Volume Title: Issues in the Economics of Immigration

Volume Author/Editor: George J. Borjas, editor

Volume Publisher: University of Chicago Press

Volume ISBN: 0-226-06631-2

Volume URL: http://www.nber.org/books/borj00-1

Publication Date: January 2000

Chapter Title: Do Children of Immigrants Make Differential Use of Public Health Insurance?

Chapter Author: Janet Currie

Chapter URL: http://www.nber.org/chapters/c6058

Chapter pages in book: (p. 271 - 308)

7

Do Children of Immigrants Make Differential Use of Public Health Insurance?

Janet Currie

The fraction of the U.S. population that is foreign born has risen dramatically over the past two decades from 4.7 percent in 1970 to 7.9 percent in 1990 (Banister 1994). First- and second-generation children of immigrants are the fastest-growing segment of the U.S. population under age 15; by 2010, it is estimated that 20 percent of school-aged children will be children of recent immigrants (Lamberg 1996). By 1997, 1 in every 6 children (12 million) were immigrants or had immigrant parents (Hernandez and Charney 1998).

The increased inflow of immigrants has been accompanied by growing concern about the cost of social services used by immigrants and their families. Many previous studies have shown that because immigrants tend to be poorer than the native born, their children are more likely to be eligible for welfare programs (Blau 1984; Borjas 1990; Borjas and Hilton 1996; Jensen 1988; Tienda and Jensen 1986; Trejo 1992). Concern about

Janet Currie is professor of economics at the University of California, Los Angeles. She is a consultant with the Labor and Population group at RAND; a research associate of the National Bureau of Economic Research and a member of their research program on Children and Families; a faculty associate at the Chicago/Northwestern Poverty Center; and a member of the Canadian Institute of Advanced Research. She recently served on the National Academy of Sciences panel on the Health and Well-Being of Immigrant Children.

Michael Baker, George Borjas, David Card, David Cutler, Martin Dooley, Rachel Friedberg, Jon Gruber, Wei-Yin Hu, Christopher Jencks, Lawrence Katz, James Poterba, Jon Skinner, and seminar participants at Queen's University, the NBER, UNC–Chapel Hill, and the University of Arizona provided many helpful comments. Thanks also to Aaron Yelowitz for supplying the data for table 7C.1. Graciela Teruel and Luis Rubalcava provided excellent research assistance. Financial support from the Alfred P. Sloan Foundation, UCLA's Center for American Politics and Public Policy, and from the NIH under grant no. R01HD31722-01A2 is gratefully acknowledged. The views expressed are the author's and should not be attributed to these institutions.

the fiscal burden imposed by immigrants provided the impetus for certain provisions of the passage of the Personal Responsibility and Work Opportunity Reconciliation Act of 1996 (P.L. 104-193). This bill will sharply curtail the availability of welfare benefits for immigrants. It is estimated that of the projected $56 billion in federal funds the law will save over the next six years, almost half will come from a reduction of payments to immigrants (Fix and Zimmerman 1997).

Medicaid, a system of public health insurance for poor women and children, is one of the more costly social programs available to the families of immigrants. In recent years, the United States spent about $3.4 billion annually on cash welfare payments to children under the Aid to Families with Dependent Children (AFDC) program (Clark 1994), and $5.5 billion on payments to children of immigrants under the Medicaid program.[1] The new law will ban legal immigrants from Medicaid for five years after their arrival in the United States, after which time states will have the authority to decide whether or not they will be eligible. Undocumented immigrants have never been eligible for coverage of routine care under the Medicaid program. All immigrants will continue to be eligible for coverage of emergency medical care and for public health assistance (immunizations and treatment of communicable diseases). Refugees and citizen children of immigrants will also remain eligible for Medicaid coverage.

Although the law is likely to reduce Medicaid coverage, it is difficult to predict the effect it will have on either health care costs or public health because these more important outcomes are determined by utilization of care rather than by insurance coverage per se. Medicaid differs in a fundamental way from other welfare programs, because it is possible for uncovered individuals to receive emergency services that are paid for by the program ex post (while it is not possible for example, for someone ineligible for cash assistance to legally receive cash benefits). The evidence presented in this paper is consistent with the previous evidence that because of their characteristics, immigrants are more likely than nonimmigrants to be eligible for Medicaid. However, it suggests that making children ineligible for Medicaid coverage will reduce the use of relatively low-cost routine preventive care, without having much impact on the utilization of more costly services.

The rest of the paper is laid out as follows: Necessary background information about the Medicaid program and a discussion of its effects on the incentives facing eligible immigrants and nonimmigrants is given in section 7.1. Section 7.2 outlines the instrumental variables strategy. The data

1. By way of comparison, the entire budget for AFDC was approximately $22 billion annually. AFDC has recently been replaced with the Temporary Aid for Needy Families (TANF) program. According to Clark (1994), Medicaid expenditures for immigrants total $16.6 billion. Since two-thirds of Medicaid expenditures are on the elderly, this implies that $5.5 billion is spent on children.

are described in section 7.3. Section 7.4 provides the empirical results, while section 7.5 concludes.

7.1 The Medicaid Expansions and Incentives for Immigrants and Nonimmigrants

Historically, eligibility for Medicaid was closely tied to the receipt of cash welfare payments under the Aid to Families with Dependent Children program. Hence, eligibility was effectively limited to very low income women and children in single parent families. Beginning in 1984, states were first permitted and then required to extend Medicaid coverage to other groups of children. By 1992, states were required to cover children below age 6 in families with incomes up to 133 percent of the federal poverty line, and children between ages 6 and 19 with family incomes up to 100 percent of the poverty line; states also had the option of covering infants up to 185 percent of the poverty line.[2] A list of the relevant statutes is given in appendix B.

The important point to note is that states took up these options at different rates, so that there was a great deal of variation across states in both the income thresholds and the age limits governing Medicaid eligibility. Table 7C.1 in appendix C shows the maximum age covered by Medicaid in each state at three different points in time, as well as the maximum income limit that applied to any child made eligible by the expansions (the oldest child eligible was generally subject to a less-generous income cutoff). Older children remained eligible if their families received AFDC. The table shows that as of January 1988, 26 states had taken advantage of the options described above to extend Medicaid eligibility to previously ineligible children. By December 1989, all 50 states had expanded Medicaid eligibility—however, states like Colorado covered only infants in families with incomes up to 75 percent of the poverty line, while more generous states, like California, covered children up to age 5 in families with incomes up to 100 percent of the poverty line, and covered infants in families with incomes up to 185 percent of the poverty line.

By December 1991, most states had been required by the federal government to increase the age limits and income limits still further. Table 7.1 illustrates the growing uniformity in the way that children were treated in three states that began the period with widely differing eligibility criteria: California, Texas, and New Jersey. This variation in eligibility thresholds by state, year, and age of child will be exploited to identify the effects of Medicaid eligibility.

2. States received federal matching funds for coverage of these groups. However, some states have extended coverage to children above 200 percent of the poverty line, using only state funds.

Table 7.1 **Eligibility for Medicaid by Age and Percentage of Federal Poverty Line: California, Texas, and New Jersey**

	January 1988		December 1989		December 1991	
	Age	Percentage of Federal Poverty Line	Age	Percentage of Federal Poverty Line	Age	Percentage of Federal Poverty Line
California		75[a]	<1	185	<1	185
			1–5	133	1–5	133
			6+	75	6–8	100
					9+	75
Texas		22[a]	<1	130	<1	185
			1–3	100	1–5	133
			4+	22	6–8	100
					9+	22
New Jersey		50[a]	<2	100	<1	185
			3+	50	1–5	133
					6–8	100
					9+	50

Note: Children born after 30 September 1983 were eligible for Medicaid if their families were income eligible for AFDC. Older children were eligible only if their parents actually qualified for AFDC (i.e., met all other requirements as well as income eligibility). By 1989, states were required to cover children through age six if their families were income eligible for AFDC.

[a]The 75 percent, 22 percent, and 50 percent figures are based on the maximum AFDC benefit levels for these states.

A large literature documents the fact that eligible individuals do not always take up public assistance—for example, only about two-thirds of those eligible for AFDC or unemployment insurance receive benefits (Blank and Card 1991; Blank and Ruggles 1993). The probability of taking up benefits should be systematically related to the relative costs and benefits of being covered. For example, as Blank and Card suggest, those who expect to be unemployed for only a short spell may be less likely to apply for or receive benefits. The available preexpansion evidence suggests that although take-up of Medicaid among children on AFDC is high, only about one-quarter of children eligible through other aspects of the program (e.g., under the Ribicoff provisions) took up coverage (Shore-Sheppard 1996).

It is not unreasonable to suppose that immigrant parents face higher costs of enrolling their children in the Medicaid program than nonimmigrants. First, the General Accounting Office (U.S. GAO 1994) reports that many applications are denied and that half of all denials occur because the applicant failed to supply supporting documentation (such as birth certificates or pay stubs) or failed to keep all of the necessary appointments. It may be more difficult for immigrants to follow these procedures. Second, although citizen children are eligible for all Medicaid services,

and even undocumented children are eligible for emergency services under the Medicaid program, immigrant parents may fear harassment by authorities, particularly if they or other family members are themselves undocumented. Third, the residential segregation of many immigrants may make it difficult to get to an enrollment center. Fourth, language barriers may make the enrollment process more difficult.

It is also possible that the benefits of formal enrollment are not as great as they might at first appear, because it is often possible for eligible children to obtain acute services even if they are not formally covered at the time that services are rendered. The GAO gives the following example: "The child of a single, uninsured, working mother incurred a $20,000 hospital bill. . . . The hospital referred this case to an enrollment vendor firm after determining that it was a potential Medicaid case. After contacting the mother, the firm initiated and submitted a Medicaid application. The firm gave the applicant a list of verification items she would have to provide. However, the applicant did not provide the requested items and Medicaid coverage was denied. Upon learning of the denial, the firm contacted the applicant twice weekly for a period of two months to get her to cooperate. . . . Eventually, the applicant responded and submitted the verification items and a signed power of attorney to the firm. . . . The signed power of attorney allowed the firm to appeal the denial successfully" (U.S. GAO, 24). In this example, the child became covered by Medicaid for a time. But eligibility must be periodically reestablished in order to retain coverage, and one suspects that this child's coverage might have been particularly likely to lapse subsequently.

