The Effect of Expanding Medicaid Eligibility on the Distribution of Children's Health Insurance Coverage

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ABSTRACT

Federal legislation passed in the late 1980s greatly expanded the potential coverage of the Medicaid program to include children in families with incomes at and slightly above the poverty threshold, including families with two parents and working parents. Prior to these expansions, the distribution of health insurance coverage in the population of children was distinctly U-shaped, with children in the second and third income deciles having the lowest levels of coverage. In this paper I evaluate the impact of the expansions on the distribution of coverage both by income class and by region. I find that the expansions served to reduce the variation in insurance coverage, raising coverage levels substantially for low-income children and children in historically low-coverage regions. Using the fact that the impact of the legislation varied regionally and by income decile, I explore whether the fall in private coverage that occurred in the late 1980s and early 1990s could be attributed to the expansions. I conclude that the decline in private coverage was unlikely to have arisen as a result of the expansions.

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I. Introduction

At present, just over 80 percent of the U.S. population are covered by some form of health insurance. Behind this figure, however, lies considerable variation in coverage rates by age and family income. Coverage is close to full for the over-65 population, while coverage for younger individuals is far lower. Children in families with incomes above the median level have coverage rates around 90 percent, whereas children with family incomes below the median have coverage rates of only 75 percent. In addition, the sources of coverage vary across age and income groups. Although workers and their families are likely to obtain private insurance coverage through their employer, the principal source of health care financing for the poor, particularly for poor children, is the Medicaid program.

Not all poor children are eligible to receive Medicaid. Historically, only children in families eligible to receive cash assistance through the Aid to Families with Dependent Children (AFDC) program have been eligible for Medicaid. Since eligibility standards for AFDC are generally quite stringent, many low-income families, especially those with both parents present, fail to qualify. In response to concerns about the low levels of health insurance coverage among poor children, Congress passed a series of laws beginning in 1986 that substantially liberalized Medicaid eligibility. By raising the family income threshold for Medicaid coverage and permitting eligibility for children in two-parent families, these laws were intended to raise health care accessibility for pregnant women, infants, and young children.

In this paper, I use Medicaid coverage data from the March Current Population Survey (CPS) to examine the impact of these expansions on the distribution of health insurance coverage in
the population of children.¹ Prior to the enactment of the new laws, health insurance coverage rates followed a U-shaped pattern across the income distribution, with the lowest rates of coverage for children in second and third income-decile families (see Figure 1A). Thus the main focus of this paper is on how coverage rates of children in families that might be termed the "working poor" were affected by Medicaid coverage expansions. A secondary focus is on the regional variation in health insurance coverage. Because of differences in the income distribution across regions, and wide variation in AFDC eligibility levels by region, levels of health insurance coverage varied significantly across the country. Since the legislation was intended to expand coverage to children in families at and just above the poverty line, including children in two-parent families and families with earned income, one might have expected the legislation to smooth out the differences in coverage rates across the income distribution. Additionally, the expansions, by increasing the federal minimum standards, may have served to decrease the variation in coverage among regions. Indeed, my results suggest that while health insurance coverage of children in families with incomes below the median remained lower than coverage of children in higher-income families, variation in coverage within the first five deciles did decrease substantially. Comparisons across regions show that variability decreased regionally as well.

While coverage under the Medicaid program expanded in the late 1980s, particularly in the income groups and regions affected by the legislation, another trend that should be noted is a fall in

¹Previous research examining the effects of the Medicaid expansions on insurance coverage includes Currie and Gruber (1996), Cutler and Gruber (1996), Dubay and Kenney (1995), Kenney and Dubay (1995) and Shore-Sheppard (1996). This research has not focused explicitly on differences in medical coverage by family income group.
coverage from private sources. This decrease in private coverage may have resulted in part from a "crowding out" of private health insurance, as employers and employees opted to drop private coverage and take up newly available Medicaid coverage. The variation in the impact of the legislation on income groups and regions provides a useful tool to determine the extent of such "crowding out" of private insurance by public insurance: if the expansions were a primary cause of the fall in private coverage, this fall should be greatest in the regions and income groups that were most heavily affected by the legislation. Comparing changes in coverage across regions and decile groups for children and for single men (who were unaffected by the expansions), I find little evidence that the decrease in private coverage that occurred between the 1988 March CPS and the 1995 March CPS could be directly attributed to the Medicaid expansions.

II. **Expansions of the Medicaid Program**

Medicaid is a joint state-federal program financed by state contributions and federal matching funds. Program participants fall into three groups: low-income aged and disabled people; the "medically needy"--people who have recently incurred large medical expenses; and low-income families with dependent children. Members of the third group were the main focus of the 1986-1990 legislative changes, and in this paper I concentrate exclusively on them.

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3See Green Book (1984-1993), Congressional Research Service, (1988, 1993), Health Care Financing Administration (1988, 1990), and Altman and Beatrice (1990). The matching formula varies by state and is based primarily on the state's per capita income, with 50 percent being the minimum matching rate. It should also be noted that the services provided under Medicaid vary significantly across states, subject to federally imposed minimum standards.
Historically, this group has been comprised of families receiving cash assistance through the AFDC program. Thus, Medicaid eligibility and participation were directly linked to the eligibility standards for AFDC. Generally, to qualify for AFDC a family must be either headed by a single parent or have an unemployed primary earner. The family must also pass two income tests and a resource test. First, the family’s countable income (gross income less certain deductions) cannot exceed the state-established "need standard" (the income deemed necessary for a family of a given size to purchase basic necessities). Second, the family’s gross income cannot exceed 185 percent of the state’s need standard. Finally, the value of the family’s resources (excluding some necessities) cannot exceed $1,000.

