Medical Care for Children: Public Insurance, Private Insurance, and Racial Differences in Utilization

Author(s): Janet Currie and Duncan Thomas

Source: *The Journal of Human Resources*, Vol. 30, No. 1 (Winter, 1995), pp. 135-162
Published by: University of Wisconsin Press
Stable URL: http://www.jstor.org/stable/146194
Accessed: 20-09-2017 23:33 UTC

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Janet Currie
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ABSTRACT

Data from two waves of the Child-Mother module of the National Longitudinal Surveys are used to examine the medical care received by children. We compare those covered by Medicaid, by private health insurance and those with no insurance coverage at all. We find there are substantial differences in the impact of public and private health insurance and these effects also differ between blacks and whites. White children on Medicaid tend to have more doctor checkups than any other children and white children on Medicaid or a private insurance plan have a higher number of doctor visits for illness. In contrast, for black children, neither Medicaid nor private insurance coverage is associated with any advantage in terms of the number of doctor visits for illness. Furthermore, black children with private coverage are no more likely than those with no coverage to have doctor checkups; black Medicaid children are more likely than either group to have checkups although the gap is not precisely estimated. We exploit the longitudinal dimension of the data in order to take account of potential selection and thus include child specific fixed effects in the models. The results are robust to the inclusion of these controls for unobserved heterogeneity. They suggest that private and public health insurance mean different things to different children, and that national insurance coverage will not equalize utilization of care.

Janet Currie is a professor of economics at the University of California, Los Angeles and a researcher at NBER. Duncan Thomas is a researcher at the RAND Corporation and a professor of economics at the University of California, Los Angeles. *The authors thank David Cutler, Mike Grossman, Jon Gruber, Joseph Newhouse, Jim Poterba, Jim Smith, Jon Skinner, and two anonymous referees for helpful comments; Nancy Cole provided excellent research assistance. Janet Currie gratefully acknowledges support from the National Science Foundation (SES-9122640) and from the NBER Olin fellowship. The data set used in this paper is available from the authors upon request.*

I. Introduction

Medicaid is a federal-state matching entitlement program providing medical insurance to low-income persons. In 1989 10.3 million dependent children under age 21 were covered at a cost of $6.9 billion (U.S. Committee on Ways and Means 1990).[1] The introduction of Medicaid in 1965 coincided with decreases in infant mortality, increases in hospitalization rates for poor children, and an increase in the frequency of doctor visits for poor relative to nonpoor children (Danzinger and Stern 1990; Starfield 1985; Colle and Grossman 1978).

However, despite these advances, America's children remain in poor health relative to those in other industrial countries. At 10 per 1,000, the infant mortality rate in the United States is the highest in the developed world. Compared with Canadian children, U.S. children under 15 years of age had 28 percent more disability days and 44 percent more bed days. Children under one year of age had a 14 percent higher mortality rate and children one to four years of age had a mortality rate 8 percent higher than Canadian children (Kozak and McCarthy 1984). There are also dramatic differences in the health and health care of blacks and whites. The infant mortality rate among blacks is double that among whites, and in some states, black rates rival those of developing countries (Danzinger and Stern 1990). Whites are also much more likely to utilize the medical care system: in 1988, visit rates were 108 per 100 children under 21 for whites but only 77 per 100 among blacks (Woodwell 1992).

These high rates of mortality and morbidity, along with the evidence on racial differences, suggest that poor children in the United States are not receiving the same quantity or quality of health care as children in other developed countries. The question is, do these differences reflect incomplete insurance coverage? If so, then extending insurance to all children would result in the elimination of these gaps. This question is addressed in two ways in this paper. First, we compare the care received by children with public insurance, private insurance, and by the uninsured. Second, we examine differences in the health care utilization of black and white children with similar kinds of insurance coverage.

The uninsured are known to receive less health care than the insured (Davis and Reynolds 1976, Manning et al. 1987). And in 1988, 17 percent of all children and 28 percent of children with family incomes less than $10,000 were without health insurance coverage of any kind (Bloom 1990). These low rates of insurance coverage are often cited in the current debate over the creation of a national health insurance system. If high mortality and morbidity are solely the result of an inability to pay for care, then we expect to find that Medicaid coverage has the same effect on the utilization of care as private insurance coverage, and that white and black children with similar insurance coverage report similar rates of utilization.

Alternatively, differences in the effects of private insurance and Medicaid, or in the effects of insurance coverage on whites and blacks, might reflect a lack of

1. Expenditures on children constitute only 12.6 percent of Medicaid expenditures. The average Medicaid expenditure per child is $682 compared with $5,928 for an aged person, and $1,290 per AFDC adult (U.S. Committee on Ways and Means 1991).

access to providers of quality care. Many doctors do not participate in the Medicaid program, and those who do spend significantly less time with their patients than other doctors (Sloan, Mitchell and Cromwell 1978, Decker 1993).[2] Many states limit the services available to Medicaid patients: for instance, in fiscal year 1986, Texas did not cover clinic services, Connecticut did not cover emergency services and New Hampshire restricted Medicaid patients to 12 outpatient visits per year (U.S. Health Care Financing Administration 1988). Finally, bureaucratic delays may pose a significant barrier to timely care: the average delay in processing applications is four weeks (AGI 1988).

Problems of access are thought to be particularly acute among black children because of residential segregation. Fossett and Peterson (1989) find that areas with higher degrees of residential concentration of Medicaid patients have lower doctor participation rates, while Gemson et al. (1988) find that doctors with a high share of black patients provide lower quality care. Black children are twice as likely as white children to receive care in an "organized setting" such as a clinic or emergency room rather than from a private provider, HMO, or prepaid group practice (Bloom 1990). It may well be the case that clinics and emergency rooms provide medical care whether or not a child has insurance coverage so that, to the extent that black children rely on these sources of care, insurance coverage may confer less of an advantage relative to no insurance coverage.

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If it is the case that insurance coverage has the same effect on all children regardless of race or source of coverage, then we can infer that recent extensions of Medicaid coverage to all poor children will have a powerful effect on children's health, even in the absence of further measures aimed at improving access. These

2. One reason for this may be that Medicaid fees are on average 75 percent of a doctor's usual fee. However, according to a survey conducted by the Alan Guttmacher Institute in 1986, there are many other reasons why doctors do not participate in the program. In their words: "There is more red tape under Medicaid than under private insurance. Medicaid often uses a different claim form from other insurers, requiring a separate computer system; it sometimes uses different procedure codes or diagnosis codes on its claim forms; claims are paid late and are sometimes denied on a technicality; in some states Medicaid funds are exhausted part way through the year and no further claims are paid; there are often different rules and reimbursement schedules for clinics, hospitals and physicians, complicating the practice of physicians who work in more than one setting; reimbursement policies change frequently but providers are often not notified of the changes until after claims have already been denied. . ." (AGI 1988). Furthermore, evidence suggests that Medicaid patients are more likely to have been denied care than either those on private insurance or those who have no insurance (Saver and Peterfreund 1993).

extensions have been considerable. Effective July 1, 1991, all states are required to cover all those children who were born after September 30, 1983 and whose family incomes are below the federal poverty line (U.S. Committee on Ways and Means 1991). As of July 1990, 24 states had made use of an option to extend coverage to pregnant women and also to children under one year of age, provided household income lies between 133 and 185 percent of the federal poverty line (depending on the state).