Hence, immigrant parents with an eligible child have two options: They can choose to incur the transactions costs and become covered. The Medicaid program will then cover the costs of both preventive care and acute care for their child. Alternatively, they may choose to forgo the transactions costs and remain uncovered, knowing that acute care will be provided under the Medicaid program as necessary. Viewed in a dynamic context, parents who face higher transactions costs may simply choose to enroll their children less often than other parents. For example, instead of keeping children continuously enrolled, which requires going through an administrative procedure at least every six months, they might choose to enroll their children only when they needed to take them to the doctor for some form of routine care.

The role of transactions costs is depicted in figure 7.1, which shows the trade-off between expenditures on health insurance for children and expenditures on other child goods. An eligible child whose family faces no transactions costs becomes covered by the program and is able to consume at point M1. A family facing high transactions costs can choose to become enrolled and consume at point M4, or it can choose to forgo coverage and consume slightly less health insurance at point M2. Thus, if parents have

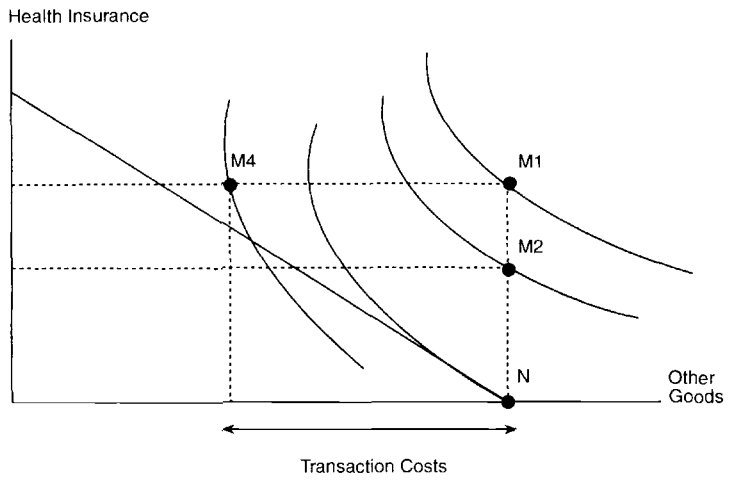

Fig. 7.1 The role of transactions costs

preferences like those depicted in the figure and immigrant parents face higher transactions costs than nonimmigrant parents, then their eligible children will be less likely to become formally covered.

Parents of eligible children may also have another decision to make: whether or not to take up Medicaid coverage for their children and drop the child's private health insurance coverage. Cutler and Gruber (1996) emphasize that public insurance could "crowd out" private insurance in this way. Alternatively, they point out that employers might stop offering private insurance of employees' dependents if substantial numbers of them were to become covered under public programs. Immigrant parents may be more likely than nonimmigrants to work for small, low-wage employers who offer insurance at less favorable rates than large employers, or who do not offer it at all.

This situation is illustrated in figure 7.2, in which immigrant parents are assumed to face a flatter trade-off between health insurance for their children and other child goods than other parents. Given these opportunities, immigrant parents will consume less child health insurance than nonimmigrant parents in the absence of Medicaid eligibility (compare point A to point B). Now consider what happens when the child becomes Medicaid eligible, assuming that the transactions costs associated with becoming covered are similar to those described in figure 7.1. Native-born parents with the preferences shown in figure 7.2 do not change their insurance arrangements; the private insurance they are purchasing is far superior to what is available under Medicaid. Immigrant parents, on the other hand, are made better off by moving to M2 (eligible but not covered). Although the health insurance offered at M2 is inferior to what was being purchased

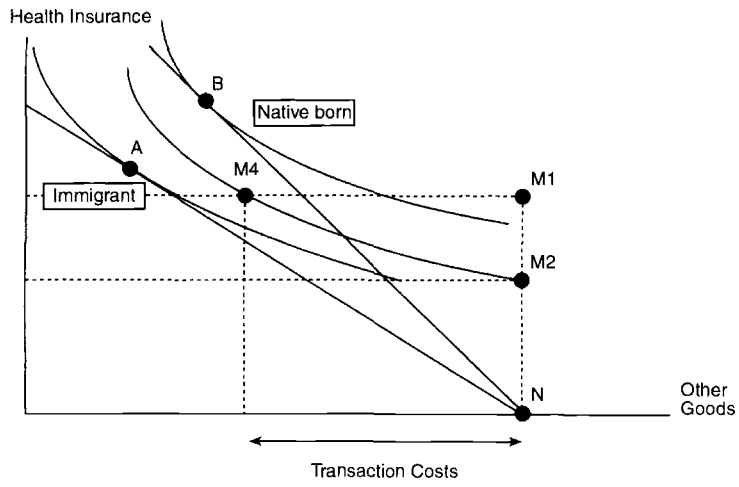

Fig. 7.2 The role of differential opportunities

previously, the cost savings allow a more than offsetting increase in the consumption of other child goods. In the data, a movement from A to M2 will appear as an increase in the fraction of children who are uninsured.

These diagrams implicitly assume that being eligible for Medicaid coverage of acute services is better than not being insured at all (i.e., that point M2 is higher than point N). Since some emergency care is likely to be available to all children in the United States, one may question this assumption. However, there is considerable evidence that suggests that hospitals are able to determine relatively quickly whether someone is likely to be Medicaid eligible. For example, Piper, Ray, and Griffin (1990) found that a 1985 expansion of Medicaid eligibility to married pregnant women in Tennessee increased Medicaid enrollments, but that most of this increase is likely to have occurred at the time of the delivery. And it is well known that insured patients receive more intensive treatment than uninsured patients along a number of margins (cf. Hadley, Steinberg, and Feder 1991; Wenneker, Weissman, and Epstein 1990; and Currie and Gruber 1997). Hence, it seems likely that patients who are eligible for Medicaid will receive better care (and receive it with greater certainty) than those who are not, even if the latter do receive some acute care.

In summary, these diagrams suggest that if immigrant parents face differences in transactions costs and/or opportunities relative to native-born parents, then they will make different choices about health insurance. Among parents who were not purchasing private health insurance for their children previously, increases in Medicaid eligibility will be associated with larger increases in formal coverage among children of the native born than among children of immigrants. And among parents who were

purchasing private health insurance to begin with, increases in eligibility for Medicaid will be more likely to cause "crowding out" among immigrants than among nonimmigrants.[3]

It is more difficult to make predictions about the relationship between utilization and eligibility among immigrants and nonimmigrants. If eligible children of immigrants are less likely to be formally covered than children of nonimmigrants, then utilization of nonacute services is less likely to be paid for by Medicaid. On the other hand, if the main difference between immigrants and nonimmigrants is that the former are less likely to be continuously covered, we might see little difference in the utilization of routine care because immigrants may simply bunch care during periods when they are covered. In the case of hospitalizations, eligibility is arguably a more important determinant than coverage given that a hospital that treats an eligible but uncovered child can receive reimbursement from Medicaid ex post.

Although the preceding discussion assumes that immigrant and native-born parents have similar preferences, it is possible that there are systematic cultural differences in attitudes toward the utilization of medical care. For example, eligible immigrant parents might be less likely to enroll in Medicaid because they value the available services less than native-born parents. It is also possible that immigrant parents have less information about these programs; Currie and Gruber (1996b) conclude that lack of information about welfare programs among the working poor may be an important barrier to take-up of coverage. However, as we shall see, such cultural or informational explanations are not particularly consistent with the findings of this study: Children of immigrant parents actually show larger changes in the utilization of basic medical care when they become Medicaid eligible than do children of the native born.

7.2 Methods

The main empirical problem involved in investigating the effects of Medicaid eligibility on coverage and utilization is that those children who are most likely to be eligible are least likely to take up coverage or to use services, given health status. They are also more likely to be ill. Currie and Gruber (1996b) describe the construction of a detailed simulation model that uses information about state rules, the child's age, and family charac-

3. Both diagrams illustrate the fact that even if the child is not formally covered, the family may be made better off when the child becomes Medicaid eligible. Since the utilization of medical care given health status is known to be a normal good, one would expect some of this increase in household "income" to translate into an increase in the number of visits. However, it is difficult to judge how large this income effect should be, given measurement error in income and the fact that we do not know the value of Medicaid eligibility to the family.

teristics to impute individual Medicaid eligibility.[4] They estimate that between 1989 and 1992, the fraction of children less than 15 years of age who were eligible for Medicaid increased from 20.4 to 31.2 percent, and that all but 2.1 percentage points of this increase can be attributed to changes in state Medicaid rules as opposed to changes in economic conditions or demographics.

In what follows, the Currie-Gruber imputation program is used to determine individual eligibility. This measure is included in linear probability models of health insurance coverage and the utilization of medical care below. However, these ordinary least squares (OLS) estimates are subject to two sources of bias. The first is omitted variables bias. In addition to eligibility, all of the models include observable variables associated with Medicaid eligibility, such as the absence of a male household head, income, the number of children in the family, and the age of the child (through single year of age dummies). Also controlled for are family income; the child's gender, race, and ethnicity; whether he or she is the oldest child; the number of siblings; the education of the mother and (if present) the father; whether the mother or father was the respondent; the presence of other adult relatives; and whether the family lives in a central city or rural area.

Even after conditioning on this detailed set of controls, however, persons who are eligible for Medicaid may have other characteristics that make them less likely to take up Medicaid coverage or to utilize medical care. For example, they may be more likely to live in areas with limited access to physicians (cf. Fossett et al. 1992; Fossett and Peterson 1989). In this case, OLS estimates of the effects of eligibility on coverage and utilization would be biased toward zero. If these omitted factors are more important for immigrants than for nonimmigrants, then estimates for immigrants may be more severely affected by these biases than estimates for nonimmigrants.

