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State Variations in Supplemental Security Income Enrollment for Children and Adolescents

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A B S T R A C T

Objectives. The purpose of this study was to determine the effects of poverty, program generosity, and health on state variations in enrollment of children and adolescents in the Supplemental Security Income (SSI) program during recent program expansions.

Methods. The relationship of state SSI rates for 1989 and 1992 to child poverty, health, and program generosity were determined by multiple regression.

Results. The mean percentage of children enrolled grew from 0.36% (1989) to 0.75% (1992). Poverty rates accounted for 78% of the variance among states in 1989 and 53% in 1992. Other indicators accounted for little variance.

Conclusions. Differences in state poverty levels explained almost all variation in SSI enrollment. (*Am J Public Health.* 1998;88:928–931)

Introduction

The Supplemental Security Income (SSI) program provides income support for low-income people with mental, developmental, or physical disabilities. Most states provide Medicaid coverage to children receiving SSI benefits. Each state's disability determination service establishes eligibility, based on federal guidelines,[1] but with substantial discretion in carrying out its responsibilities. State operations can vary markedly in staffing patterns (e.g., access to child health experts), qualifications and compensation of personnel, and the use of consultants to evaluate applicants. Variations in state operations could lead to substantial inequity in children's access to income benefits and Medicaid, unrelated to eligibility differences per se.

The child and adolescent SSI program expanded dramatically from 297 000 enrollees in 1989 to almost 900 000 in 1994,[2] with current expenditures over $5 billion per year in cash benefits and $5 billion more for Medicaid. This expansion, the largest recent federal investment in child health and welfare, followed a Social Security Administration program begun in 1989 to identify potential recipients, a 1990 revision of the listings of eligible childhood mental impairments, and a new childhood disability regulation in 1991 codifying a broadened Supreme Court definition.[2–5]

The tremendous growth in expenditures led to media attention and 2 national policy reviews of the child and adolescent SSI program.[6,7] Although news reports raised the question of fraudulent applications, neither review found substantial evidence of fraud. In this study we sought to discover how population characteristics (poverty and health status) and program differences affected state variations in SSI enrollment. We carried out cross-sectional analyses of state child and adolescent SSI enrollment for 1989 and 1992 and determined changes in state enrollment during this period.

We hypothesized the following: (1) Population-level child health risk characteristics should be positively associated with SSI enrollment. (2) The dollar amount of the maximum federal plus state SSI cash supplement (a proxy for state generosity) should be positively associated with enrollment. Higher SSI benefit standards increase the proportion of the population that qualifies financially for some cash benefits. (3) Other financial factors, such as the proportion of children living below 100% of poverty, should also be positively associated with enrollment.

Assuming consistent state responses to changing SSI policies, we expected that these 3 characteristics would have similar associations with enrollment in both years. If, however, states responded with different speed or intent to these policy changes, we would expect weaker associations in 1992. Large unexplained differences across states could suggest more variations in state administration or possible consumer fraud than in eligibility status.

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Methods

Measures of SSI Enrollment

We used data for all 50 states plus the District of Columbia. We computed 2 measures of SSI enrollment for each state and year (1989 and 1992): (1) the proportion of all children and adolescents (from birth through 21 years) enrolled in SSI and (2) the proportion of children and adolescents enrolled in SSI who are living below 100% of poverty. State enrollment rates came from the *Social Security Bulletin* annual statistical supplements.[8] State populations of persons younger than 22 years and living in families with incomes below 100% of poverty came from US Census Bureau data.[9] Poverty-level information is published only for children through the age of 17 years, and we adjusted these numbers by multiplying them by the ratio of the state's newborn through-21-year-old population to newborn through 17-year-old population. The 1990 census provides information on poverty in 1989. For the newborn through 21-year-old population, we assumed changes proportional to the change from 1989 for the state's total population. To compute the 2 enrollment measures, we divided the number of enrollees by each population estimate.

Financial Eligibility Measure

SSI eligibility rules allow enrollment of families with incomes up to about 200% of poverty. Reiss et al.[10] developed estimates of SSI financial eligibility (for 1993) for the child population by combining asset and income information from the Survey of Income and Program Participation and the Current Population Survey. We used these estimates as a more accurate measure of financial eligibility. These estimates do, however, have large standard errors because they are based on 2 sample surveys.