Longitudinal data from the 1986 and 1988 waves of the Child-Mother module of the National Longitudinal Survey of Youth (the NLSCM) are used. These data contain a broad array of information about both mothers and their children. We focus on measures of health care utilization over the previous year of children aged one through nine. For those born between 1979 and 1985, we have repeated observations on the same child. This is a key advantage of these data as it enables us to control for the possibility that Medicaid children differ from their peers with private insurance or without insurance coverage in unobserved ways. That is, we compare estimates of the effects of insurance with and without child-level fixed effects.

We find substantial differences between blacks and whites in terms of the effects of Medicaid and private insurance on health care utilization. White children on Medicaid tend to have more doctor checkups than any other children, and white children with any coverage, be it public or private, have a higher number of doctor visits for illness. In contrast, for black children, neither Medicaid nor private insurance coverage is associated with any advantage in terms of the number of doctor visits for illness. Furthermore, black children with private coverage are no more likely than those without coverage to have doctor checkups; Medicaid-covered children are more likely than either group to have checkups although the gap is not precisely estimated. The differences between the impact of insurance on black and white children persist across the income distribution. They suggest that private and public health insurance mean different things to different children, and that national insurance coverage will not equalize utilization of care.

II. Conceptual Framework

In order to examine the relationship between Medicaid and the medical care of children, we draw on an economic model of household choices. Following Becker (1981), Becker and Lewis (1974), and Grossman (1972), we assume that household utility depends on the consumption of goods and on the "quality" of children. Health is an index of child quality and is "produced" by combining inputs given the technology underlying a health production function. The input that is the focus of our attention is medical care and, in particular, we are interested in the relationship between it and two types of health insurance: private coverage and Medicaid.

Parents are assumed to maximize utility subject to the household budget constraint and health production function. The shape of the latter will depend on family and neighborhood characteristics such as the individual's health endow-

ment as well as the health environment and availability of health services. Other individual, household and community characteristics, such as parental education, are likely to also affect the choice of technology and the effectiveness with which inputs can be combined. The household optimization problem can be solved to yield a conditional demand function (Pollak 1969), which is conditioned on whether or not the family is covered by Medicaid or a private insurance plan. It is this function that we estimate:

$$(1) \quad \theta = f(x_c, x_f, x_n, I(m), I(p), \varepsilon)$$

where θ is a measure of child medical care, x_c are characteristics of the child, x_f are characteristics of the family and x_n are characteristics of the neighborhood, all of which are assumed to be exogenous. $I(m)$ is an indicator function denoting the child is covered by Medicaid and $I(p)$ indicates the choice to have the child covered by private insurance.

Health insurance coverage under Medicaid may have both an income effect (shifting the budget constraint outward) and a price effect (reducing the relative cost of medical care). Hence, under reasonable assumptions, one might expect Medicaid coverage to be associated with an increase in the utilization of medical care, other things being equal. It is, however, possible that being covered by Medicaid will have little or no effect on behavior. For example, the opportunity cost of medical care may be at least as high for families covered by Medicaid as those without coverage if the cost of locating and traveling to a participating physician is high. Secondly, the quality of service received by Medicaid patients may be sufficiently low to induce no change in behavior. Private insurance will also have a price effect but the income effect will be in the opposite direction. If the price effect dominates, then children on private insurance will also be more likely to receive medical care.

The error term, ε may be comprised of unobserved community, family and child specific components. These include community characteristics that are not included in our data, such as the accessibility and quality of medical services. Furthermore, the neighborhood of interest is likely to be a more refined than the county which is the smallest geographical unit that can be identified in these data. Unobserved mother (or family) specific factors that might influence the demand for health care include the mother's knowledge of appropriate medical care and her living conditions. Child-specific unobservables include the child's innate healthiness, his or her accident propensity, and so on. Omission of these variables from (1) may result in biased Ordinary Least Squares (OLS) estimates of the effect of insurance on the child's utilization of health care. Medicaid children tend to come from disadvantaged families and children on private insurance are typically better off. Thus, it seems reasonable to suppose that if OLS estimates are biased because of omitted variables having to do with resources, then the bias will be in opposite directions for the two types of insurance.

A related econometric problem is that the decision to purchase private health insurance or to enroll in Medicaid is properly treated as a choice in the context of this model. Thus, the (unobserved) characteristics embodied in ε may be correlated with the child's probability of being covered by Medicaid or private insurance and, once again, the OLS estimates will be biased. Two empirical strategies

may be used to address both the problem of omitted variables and endogeneity: fixed effects and instrumental variables.

We report estimates that include child specific fixed effects which control for child, family and community unobservables. These estimates will be unbiased as long as the unobservables remain stable over time and there are no interactions between the fixed effects and other explanatory variables. However, it must be kept in mind that this class of estimates relies on children whose insurance coverage changed over time (or at least differed from their siblings' coverage). These "changers" may be unrepresentative of the population as a whole. We view a comparison of OLS with fixed-effects estimates as indicative of the robustness of results to changes in the underlying statistical assumptions.

A second solution to potential problems associated with omitted variables and selection is to use instrumental variables (IV) methods to purge common elements in Medicaid or private insurance coverage and the unobservables in (1). Following the spirit of several recent "natural experiments" reported in the economics literature, we have treated country and state-level variation in the generosity of welfare programs as instruments for the mother's participation in Medicaid.[3] There is a good deal of variation in the instruments and they do have explanatory power with over a quarter of the variation in the probability of Medicaid coverage being explained in first stage regressions. The second stage estimates, however, are very imprecise and according to Wu-Hausman tests, Medicaid may be treated as exogenous in these models and so there is no statistical reason to prefer IV over OLS estimates. It is well known that Hausman tests can lack power and our finding is hardly surprising in view of the imprecision of the IV estimates. Nelson and Startz (1990a, 1990b) demonstrate that in the bivariate case, the IV "cure" for endogeneity bias can be worse than the disease when the correlation between the instrument and endogenous regressor is low. See also Staiger and Stock (1993) and Bound, Jaeger, and Baker (1993). In our application, therefore, it makes better sense to focus on the OLS and fixed effects estimates.

III. Data

The National Longitudinal Survey of Youth (NLSY) began in 1979 with 6,283 young women between the ages of 14 and 21. These women have been surveyed annually ever since. In 1986, the NLS incorporated an additional module that focused on mothers and their children: the National Longitudinal Survey of Children and Mothers (NLSCM). A second wave, covering the same mothers and their children, was conducted in 1988.

Each wave of the NLSCM provides a good deal of information on child behav-

3. These instruments include Medicaid payments per capita and AFDC payments per capita measured at the county level and the income cutoff for the participation of pregnant women and infants in the Medicaid program. We have also experimented with additional instruments that are not as pure; they include the number of Medicaid recipients, value of payments and number of AFDC recipients per capita measured at the state level; the fraction of state Medicaid payments which are made to dependent children under 21 years of age; and the fraction of state Medicaid recipients who are dependent children under 21 years of age. See Currie and Thomas (1993) for the sources of these data.

ior and development along with detailed information on the medical care each child received as reported by the mother. The focus in this paper is on these measures of health care utilization. First, we consider whether or not the child had a routine health checkup in the previous six months, which is an indicator of utilization. Second, we examine the number of illnesses requiring medical attention in the past year. Clearly this is a measure of *both* reported morbidity and the propensity to utilize care and it is not possible to disentangle these effects. Furthermore, reported morbidity is a function of both underlying health and the propensity of the mother to report ill-health of her child; again, we are unable to separate the two. Since better educated and higher income mothers are empirically more likely to report their children as being sick (Sindelar and Thomas 1993), we will include controls for household resources and maternal human capital in the regressions below. Unfortunately, while a good deal is known about medical care utilization of each child in the NLSCM, rather little is known about his or her health status. It is, therefore, not possible to directly examine these outcomes. Indeed, measurement of health status is far from straightforward, particularly in a household survey setting, and this is an issue over which there is considerable debate in the health literature (see, for example, Kroeger 1992).