The second problem is that there may be substantial measurement error in the eligibility indicator, given limitations of the National Health Interview Survey (NHIS) income data that are discussed below. Such measurement error would normally be expected to bias the estimated effect of eligibility toward zero. Since Medicaid coverage is also self-reported (with some verification of the holding of Medicaid cards by interviewers), it may also be measured with error. An additional measurement problem is that children of immigrants who are themselves undocumented are ineligible

4. They use data from the National Health Interview Survey and the Current Population Survey. In these data sets, it is necessary to impute eligibility at the time of the survey on the basis of annual income. Devine and Heckman (1994) conduct a comparison of eligibility simulations using the CPS to some constructed using the Survey of Income and Program Participation (SIPP), which has monthly income data. They conclude that CPS-based simulations of eligibility for training programs produce estimates remarkably similar to those using the SIPP.

for Medicaid coverage of nonemergency services, and it is not possible to identify these children.[5]

Hence, in addition to the OLS estimates, instrumental variables (IV) estimates are presented below. The aim of the instrumental variables procedure is to abstract from characteristics of the child and/or family that may be correlated with eligibility, survey response error, and the dependent variables, and to achieve identification using only legislative variation in Medicaid policy. One way to do this would be to instrument imputed individual eligibility in the NHIS using the fraction of children in the same state, year, and age who are eligible, calculated using the Current Population Survey (CPS). This instrument would capture differences in Medicaid eligibility across states, years, and age groups, and would purge the regression of individual-level sources of variation in eligibility.

This approach would run into two problems in practice, however. First, the CPS is simply not large enough to permit reliable estimation of the fraction of children eligible in each state, year, and age category. Second, these estimates could be biased by the omission of characteristics of state, year, and age groups that are correlated both with the fraction eligible and with utilization or health. For example, if infants in a given state and year were particularly poor, they might have both higher eligibility levels and fewer doctor's visits, resulting in a downward bias in estimates of the effects of eligibility on utilization.

In order to address these problems, an instrument that varies only with the legislative environment, and not with its economic or demographic conditions, was developed. This instrument was constructed by first selecting a national random sample of 300 children for each single year of age (0 to 14) from the CPS, in each year, and then using the Currie-Gruber program to calculate the fraction of this national sample of children who would have been eligible for Medicaid in each state and year.[6] This measure can be thought of as a convenient summary of the legislation affecting the Medicaid eligibility of children in each state, year, and age group. In what follows, we use linear probability models for ease of computation and for consistency of this instrumental variables procedure (Heckman and MaCurdy 1985).

5. It is difficult to estimate the fraction of children of immigrants who are themselves undocumented. Estimates based on the 1990 census suggest that 3 in 20 immigrants are undocumented (Banister 1994). However, many undocumented adult immigrants have citizen children who are entitled to services under the Medicaid program. It is also unclear that the undocumented are accurately counted in a survey such as the NHIS.

6. That is, how many of the 300 one-year-olds would be eligible if they all lived in California, how many would be eligible if they all lived in Massachusetts, and so forth. The sample size of 300 was chosen due to data and computational constraints. In order to assess the severity of potential problems due to sampling variability, the instrument was constructed twice, using two different random samples. The correlation between the two instruments was 0.97.

In principle, this instrumental variables strategy overcomes the econometric difficulties noted above—the model is purged of endogeneity bias and of biases due to individual-level omitted variables that are correlated with both eligibility and outcomes. To the extent that the measurement error in the instrument is uncorrelated with the measurement error in the individual eligibility measure, this procedure also surmounts the measurement error problem.[7] Finally, using a national random sample eliminates the effects of state- and year-specific economic conditions that might be correlated with both eligibility and with utilization; the problem of small age/year/state cell sizes is also eliminated. This instrument is strongly correlated with individual eligibility, among both natives and immigrants—the t-statistic is over 10 in the first-stage equations.

Of course, using legislation as the source of identifying variation raises the question of whether laws can be treated as exogenous variables. It is possible, for example, that states raise eligibility for Medicaid in response to poor outcomes among children. It is important to note that much of the identifying variation used in this paper is a result of federal mandates and is therefore outside the control of state governments. States differed widely in their propensity to take up optional Medicaid expansions prior to 1989. Hence, states started with differing levels of generosity, a fact that can be controlled for by including state fixed effects in the empirical model. Between 1989 and 1992, however, even the most recalcitrant states were forced to extend Medicaid coverage to meet federal standards, with the result that greater uniformity across states was achieved. Thus, although New Hampshire and Minnesota ended up with similar programs in 1992, New Hampshire expanded eligibility much more rapidly over this period as federal mandates began to bite. Note that possible legislative endogeneity would be a potentially far greater problem if, instead of simulating the fraction eligible for Medicaid, various state rules that help to determine eligibility, such as maximum AFDC benefit levels, had been used. The problem is that benefit levels in other programs may be correlated with other characteristics of states that affect the utilization of health care and insurance coverage.

The models estimated in this paper all take the following form:

$$\begin{aligned} \text{OUTCOME} = {} & \beta_0 + \beta_1 \text{ELIG} + \beta_2 \text{PARIMMIG} + \beta_3 \text{PARELIG} \\ & + \beta_4 X + \beta_5 \text{STATE} + \beta_6 \text{YEAR} + \beta_7 \text{CHILDAGE} \\ & + \beta_8 \text{AGEYEAR} + \beta_9 \text{STATEAGE} + \varepsilon, \end{aligned} \tag{1}$$

7. If the measurement error stems mainly from random individual response error, then measurement error in the CPS instrument will be uncorrelated with that in the NHIS data, especially given the fact that the measure calculated using the CPS is the average eligibility for a large group.

where OUTCOME is an indicator for either insurance status or utilization, ELIG is an indicator equal to one if the child is eligible for Medicaid, PARIMMIG is an indicator equal to one if at least one parent is an immigrant, PARELIG is an interaction term equal to one if the child is eligible and a parent is an immigrant, and X is a vector of additional explanatory variables. In addition, the models all include state fixed effects and a full set of dummy variables for calendar years and for each child's single year of age. These variables control for variables such as secular trends in utilization rates or changes in the recommended schedule of visits for various age groups. Interactions between five broad age groups and the year dummies, and between the five age groups and the state of residence are also included.[8]

In this framework, we can test for whether eligible immigrants behave similarly to eligible natives by looking at whether $\beta_1 + \beta_2 + \beta_3 = \beta_1$. In principal, it would be possible to estimate a fully interacted model in which all of the coefficients were allowed to vary with immigrant status. In practice, it was found that this had little effect on the inferences that could be drawn from OLS estimates of the effects of eligibility. However, the two-stage least squares (TSLS) estimates were much less precisely estimated in the fully interacted model, which may reflect the difficulties involved in trying to draw many inferences about differences between immigrants and natives from a relatively small sample of immigrants.

7.3 Data

The National Health Interview Survey (NHIS) interviews a large, nationally representative cross section of American families each year.[9] The baseline survey collects information about demographic characteristics and family income. There are also a number of questions about the utilization of medical care over the previous year. These data cover approximately 100,000 individuals and 30,000 children less than age 15 in each year. This age cutoff was chosen in order to avoid issues arising from the fact that teens may become eligible for Medicaid due to pregnancy.

Beginning in 1989, the NHIS has asked all non-native-born adults in the household how long they have lived in the United States. Using this information, it is possible to determine whether either the mother or father

8. The five groups are: less than 1; greater than or equal to 2 and less than or equal to 4; greater than or equal to 5 and less than or equal to 7; greater than or equal to 8 and less than or equal to 10; and greater than or equal to 11. All of the children in the sample are 14 or under.

9. The models estimated in this paper are unweighted but include controls for key variables used in stratifying the sample such as race, central city residence, and rural residence. The inclusion of these variables results in estimates similar to those that would be obtained by weighting (Dumouchel and Duncan 1983).

of the child is an immigrant.[10] The relatively few respondents who answer that they don't know how long they have been in the United States are also treated as immigrants. Sixteen percent of the sample children have at least one parent who is an immigrant.

The NHIS fields supplements that ask additional questions about health insurance status every three years. Insurance supplements were fielded in 1989 and 1992, years that neatly bracket much of the increase in Medicaid eligibility for low-income children. Using these supplements, it is possible to determine whether the child was covered by private insurance or Medicaid or was uninsured at the time of the interview.[11]

Information from the main NHIS survey can be used to impute Medicaid eligibility to each child, although there are several problems to be overcome. First, family income is missing for a number of households, as shown in table 7C.2. Missing income data are imputed by using CPS data to estimate regressions of income on household characteristics, and then using the regression coefficients to calculate income for NHIS households with similar characteristics. The census Bureau uses a similar procedure to impute missing data in the CPS. These estimates were calculated separately for each year.[12]

Second, when family income is reported, it is reported in brackets. This is less of a problem than it might first appear because it causes problems

10. In principal, one could distinguish between the effects of having an immigrant father and the effects of having an immigrant mother. However, 83 percent of children who had at least one immigrant parent had a mother who was an immigrant, while 70 percent of these children had an immigrant father. Thus, there is a high degree of correlation between the two measures, and it proved impossible to separate these effects.

11. The questions about private health insurance coverage and no insurance coverage are straightforward. The 1989 insurance supplement asks four questions about public health insurance coverage. Parents are asked whether each child received Medicaid in the past 12 months, has a Medicaid card, is covered by some other type of public assistance program that pays for health care, or is covered by any type of public assistance health insurance coverage. In 1989, for example, 7,287 respondents reported receiving Medicaid in the past 12 months; 7,319 said they had a Medicaid card (and this was verified for 4,534 individuals); 8,072 said that they were covered by public assistance health insurance coverage; and 686 said that they were covered by some form of public assistance health insurance coverage other than Medicaid. Hence, the most inclusive definition of Medicaid coverage, which is the one adopted here, is to count as Medicaid covered anyone who received public assistance health insurance that was not of some "other" type. This leaves 7,386 individuals, which is not very different than what would be obtained using the least inclusive measure—the 7,287 individuals who reported "receiving" Medicaid in 1989. Experimentation with other possible measures of Medicaid coverage produced results similar to those reported below. The 1992 supplement simply asks about Medicaid coverage. The existence of "other" public health insurance programs accounts for the fact that the effects of eligibility on Medicaid coverage, private health insurance coverage, and no insurance coverage may not sum to zero.