Starting in the late 1980’s, a series of federal law changes substantially diminished the link between Medicaid eligibility and AFDC eligibility by extending Medicaid coverage to families with incomes above the AFDC thresholds. Appendix Figure A1 presents a timeline showing legislative changes between 1986 and 1990 that expanded Medicaid eligibility for infants, children, and pregnant women. In the Omnibus Budget Reconciliation Acts (OBRA) of 1986 and 1987, Congress gave states the authority to raise the income thresholds for Medicaid coverage of certain groups above the AFDC level. In addition, OBRA 1987 required states to cover all children born after September 30, 1983 who met AFDC income standards, regardless of their family composition. The Medicare Catastrophic Coverage Act (MCCA) and Family Support Act (FSA),

4Until the recent expansions, the primary group eligible for Medicaid but ineligible for AFDC has been "Ribicoff children." These are children who are financially eligible for AFDC but do not qualify due to family structure—e.g., they are from two-parent families or they are in privately subsidized foster care.

5Note that because of the timing of the legal changes and the CPS surveys, there is a two-year difference between the date of the legislation and the date of the survey. For example, the 1988 CPS should demonstrate the effect of OBRA 1986.
both of 1988, required states to extend Medicaid eligibility even further. The MCCA required
coverage of pregnant women and infants and permitted coverage of children up to 8 years of age
with family incomes below 75 percent of the poverty level. Coverage of eligible two-parent
families where the principal earner was unemployed was mandated by the FSA.

Even broader expansions took place as a result of OBRA 1989 and OBRA 1990. OBRA
1989 required coverage of pregnant women and children up to age 6 with family incomes up to 133
percent of the federal poverty level, and OBRA 1990 required states to cover children born after
September 30, 1983 with family incomes below 100 percent of the federal poverty level. In total,
expansions enacted in the late 1980s raised the eligibility threshold from the AFDC level to at least
100 percent of the poverty line and possibly higher, depending on age and state of residence, while
relaxing the restrictions on two-parent families and those with earned income.

III. **Who Was Affected by the Expansions?**

The legislative changes described above were intended to increase health insurance
coverage for poor children, particularly those in two-parent and working-parent families, who
previously would have been ineligible for Medicaid. To determine the impact of the expansions, it
is useful to look at how the distribution of health insurance coverage in the population of children
has changed since the legislation was passed. If the legislation had an effect, then coverage in the
lower deciles of the income distribution should have increased. I compare the levels of health
insurance coverage in the 1988 and 1989 March surveys with the levels of coverage in the 1994
and 1995 March Surveys. The division of the income distribution into deciles is given in Table 1. To control for family size and changes in nominal income between the two years, the ratio of income to the federal poverty standard is used. For comparison, the decile upper bounds are given both for all families and for families with children. It is clear that adjusted family income is lower for families with children than for all families, since the median family with children had income only 2.27 times the poverty standard in 1988-1989 as compared to 2.95 times the poverty standard for all families. It is also interesting to note the widening of the family income distribution between 1988-1989 and 1994-1995: the ratio of income to the poverty standard decreased for the lowest seven deciles from 1988-1989 to 1994-1995, while for families in the upper deciles the ratio increased over the late 1980s and early 1990s.

The characteristics of the family income deciles are given in Tables 2A (for the 1988 and 1989 CPS) and 2B (for the 1994 and 1995 CPS). Not surprisingly, families in the lowest deciles are more likely to have only a female head, to reside in the center city, to receive a lower fraction

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6The advantage of using the March CPS to examine Medicaid eligibility and coverage is the detailed information on family income, family structure, and participation in government programs. One difficulty with using the March CPS to examine insurance coverage is that while the questions regarding health insurance concern coverage during the previous year, respondents do not appear to be answering the questions as posed. In other research (Shore-Sheppard, 1996) I examine the problems involved in using the CPS to examine insurance coverage and conclude that the CPS March supplements provide a reasonable source of Medicaid coverage data when the coverage measures are generally interpreted as point-in-time estimates of coverage. The data from two March surveys for each period (1988-1989 and 1994-1995) are pooled to enable me to study more precisely the variation in the impact of the legislation by region and by family income. Throughout the paper, years refer to the year in which the survey was conducted unless otherwise noted.

7The poverty thresholds are determined based on family size and number of children in the family, and are increased each year by the same percentage as the annual average Consumer Price Index.

8A potential problem with using deciles of the income distribution is that the Medicaid expansions themselves may change earnings if for example employers stop providing health insurance and raise wages. I am currently exploring whether this problem affects my results.
of the family income from work, and to receive a higher fraction of income from public assistance programs than families in higher deciles. Although incomes are low for families in the first through fourth deciles, with incomes being less than twice the poverty level, income from public assistance drops sharply after the first two deciles. Between 1988-1989 and 1994-1995 the families in the third and fourth deciles appear to become slightly more like the first two deciles, with a higher fraction of those families having only a female head, a higher fraction of income from public assistance, and a lower fraction of income from work.