In both waves of the NLSCM, mothers were asked whether the child's health care was covered by Medicaid or by private health insurance. We will estimate the relationship between insurance and the two measures of health care utilization. By matching the two waves of the NLSCM, we can go one step further and examine the impact of changes in public or private health insurance and utilization. Put another way, we will estimate these relationships while also controlling for all unobserved effects that are fixed over time. As discussed in the previous section, this is potentially important since health insurance coverage—be it through Medicaid or private insurance—is properly treated as a choice in the context of a model of household decision making. As long as the family or child characteristics that affect these choices do not change over the two year period we are examining, then the fixed effects estimates will provide consistent estimates of the impact of insurance on health care utilization.

An additional important feature of these data is that the NLSY oversampled blacks, hispanics, and families who were identified as being in poverty at the inception of the survey in 1979 (the so-called Poverty sample). Thus the NLSCM sample is not nationally representative, but it does focus on the poor, minority children who are most likely to be covered by the Medicaid program, or if they are not, to be left without any insurance at all. About one quarter of the sample are covered by Medicaid and nearly 60 percent have health insurance, leaving 15 percent of the children without any coverage.

IV. Results

Sample characteristics are reported in Table 1 distinguishing race and health insurance status. The table underscores the need to control for the characteristics of the children when investigating the effect of Medicaid and private insurance. By virtue of the nature of the program, Medicaid children are from

Table 1
Sample Characteristics

	Whites Insurance Status			Blacks Insurance Status		
	Private	Medicaid	None	Private	Medicaid	None
	(1)	(2)	(3)	(4)	(5)	(6)
Sample size	3,365	918	1,258	1,091	893	452
Race-specific proportions	61	17	22	45	37	19
Mother characteristics						
Permanent income	10.29	9.51	9.81	9.98	9.26	9.59
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
Proportion in poverty sample	0.37	0.59	0.52	0.70	0.78	0.76
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)
Education of mother	12.37	10.90	11.08	12.73	11.37	11.85
(highest grade in 1988)	(0.03)	(0.06)	(0.06)	(0.05)	(0.05)	(0.08)
AFQT score of mother	287.06	262.17	279.15	239.63	223.60	223.77
	(6.25)	(9.17)	(8.81)	(8.71)	(7.58)	(11.50)
Proportion						
Mother's employed	0.64	0.16	0.46	0.75	0.19	0.56
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)
Spouse/partner present	0.88	0.43	0.79	0.63	0.16	0.40
	(0.01)	(0.02)	(0.01)	(0.01)	(0.01)	(0.02)
Mother urban at age 14	0.76	0.82	0.77	0.77	0.79	0.80
	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.02)

Child characteristics						
Sample sizes						
1–2 years	985	226	335	269	189	107
3–4 years	952	266	343	279	235	117
5–9 years	1,428	426	580	543	469	228
Age	67.72	72.38	72.18	72.69	77.49	74.09
Proportion male	0.51	0.51	0.52	0.47	0.49	0.49
Percent routine health checkup in past six months						
1–2 years	0.75	0.77	0.69	0.78	0.81	0.75
	(0.01)	(0.03)	(0.03)	(0.03)	(0.03)	(0.04)
3–4 years	0.51	0.67	0.50	0.53	0.68	0.61
	(0.02)	(0.03)	(0.03)	(0.03)	(0.03)	(0.05)
5–9 years	0.41	0.47	0.37	0.47	0.57	0.36
	(0.01)	(0.02)	(0.02)	(0.02)	(0.02)	(0.03)
Number of illnesses requiring medical attention in last 12 months						
1–2 years	2.02	1.46	1.41	1.16	0.63	0.97
	(0.10)	(0.20)	(0.15)	(0.16)	(0.11)	(0.20)
3–4 years	1.16	1.06	0.96	0.59	0.39	0.50
	(0.06)	(0.10)	(0.12)	(0.07)	(0.08)	(0.13)
5–9 years	0.94	0.79	0.65	0.51	0.41	0.28
	(0.05)	(0.08)	(0.07)	(0.06)	(0.05)	(0.05)

Notes: Data from 1986 and 1988 waves of National Longitudinal Child-Mother Survey. Total sample 7,977. Permanent income measured in thousands 1988 dollars. Poverty sample identified at start of NLSY in 1978. Standard errors in parentheses.

relatively disadvantaged backgrounds. Relative to all other children, household "permanent income" (the average of household income from 1978 through 1988)[4] is lowest and they are more likely to be in the "poverty" sample. Their mothers are less educated, score lower on the Armed Forces Qualification Test (AFQT),[5] are more likely to be single and unemployed. In contrast, children covered by private insurance are from better off families as measured by all of these indicators.

There are stark differences between blacks and whites. Whereas, among whites, about one child of every six is covered by Medicaid, the program covers more than twice the proportion of black children (over a third). Since the proportions of children without coverage are about the same across the two groups, whites are much more likely to be covered by private insurance. It turns out, however, that these differences are largely a reflection of differences in levels of household resources. Nonparametric estimates of the relationship between permanent income and the probability of being covered by Medicaid or private insurance are displayed in Figure 1.[6] Medicaid coverage tends to decline with permanent income whereas private health insurance coverage is more likely among the higher income households. Controlling for permanent income, however, there are no significant racial differences in the probability of being covered by either Medicaid or private insurance although there is a suggestion that at the bottom of the income distribution, blacks are more likely to be on Medicaid than whites (controlling for income).

Differences in resource levels of blacks and whites are also reflected in the other indicators in Table 1. Even conditional on insurance status, whites have significantly higher levels of income than blacks; black mothers are much more likely to be in the poverty sample and to be single. In fact, the mothers of five

4. We measure income using mean real household income over the 1978 to 1988 period. Household income in each year is deflated using the Consumer Price Index All Items (1977 = 100). Where available, the CPI for the SMSA is used; otherwise a measure which varies across the 4 region is adopted. We use this indicator of "permanent" income rather than income in a particular year for two reasons. First, it mitigates problems due to measurement error. Second, it unties the link between current income and Medicaid participation. Permanent income might be regarded as a longer-run characteristic of a person that is not highly correlated with Medicaid status at a point-in-time.

5. The Armed Forces Qualifications Test is a test of cognitive achievement and may be interpreted as an indicator of human capital accumulation.

6. These are locally weighted smoothed scatterplots (*LOWESS*) (Cleveland 1979; Hardle 1991) which are nearest neighbor-type estimates. Essentially, each observation is replaced by its predicted value based on a weighted regression of the dependent variable on the independent variable using the observations in a band around it. The choice of the band width is arbitrary: we have experimented with a range of values and report those estimates that seem to us to be sufficiently smoothed to characterize the shape of the relationship. In each case in Figure 1, the band-width is 2,400 observations (30 percent of the sample). It is also necessary to choose the weighting function (or kernel). We have chosen a "tricube" which is bell-shaped and gives positive weight to each observation within the band. The weight is equal to one at the point itself and declines for points that are further away. Observations outside the band are given a weight of zero. If the observation is denoted (y_i, x_i), then the weights are given by $w_j = (1 - d_j^3)^3$, where d_j is a measure of the distance between observation j and the observation of interest, i. In the simple regression case $d_j = (x_j - x_i)/(x_i^* - x_i)$, where x_i^* is the furthest observation from observation i within that band of 2,400 observations.