12. For most of the missing observations, we know whether income was greater than or less than $20,000, so I can impute income within those subsamples. The imputation regressions fit fairly well; the R^2s for the yearly regressions estimated using all individuals average 0.45. For those with incomes below $20,000, the R^2s average 0.32; while for those with incomes above $20,000, the R^2s average 0.25.

only when the Medicaid cutoff falls in the middle of the family's reported income bracket, and the income brackets are in $1,000 increments if income is less than $20,000.[13] Two approaches to this problem were tried. The first involved predicting income within the bracket using regressions estimated using the CPS, as described above. The second method involved choosing a random number within the bracket. Since the estimated fraction eligible was very similar under both approaches, the simpler method was used. The estimated models control for income brackets rather than the noisy imputed income measure, and interactions between the (nominal) income brackets and the year dummies are included in order to account for inflation. The omitted income category in all the models estimated below is "missing."

A third problem is that there is no information about the distribution of income across family members, or about income sources. This lack of information is potentially problematic because, for example, some portion of earnings, but not other types of income, can be disregarded from total family income in determining AFDC eligibility, which in turn affects Medicaid eligibility. In this paper, these disregards are applied to total income, under the assumption that most family income comes from earnings, especially in poor families.[14] These limitations of the NHIS income data do not seem to lead to any systematic measurement problems; the resulting annual eligibility rate in the NHIS is similar to that calculated using the CPS in terms of both levels and the time-series trend.[15]

This paper focuses on three measures of the utilization of medical services over the past year: whether or not the child had a doctor's visit in the past year; the number of doctor's visits if the child had any visits; and whether or not the child was hospitalized in the past year.[16] Since the utilization measures are available in every year, the data set available for examining utilization is approximately twice as large as that available for examining insurance coverage.

Pediatric guidelines recommend at least one doctor's visit per year for all of the children in the sample, so that the absence of a doctor's visit in the previous year is suggestive of an access problem, regardless of underlying morbidity. If the marginal benefit of doctor's visits is decreasing in the number of visits (which seems reasonable if children who get any visits

13. For incomes over $20,000 and less than $50,000 the brackets are in increments of $5,000. The last bracket is for incomes over $50,000.

14. In the 1984 CPS, 75 percent of the average child's family income comes from his or her parents' earnings.

15. In the years 1989 to 1992, the percentages of children eligible for Medicaid in the NHIS data were 19.3, 25.2, 27.5, and 31.5 percent, respectively. These numbers are very close to those calculated from the CPS.

16. Although the NHIS asks many other questions about utilization, most pertain to a two-week window. Even in a sample as large as the NHIS, this sampling scheme yields very small samples of immigrant children who have received specific services.

receive some necessary preventive care), then this first visit is also the most important from the point of view of the child's health. Nevertheless, it is interesting to examine the number of doctor's visits conditional on the child receiving care, since the cost of care will be increasing in the number of visits. Because this distribution is highly skewed to the right, the analysis focuses on the log of the number of doctor's visits.

We examine hospitalizations primarily because they are so much more expensive than doctor's visits and, hence, account for a disproportionate share of Medicaid costs. For example, the U.S. House of Representatives (1993) reports that in 1991, the Medicaid program spent $5.4 billion on inpatient hospital services for AFDC children, and only $1.5 billion on physician services.[17] However, approximately 80 percent of children receive a doctor's visit in any given year, while only 3–5 percent of children are hospitalized. Hence, inferences about differences in hospitalization rates between immigrants and nonimmigrants are based on small sample sizes.

An overview of the data on eligibility, coverage, and utilization is shown in table 7.2. All means are calculated using sample weights.[18] The first row of table 7.2 indicates that 35 percent of immigrant children are Medicaid eligible, compared to 21 percent of the children of the native born. This evidence is consistent with previous work that shows that immigrants are more likely than natives to be eligible for social programs. The second row of table 7.2 suggests that although a slightly higher fraction of immigrant children are currently covered by Medicaid (18 percent compared to 14 percent of children of the native born), average take-up rates conditional on eligibility are actually lower among immigrants: Approximately 50 percent of the Medicaid-eligible immigrant children are covered compared to 66 percent of eligible children of the native born. Immigrant children are also less likely to be covered by private health insurance, with the result that 25 percent of the immigrant children are without health insurance coverage compared to 12 percent of other children.

This large difference in the probability of having health insurance coverage is associated with relatively small differences in the utilization of care, however. The second panel of table 7.2 indicates that 19 percent of immigrant children went without a visit in the 12 months prior to the survey, whether or not they were Medicaid eligible. The comparable figures for

17. Some of these physician services would have been rendered in hospitals.

18. An earlier version of this paper broke out children with at least one parent who immigrated less than 10 years ago. In principle, a comparison of these "new" immigrants with all immigrants is of interest because of evidence that new immigrants are less skilled than previous cohorts (Borjas 1990) and because new arrivals may be less familiar with Medicaid and may face higher transactions costs of enrolling in the program. However, even in a sample as large as the NHIS, there are relatively few children of new immigrants, making it difficult to judge the effects of assimilation. Leclere, Jensen, and Biddlecom (1994) find that among adults, recent immigrants are less likely than either the native born or immigrants of longer duration to receive timely health care.

Table 7.2 **Eligibility, Coverage, and Utilization in the NHIS**

Insurance Status		
	All Natives	All Immigrants
Number of observations	49,979	8,934
Medicaid eligible	.21	.35
Medicaid coverage	.14	.18
Private health insurance	.72	.56
No insurance	.12	.25
Fraction eligible in child's state/age/year	.25	.28

Utilization of Medical Care				
	All Natives		All Immigrants	
	Medicaid Eligible	Not Medicaid Eligible	Medicaid Eligible	Not Medicaid Eligible
Number of observations	25,577	81,374	7,852	12,394
No visit in past year	.15	.16	.19	.19
Number of doctor's visits last year if any visits	5.83 (.083)	5.24 (.047)	4.50 (.127)	4.12 (.067)
Hospitalized in past year	.07	.04	.04	.03

Utilization of Medical Care by Income and Insurance Status						
	All Natives			All Immigrants		
	Income <$20,000	Income $20,000–$40,000	Income $40,000+	Income <$20,000	Income $20,000–$40,000	Income $40,000+
Medicaid covered						
Number of observations	7,081	750	153	1,654	145	46
No visit in past year	.13	.10	.08	.12	.10	.15
Number of doctor's visits last year if any visits	7.04 (.20)	11.52 (.89)	5.74 (.53)	5.51 (.34)	3.50 (.28)	4.92 (.53)
Hospitalized in past year	.08	.11	.10	.06	.05	0
Private insurance						
Number of observations	8,647	12,419	14,203	1,271	1,625	1,911
No visit in past year	.19	.16	.11	.18	.19	.13
Number of doctor's visits last year if any visits	4.75 (.12)	4.80 (.09)	5.47 (.11)	4.00 (.26)	3.97 (.16)	4.41 (.14)
Hospitalized in past year	.04	.04	.04	.04	.03	.03

Note: Standard errors in parentheses. Means calculated using annual weights. Means for insurance status are calculated using data from 1989 to 1992 only, whereas means for utilization are calculated using 1989, 1990, 1991, and 1992 data.

children of the native born are 15 percent for Medicaid eligibles and 16 percent for noneligibles, indicating that the differences between natives and immigrants are much greater than the differences between the insured and uninsured. Conditional on having had at least one visit, Medicaid-eligible children had slightly more visits. But the difference of 0.4 or 0.6 more visits is much smaller than the raw differences between children of the native born and children of immigrants, which are on the order of 1.1 to 1.3 visits. The largest difference between those who are Medicaid eligible and those who are not is in terms of hospitalizations—native children on Medicaid are almost twice as likely to be hospitalized as those who are not covered.

The third panel of table 7.2 shows differences in utilization by insurance status and income. These figures lend support to the view that the private insurance policies held by many low-income households may be less desirable than Medicaid. For example, among natives, 13 percent of Medicaid households with incomes less than $20,000 (the vast majority of Medicaid households) went without a doctor's visit in the past year. The comparable figure for privately insured households is 19 percent. It is only in privately insured households with incomes over $40,000 per year that the incidence of going without doctor's visits falls below the Medicaid rate. A similar pattern is evident in immigrant households. Within income brackets, children on Medicaid tend to receive more doctor visits conditional on any visits than the privately insured. And among the privately insured, number of doctor visits increases with income, which may be (at least in part) a reflection of the generosity of the insurance coverage.

What remains to be seen is how much of these raw differences can be explained by the characteristics of immigrant children and their families. Some additional characteristics of children of immigrants and children of the native born and their families are shown in table 7C.2. As others have noted, immigrant parents are less skilled on average than other parents. Immigrant families also are poorer, have more children, are more likely to have other adults present in addition to the parents, are less likely to be female headed, and are more likely to live in central cities than other families. These differences will be controlled for in the models estimated below. Thus, these models focus on the differences between immigrants and similar natives, rather than on the differences between immigrants and all natives.

