
Total disregards	330	205	175	374	220	190
Net countable income	251	376	406	207	361	391
AFDC benefits:						
$680 payment standard	429	304	274	473	319	289
$367 payment standard	116	0	0	160	6[2]	0

[1]DEFRA: standard work expense deduction of $75 plus $30 disregard in first 12 months, FSA: standard work expense deduction of $90 plus $30 disregard in first 12 months. Before the FSA, the maximum child care deduction was $160, and after the FSA, $175 for children age 2 and over. For children under age 2, it was $200.

[2]To receive an AFDC check, the benefit amount must equal at least $10.

Notes

[1]Moffitt 1992 presents a thorough and readable discussion of the welfare system. Throughout the paper, I use the terms “AFDC” and “welfare” interchangeably.

[2]Three previous studies, Blank 1989, Winkler 1991, and Moffitt and Wolfe 1992 have tried to identify Medicaid’s effect on labor supply and welfare participation, but have not arrived at a clear consensus.

[3]Blank (1989) and Winkler (1991) present careful theoretical expositions on how Medicaid affects labor supply.

[4]τ_{AFDC} is also known as the benefit reduction rate. It is meant to account for other taxes and subsidies that interact with the welfare system, such as the Earned Income Tax Credit, state taxes, and federal taxes. Also note that nonlabor and nontransfer income are excluded, since AFDC taxes them at 100 percent with no deductions.

[5]Since food stamp eligibility is not tied to the AFDC income eligibility level, the budget set has more kinks than shown in the figures. This does not change any prediction tested in this paper, however, so it is not modeled in this section, but is controlled for in the estimation with year dummies.

[6]Short, Cantor, and Monheit (1988) examine the dynamics of Medicaid enrollment. While 38 percent of the sample who were initially on welfare left over the next two years, only 43 percent of this subgroup were covered by private health insurance. This probably represents an upper bound on the availability of employer-provided health insurance for AFDC recipients.

[7]While pregnant women receive services only related to pregnancy or complications from the pregnancy, infants and children receive full coverage equivalent to that received by AFDC recipients.

[8]These numbers are taken from U.S. House of Representatives, *Background Material and Data on Programs within the Jurisdiction of the Committee on Ways and Means* (1991), p. 590. The state average Medicaid expenditure per welfare household was, for example, $2,304 in Pennsylvania for a

mother with two children in 1989.

[9]Appendix A provides a detailed account of the legislation.

[10]Two other relevant reforms were enacted. The Family Support Act (FSA) 1988 gave families twelve months of transitional Medicaid coverage for those leaving AFDC due to an earnings or hours increase. Previously the coverage had been four months. Another piece of legislation, the Medicare Catastrophic Care Act (MCCA) mandated that states could not cut their AFDC benefit or eligibility levels to finance the Medicaid expansion.

[11]Appendix B discusses the construction of AFDC% in some detail.

[12]This identification strategy is similar to that of Krueger and Pischke (1992), who examine the effect of Social Security on retirement using differential generosity of the program across cohorts based on their year of birth.

[13]Gruber (1994) and Gruber and Poterba (1994) employ this type of identification strategy in other contexts.

[14]Both the AFDC and labor force participation questions correspond to the previous year, though they are treated as contemporaneous in the estimation.

[15]Where “single” means divorced, separated, or never married. This criterion is not immune to the criticism that marital status is itself endogenous to the structure of the welfare system, so that the sample should consist of all women, not just single women. However, to more closely replicate previous work, I consider only single women. Ellwood and Bane (1985) and Yelowitz (1995) examine the impact of welfare benefits on marriage decisions.

[16]In addition, I excluded any mother who was receiving Medicare (presumably her status was the result of a coding error or some unusual qualifying event, like end-stage renal disease or disability, since few people under age 65 qualify for Medicare). I also excluded the mothers who were veterans, to preclude the possibility of military health insurance coverage. Finally, I excluded mothers who were in

“ill-health” or had some “other personal handicap in finding a job” during the survey week of the CPS. These exclusions are rather trivial and resulted in few deletions.

[17]The March 1992 CPS modified the classification of years of education, grouping together 1 to 4 years of schooling, 5 to 6, and 7 to 8. In these cases, I assigned each observation the highest number of years of schooling. The vast majority of the observations did not fall into these groupings, however, and the 1992 CPS still disaggregated for grades 9 and above.

[18]The takeup rate among newly eligible recipients is calculated by dividing the fraction of the CPS sample that participates in Medicaid (but is not participating in AFDC), 10.7 percent, by the fraction of the sample that is eligible for the Medicaid expansions (but is not participating in AFDC), 36.5 percent. A similar calculation is done for those who do not participate in AFDC and lack employer-provided health insurance.

[19]In alternative specifications, I have examined stigma-related exits from AFDC by including a dummy variable for eligibility (ELIG) and an interaction between ELIG and GAIN%. We would expect the coefficient on ELIG to be negative in the AFDC participation equation if mothers exited AFDC (even if GAIN% was equal to zero) due to lower stigma from participating in Medicaid only after the expansions. These specifications did not change the results on GAIN% and did not indicate significant differences in stigma between AFDC and Medicaid participation.

[20]The predicted probability was calculated for each individual and averaged over the entire sample. The caseload change was calculated as the change in participation (in percentage points) divided by the average level of participation in 1991.

[21]Thus, GAIN% is set equal to the difference between $20,000 or $15,000 and the AFDC income eligibility limit, and then divided by the poverty line.

[22]For instance, my tabulations of the CPS indicate that 21 percent of black ever-married mothers received some child support income, 9 percent of black never-married mothers, 43 percent of

white ever-married mothers, and 5.3 percent of white never-married mothers. Thus there could be important, unmodeled differences across race/marital status cells.

[23]It was computationally cumbersome to include a full set of KIDAGE*STATE interactions in a probit model. I have estimated such a model for the five largest states in my sample, with similar results.

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