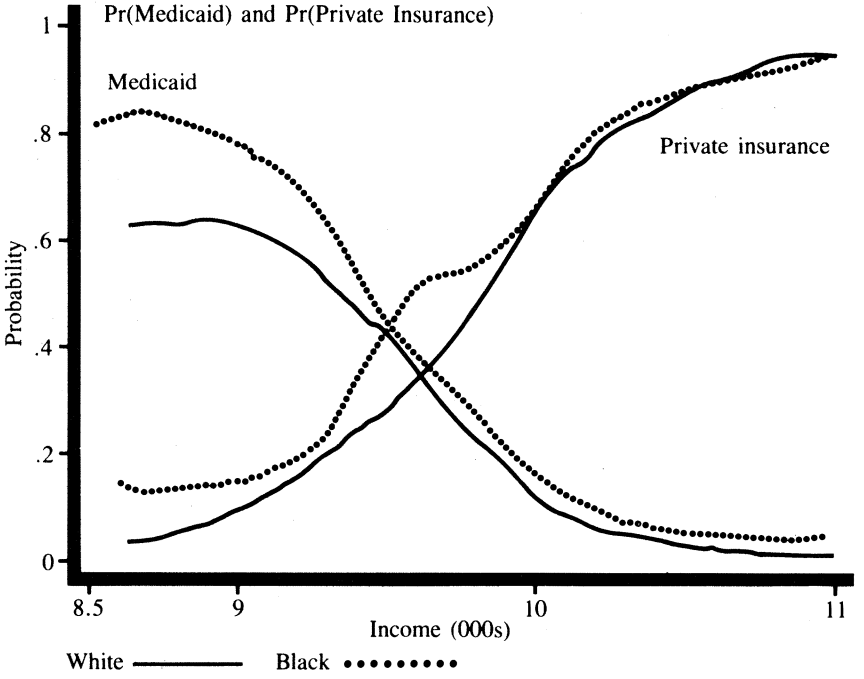

Figure 1
Relationship between Medicaid, private insurance coverage, and (log) income Nonparametric estimates

out of every six black children on Medicaid are single. Even though black mothers are more likely to be working than whites, their household incomes are lower which is a reflection of the extent of single motherhood among these black women.

We turn next to the measures of child health care utilization which are in the lower half of Table 1. For each child, the mother reports whether the child had a routine health checkup in the previous month, three months, six months, year, or two years. Whereas 12 percent of sample children had had a checkup in the month before the survey, about three quarters had had one in the previous year. About one-half of the children had a checkup during the previous six months: we focus on checkups during that interval. This choice has no impact on our general conclusions although there are differences in detail; they are discussed in the text. It is recommended that a child has at least four checkups in the first year and three in the second (if only for immunizations) and the recommended frequency declines with age. This pattern is observed in the NLSCM. For example, three quarters of the children aged two or less had a checkup in the previous six months but this is true for less than half those aged five or above.

In general, within age groups, children without any coverage are the least likely to report having a checkup in the past six months and children on Medicaid are the most likely. In all age groups, Medicaid children are significantly more likely to report a checkup than those without any coverage and this gap rises with age, at least among blacks. Among small children (one and two year-olds), those on Medicaid are slightly more likely to report a checkup than those on private insurance, but these differences are not large. Among older children, however, this gap is quite substantial and significant for both three and four year-olds as well as five to nine year-olds. If routine checkups are indicative of access to health care, then this suggests that Medicaid children, and particularly black Medicaid children, have the greatest access among all children including those with private health insurance.

In view of the fact that children on Medicaid tend to come from poorer families than those with private insurance, it is worth paying special attention to the relationship between income and doctor checkups. Non parametric estimates of this relation are displayed in the upper panel of Figure 2.[7] At all income levels, blacks are more likely to report a checkup than whites and Medicaid children are considerably more likely to report a checkup than those on private insurance.

Returning to the final panel of Table 1, we find that, like routine checkups, the reported number of illnesses that require medical attention tends to decline with the age of the child. But that is where the similarity between the two indicators of health care utilization ends.

Mothers of white children are much more likely to report visits for illness than those of black children. Children on private insurance are more likely to see a doctor because of an illness than either those with no insurance or those on Medicaid. This difference is significant for white children of all ages and also for young blacks (one and two year-olds). In contrast, the differences between those on Medicaid and those without any coverage are smaller. Among whites, children on Medicaid tend to report more illnesses than those without coverage, especially among older children (although none of these differences is significant).

For blacks, the reverse is true. Whereas Medicaid children are the most likely to have a doctor's checkup, they are the least likely to see a doctor in case of an illness, especially among young blacks. For example, infants report almost one third of an illness less than children with no insurance and half an illness less than those with private insurance. If this pattern reflects selection, then it suggests that white families with children who are less healthy tend to be on Medicaid. But, for blacks, the selection mechanism is the reverse with healthier children being on Medicaid. In principle, selection (whatever the mechanism) will be taken into account in the fixed effects models reported below.

A. Controlling for Observable Characteristics

We begin by determining the extent to which differences reported in Table 1 and Figure 2 can be accounted for by differences in observable characteristics of the