7.4 Results

7.4.1 Effects of Eligibility on Insurance Coverage

This section investigates the relationship between Medicaid eligibility and type of insurance coverage among children of immigrants and chil-

dren of the native born. Ordinary least squares models of the probability of Medicaid coverage are shown in the first three columns of table 7.3. Table 7.1 indicated that immigrants were more likely to be eligible for Medicaid, but had lower take-up rates conditional on eligibility. Controlling for observable characteristics does not change this finding. The first row of table 7.3 indicates that becoming eligible for Medicaid increases the probability of coverage among children of the native born by 21 percentage points. The effect of eligibility is somewhat smaller among immigrants, as indicated by the negative interaction between eligibility and an indicator equal to one if the parent is an immigrant. The coefficient on the "parent immigrant" indicator is also significantly negative, indicating that children of immigrant parents are less likely to be enrolled in Medicaid conditional on observable characteristics. An *F*-test soundly rejected the null hypothesis that the combined effect of the parent immigrant indicator and the interaction was zero; hence, we conclude that eligible immigrants are significantly less likely than similar eligible natives to take up Medicaid coverage. The point estimates suggest that becoming eligible increases the probability of coverage by 18 percentage points among children of immigrants rather than 21 percentage points.[19]

The OLS estimates for private insurance coverage and the probability of noninsurance suggest that among natives, most of the increase in Medicaid coverage that accompanies eligibility increases comes at the expense of private health insurance coverage, while among immigrants, some families are dropping or losing private health insurance and becoming uninsured.

There is some evidence in table 7.3 that the transactions costs of applying for Medicaid matter, since children in larger families are more likely to be covered than other children (transactions costs imply that there are economies of scale involved in applying for Medicaid). Also, children in central cities where it may be easier to apply are more likely to be covered. Finally, there appears to be a strong seasonal effect: Medicaid coverage falls in winter and spring relative to summer and fall. This pattern suggests that many parents sign children up for Medicaid in summer and fall in order to get routine care such as immunizations that schools mandate. Then, six months later when children must be recertified (in most states), the parents do not renew the child's coverage.

The remaining rows of table 7.3 show that, for the most part, coverage

19. I have also estimated models that exclude parent's education, income, and measures of family structure. These models ask whether take-up is similar among immigrants and all natives, rather than focusing on *similar* natives. The pattern found is qualitatively similar to that reported in table 7.3, although the estimated effects of eligibility are larger for both natives and immigrants. For example, eligibility is estimated to increase the probability of Medicaid coverage by 32 percentage points among natives, but by only 22 percentage points among children of immigrants.

Table 7.3 **Effects of Eligibility on Insurance Coverage**

	OLS			TSLS		
	Medicaid (1)	Private (2)	No Insurance (3)	Medicaid (4)	Private (5)	No Insurance (6)
Medicaid	.206	−.192	−.006	.182	.021	−.206
	(.005)	(.006)	(.022)	(.050)	(.063)	(.060)
Parent immigrant and Medicaid eligible	−.033	−.030	.045	−.018	.050	−.057
	(.007)	(.009)	(.009)	(.023)	(.030)	(.028)
Parent immigrant	−.024	−.022	.040	−.028	−.051	.075
	(.005)	(.006)	(.005)	(.008)	(.010)	(.010)
Child male	−.001	−.001	.003	−.001	.000	.002
	(.002)	(.003)	(.003)	(.002)	(.003)	(.003)
Black	.054	−.047	.007	.055	−.051	.100
	(.004)	(.005)	(.005)	(.004)	(.006)	(.005)
Hispanic	−.000	−.028	.030	−.001	−.040	.043
	(.005)	(.006)	(.006)	(.005)	(.006)	(.006)
Mother high school dropout	.068	−.107	.024	.068	−.118	.035
	(.004)	(.005)	(.004)	(.004)	(.005)	(.005)
Mother some college	−.032	.051	−.017	−.033	.057	−.023
	(.003)	(.004)	(.004)	(.004)	(.004)	(.004)
Male head high school dropout	−.004	−.085	.082	−.004	−.094	.091
	(.004)	(.005)	(.005)	(.005)	(.006)	(.005)
Male head some college	.008	.015	−.022	.008	.016	−.023
	(.004)	(.004)	(.004)	(.004)	(.004)	(.004)

(*continued*)

Table 7.3 (continued)

	OLS			TSLS		
	Medicaid (1)	Private (2)	No Insurance (3)	Medicaid (4)	Private (5)	No Insurance (6)
Child is eldest	.019	−.018	−.003	.019	−.023	.002
	(.003)	(.004)	(.004)	(.003)	(.004)	(.004)
Number of siblings	.022	−.023	−.003	.024	−.037	.011
	(.001)	(.002)	(.002)	(.003)	(.004)	(.004)
No male head	.119	−.004	−.139	.120	−.006	−.138
	(.006)	(.007)	(.007)	(.006)	(.008)	(.007)
Mother is respondent	.117	.367	−.008	.116	.361	−.001
	(.009)	(.011)	(.010)	(.009)	(.011)	(.011)
Male head is respondent	.085	.395	−.010	.084	.393	−.007
	(.009)	(.012)	(.011)	(.009)	(.012)	(.011)
Other adult female relatives	−.004	−.066	.062	−.004	−.076	.072
in household	(.007)	(.008)	(.008)	(.007)	(.009)	(.008)
Other adult male relatives	−.041	−.050	.081	−.041	−.054	.085
in household	(.008)	(.010)	(.009)	(.008)	(.010)	(.010)
Income <$10,000	.203	−.254	.074	.216	−.388	.201
	(.008)	(.010)	(.009)	(.030)	(.038)	(.036)
Income $10,000 $19,999	.012	−.086	.085	.012	−.093	.092
	(.007)	(.008)	(.008)	(.007)	(.009)	(.008)
Income $20,000–$29,999	−.013	.069	−.064	−.017	.106	−.100
	(.007)	(.008)	(.008)	(.010)	(.013)	(.013)
Income $30,000–$39,999	−.011	.141	−.133	−.015	.177	−.168
	(.007)	(.009)	(.008)	(.010)	(.013)	(.013)

Income $40,000–$49,999	−.005	.140	−.138	−.008	.174	−.170
	(.007)	(.010)	(.009)	(.010)	(.013)	(.013)
Income ≥$50,000	−.005	.150	−.138	−.002	.183	−.182
	(.007)	(.009)	(.009)	(.010)	(.013)	(.012)
Central city	.034	−.034	−.002	.034	−.038	.002
	(.003)	(.004)	(.004)	(.003)	(.004)	(.004)
Rural area	−.001	−.016	.020	−.001	−.021	.024
	(.004)	(.004)	(.004)	(.004)	(.005)	(.004)
Winter	−.014	−.003	.014	−.013	−.002	.012
	(.004)	(.004)	(.004)	(.004)	(.005)	(.004)
Spring	−.006	.007	−.002	−.006	.008	−.003
	(.003)	(.004)	(.004)	(.003)	(.004)	(.004)
Summer	.004	.000	−.007	.004	.001	−.007
	(.003)	(.004)	(.004)	(.003)	(.004)	(.004)
Intercept	−.032	.317	.226	−.046	.281	.274
	(.018)	(.023)	(.022)	(.020)	(.027)	(.025)
R^2	.41	.45	.14	.40	.43	.13
Number of observations (thousands)	51.930	51.930	51.930	51.930	51.930	51.930

Note: Standard errors in parentheses. All models also include additional dummy variables for states, years, and ages; interactions between ages, states, and years; and interactions between income brackets and survey year as described in the text. The omitted income category is "missing."

varies with child and family characteristics as one might expect. For example, children of richer parents are less likely to be covered, while children of less-educated parents are more likely to be covered. One noteworthy finding is that the probability of coverage is much higher in families without a male head. This differential may reflect the fact that families on AFDC are already familiar with the welfare system and, in most cases, are already covered by Medicaid. Finally, although they are not shown, the age dummies included in the regression indicate that younger children are more likely to have coverage, other things being equal. This result may reflect a higher perceived benefit of regular medical care for younger children, or more illnesses requiring care.

As discussed above, it is possible that OLS estimates of the effects of becoming eligible under the Medicaid expansions reflect omitted variables that are correlated with both eligibility and coverage. Suppose, for example, that some children are both more likely to be eligible and more likely to have been covered by Medicaid in the absence of the Medicaid expansions, perhaps because they receive AFDC benefits or because their parents are refugees. In this case, the estimated effect of making someone eligible for Medicaid under the expansions would be biased upward. Similarly, it is easy to see that OLS estimates of the effect of eligibility on private health insurance coverage are likely to be biased downward, while those on being uninsured are likely to be biased upward; that is, the same children who are most likely to be made eligible for Medicaid are least likely to have private health insurance coverage and most likely to be uninsured.

The remaining three columns of table 7.3 show TSLS estimates of the effects of eligibility on insurance coverage. The estimated effects of eligibility on Medicaid coverage are remarkably robust. Once again, it appears that eligibility raises the probability of Medicaid coverage more among natives than among immigrants (18 percentage points compared to 14 percentage points), and the point estimates are similar to those obtained via OLS. However, instrumenting has a large effect on the estimated effects of eligibility on private health insurance and the probability of being uninsured. While the OLS estimates suggested substantial crowding out of private insurance, the TSLS estimates indicate that most of the gain in Medicaid coverage is in fact coming from the uninsured population.

Are these TSLS estimates reasonable? Note first that although the standard errors are large, the changes in the point estimates are also large. Thus, it is not the case that the effect of eligibility on private insurance becomes statistically insignificant in the TSLS specification solely because of the increase in the size of the standard errors. Still, it is possible that trends in the private health insurance market (e.g., concerns about increasing numbers of uninsured among the "working poor") drove some of the expansions of Medicaid eligibility, which would call these TSLS estimates of the size of crowding out into question.

One crude specification check involves excluding variables such as parent's education and income from the TSLS models. If these characteristics are uncorrelated with the fraction eligible in the state, then the instrumental variables strategy remains valid, and one should obtain the same TSLS estimates of the effects of Medicaid eligibility whether or not these variables are included. In fact, the results for Medicaid coverage are qualitatively similar (e.g., larger effects on Medicaid coverage among natives than among immigrants), but all of the estimated effects of Medicaid eligibility are larger in absolute value, and the effect of Medicaid eligibility on private health insurance coverage has the wrong sign. Thus, there is some evidence that individual characteristics that affect insurance coverage are correlated with the fraction eligible instrument. If these characteristics are not adequately controlled for in the specifications shown in table 7.3, then the instrument may be invalid.