Family income varies widely geographically as well. Families in New England, for example, are more likely to be in the upper income deciles, while families in the East and West South Central regions are more likely to be in the lower income deciles. Other regions have a preponderance of families in the middle or on either end of the income distribution. This geographic variation in the distribution of income contributes to variation in the impact of the expansions, since some regions have a higher proportion of families in the affected income categories.

Eligibility for Medicaid in 1988-1989 was primarily through income eligibility for AFDC (although some small optional expansions in the program had already been passed and were being phased in by some states). Hence coverage under Medicaid would have been available to most children in the first decile and some in the second. This availability of Medicaid is apparent in

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9Reported coverage by Medicaid for children in higher income deciles could result from several factors. Since eligibility for Medicaid is determined monthly or quarterly in most states, a child may have been eligible for and receiving Medicaid for part of the year even if his or her family's annual income would have been too high. Some of the children receiving Medicaid in higher income deciles may be participating under their state's Medically Needy program. Finally, income and/or program participation are likely to be mismeasured for some children. In general, however, the levels of Medicaid coverage seem to follow the expected pattern, with highest levels of coverage for the poorest (continued...
Figure 1A, which graphs the percentage of children in each decile in 1988-1989 covered by health insurance, by source. As would be expected, the level of health insurance coverage is highest in the upper income deciles, and virtually all of the coverage is from private sources. Because of these high levels of private coverage in the upper deciles, and high levels of Medicaid coverage in the lowest deciles, the distribution of total coverage exhibits a U-shape, with coverage lowest in the third decile. Comparing this distribution of coverage with the distribution in 1994-1995 (graphed in Figure 1B), the effects of the Medicaid expansions are readily apparent. Medicaid coverage in the second decile has expanded to equal that in the first decile, and coverage in the third and fourth deciles has expanded substantially as well. The expansion in coverage for the second, third, and fourth deciles appears to have contributed to an equalization of total coverage in the bottom half of the income distribution. Another factor contributing to this equalization is a drop in private coverage, particularly for the third, fourth, and fifth deciles. Such a drop in private coverage could be a result of the expansions in Medicaid if families or firms responded to the availability of Medicaid by dropping private coverage in favor of Medicaid coverage. This "crowding out" hypothesis will be evaluated in section IV, below.

9(continued)

children and declining coverage thereafter.

10In this and following figures, "Private" refers to coverage from any private source, such as a parent's employer. "Both" refers to coverage from both a private source and the Medicaid program, and may represent either sequential coverage (as when a parent loses a job so the child loses private coverage and becomes eligible for Medicaid) or concurrent coverage. "Other" refers to coverage from other government sources, such as CHAMPUS or military coverage.

11While some of the increase in coverage can be attributed to changes in population characteristics that would have occurred in the absence of the expansions, in other research (Shore-Sheppard, 1996) I have estimated how much of the increase in Medicaid enrollments can be attributed to the legislation, and how much to changes in population characteristics. I find that approximately 68% of the change in enrollment was due to the legislated changes in eligibility.
As with most government programs, takeup of Medicaid coverage (enrollment of an eligible child in the program) is less than full. This may be a particular issue for a program such as Medicaid, since eligible children may not actually be enrolled until they become sick.\textsuperscript{12} Hence children who are not actually enrolled in the program but are eligible may be considered to have enhanced access to contingency care, and perhaps such children should be included in the count of children who have some access to insurance.\textsuperscript{13} In addition, an examination of changes in eligibility may yield further insight into the impact of the legislation. To examine eligibility changes, I impute eligibility to children using the information on family income and family structure available in the CPS. The imputation must be done separately by state as well as by year, since there is a great deal of interstate variation. The imputation procedure included the following children as "eligible":

1. Children in families receiving AFDC were automatically assigned eligibility.
2. If a mandatory federal requirement was in place for that year, eligibility was assigned to all children who met that requirement.
3. The remaining children were then assigned eligibility according to the optional programs of their state of residence.

Details of the calculations are reported in the Appendix.\textsuperscript{14}

\textsuperscript{12}Technically, a child who requires medical services and is potentially eligible for Medicaid can apply for coverage after the fact. For example, hospitals may enroll eligible children who come to the emergency room for care.

\textsuperscript{13}If regular preventive care is particularly important for children (as in the case of vaccinations) then such contingency insurance may be little better than no insurance at all.