7. The LOWESS estimates are based on 60 percent bandwidths of log(permanent income).

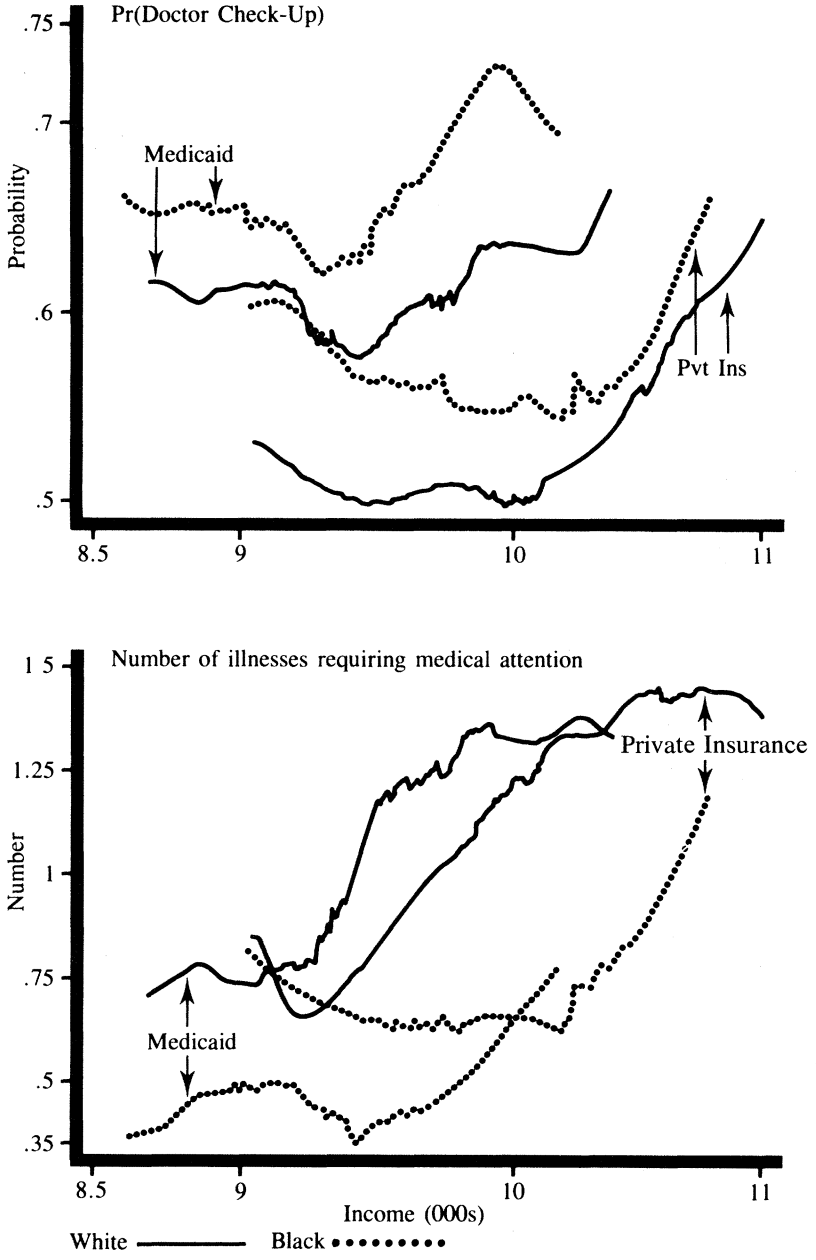

Figure 2
Relationship between medical utilization and (log) income
Nonparametric estimates

children. Ordinary Least Squares estimates of the probability that a child had a routine health checkup in the past six months and of the number of illnesses requiring medical attention in the past year are reported in Table 2.

As an empirical matter, there are significant and important differences between black and white children. We thus estimate fully saturated models that allow all effects to differ between blacks and whites by interacting each covariate with an indicator variable for black. This amounts to estimating separate models for the two groups but has the advantage of placing the spotlight on differences between them.

The regressions include dummy variables for both Medicaid coverage and private health insurance coverage. The excluded category is no insurance. In order to isolate the impact of insurance from income, it is important to control for resources and so we include household permanent income along with a control that identifies whether the mother was in the poverty sample (as of 1978). Maternal human capital is measured by her years of education as well as her score on the AFQT test. In addition, we include a series of indicators of health service availability in the community as well as country per capita income.

The hypothesis that children of all ages can be pooled is rejected in the regression models and so the data have been stratified into the three age groups. These differences are likely to reflect changes in the health production function over the course of a child's life. Since observations from both the 1986 and 1988 NLSCM surveys have been pooled, a control for the earlier survey is included to allow for possible differences between the two waves.

The first three columns of Table 2 report linear probability estimates for doctor checkups in the previous six months. We find that, among white children, Medicaid coverage is associated with a higher probability of a routine checkup, relative to no insurance, and the effect is both large and significant for all age groups. For example, among three and four year-olds, those on Medicaid are 13 percent more likely to have a checkup. The results for black children on Medicaid are similar. They are between 6 percent and 16 percent more likely to have a routine checkup (and these effects are significant for children aged four and older).[8]

Apparently, the differences between Medicaid children and those with no coverage, reported in Table 1, are not explained by observable differences among children: the adjusted gaps in Table 2 are almost identical to those that do not include controls (in Table 1). The higher probabilities of checkups among blacks, relative to whites, is, however, affected by the inclusion of controls: for young children the advantage is wiped out and it is substantially reduced for older children. This result suggests that blacks who are better off, at least in terms of human capital, benefit more from being on Medicaid.

In contrast with Medicaid children, there appear to be no significant effects of private health insurance coverage on the probability of a routine checkup although there is some suggestion that among older children (five and above) the effects are positive. But even among them, the effect is small. These results may reflect the fact that many private insurance policies do not cover pediatric preventive

8. The F tests for joint significance of Medicaid and its interaction with black are 4.1 and 14.6 respectively.

care (Mitchell and Schurman 1984) so that children do not receive regular preventive care until they enter the school system.

Comparing Medicaid children with those covered by private insurance, we find that the probability of a doctor checkup is systematically higher if the child is covered by Medicaid. This is true for all age groups and both races. The difference is quite large in some cases (around 15 percent for both black and white three and four year-olds) and is significant for both those groups of children as well as for older blacks.[9] These differences may just be picking up the role of resources although it does seem unlikely that lower income children are more likely to have regular checkups. Income effects turn out to be neither large nor significant and recall that in Figure 2 the gaps between those on Medicaid and private insurance persist across the income distribution. It would seem, then, that children on Medicaid are significantly more likely to have a regular checkup.

Turning next to the number of illnesses requiring medical attention in columns 4 through 6, white children with insurance are significantly more likely to visit a doctor for an illness than those without any coverage. The benefits of insurance are essentially the same for both those with private coverage and those with Medicaid.[10] Among white children who are one or two years old these effects are large: those with some insurance coverage are estimated to receive half a visit more than children who have no coverage. The benefits tend to dissipate with age but remain statistically significant even among school-aged children.

In contrast, among black children of all age groups, the number of visits for illness is unrelated to whether they have Medicaid coverage, private insurance coverage or no coverage at all. (The sum of the direct effect and interaction is negative for one and two year-olds and slightly positive for the rest.) In fact, among those children aged one and two who are covered by private insurance, black children have significantly fewer visits than white children suggesting that private insurance means different things to different children.

If the number of doctor visits were a measure of morbidity, then a possible interpretation of this finding would be that white children with either private or public health insurance are sicker than other white children while black children with insurance are not similarly selected. But a look at the other covariates in the model suggests this interpretation is not correct. The reported number of illnesses requiring medical attention tends to be positively associated with correlates of socioeconomic status: the impact of the mother's human capital (highest grade and AFQT score) is positive while being in the poverty sample is negatively associated with visits. These results are true after controlling for permanent in-

9. Narrowing the six-month interval has little impact on the conclusions but broadening it to a year does make a difference. In particular, among children five and older, those on private insurance are more likely to have a checkup than those without any insurance. Furthermore, among black children in this age group, there is essentially no difference between those on Medicaid and those covered by private insurance. Very young children, who are supposed to be immunized at checkups, are of special interest. For white children aged one or two, relative to a child with no insurance, a child on Medicaid is 7 percent more likely to have a checkup in the previous year; this rises to 9 percent if the interval is narrowed to six months and to 15 percent for a three-month window. Hence, very young Medicaid children have significantly more frequent checkups than their peers with private insurance or no coverage.