In any case, the estimated effect of eligibility on Medicaid may seem low compared to take-up rates of approximately two-thirds for programs such as AFDC or food stamps. One reason for low take-up rates may be that many of the newly eligible were already covered by private health insurance. A second consideration is that many of the newly eligible were unfamiliar with welfare programs in general and unaware that it was now possible for them to qualify for Medicaid without being on welfare. Third, given transactions costs, many eligibles may not enroll until they have an urgent need for health care, leading them to cycle on and off the rolls. Short, Cantor, and Monheit (1988) found that only 43 percent of Medicaid patients stayed on the program for a continuous 32-month period and that over half of those leaving the program remained uninsured. Cycling will cause the fraction covered to be smaller than the fraction eligible in a cross section.

It is important to keep in mind that these effects are identified using recent changes in Medicaid eligibility, so they should be interpreted as the effect that similar changes or reductions in Medicaid eligibility would have. Evidently, barring all immigrants from receiving Medicaid would have some effect on coverage rates, since some immigrants are in fact covered, as shown in table 7.2.

7.4.2 Effects on Utilization

The discussion of figures 7.1 and 7.2 highlighted the fact that even if children do not take up Medicaid coverage, becoming eligible for Medicaid is likely to make their families better off, and may therefore have some effect on the consumption of medical care. Alternatively, if we think about the problem from a dynamic point of view, it is clear that eligibility may be more tightly linked to utilization in the past year than Medicaid coverage if children cycle in and out of coverage as needed. This section investigates the effects of eligibility on utilization of care.

The first column of table 7.4 shows linear probability models of the effects of eligibility on the probability that a child went without a doctor's visit in the past 12 months. As discussed above, this is the cleanest measure of utilization of health care available in the NHIS since children who do not see a doctor at all are likely to have a true access problem and to go without necessary preventive care. Becoming eligible for Medicaid is associated with an increase in the utilization of care. The insignificant interaction of immigrant status and eligibility suggests that becoming eligible has the same effect on all children. However, immigrant parents are about 3 percentage points less likely to have taken their child for a visit in the last year, and the increases in eligibility do not seem to have affected this gap.

The second column of table 7.4 suggests that while children of immigrants have fewer doctor's visits than children of the native born, becoming eligible for Medicaid has little effect on the number of doctor's visits among either group, given that they had at least one visit.

Finally, the third column of table 7.4 indicates that while children of immigrants are slightly less likely to be hospitalized than other children, becoming eligible for Medicaid increases hospitalizations only among children of the native born. This result is difficult to interpret because hospitalizations are likely to reflect supply as well as demand factors. It is possible, for example, that immigrants tend to live near hospitals that supply indigent care, whereas children of the native born tend to live near hospitals that primarily treat the insured. In this case, increases in Medicaid eligibility among previously uninsured children would increase access to hospital care among the native born but not among immigrants. It is also possible that some changes in hospitalization patterns associated with changes in insurance coverage reflect increases in unnecessary hospitalizations.

The remaining columns of table 7.4 highlight the fact that many observable characteristics have different effects on utilization than they have on coverage. For example, black children are more likely to have Medicaid coverage, but they are less likely to have received any visits in the past year. Similarly, table 7.3 showed that children in large families were more likely to be covered, while table 7.4 indicates that children in smaller families are more likely to have had a doctor's visit; the latter effect may reflect parental diligence with respect to scheduling the first child's checkups that is relaxed for later children, or the classic Becker (1981) child quality/quantity trade-off.[20] And although coverage rates were highest for children with less-educated and poorer parents, the probability of receiving any doctor's visits was also lowest for these children. These latter results are consistent with previous evidence that doctor's visits are a normal good,

20. Alternatively, larger families have lower per capita incomes and may therefore purchase fewer normal goods such as health care.

Table 7.4 **Effects of Eligibility on the Utilization of Care**

	OLS			TSLS		
	No Visits (1)	Ln (Number of visits) (2)	Number of Hospitalizations (3)	No Visits (4)	Ln (Number of visits) (5)	Number of Hospitalizations (6)
Medicaid	−.022	−.013	.009	−.077	.082	.041
	(.004)	(.010)	(.002)	(.025)	(.062)	(.012)
Parent immigrant and Medicaid eligible	−.012	.015	−.008	−.087	.026	−.039
	(.007)	(.016)	(.003)	(.021)	(.051)	(.010)
Parent immigrant	.027	−.115	−.004	.050	−.120	.005
	(.004)	(.010)	(.002)	(.007)	(.017)	(.003)
Child male	−.003	.030	.008	−.003	.030	.008
	(.002)	(.005)	(.001)	(.002)	(.005)	(.001)
Black	.038	−.215	−.005	.037	−.218	−.007
	(.004)	(.008)	(.002)	(.004)	(.009)	(.002)
Hispanic	.005	−.023	.002	.012	−.025	.004
	(.004)	(.010)	(.002)	(.004)	(.010)	(.002)
Mother high school dropout	.023	−.008	.004	.028	−.014	.002
	(.003)	(.008)	(.002)	(.004)	(.009)	(.002)
Mother some college	−.030	.043	−.002	−.031	.046	−.001
	(.003)	(.007)	(.001)	(.003)	(.007)	(.001)
Male head high school dropout	.021	.004	−.001	.026	−.001	−.002
	(.004)	(.009)	(.002)	(.004)	(.010)	(.002)

(*continued*)

Table 7.4 (continued)

	OLS			TSLS		
	No Visits (1)	Ln (Number of visits) (2)	Number of Hospitalizations (3)	No Visits (4)	Ln (Number of visits) (5)	Number of Hospitalizations (6)
Male head some college	−.025	.052	−.002	−.025	.053	−.002
	(.003)	(.008)	(.002)	(.003)	(.008)	(.002)
Child is eldest	−.023	.061	.000	−.021	.059	−.000
	(.003)	(.006)	(.001)	(.003)	(.007)	(.001)
Number of siblings	.015	−.037	−.002	.020	−.043	−.003
	(.001)	(.003)	(.001)	(.002)	(.005)	(.001)
No male head	−.042	.067	.004	−.044	.066	.003
	(.005)	(.012)	(.002)	(.005)	(.013)	(.002)
Mother is respondent	−.004	−.005	−.001	−.001	−.006	−.001
	(.008)	(.019)	(.004)	(.008)	(.019)	(.004)
Male head is respondent	.012	−.030	−.005	.014	−.031	−.004
	(.009)	(.020)	(.004)	(.009)	(.020)	(.004)
Other adult female relatives in household	−.006	.005	−.002	−.003	.002	−.002
	(.006)	(.014)	(.003)	(.006)	(.014)	(.003)
Other adult male relatives in household	.027	−.046	−.006	.030	−.048	−.005
	(.007)	(.016)	(.003)	(.007)	(.017)	(.003)
Income <$10,000	−.005	.124	.005	.023	.090	−.007
	(.013)	(.023)	(.004)	(.014)	(.035)	(.007)
Income $10,000–$19,999	−.017	.060	.002	.004	.067	.000
	(.012)	(.020)	(.004)	(.006)	(.015)	(.003)
Income $20,000–$29,999	.014	.068	.003	−.032	.086	.008
	(.012)	(.020)	(.006)	(.006)	(.015)	(.003)

Income $30,000 $39,999	−.028	.077	.002	−.059	.111	.011
	(.012)	(.021)	(.006)	(.008)	(.018)	(.004)
Income $40,000–$49,999	.013	.119	−.010	−.077	.123	.009
	(.013)	(.022)	(.006)	(.008)	(.019)	(.004)
Income ≥$50,000	.005	.161	−.005	−.081	.165	.007
	(.012)	(.021)	(.006)	(.007)	(.018)	(.003)
Central city	−.013	.021	−.001	−.011	.019	−.001
	(.003)	(.007)	(.001)	(.003)	(.007)	(.001)
Rural area	.025	.013	.008	.025	.011	.008
	(.003)	(.008)	(.002)	(.003)	(.008)	(.002)
Winter	−.002	.046	.002	−.003	.047	.002
	(.003)	(.008)	(.002)	(.003)	(.008)	(.002)
Spring	.001	.020	.002	.000	.021	.002
	(.003)	(.007)	(.001)	(.003)	(.007)	(.001)
Summer	.003	−.014	.002	.002	−.014	.002
	(.003)	(.007)	(.001)	(.003)	(.007)	(.001)
Intercept	.113	1.321	.094	.141	1.230	.086
	(.015)	(.035)	(.007)	(.016)	(.039)	(.008)
R^2	.09	.12	.02	.09	.12	.02
Number of observations (thousands)	112.456	91.534	112.818	112.456	91.534	112.818

Note: Standard errors in parentheses. All models also include additional dummy variables for states, years, and ages; interactions between ages, states, and years; and interactions between income brackets and survey year as described in the text. The omitted income category is "missing."

and one that more educated parents tend to value more (cf. Currie and Thomas 1995).

As discussed above, these OLS estimates of the effects of eligibility are likely to be biased toward zero if eligible children are those who are most likely to go without medical care for unobservable reasons. TSLS estimates of the effect of eligibility on utilization appear in the last three rows of table 7.4. Column (4) suggests that OLS estimates of the effects of Medicaid eligibility on the probability of "no visits" are indeed biased toward zero. Moreover, the bias appears to be greater for immigrants than for natives, since the probability of going without a visit declines by 8 percentage points among eligible natives but by 11 percentage points among eligible immigrants, and this difference is statistically significant. Recall that eligible immigrants were less likely to take up Medicaid coverage than eligible natives, yet they are more likely to receive at least one doctor's visit. The juxtaposition of these results supports the view that immigrants face greater transactions costs than natives and hence spend more time without formal Medicaid coverage. On the other hand, neither the OLS or TSLS results show any effect of eligibility on the number of doctor visits conditional on the child having had at least one visit.

Finally, OLS estimates of the effects of eligibility on hospitalizations also appear to be biased toward zero, though instrumenting does not change the qualitative finding that eligibility increases hospitalizations among natives but not among children of immigrants. The effect for children of the native born is large (implying a 100 percent increase in hospitalizations) but consistent with what was shown in the means in table 7.2.