\textsuperscript{14}I assess the accuracy of the eligibility imputation (see Shore-Sheppard, 1996) by comparing eligibility and receipt of Medicaid, and conclude that differences between eligibility and receipt are not due primarily to imputation errors but are more likely to arise from take-up rates that are less than full.
Figures 2A and 2B present graphs of the percentage of children covered or eligible before and after the expansions. Prior to the expansions, takeup was very close to 100 percent, with only the first decile having a significant fraction of children imputed to be eligible but not reporting receipt. If eligible children are counted as covered under the expanded definition of coverage discussed above, then the dip in coverage that occurs in the third and fourth deciles becomes even more striking. After the expansions, however, the dip in coverage occurs higher in the income distribution and is not as low. Children in the first and second deciles have coverage levels as high as children in the ninth and tenth deciles. It is important to recall, however, that Medicaid eligibility or coverage and private coverage are unlikely to be perfect substitutes. Children who are eligible for Medicaid but who have not been enrolled are unlikely to be receiving preventive care, and even children enrolled in the program may not receive as high quality care as children with private insurance. As Medicaid often reimburses doctors at a rate far below that of private insurers, some doctors do not accept Medicaid patients, and those who do may have an incentive to provide lower quality care to their Medicaid patients.\footnote{For evidence on the accessibility of care to patients with Medicaid coverage, see for example Yudkowski, Cartland, and Flint (1990), or Medicaid Access Study Group (1994).}

A potential problem with concluding that the expansions have raised coverage in previously low-coverage deciles is that the underlying characteristics of those deciles may have changed over the period, so that Medicaid enrollment would have increased even in the absence of the expansions. Evidence that changes in population characteristics may have played a role in the increase in Medicaid enrollment in the second and third deciles may be observed in Table 1. Whereas in 1988-1989 the tenth percentile of families with children had incomes 0.45 times the poverty standard, in 1994-1995 the income of the tenth percentile was only 0.41 times the poverty
standard. Similarly, the highest income in the second decile went from 0.87 times the poverty standard to 0.76 times, and the highest ratio of income to poverty of the third decile fell from 1.35 to 1.2. In addition, in 1994-1995 families in the second and third deciles were more likely to be female-headed and had a higher fraction of income from government programs. These changes indicate that eligibility for Medicaid was likely to be higher in 1994-1995 even if the expansions had not occurred.

In order to explore the extent to which the expansions contributed to the increase in enrollment, I imputed eligibility under two counterfactuals: the first assumes that the characteristics of the population did not change (represented by the eligibility of the 1988-1989 population under the 1995 rules); the second assumes that the expansions did not occur (represented by the eligibility of the 1994-1995 population under the 1988 rules). These two counterfactual eligibility levels are illustrated in Figures 3A, 3B, 3C and 3D. In Figures 3A and 3B, the black bars at the top of the graph represent the additional children who would be eligible for Medicaid under the expansions. This additional eligibility is highest in the second and third deciles, where eligibility is over 10 percentage points higher under the expansions. Comparing these two graphs, it is clear that both the changes in the characteristics of the population and the changes in the program eligibility rules contributed to the increase in eligibility, since both the diagonally shaded area and the solid area increase from 1988-1989 to 1994-1995. The expansions played a much larger role, however, since in the absence of the expansions, eligibility for the program would have been approximately 30 percentage points lower in the second decile, over 40 percentage points lower in the third decile, and over 20 percentage points lower in the fourth decile.

Actual coverage by the Medicaid program did not increase by as much as eligibility. Figures 3C and 3D, which display the percent of children covered by insurance and the percent of
children who are eligible, demonstrate that takeup of the program is still less than full. If all of the children who are eligible were to enroll in the program, coverage in the first three deciles would be over 90 percent. Coverage of children in the fourth decile would be lower, however, since many families in this decile, while earning too much to be eligible for Medicaid, are still unable (or unwilling) to obtain private coverage. Although Medicaid coverage has increased and a larger fraction of the fourth decile is eligible for coverage, total coverage in that decile fell over the period. An examination of the composition of coverage in that decile reveals that private coverage fell substantially, from approximately 65 percent of the decile to approximately 45 percent. The sources of this fall are examined more carefully below.

In addition to the variation by decile discussed above, the expansions had differing impacts regionally. With the implementation of the federally-imposed minimum standard, some states were forced to raise their eligibility standards by more to meet the federal guidelines. In addition, the impact of the legislation would be greater in regions which had a higher fraction of the population in the affected income categories. States with larger numbers of poor and near-poor children would see larger increases in the fraction of children eligible for Medicaid. As is evident in Figure 4A, there was significant variation in insurance coverage (both Medicaid and other forms) across regions prior to the expansions, with the Southern (South Atlantic, East South Central, and West South Central) and Mountain states having the lowest levels of coverage overall. Coverage after the expansions occurred appeared to have evened out somewhat (see Figure 4B), most notably in the West South Central region, which experienced a large increase in Medicaid coverage and eligibility. Prior to the expansions, the difference between the highest-coverage region (New England) and the lowest-coverage region (West South Central) was 17.6 percentage points. After the expansions, the difference between the highest-coverage region (East North Central) and the
lowest (West South Central) had fallen to 12.9 percentage points. In order to examine whether this diminishing difference in coverage is a result of the expansions or merely due to differing economic conditions between the regions over the period, it is instructive to look at the changes in coverage by region for the lowest deciles separately.

Regional coverage levels for the first through fourth deciles are graphed in panels A-H of Figure 5. Each panel depicts the regional coverage for a decile-year cell. It is clear from the first and second panels that Medicaid coverage and eligibility were high in the first decile in 1988-1989 and became even higher in 1994-1995. Levels of both total coverage and coverage including eligibility increased or remained constant in virtually all regions. In particular, coverage-plus-eligibility rose to become nearly 100 percent across the regions. Even more striking is the increase in coverage in the second decile, however (panels C and D). Prior to the expansions, coverage in the Southern and Mountain states was well below coverage in the other five regions. Coverage in these regions rose by between 15 and 20 percentage points, however, narrowing the gap between the highest-coverage region and the lowest-coverage region by 22 percentage points. If eligibility is considered, coverage levels reached over 90 percent in all of the regions. This equalization of coverage appears to be due in large measure to the increase in eligibility under the expansions, since regions with high levels of Medicaid coverage prior to the expansions (New England and the Middle Atlantic, for example) had smaller increases in Medicaid coverage than the regions with low Medicaid coverage.