10. The F statistics for differences between Medicaid and private insurance are all less than 0.7.

Table 2
Effect of Medicaid and Private Insurance on the Medical Care of Children: OLS Estimates

	Routine Checkup			Visits for Illness		
	(1)	(2)	(3)	(4)	(5)	(6)
Age in Years	1–2	3–4	5–9	1–2	3–4	5–9
Intercept	0.016	0.755	0.110	−1.997	−0.245	−0.109
	(0.299)	(0.345)	(0.287)	(2.014)	(1.266)	(0.964)
(1) if Black	0.339	−0.662	0.453	−3.434	−0.560	−0.559
	(0.512)	(0.581)	(0.449)	(3.447)	(2.126)	(1.508)
Insurance						
(1) if on Medicaid	0.087	0.132	0.090	0.424	0.350	0.215
	(0.038)	(0.040)	(0.031)	(0.254)	(0.146)	(0.105)
*Black	−0.025	−0.016	0.065	−0.531	−0.261	−0.149
	(0.065)	(0.069)	(0.051)	(0.439)	(0.254)	(0.172)
(1) if on Private Insurance	0.023	−0.015	0.042	0.468	0.214	0.220
	(0.029)	(0.033)	(0.026)	(0.198)	(0.122)	(0.089)
*Black	−0.007	−0.043	0.020	−0.669	0.006	−0.186
	(0.057)	(0.064)	(0.047)	(0.386)	(0.233)	(0.159)
Mother characteristics						
Permanent Income	0.016	−0.033	−0.018	0.193	0.074	0.059
	(0.028)	(0.033)	(0.028)	(0.192)	(0.119)	(0.093)
*Black	0.032	0.078	−0.049	0.342	−0.010	0.021
	(0.050)	(0.056)	(0.044)	(0.337)	(0.204)	(0.148)
(1) in Poverty Sample	−0.028	−0.010	−0.015	−0.216	−0.094	−0.225
	(0.024)	(0.026)	(0.021)	(0.159)	(0.097)	(0.072)
*Black	0.022	−0.052	−0.045	−0.219	−0.027	0.125
	(0.047)	(0.053)	(0.039)	(0.317)	(0.192)	(0.131)

Education of mother	0.016	0.014	0.001	0.113	0.073	0.058
	(0.006)	(0.007)	(0.006)	(0.040)	(0.027)	(0.020)
*Black	−0.017	−0.008	0.030	−0.001	−0.038	−0.021
	(0.013)	(0.015)	(0.011)	(0.087)	(0.055)	(0.037)
AFQT score of mother	−0.080	−0.148	−0.053	0.209	−0.033	−0.104
	(0.003)	(0.037)	(0.032)	(0.208)	(0.135)	(0.106)
*Black	0.006	−0.202	0.002	0.008	0.390	0.075
	(0.008)	(0.083)	(0.066)	(0.513)	(0.306)	(0.221)
(1) Mother urban at 14	0.011	0.009	−0.003	0.118	0.065	0.060
	(0.027)	(0.030)	(0.024)	(0.184)	(0.111)	(0.081)
*Black	0.021	0.044	0.013	−0.069	0.182	−0.144
	(0.053)	(0.060)	(0.043)	(0.357)	(0.217)	(0.146)
Child characteristics						
(1) if Male	0.005	0.037	0.004	0.443	0.077	−0.032
	(0.022)	(0.025)	(0.020)	(0.146)	(0.090)	(0.067)
*Black	−0.023	−0.004	−0.012	−0.505	−0.096	0.102
	(0.042)	(0.046)	(0.034)	(0.285)	(0.170)	(0.116)
R-Squared	0.045	0.058	0.036	0.052	0.040	0.031
F(all covariates)	20.942	40.027	40.160	30.424	20.710	30.560
# observations	2111	2192	3674	2111	2192	3674

Notes: All covariates interacted with indicator for Black (*Black). Standard errors in parentheses. All regressions include county income per capita; number of physicians per 1,000 state residents; number of hospital beds per 1,000 state residents; state infant mortality rates; dummy variables for residence in Northeast, South, or West, data from 1986 survey and interactions with indicator for black.

come which appears to be unrelated to the number of visits. If the doctor visits were primarily a measure of morbidity, then we would expect opposite signs on these coefficients given the well-established fact that there is a positive association between socio-economic status and health (Black et al. 1988, Feinstein 1992).[11] Our results are consistent with previous work that shows that the number of doctor visits is positively related to socioeconomic status (Davis and Reynolds 1976; Newhouse et al. 1982). Thus, we view this indicator as being, at least in part, a measure of the propensity to utilize medical care.

Some of the visits for illness may take the place of routine doctor checkups in which case the total number of visits is of interest. This measure of utilization is, however, difficult to calculate in these data since mothers only report whether the child had a routine checkup in some interval prior to the survey. Clearly the impact of insurance on total visits is not simply the sum of the coefficients on the probability of doctor checkups and the number of visits for illness (both measured over the last twelve months). It is possible to place bounds on the number of visits by first assuming that if the child had a checkup in the previous one, three, six, or twelve months then he or she had only one checkup. Estimated effects of insurance under this assumption are dominated by the impact on the number of visits for illness: white children on Medicaid or private insurance have equal utilization of the health care system and their utilization is greater than that of white children with no insurance as well as all black children, irrespective of their insurance status. An approximate upper bound can be calculated by assuming that a child who had a routine checkup in the previous three months, for example, had four checkups in the previous year. In this case, differences between those on Medicaid and a private insurance plan do emerge: black and white children on Medicaid use the health system significantly more than all other children.

Finally, as discussed above, the OLS coefficients in Table 2 may be biased by the omission of other important variables that are correlated with Medicaid coverage and with the unobserved health and medical care of the child. For example, Table 1 showed that Medicaid children are more likely to be living in households without a father-figure and that their mothers are more likely to be working. One approach to the problem of omitted variables bias is to simply include all the observable characteristics of the mother and child. We have estimated models similar to those shown in Table 2 except that they include indicators equal to one if the child had a disability, if there was a spouse or partner present in the household, if the mother was working and also the mother's age at first birth.

These additional variables are potentially endogenous, so that estimates based on regressions that include them must be interpreted with caution. For example, whether the mother is single may reflect the same underlying preference structure that leads to her child being covered by Medicaid. Similar arguments can be made regarding the endogeneity of age at first birth and employment status. It turns

11. The positive association between maternal education and self-reported measures of child morbidity has been noted by many researchers (see Sindelar and Thomas 1991, for an example and discussion). We also find that these measures of health care are positively associated with per capita county income and residence in the (better off) Northeast.

out that although some of these additional covariates are significant,[12] their inclusion in the regressions does not alter the key conclusions drawn from Table 2. The results are also robust to estimating logits for the doctor checkup models. In sum, black and white children on Medicaid are more likely to have doctor checkups and white children with private insurance tend to have more illnesses requiring medical attention. It remains to determine the extent to which these results are robust to controlling for unobservable differences among the children: we now turn to this issue.

B. Controlling for Unobserved Characteristics

By taking advantage of the fact that some children are observed in both the 1986 and 1988 surveys, we estimate models that control for all unobservable characteristics that remained fixed during this period. Before discussing these estimates, Table 3 presents some summaries of the raw data. In each panel, the children are stratified into three groups: those that lost insurance coverage between the two surveys (Column 1), those that gained coverage (Column 3) and those whose insurance status did not change (Column 2). In view of the heterogeneity across age groups in Table 2, we focus on children aged five or older (in the second survey).

Slightly over 10 percent of white and 20 percent of black children experienced a change in Medicaid status between 1986 and 1988 and some 20 percent of blacks and whites had a change in private insurance coverage (bottom row of each panel). Children who went off Medicaid or onto a private insurance plan tended to live in households that had an increase in income.[13] For example, income rose by $7,900 among those who exited Medicaid (Panel A, Column 1) and by $5,200 among those who joined a private insurance scheme (Panel B, Column 3). Thus, if going on Medicaid and a private insurance plan have similar effects on child medical care, then it will be difficult to attribute this to an income effect alone.