A specification check similar to that described above was conducted for the models shown in table 7.4. That is, the TSLS models were reestimated excluding variables such as parent's education, income, and family structure. The resulting estimates were extremely similar to those reported in table 7.4. Thus, there is little evidence that these measurable individual characteristics are correlated with both utilization of care and the fraction eligible instrument in a way that would invalidate the instrument. The conclusion that can be drawn is that the TSLS results regarding utilization are more robust than those regarding insurance coverage. In particular, it is difficult to draw any conclusions regarding the extent to which public insurance has crowded out private insurance using these data.

7.5 Discussion and Conclusions

This paper demonstrates that children of immigrants are more likely than other children to be eligible for Medicaid. Despite higher eligibility levels, the fraction of children covered by Medicaid is only slightly higher among immigrant children, which indicates that immigrants have lower average take-up rates. Moreover, recent eligibility expansions increased coverage more among natives than among immigrants, and this is true

whether or not characteristics such as parental education, income, and family structure are controlled for.

The eligibility expansions had quite different effects on the utilization of care, suggesting that a narrow focus on coverage can lead to quite misleading assessments of the costs and benefits of extending eligibility. Becoming eligible for Medicaid reduced the probability that a child went without a doctor's visit in the past year dramatically for both immigrants and nonimmigrants. On the other hand, becoming eligible was not associated with an increase in the number of doctor's visits given at least one visit among either group of children, and it was associated with greater increases in hospitalization rates among children of the native born but not among children of immigrants.

Thus, among immigrants, the main effect of becoming eligible for Medicaid was to reduce the number of children going without any doctor's visits. As discussed above, in 1997 there were 12 million children with at least one immigrant parent. If we follow table 7.2 and assume that 35 percent of these children are eligible for Medicaid, then if Medicaid caused 11 percent of these children to receive an additional doctor visit at a cost of $50 per visit, the total bill would be approximately $2.3 million dollars per year.

Hence, the *marginal cost* of extending Medicaid eligibility to children of immigrants appears to have been small. These results do not imply that the total cost of providing Medicaid to immigrant children is insignificant; as discussed above, the United States has been spending on the order of $5.5 billion per year on Medicaid payments for children of immigrants. The key point is that reducing Medicaid eligibility for these children will not necessarily save money as long as children remain eligible for costly emergency care. In fact, costs could increase if lack of preventive care eventually increases the number of emergency cases.

Appendix A
Simulating Medicaid Eligibility

This appendix describes the procedure for imputing the Medicaid eligibility of individuals in the CPS and NHIS. The sources for information on state Medicaid options are the National Governors' Association (various years) and Congressional Research Service (1988, 1993).

Eligibility for AFDC

In order to qualify for AFDC, the child's family must satisfy three tests: (1) gross income must not exceed 1.85 times the state needs standard, (2) the gross income less certain "disregards" must be below the state

needs standard, and (3) the gross income less the disregards, less a portion of their earnings, must be below the state's payment standard.

The disregards can be computed as follows. Beginning in October 1981, the allowance for work and child care expenses was $75 per month for work expenses and a maximum of $160 per child for child care costs. These allowances were not changed until the Family Support Act of 1988, which raised the allowances to $90 for work expenses and $175 per child for child care expenses, effective 1 October 1989. In addition, a portion of earned income was disregarded. In 1984, women were allowed to keep $30 plus one-third of earned income for 4 months. From 1985 onward, individuals who would have become ineligible for AFDC (and hence for Medicaid) after the 4 months were allowed to remain eligible for Medicaid for an additional 9 to 15 months depending on the state. We modeled this by assuming that for Medicaid eligibility purposes, women were allowed to keep the $30 and one-third of earned income for a year. The aim was to consistently model the maximum amount that a person could have received while remaining eligible for Medicaid coverage under AFDC.

One difficulty in implementing these rules in the NHIS is that the disregards apply only to earned income and one cannot distinguish between earned income and other income. It is therefore assumed that all household income is earned. This assumption yielded AFDC eligibility findings in the NHIS that were similar to those from the CPS, where there are data on individual earnings by source.

The second set of rules that must be evaluated to see if a child is eligible for AFDC are rules relating to family structure. Eligibility under the traditional program requires that the child reside in a female-headed household. However, children in two-parent households may still have been eligible under the AFDC-UP program. Eligibility for AFDC-UP is conditional on both current employment status and work history. We obtained data on AFDC-UP regulations from Hilary Hoynes. In addition, some states covered families with Medicaid if they had an unemployed head, even if there was no AFDC coverage; these states are identified in National Governors' Association (various years).

Lacking longitudinal data on work histories, it is assumed in the CPS that families are eligible if the state has a program and the spouse had worked less than 40 weeks in the previous year. In the NHIS it is only possible to determine whether or not the spouse is currently unemployed. Hence, the estimate of the AFDC-UP caseload is biased upward because it is not possible to determine whether those who are unemployed have been attached to the labor force long enough to qualify for AFDC-UP. Still, our estimates of the size of the AFDC-UP caseload appear to be reasonable, as about 1 in 20 AFDC eligibles are estimated to qualify through that program, matching the ratio reported in administrative data.

Eligibility under State Medically Needy Programs

In some states, children in families with incomes too high for AFDC could qualify for Medicaid under state Medically Needy programs. Income thresholds for these programs could be set no higher than 133 percent of the state's needs standard for AFDC. Families could "spend down" to these thresholds by subtracting their medical expenditures from their gross incomes (less disregards); if they did so, then Medicaid would pay the remainder of their medical expenses. In order to qualify, however, families must have high medical expenditures for several consecutive months (the "spend down period"). There is no way to determine which families have had such high medical spending in the CPS, and I do not do so in the NHIS, since eligibility would then be a direct function of utilization and health. As an approximation, eligibility thresholds are set to the Medically Needy levels in states with this program. Data on Medically Needy coverage and thresholds are from National Governors' Association (various years).

Eligibility for Ribicoff Children

Ribicoff children are those who would qualify for AFDC given income criteria alone, but who do not qualify for reasons of family structure. States may or may not choose to cover children under this optional program. In states that do cover them, the family structure requirements are ignored and screening is done only on income. Some states cover selected groups of children (such as only those in two-parent families, or only those in institutions). However, it was not possible to obtain precise information on the groups of children covered. Hence, a state is counted as a "Ribicoff state" only if it covers all categories of children, as reported by the National Governors' Association. Currie and Gruber also tried calling all of the states to obtain information about their Ribicoff children program; the resulting information appeared unreliable, since almost every state said that they had a program, whereas secondary sources report that coverage is much more selective. Using the state self-reported coverage yielded similar results to those reported in the paper.

Eligibility under the Medicaid Expansions

See appendix B for a summary of the relevant legislation. If family income and the child's age were less than the cutoffs, it was assumed that the child was eligible. One important question is whether states apply AFDC disregards when computing a family's eligibility for the expansions. Discussions with several state and federal Medicaid administrators suggested that such disregards were generally applied, so they were used in our eligibility calculations. Calculating eligibility without the disregards yielded a significantly smaller effect of the expansions, but the regression results were quite similar.

Appendix B

The Medicaid Expansions

Deficit Reconciliation Act, 1984. Effective 1 October 1984. Required states to extend Medicaid coverage to children born after 30 September 1983, if those children lived in families that were income eligible for AFDC.

Omnibus Budget Reconciliation Act, 1986. Effective 1 April 1987. Permitted states to extend Medicaid coverage to children in families with incomes below the federal poverty level. Beginning in fiscal year 1988, states could increase the age cutoff by one year each year, until all children under age five were covered.

Omnibus Budget Reconciliation Act, 1987. Effective 1 July 1988. Permitted states to cover children under age 2, 3, 4, or 5 who were born after 30 September 1983. Effective 1 October 1988, states could expand coverage to children under age 8 born after 30 September 1983. Allows states to extend Medicaid eligibility to infants up to one year of age in families with incomes up to 185 percent of the federal poverty level. States were *required* to cover children through age 5 in fiscal year 1989, and through age 6 in fiscal year 1990, if the families met AFDC income standards.

Medicare Catastrophic Coverage Act, 1988. Effective 1 July 1989, states were required to cover infants up to one year of age in families with incomes less than 75 percent of the federal poverty level. Effective 1 July 1990, the income threshold was raised to 100 percent of the poverty level.

Family Support Act, 1988. Effective 1 April 1990. States were required to continue Medicaid coverage for 12 months among families who had received AFDC in 3 of the previous 6 months but who had become ineligible because of earnings.

Omnibus Budget Reconciliation Act, 1989. Effective 1 April 1990. Required states to extend Medicaid eligibility to children up to age 6 with family incomes up to 133 percent of the federal poverty line.

Omnibus Budget Reconciliation Act, 1990. Effective 1 July 1991. States were required to cover all children under age 19 who were born after 30 September 1983, and whose family incomes were below 100 percent of the federal poverty level.