One explanation for the higher impact of the expansions on the Southern and Mountain regions is the low levels of eligibility in those regions prior to the expansions. AFDC income eligibility standards were more stringent than the median state’s standard for eight of the nine states in the South Atlantic region, three of the four states in the East South Central region, all of the
four states in the West South Central region, and five of the eight states in the Mountain region. Since the median AFDC eligibility standard was approximately 47 percent of the poverty level, these states had to raise their eligibility levels over 80 percentage points for children under age six (whose mandated coverage was up to 133 percent of the poverty line) and over 50 percentage points for children under age 12 (who were mandated to be covered if their family income was up to the poverty line). Another reason for the higher impact of the expansions on the Southern region appears to be the distribution of income in those states. In 1988-1989, 14.8 percent of the population of the West South Central region and 18 percent of the population of the East South Central region was in the first decile of the national income distribution. The proportion of the population in the first three deciles was highest in those two regions, both in 1988-1989 and 1994-1995. If income in those regions was distributed similarly to the distribution in the country as a whole, 30 percent of families in those regions would be expected to have incomes in the first three deciles of the U.S. distribution. The actual fraction of families in those regions with incomes in the first three deciles was 41 percent in the East South Central region and 39 percent in the West South Central region.

While the regional impact of the expansions on the third decile appears less striking than the impact on the second decile, there was a large degree of convergence between regions in this decile as well. In 1988-1989, the difference in coverage between the highest-coverage region and the lowest-coverage region was 28 percentage points, whereas in 1994-1995 the difference in coverage had fallen to 19 percentage points. Again, the Southern states experienced the largest increases in Medicaid coverage and eligibility, although Medicaid coverage increased substantially in all of the regions. Total coverage fell, however, in the New England and Middle Atlantic regions.
In the fourth decile, Medicaid coverage and eligibility also increased, but unless eligibility for Medicaid is included, total coverage fell in this decile in all but the West South Central region. The fall in total coverage can be attributed primarily to the fall in private coverage that occurred over the period. Although private coverage fell in virtually all regions and income deciles,\(^{16}\) the fall was quite steep in the fourth decile, ranging from a fall of 11 percentage points in the Mountain region to 25 percentage points in the West North Central region. There are two potential explanations for this pattern of falling private coverage and rising Medicaid coverage. The first explanation is that the expansions in the Medicaid program caused private insurance to be crowded out, resulting in increased Medicaid enrollment and decreased private coverage. This would occur, for example, if firms dropped coverage for employees' children, or if families removed children from a private insurance policy and enrolled the children in Medicaid. The second explanation is that private coverage fell for reasons unrelated to the expansions, with the increased eligibility allowing the children who lost private coverage to become covered by Medicaid. I evaluate these hypotheses in the next section.

IV. Is the Fall in Private Coverage "Crowding Out"?

The evidence for crowding out is presented in Figure 6, which graphs the change in insurance coverage for children by coverage type and decile. From the pattern of the coverage changes, it seems that the Medicaid expansions may have had an effect on private coverage. Private coverage in the third and fourth deciles, which experienced large increases in the fraction

\(^{16}\)The only region-decile cells not to experience declines in the extent of private coverage over the period were the first and second deciles in New England, the seventh decile in the Mountain region, and the first decile in the Pacific states.
of children eligible for or covered by Medicaid, declined dramatically. Indeed, the decline in private coverage appears to be roughly correlated with the increases in Medicaid eligibility, with the largest declines in private coverage occurring in the third, fourth, and fifth deciles. The correlation is not perfect, however. In the second decile, the increase in Medicaid eligibility was higher than in any other decile except the third, but the decline in private coverage was not as high as the decline in private coverage of the third, fourth, fifth, or sixth deciles. And although the first decile experienced larger increases in eligibility than any of the deciles above the fifth, only the ninth and tenth deciles had smaller declines in private coverage. The fact that private coverage did decline in the upper income deciles indicates that if crowding out exists, it is probably not the only cause of a decline in private coverage.

To evaluate the crowding out hypothesis more explicitly, I compare the change in insurance coverage for children over the period to the change in coverage for a comparison group who would not be likely to have been affected by the expansions in the Medicaid program. If the fall in private coverage was due entirely to crowding out, then groups unaffected by the expansions should experience no change in their level of private coverage. As a comparison, I use single men ages 15 to 45, since single men are ineligible for Medicaid unless they are disabled, and are unlikely to be affected by the expansions. Any change in coverage for single men can probably be attributed to underlying macroeconomic shocks or trends rather than the Medicaid expansions.