There are two primary channels through which mothers might exit Medicaid: getting a job or getting married. In the first column and third to fifth rows of the table, we report the probability the mother lost a job, got a job, or had no change in employment status conditional on going off Medicaid. Among mothers of white children who went off Medicaid, about four out of every ten got a job and one in six got married. The probabilities of losing a job or spouse, conditional on enrolling in Medicaid, are in the third column: a quarter lost their jobs and nearly a half split up with their spouses. Roughly similar probabilities are observed for blacks. Looking at Panel B of Table 5, enrolling in a private insurance plan tends to be associated with getting a job (especially for blacks) and to a lesser extent with getting married.

What are the implications for the medical care of children? Those who went on Medicaid are more likely to get a routine checkup than those who went off;

12. In particular, the estimates indicated that children who have a disability receive much more medical attention than those who do not.

13. Here we use contemporaneous income in 1986 and 1988 measured in 1990 dollars.

Table 3

Sample Characteristics of Older Children by Changes in Medicaid or Private Insurance Status Between 1986 and 1988

	Whites			Blacks		
	(1)	(2)	(3)	(1)	(2)	(3)
	Panel A: Change in Medicaid Status					
Medicaid status	Lost	No Change	Gained	Lost	No Change	Gained
Change in income (000s)	4.829	1.971	0.397	7.900	0.245	−0.543
(Standard error)	(1.10)	(0.69)	(1.77)	(5.59)	(0.61)	(0.82)
Mother's job						
% Lost	1.8	11.8	24.1	4.1	7.0	20.6
% No change	59.1	70.0	68.3	58.7	79.9	70.6
% Gained	39.1	18.2	7.6	37.2	13.1	8.8
Mother's spouse						
% Lost	8.8	8.1	46.8	7.4	9.0	29.4
% No change	74.5	84.1	45.6	80.2	83.8	64.7
% Gained	16.5	7.8	7.6	12.4	7.2	5.9
Child routine checkup						
% Lost	27.8	20.1	15.2	24.0	18.4	19.1
% No Change	60.9	60.8	62.7	62.0	62.1	60.3
% Gained	11.3	19.1	24.1	14.0	19.5	20.6
Child number of visits for illness						
% Lost	39.3	29.8	25.3	14.1	19.2	14.7
% No Change	50.4	47.8	57.0	67.8	65.0	76.5
% Gained	10.4	22.4	17.7	18.2	15.8	8.8
Number of observations (%)	115	1480	79	121	697	68
	6.9	88.4	4.7	13.7	78.6	7.7

	Panel B: Change in Private Insurance Status					
Private insurance status	Lost	No Change	Gained	Lost	No Change	Gained
Change in income (000s)	−0.622	2.121	3.453	−0.105	0.797	5.178
(standard error)	(1.37)	(0.76)	(0.94)	(1.16)	(1.12)	(1.58)
Mother's job						
% Lost	23.4	10.7	10.9	18.6	6.8	4.8
% No change	59.4	71.4	62.0	68.6	78.9	65.7
% Gained	17.2	17.9	27.1	12.8	14.4	29.5
Mother's spouse						
% Lost	17.2	9.9	6.6	16.3	9.5	11.4
% No change	78.1	82.4	79.5	82.6	82.7	75.2
% Gained	4.7	7.7	14.0	1.2	7.8	13.3
Child routine checkup						
% Lost	18.0	20.6	20.5	19.8	18.9	21.0
% No change	63.3	60.6	61.1	61.6	62.0	61.9
% Gained	18.8	18.8	18.3	18.6	19.1	17.1
Child number of visits for illness						
% Lost	35.9	29.1	33.6	16.3	18.3	19.1
% No change	49.2	48.8	45.9	64.0	66.9	63.8
% Gained	14.8	22.1	20.5	19.8	14.8	17.1
Number of observations (%)	128	1317	229	86	695	105
	7.7	78.6	13.7	9.7	78.4	11.9

for whites these differences are substantial and much larger than for blacks.[14] Joining or leaving a private insurance plan, however, seems to be unrelated to the probability of a doctor checkup for both blacks and whites. Among white children, enrolling in Medicaid or private insurance is associated with an increase in the number of doctor visits for illness. For blacks, this is not true: if anything, getting insurance is associated with fewer visits for illness.

These patterns can be summarized in a regression framework which also enables us to control for changes in both types of insurance simultaneously. These models, which include child-specific fixed effects, are shown in Table 4 for the probability of a routine checkup in the last six months and the number of visits for illness. The models of routine checkups are estimated using Chamberlain's conditional logit, while the models of the number of visits for illness are estimated using OLS on first differences. The first column of each pair of regression includes changes in Medicaid and private insurance status along with changes in age (since the interviews were not all exactly two years apart). As discussed above, many mothers exit Medicaid via marriage or employment. In the second column of each pair, we add controls for these changes in order to examine the sensitivity of our results. In all models, each covariate is interacted with an indicator for black.

A comparison of the estimates in Column (1) with those in Column (2), show that the estimated insurance effects are little altered by the addition of controls for changes in income, maternal marital status and employment. Consistent with the OLS estimates in Table 2, private insurance has no impact on the probability of a routine checkup in the previous six months. Medicaid children, however, are more likely to have had a doctor's checkup. The Medicaid advantage is both large and significant for whites; it is about half the size for blacks and not significant (having a p-value of 12 percent). By assuming a value for the fixed effects (which are not estimated) it is possible to use the estimates of the slopes to calculate the difference in the probability of a routine checkup that is associated with changes in coverge.[15] For Medicaid coverage, the increase in the probability is about 15 percent for whites which is somewhat higher than the comparable OLS estimates of 11 percent (a weighted average of the age specific estimates in Table 2). For blacks, the probability is smaller (10 percent) which is also smaller than the OLS estimate (15 percent). While the results are almost identical if the interval for checkups is broadened to a year, narrowing the interval to three months does affect the conclusions: for blacks, the impact of Medicaid becomes marginally significant (p-value of 10 percent).

Estimates of the change in the number of illnesses requiring medical attention

14. For example, among whites, 24 percent of those who went on Medicaid received a checkup when they had not before but the same is true for only 11 percent of those who went off Medicaid; for blacks, the comparable proportions are 21 percent and 14 percent.

15. The probability that the event occurs is $(1/(1 + \exp(-\alpha - \beta x)))$ and the problem is that α is not estimated. However, given the estimates of β, we can by assuming a value for α, calculate changes in the probability of the event that are associated with changes in x. To obtain the numbers given in the text, we set $\alpha = 0$. We found that while the probabilities were sensitive to the value chosen for α, the changes in probabilities associated with changes in Medicaid status were little affected by the choice of α.