Appendix C

Table 7C.1 State Medical Eligibility Thresholds for Children

State	January 1988		December 1989		December 1991	
	Age Limit	MEDICAID%	Age Limit	MEDICAID%	Age Limit	MEDICAID%
Alabama			1	185	8	133
Alaska			2	100	8	133
Arizona	1	100	2	100	8	140
Arkansas	2	75	7	100	8	185
California			5	185	8	185
Colorado			1	75	8	133
Connecticut	0.5	100	2.5	185	8	185
Delaware	0.5	100	2.5	100	8	160
D.C.	1	100	2	100	8	185
Florida	1.5	100	5	100	8	150
Georgia	0.5	100	3	100	8	133
Hawaii			4	100	8	185
Idaho			1	75	8	133
Illinois			1	100	8	133
Indiana			3	100	8	150
Iowa	0.5	100	5.5	185	8	185
Kansas			5	150	8	150
Kentucky	1.5	100	2	125	8	185
Louisiana			6	100	8	133
Maine			5	185	8	185
Maryland	0.5	100	6	185	8	185
Massachusetts	0.5	100	5	185	8	185
Michigan	1	100	3	185	8	185
Minnesota			6	185	8	185
Mississippi	1.5	100	5	185	8	185

(*continued*)

Table 7C.1 (continued)

State	January 1988		December 1989		December 1991	
	Age Limit	MEDICAID%	Age Limit	MEDICAID%	Age Limit	MEDICAID%
Missouri	0.5	100	3	100	8	133
Montana			1	100	8	133
Nebraska			5	100	8	133
Nevada			1	75	8	133
New Hampshire			1	75	8	133
New Jersey	1	100	2	100	8	185
New Mexico	1	100	3	100	8	185
New York			1	185	8	185
North Carolina	1.5	100	7	100	8	185
North Dakota			1	75	8	133
Ohio			1	100	8	133
Oklahoma	1	100	3	100	8	133
Oregon	1.5	85	3	100	8	133
Pennsylvania	1.5	100	6	100	8	133
Rhode Island	1.5	100	6	185	8	185
South Carolina	1.5	100	6	185	8	185
South Dakota			1	100	8	133
Tennessee	1.5	100	6	100	8	185
Texas			3	130	8	185
Utah			1	100	8	133
Vermont	1.5	100	6	225	8	225
Virginia			1	100	8	133
Washington	1.5	100	8	185	8	185
West Virginia	0.5	100	6	150	8	150
Wisconsin			1	130	8	155
Wyoming			1	100	8	133

Source: Yelowitz (1995).

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

Table 7C.2 Child and Family Characteristics in the NHIS

	Natives	Immigrants
Child age	6.86	6.55
	(.90)	(2.04)
Child male	.51	.51
Child black	.17	.09
Child Hispanic	.05	.43
Mother less than 12 years education	.18	.42
Mother some college	.37	.33
Male head less than 12 years education[a]	.15	.37
Male head some college[a]	.47	.39
Male head employed[a]	.92	.88
Female head employed	.58	.54
No male head	.22	.16
Child oldest/only child	.55	.50
No. of siblings in household	1.26	1.56
	(.23)	(.63)
Mother is respondent	.30	.30
Male head is respondent[a]	.69	.72
Other adult female relative in household	.03	.10
Other adult male relative in household	.02	.07
Central city	.23	.46
Rural	.26	.07
Household Income Category		
$10,000 or less	.11	.14
$10,001–$20,000	.15	.21
$20,001–$30,000	.16	.15
$30,001–$40,000	.15	.11
$40,001–$50,000	.12	.08
Greater than $50,000	.19	.16
Missing	.12	.15

Note: Standard errors in parentheses. Means calculated using annual weights.
[a]The mean is calculated conditional on there being a male head.

References

Banister, Judith. 1994. International perspectives on United States immigration. Paper presented to the Population Association of America, Miami, Florida.

Becker, Gary. 1981. *A treatise on the family.* Cambridge, Mass.: Harvard University Press.

Blank, Rebecca, and David Card. 1991. Recent trends in insured and uninsured employment: Is there an explanation? *Quarterly Journal of Economics* 106: 1157–90.

Blank, Rebecca, and Patricia Ruggles. 1993. When do women use AFDC and food stamps? The dynamics of eligibility vs. participation. NBER Working Paper no. 4429. Cambridge, Mass.: National Bureau of Economic Research.

Blau, Francine. 1984. The use of transfer payments by immigrants. *Industrial and Labor Relations Review* 37 (2): 222–39.

Bloom, Daniel, Sharon Parrott, Isaac Shapiro, and David Super. 1995. *The personal responsibility act: An analysis.* Washington D.C.: Center on Budget and Policy Priorities.

Borjas, George J. 1990. *Friends or strangers: The impact of immigrants on the U.S. economy.* New York: Basic Books.

Borjas, George J., and Lynette Hilton. 1996. Immigration and the welfare state: Immigrant participation in means-tested entitlement programs. *Quarterly Journal of Economics* 111 (2): 575–604.

Clark, Rebecca. 1994. *The costs of providing public assistance and education to immigrants.* Washington, D.C.: The Urban Institute.

Congressional Research Service. 1988. *Medicaid source book: Background data and analysis.* Washington, D.C.: U.S. Government Printing Office.

———. 1993. *Medicaid source book: Background data and analysis.* Washington, D.C.: U.S. Government Printing Office.

Currie, Janet, and Jonathan Gruber. 1996a. Saving babies: The efficacy and cost of recent changes in the Medicaid eligibility of pregnant women. *Journal of Political Economy* 104 (6): 1263–96.

———. 1996b. Health insurance eligibility, utilization of medical care, and child health. *Quarterly Journal of Economics* 111 (2): 431–66.

———. 1997. The technology of birth: Health insurance, medical interventions, and infant health. NBER Working Paper no. 5985. Cambridge, Mass.: National Bureau of Economic Research.

Currie, Janet, Jonathan Gruber, and Michael Fischer. 1995. Physician payments and infant health: Effect of increases in Medicaid reimbursements. *American Economic Review* 85 (2): 106–11.

Currie, Janet, and Duncan Thomas. 1995. Medical care for children: Public insurance, private insurance, and racial differences in utilization. *Journal of Human Resources* 30:135–62.

Cutler, David, and Jonathan Gruber. 1996. Does public insurance crowd out private insurance? *Quarterly Journal of Economics* 111 (2): 391–430.

Devine, Theresa J., and James Heckman. 1994. The consequences of eligibility rules for a social program: A study of the Job Training Partnership Act (JTPA). University of Chicago, Department of Economics, June.

Dumouchel, William, and Greg Duncan. 1983. Using sample survey weights in multiple regression analyses of stratified samples. *Journal of the American Statistical Associations* 78 (383): 535–43.

Fix, Michael, and Wendy Zimmerman. 1997. Welfare reform: A new immigrant policy for the U.S. Washington, D.C.: The Urban Institute.

Fossett, James W., Janet D. Perloff, Phillip R. Kletke, and John A. Peterson. 1992. Medicaid and access to child health care in Chicago. *Journal of Health Politics, Policy, and Law* 17:273–98.

Fossett, James W., and John A. Peterson. 1989. Physician supply and Medicaid participation: The causes of market failure. *Medical Care* 27:386–96.

Hadley, Jack, E. P. Steinberg, and J. Feder. 1991. Comparison of uninsured and privately insured hospital patients: Condition on admission, resource use, and outcome. *Journal of the American Medical Association* 265:374–79.

Heckman, James. 1990. Alternative approaches to the evaluation of social programs: Econometric and experimental methods. Paper presented to the World Congress of the Econometric Society, Barcelona, Spain.

Heckman, James, and Thomas MaCurdy. 1985. A simultaneous equations linear probability model. *Canadian Journal of Economics* 18 (1): 28–37.

Hernandez, Donald, and Evan Charney, eds. 1998. *The health and well-being of children of immigrants.* Washington, D.C.: National Academy Press.

Jensen, Leif. 1988. Patterns of immigration and public assistance utilization, 1970–1980. *International Migration Review* 22 (1): 51–83.

Kemper, Kathi. 1988. Medically inappropriate hospital use in a pediatric population. *New England Journal of Medicine* 318 (16): 1033–37.

Lamberg, L. 1996. Nationwide study of health and coping among immigrant children. *Journal of the American Medical Association* 276 (18): 1455–56.

Leclere, Felicia, Lief Jensen, and Ann Biddlecom. 1994. Health care utilization, family context, and adaptation among immigrants to the United States. *Journal of Health and Social Behavior* 35:370–84.

Mitchell, Janet, and Rachel Schurman. 1984. Physician participation in Medicaid revisited. *Medical Care* 29:645–53.

National Governors' Association. Various years. *A catalogue of state Medicaid program changes.* Washington, D.C.: National Governors' Association.

Newhouse, Joseph. 1993. Medical care costs: How much welfare loss? *Journal of Economic Perspectives* 6:23–42.

Piper, Joyce, W. A. Ray, and M. R. Griffin. 1990. Effects of Medicaid eligibility expansion on prenatal care and pregnancy outcomes in Tennessee. *Journal of the American Medical Association* 264:2219–23.

Shore-Sheppard, Lara. 1996. Stemming the tide? The effect of expanding Medicaid eligibility on health insurance coverage. Princeton University Industrial Relations Section Working Paper no. 361. Princeton, N.J.: Princeton University.

Short, Pamela, Joel Cantor, and Alan Monheit. 1988. The dynamics of Medicaid enrollment. *Inquiry* 25:504–16.

Thomas, Duncan, and John Strauss. 1995. Human resources: Empirical modeling of household and family decisions. In *Handbook of development economics,* ed. T. N. Srinivasan and Jere Behrman. Amsterdam: North-Holland.

Tienda, Marta, and Lief Jensen. 1986. Immigration and public assistance participation: Dispelling the myth of dependency. *Social Science Research* 15 (4): 372–400.

Trejo, Stephen. 1992. Immigrant welfare recipiency: Recent trends and future implications. *Contemporary Policy Issues* 10:44–53.

U.S. General Accounting Office. 1994. *Health care reform: Potential difficulties in determining eligibility for low-income people.* Report no. GAO/HEHS-94-176. Washington, D.C.: U.S. Government Printing Office.

U.S. House of Representatives. Committee on Ways and Means. 1993. *Overview of entitlement programs.* Washington, D.C.: U.S. Government Printing Office.

U.S. National Commission on the International Year of the Child. 1980. *Report to the president.* Washington, D.C.: U.S. Government Printing Office.

Wenneker, Mark, J. S. Weissman, and H. M. Epstein. 1990. The association of payer with utilization of cardiac procedures in Massachusetts. *Journal of the American Medical Association* 2461:1255–60.

White, Halbert. 1980. A heteroskedasticity-consistent covariance matrix and a direct test for heteroskedasticity. *Econometrica* 48:817–38.

Yelowitz, Aaron S. 1995. The Medicaid notch, labor supply and welfare participation: Evidence from eligibility expansions. *Quarterly Journal of Economics* 110 (4): 909–40.

This Page Intentionally Left Blank