The patterns of changes in insurance coverage for single men is illustrated in Figure 7. Aside from the anomalous increase in Medicaid coverage in the second decile, the change in

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1Men may erroneously report coverage under Medicaid if they are receiving general assistance from their state which includes a medical care component. This misreporting is not likely to be worse for single men than for other men, however.
coverage under the Medicaid program is close to zero, as expected. Private coverage fell in all
deciles, however, suggesting that private coverage was falling for reasons unrelated to the
expansions. Although the magnitude of the change is smaller, in most cases, than the magnitude of
the fall in private coverage for children, the largest decreases in coverage occurred in similar
deciles: the third, fourth, and sixth.

The variation in the impact of the Medicaid expansion legislation by region and decile can
be exploited to explore the crowding out hypothesis further. Regions where a large fraction of the
population was affected (because of eligibility levels prior to the expansions and because of the
proportion of the population in the relevant income ranges) should have experienced both the
largest increase in Medicaid coverage and, if crowding out plays a significant role, the largest fall
in private coverage. The relationship between eligibility and coverage is graphed in Figures 8A-
8F. In these graphs, each observation represents a region-decile cell. The regression of the
change in Medicaid or private coverage on the fraction of that cell affected by the expansions is
also included on the graphs. To measure the fraction affected, the eligibility of the constant (1988)
population is used since this measure is free of the potential endogeneity that might arise if the
actual change in eligibility, which includes both the effects of changes in the rules and changes in
the population characteristics, were used.

Figures 8A and 8B graph the relationship between eligibility and coverage for decile-region
cells in the three deciles that were the most affected by the expansions. As expected, the
relationship between the change in the fraction affected and the change in the fraction covered by
Medicaid is positive, indicating that the greater the impact of the expansions, the more coverage
increased. The coefficient in this regression can be interpreted as the marginal takeup rate—the rate at which the newly eligible children enroll in the program. For the second, third, and fourth deciles, this coefficient is approximately 0.5, indicating a marginal takeup rate of 50 percent. There are several reasons why the takeup rate would be less than 100 percent. As Medicaid is expanded to cover a population never included previously, many families may be unaware that their children are eligible for the program. Even if parents become aware of their children’s eligibility, they may not actually enroll them in the program until they need services. Finally, if the child already has private coverage, the parents may have little incentive to enroll the child in the Medicaid program.

Alternatively, parents may drop private coverage of their child in favor of Medicaid coverage. If such crowding out was a significant factor, the expected relationship between eligibility and private coverage would be negative. This relationship, which is graphed in panel B of Figure 8, does not appear to be negative, however, although unlike the regression in panel A, the slope is not significantly different from zero. Since the fourth decile experienced much smaller changes in eligibility, Figures 8C and 8D graph coverage against eligibility for the second and third deciles only. Removing the fourth decile affects the results very little, making the estimated slope of the regression line slightly steeper for the Medicaid regression and flatter for the private coverage regression, but not changing the statistical significance. To check my results, I plot the change in coverage under Medicaid and private insurance for the fifth and sixth deciles in each region against the impact of the expansions (as measured by the average change in eligibility experienced by the second and third deciles) in that region. If the decline in private coverage that

\footnote{The coefficients, standard errors, and adjusted R’s of the regressions are given in Appendix Table A1.}
occurred across the income distribution was associated with the Medicaid expansions, then the
regions most affected by the expansions may be expected to have experienced larger declines in
private coverage even for the deciles not directly affected by the expansions. There appears to be
no correlation between higher levels of eligibility in a region and greater declines in private
coverage, however.

V. Conclusions

Historically, health insurance coverage of children of the "working poor" has been lower
than that of any other group. In this paper I have attempted to evaluate the impact on such children
of the coverage expansions that took place in the Medicaid program in the late 1980s. Medicaid
eligibility increased substantially for this group, beyond the increase that would have occurred in
the absence of the expansions. Analyzing the impact of the expansions on the distribution of health
insurance, I find that although coverage increased by less than eligibility, the expansions increased
coverage in the lowest income deciles, particularly the second and third, where prior to the
expansions both Medicaid and private coverage had been low. By the end of the period studied,
although the levels of coverage for children with family incomes below the median were still lower
than the levels for children in higher-income families, the disparity in insurance coverage had
decreased. The distribution of health insurance remained somewhat U-shaped but the dip in
coverage was not as low as it had been previously.

These increases in coverage were largest in historically underinsured regions such as the
Southern and Mountain states, reducing the regional variability in coverage. After the expansions,
the difference between the region with the highest levels of coverage and the region with the lowest
had fallen by 5 percentage points overall and by more than 20 percentage points in the lowest
deciles. I find that this narrowing of the gap between high-coverage regions and low-coverage regions may be attributed to two factors: low-coverage regions had more strict AFDC eligibility standards prior to the expansions, so they were forced to raise their eligibility levels by more to meet the federally-imposed minimum, and in those regions the proportion of the population in the affected segment of the income distribution was higher. Using this variation in the impact of the laws to explore the causes of the decrease in private insurance, I conclude that the decline in private coverage for children was not due primarily to crowding out. There is some evidence that crowding out may have occurred, since the lower deciles of the income distribution, which experienced the greatest rise in Medicaid eligibility levels, also experienced the largest loss of private coverage. Such evidence does not directly point to crowding out, however, since macroeconomic trends affecting private insurance coverage in low-paying jobs would have the same observable effect. Evidence that single men in the lower deciles also experienced a reduction in private coverage supports this hypothesis. While it is likely that some families or firms on the margin responded to the expansions by switching children from private coverage to public coverage, the fact that more heavily impacted decile-region cells did not experience a commensurately larger loss of coverage suggests that such a response was not likely to be large. Those cells did experience a greater increase in Medicaid coverage, however, indicating that the expansions did serve to increase coverage under the Medicaid program.
References