Table 4
Effect of Medicaid and Private Insurance on the Medical Care of Older Children: Fixed Effects Estimates

	Routine Checkup Conditional Logit		Visits for Illness OLS	Visits for Illness First Differences
	(1)	(2)	(3)	(4)
Insurance				
(1) if on Medicaid	0.727	0.656	0.515	0.570
	(0.253)	(0.257)	(0.150)	(0.154)
*Black	−0.334	−0.321	−0.703	−0.863
	(0.365)	(0.373)	(0.220)	(0.225)
(1) if on Private Insurance	0.073	0.088	0.392	0.377
	(0.181)	(0.182)	(0.111)	(0.112)
*Black	0.005	−0.001	−0.571	−0.520
	(0.315)	(0.317)	(0.194)	(0.194)
Child characteristics				
Age (in months)	−0.002	−0.002	−0.011	−0.011
	(0.003)	(0.003)	(0.002)	(0.002)
*Black	0.003	0.002	0.007	0.008
	(0.005)	(0.005)	(.003)	(0.003)
Mother characteristics				
(1) if Spouse present	—	−0.199	—	0.071
		(0.202)		(0.117)
*Black	—	−0.319	—	−0.427
		(0.354)		(0.200)
(1) if Mother employed	—	−0.210	—	0.153
		(0.148)		(0.091)
*Black	—	0.219	—	−0.437
		(0.269)		(0.172)
Current income (1000's)	—	0.001	—	0.001
		(0.002)		(0.002)
*Black	—	−0.002	—	−0.003
		(0.006)		(0.003)
Log likelihood	−681.4	−677.8	—	—
R-squared	—	—	0.023	0.027

Notes: Standard errors in parentheses. 2,560 children in sample.

between 1988 and 1986 on changes in the child's insurance status are shown in Columns (3) and (4) of Table 4. They indicate that whether or not changes in household resources are controlled, both Medicaid coverage and private insurance coverage are associated with increases in the number of doctor visits for white children. The point estimates of about half a visit for Medicaid and about 0.4 of a visit for private insurance is larger than the OLS estimates reported in Table 2. In contrast, for black children insurance coverage is not associated with additional visits to the doctor; if anything, the effect is negative (but not significant).

In every year of the National Longitudinal Survey of Youth, each mother reports whether she had given birth to a child in the previous 12 months and, if so, how many times the infant had been taken to the doctor because of illness during his or her first year of life. It is possible to infer whether the child was eligible for Medicaid during this period by exploiting the close link between Aid for Families with Dependent Children (AFDC) and Medicaid as well as determining whether the family's income was low enough to qualify under a state Medically Needy program.[16] Unfortunately, nothing is known about private insurance coverage during this period. In regressions not reported here (see Currie and Thomas 1993), the results discussed above for older children also hold for the first year of life: white children on Medicaid are more likely to have seen a doctor but black children are not. This is true after controlling for observables and also unobservables (although in the latter case the differences are not significant).[17]

While the Medicaid and private insurance effects in Table 4 are little changed by the inclusion of controls for changes in income, the mother's marital and employment status, these characteristics do affect the health care utilization of black children. Gaining a spouse depresses the probability of a doctor checkup and reduces the number of visits for illness by about one third of a visit. This

16. We checked our procedure for imputing Medicaid eligibility by comparing the number of people we determined to be eligible for Medicaid in 1986 and 1988 with the number that said that their child was covered. In 1986, three out of 122 children who were eligible by our measure were not reported as being covered by their mothers. The comparable figure for 1988 was 14 out of 351 children. All 17 cases were ones in which we had imputed coverage on the basis of income rather than AFDC coverage: hence, it is possible that these low-income, non-welfare mothers were unaware that their children were eligible for Medicaid coverage. There were no cases in which the mother claimed coverage and we had not imputed it.

17. The estimated effects of Medicaid for the first year of life are 0.44 (with a standard error of 0.18) for whites in the OLS regressions; the fixed effects estimates are 0.34 (but they are not significant). These results are to be interpreted as relative to the excluded children: those with private insurance as well as those with no coverage. In the comparable regressions for white children aged one and two years old (in 1986 and 1988), the OLS estimated effect without controls for private insurance is 0.21 (standard error is 0.24) which is exactly half the size of the estimate when private insurance is controlled (Table 2). Thus, we view the estimates for the first year of life, in which we cannot control for private coverage, as lower bound estimates of the impact of Medicaid. Attempts to predict private health insurance using the 1986 and 1988 data turned out to be fruitless. A good predictor of private insurance coverage might be employment: while few children with a parent who is not employed have private insurance, about 40 percent of those with employed parents are not covered by a private plan. Even in a multivariate framework, it is hard to explain private insurance coverage and replacing observed private insurance status with predicated probabilities of coverage has little impact on the estimated Medicaid effects based on models that exclude private insurance status altogether.

pattern is consistent with several studies in demography which suggest that the separation of parents is associated with increased utilization of medical services (see, for example, Mauldon 1990). Similarly, among black mothers, getting a job significantly reduces the number of visits for illness her child receives. Presumably, this reflects an increase in the opportunity cost of the mother's time. The fact that there is no similar effect for white mothers suggests, perhaps, that they have access to alternative child care mechanisms or more flexible jobs.

V. Discussion and Conclusions

Private and public health insurance are not interchangeable in terms of their impact on the medical care of children and the benefits of these programs differ between blacks and whites, even after controlling for income and household resources. White children with insurance coverage have more doctor visits for illness and there are no differences between those covered by Medicaid or a private plan. Medicaid children, however, are significantly more likely to have preventive care than either those with private insurance or no coverage at all. For black children, Medicaid has a weaker effect on preventive care and absolutely no effect on the number of doctor visits for illness. Black children with private insurance have no advantage in terms of either indicator of medical care utilization relative to those who are not covered by any plan.

In general, inferences about the impact of insurance on medical care utilization are the same for both the OLS and fixed effects models. While the OLS estimates do not control for selectivity, the fixed effects estimates do control for time-invariant sources of child-specific heterogeneity. If, for example, some children are inherently more sickly than others, this characteristic will be absorbed in the fixed effect. It could be argued, however, that these estimates are also biased. For example, the positive association between insurance and the number of visits of white children may reflect a relationship between changes in the probability of gaining or losing either Medicaid or private health insurance coverage, on the one hand, and changes in the child's health status, on the other. That is, it might be that white children are more likely to gain health coverage when they become sick, although we would have to argue that black children with health coverage are not similarly selected.

Upon reflection, however, it seems most unlikely that changes in the health status of the child will have similar effects on changes in Medicaid and private insurance status. For example, a mother with a child who becomes sick may give up her job in order to stay home with the child. But Table 3 demonstrates that a mother who loses a job is more likely to gain Medicaid coverage but also more likely to lose private insurance coverage. Selection, it seems, is likely to operate in opposite directions. Similarly, a single mother with a sick child might be less likely to gain private insurance coverage through marriage than to gain Medicaid coverage through impoverishment. Hence, the fact that among whites changes in Medicaid and private insurance status have similar effects on the number of doctor visits, suggests that this result is not driven by selection into coverage on the basis of changes in children's health status. It is also hard to imagine that

mothers choose to go on Medicaid (and give up a spouse or a job) in order to gain half a doctor's visit.

Finally, it is difficult to rationalize with a selectivity argument the empirical fact that the probability of a routine checkup rises with Medicaid coverage, but not with private health insurance coverage. It is much more plausible that this finding reflects differences between Medicaid and private insurance plans in the coverage of routine checkups.

While inference is unchanged by controlling for unobservables, a comparison of the magnitudes of estimated effects in the OLS and fixed effects estimates suggests that selectivity may be playing some role and it is different for blacks and whites. For white children, the fixed effects estimates of both Medicaid and private insurance are larger than those based on OLS, whereas for blacks the reverse is true. Whether this reflects differences between blacks and whites in the impact of unobserved child or mother factors (such as the propensity to visit a doctor) or neighborhood factors (such as the supply or quality of services in the community) we cannot tell with the data at hand. What is clear, however, is that Medicaid and, especially, private health insurance have substantially different effects on health care utilization of black and white children. Extending health insurance coverage to every child may not be equally beneficial to all of them.

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