Appendix: Eligibility Imputation

This appendix describes the procedure used to impute eligibility. Since the legislation was phased in over the period and contained optional provisions that states could include in their programs (as described in Appendix Figure A1), the imputation had to be done separately by year, age, and state of residence. For 1988, children were imputed to be eligible if their family received AFDC, if their age and poverty level fell below the threshold set by their state, or if they met their state's Ribicoff program criteria\(^{19}\) (not all states had Ribicoff programs in all years). For 1989, children were assigned eligibility as above, and in addition were assigned eligibility if they were less than 6 years old and their family income was below the AFDC threshold for their state of residence.

Under the 1994 rules children were assigned eligibility if they were less than 6 years old and their family income was less than 133 percent of the poverty level, if they were less than 11 years old and their family income was less than 100 percent of the poverty level, or if they qualified under the optional programs in effect in their state. In 1995, children were imputed to be eligible if they were less than 6 years old and their family income was less than 133 percent of the poverty level, if they were 12 years old and their family income was less than 100 percent of the poverty level, or if they qualified under the optional programs in effect in their state. Note that I do not attempt to impute eligibility or model participation in the AFDC program. The only instance in which not modeling AFDC would be a problem is if a child was eligible for AFDC but was not receiving funds from the program. That child would not appear to be Medicaid-eligible.

\(^{19}\)"Ribicoff program" refers to an optional eligibility category begun earlier in the 1980s. States may elect this program, which allows children up to an age determined by the state (often age 18) to be eligible for Medicaid if their families meet AFDC income requirements, regardless of family structure.
under my imputation procedure until the expansions took place. This might cause an artificial increase in the group of children who are eligible for Medicaid but who are not receiving it. In order to discover whether this was a problem, I assigned all children whose family income was less than 125 percent of the AFDC threshold and whose family was single-headed to the eligible group. Doing this rough AFDC imputation did not change the results substantively.

Data on optional Medicaid coverage by state used in this imputation were obtained from Hill (1990, Table 1), National Governors’ Association (1991, 1993), Congressional Research Service (1988, 1993), Health Care Financing Administration (1991), and American Academy of Pediatrics (1989, 1990, 1991, 1992, 1993). Data on AFDC thresholds were obtained from the National Governors’ Association (1993, Table 5). There was no consistent trend across states in AFDC levels over this time period.
Table 1
Ratio of Income to Poverty Standard: Decile Upper Bounds

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<table>
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<td>Female head</td>
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<td>0.547 (0.006)</td>
<td>0.308 (0.005)</td>
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<td>0.106 (0.003)</td>
<td>0.077 (0.003)</td>
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<td>0.041 (0.002)</td>
<td>0.026 (0.002)</td>
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<tr>
<td>Center city resident</td>
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<td>0.235 (0.005)</td>
<td>0.211 (0.005)</td>
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<td>0.176 (0.005)</td>
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<tr>
<td>Fraction of income from work</td>
<td>0.305 (0.007)</td>
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<td>0.815 (0.004)</td>
<td>0.896 (0.002)</td>
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<td>0.950 (0.001)</td>
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<td>Fraction of income from public assistance</td>
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<td>0.000 (0.000)</td>
<td>0.000 (0.000)</td>
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<td>0.158 (0.004)</td>
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Notes: Computed from weighted tabulations of the 1988, 1989, 1994, and 1995 CPS March supplements. Standard errors in parentheses. See Table 1 for income decile levels.
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Notes: Computed from weighted tabulations of the 1988, 1989, 1994, and 1995 CPS March supplements. Standard errors in parentheses. See Table 1 for income decile levels.
Notes: Estimates of children's health insurance coverage by family income decile from weighted tabulations of the 1988, 1989, 1994, and 1995 March CPS. "Both" refers to coverage from both a private source and the Medicaid program, and "Other" is coverage from other government sources such as CHAMPUS or military coverage.
Notes: Estimates of children’s health insurance coverage by family income decile from weighted tabulations of the 1988, 1989, 1994, and 1995 March CPS. "Eligible" denotes the fraction of children with no coverage but imputed to be eligible for Medicaid.
Figure 3A

Percent Eligible, 1988-1989
by Income Decile: Alternate Rules

Figure 3B

Percent Eligible, 1994-1995
by Income Decile: Alternate Rules

Notes: See notes following continuation of Figure.
Figure 3C

Percent Covered or Eligible, 1988-1989
by Source and Income Decile: Alt. Rules

Notes: Estimates of children's health insurance coverage by family income decile from weighted tabulations of the 1988, 1989, 1994, and 1995 March CPS. "Eligible: '88 rules" denotes the fraction of children with no coverage but imputed to be eligible for Medicaid under the rules in effect in 1988, and "Eligible: '95 rules" denotes the fraction of children with no coverage, ineligible under the rules in 1988, but imputed to be eligible under the rules in effect in 1995.
Notes: Estimates of children’s health insurance coverage by region from weighted tabulations of the 1988, 1989, 1994, and 1995 CPS March Supplements. For definitions, see notes to Figure 2.
Figure 5A
Percent Covered or Eligible, 1988-1989
by Source and Region: First Decile

Figure 5B
Percent Covered or Eligible, 1994-1995
by Source and Region: First Decile

Figure 5C
Percent Covered or Eligible, 1988-1989
by Source and Region: Second Decile

Figure 5D
Percent Covered or Eligible, 1994-1995
by Source and Region: Second Decile

Notes: See notes following continuation of Figure.
Notes: Estimates of children’s health insurance coverage by region from weighted tabulations of the 1988, 1989, 1994, and 1995 March CPS. For definitions, see notes to Figure 2.
Change in Insurance Coverage, 1995-1988
Children, By Coverage Type and Decile

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<th>7</th>
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<th>10</th>
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<tbody>
<tr>
<td>Δ Covered</td>
<td>1.94</td>
<td>8.44</td>
<td>3.54</td>
<td>-3.78</td>
<td>-4.9</td>
<td>-3.47</td>
<td>-2.24</td>
<td>-1.73</td>
<td>-1.98</td>
<td>-2.15</td>
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<tr>
<td>Δ(Cov'd. or elig.)</td>
<td>3.55</td>
<td>16.22</td>
<td>17.46</td>
<td>0.08</td>
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<td>-3.43</td>
<td>-2.17</td>
<td>-1.74</td>
<td>-1.98</td>
<td>-2.15</td>
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</table>

Notes: Changes in insurance coverage for children from weighted tabulations of the 1988, 1989, 1994, and 1995 March CPS.
Net change in coverage, 1995-1988, by decile:

<table>
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<th>Decile</th>
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<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>Δ Covered</td>
<td>-4.80</td>
<td>-0.63</td>
<td>-7.48</td>
<td>-7.45</td>
<td>-3.57</td>
<td>-8.43</td>
<td>-6.77</td>
<td>-2.25</td>
<td>-2.73</td>
<td>-3.41</td>
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</tbody>
</table>

Notes: Graphs of change in eligibility of the 1988 population against changes in coverage from the 1988, 1989, 1994, and 1995 March CPS. In the regressions the regions are weighted by the fraction of the population which they represent.
### Table A1: Regression Coefficients

<table>
<thead>
<tr>
<th>Deciles in regression</th>
<th>Coverage type</th>
<th>Slope (standard error)</th>
<th>Constant</th>
<th>Adjusted R²</th>
</tr>
</thead>
<tbody>
<tr>
<td>Deciles 2, 3, 4</td>
<td>Medicaid</td>
<td>0.471 (0.112)</td>
<td>0.106</td>
<td>0.393</td>
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<td></td>
<td>Private</td>
<td>0.251 (0.137)</td>
<td>-0.176</td>
<td>0.083</td>
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<tr>
<td>Deciles 2 and 3</td>
<td>Medicaid</td>
<td>0.483 (0.177)</td>
<td>0.103</td>
<td>0.275</td>
</tr>
<tr>
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<td>Private</td>
<td>0.072 (0.194)</td>
<td>-0.139</td>
<td>-0.054</td>
</tr>
<tr>
<td>Deciles 5 and 6</td>
<td>Medicaid</td>
<td>-0.003 (0.073)</td>
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<td></td>
<td>Private</td>
<td>0.007 (0.149)</td>
<td>-0.118</td>
<td>-0.062</td>
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</table>

Notes: Regressions of changes in coverage on change in eligibility of the 1988 March population computed from 1988, 1989, 1994, and 1995 CPS March Supplements. The regions are weighted by the fraction of the population which they represent.
## Appendix Figure A1

<table>
<thead>
<tr>
<th></th>
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</thead>
<tbody>
<tr>
<td>Optional: States may raise the income eligibility threshold above AFDC levels to as high as the Federal poverty level for pregnant women, infants, and children up to 5 years of age, even if the principal earner is employed. (Children may be phased in gradually.)</td>
<td>Optional: States may raise income thresholds for pregnant women and infants to 183% of the Federal poverty level. States may cover children under age 2, 3, 4, or 5 who were born after 9/30/83 with incomes below the Federal poverty level.</td>
<td>Required (MCCA): States must cover pregnant women and infants with incomes less than or equal to 75% of the poverty level (100% by the following year). Optional (MCCA): States may cover children up to 8 years of age with incomes less than or equal to 75% of the poverty level.</td>
<td>Required (FSA): States must extend Medicaid coverage to eligible 2-parent families where the principal earner is unemployed.</td>
<td>Required: States must cover children under age 19 who were born after 9/30/83 whose family income level is below 100% of the poverty level. States must continue benefits for pregnant women until 2 months after the end of pregnancy, and for infants through the first year of life.</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Sources: Chang and Holahan (1990), Green Book (1986-1991)

Notes:
1. OBRA=Omnibus Budget Reconciliation Act, MCCA=Medicare Catastrophic Coverage Act, FSA=Family Support Act
2. The provision of MCCA that would have raised the eligibility threshold to 100\% of the Federal poverty level was superseded by OBRA 1989.