Health Risk Measures

We used 3 indicators of child health status. First, the 1989 proportion of very-low-birthweight births (≤ 1500 g) was used as a proxy measure of children at high risk of disability.[11,12] (We initially included infant mortality rates but dropped them from later analyses because they showed no independent contribution to the study's dependent variables.) Second, we aggregated National Health Interview Survey data from 1989 through 1991[13] to determine the proportion of persons through the age of 21 years who were (1) reported to be in fair or poor health or (2) limited in major activity because of a chronic health condition. Despite the aggregation, sample sizes remained too small to compute estimates for Nebraska and North Dakota. Since these 3 indicators change negligibly across short time periods, we used the same estimates for 1989 and 1992.

Measures of State Generosity

We determined 2 characteristics of program generosity: (1) the maximum federal plus state SSI cash benefit[1] and (2) whether the state provided Medicaid to SSI beneficiaries automatically or subject to stricter criteria under the 209(b) provision.[1] Twelve states used stricter definitions of blindness or disability or more restrictive financial requirements for Medicaid eligibility. We adjusted the value of the cash benefit by including a state-level cost-of-living index in the statistical models.[13]

Analysis

For both 1989 and 1992, we first assessed the relationship between the proportion of the total child and adolescent population enrolled in SSI and the health status, financial status, and generosity variables. For these analyses, 2 financial eligibility measures—the percentage of the population from birth through 21 years living in poverty and the more liberal estimates of Reiss et al.[10]—were interchanged in separate multiple regression models. Second, we used SSI enrollment among persons living in poverty as the dependent variable and excluded the financial status measures from the independent variables.

Finally, we used linear regression to examine changes between 1989 and 1992 in overall enrollment, including the baseline (1989) poverty rate, poverty rate change from 1989 to 1992, health risk, and program generosity as independent variables. We used a log transformation of the dependent variable to restrict the predicted changes to the nonnegative range.

Results

Table 1 presents means and standard deviations for state SSI enrollment and related economic and health status variables. The mean percentage of the population from birth through 21 years enrolled in SSI increased by 110% from 1989 to 1992. The standard deviation increased by almost 150%, indicating more state variation in 1992 than in 1989. The maximum state plus federal SSI payment during the time period averaged $495 per month.[1]

Tables 2 and 3 indicate the relative contribution of each variable to the variance explained for enrollment of the total childhood population and the poverty-income population, respectively. In each case, the

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TABLE 1—Characteristics of Child and Adolescent Enrollment in the Supplemental Security Income (SSI) Program, 1989 and 1992

	Mean	SD
Populations enrolled in SSI		
Total population enrolled in SSI, %		
1989	0.36	0.15
1992	0.75	0.37
Below-poverty population enrolled in SSI, %		
1989	2.04	0.41
1992	4.04	1.35
Economic indicators		
Living below poverty, %		
1989	21.3	6.6
1992	23.3	7.7
Estimated to meet SSI income and asset requirements in 1993[a], %	36.6	7.8
Child health status		
Infants weighing $\leq$ 1500 g at birth in 1989, %	1.3	0.5
Reported to be in fair or poor health[b], %	2.9	1.1
Limited in major activity by chronic health condition[b], %	5.5	1.6
State program generosity		
Average amount of maximum state plus federal monthly SSI supplement, 1990, $	495.1	75.3

Note. Except where noted, all estimates refer to the population of the 50 states plus the District of Columbia aged from birth through 21 years.
[a]Estimate based on the population aged from birth through 17 years, from Reiss et al.[10]
[b]Nebraska and North Dakota were excluded from these estimates because of small sample sizes.

TABLE 2—Variables Associated with Percentage of All Children and Adolescents Enrolled in the Supplemental Security Income (SSI) Program, 1989 and 1992

	1989			1992		
	Coefficient Estimate (95% CI)	P	Adjusted R^2 with Variable Omitted[a]	Coefficient Estimate (95% CI)	P	Adjusted R^2 with Variable Omitted[a]
Living below poverty, %	1.81 (1.44, 2.17)	.01	0.40	2.19 (1.09, 3.30)	.01	0.37
Infants weighing ≤ 1500 g at birth in 1989, %	0.00063 (0.0002, 0.001)	.01	0.81	0.0021 (0.0004, 0.004)	.05	0.47
Reported to be in fair or poor health, %	−0.00026 (−0.00007, −0.0004)	.01	0.81	−0.0028 (−0.001, 0.0004)	NS	0.53
Limited in major activity by chronic health condition, %	0.00014 (0.00001, 0.0003)	.05	0.82	0.0004 (−0.00006, 0.001)	NS	0.51
Adjusted R^2 (full model, controlled also for maximum state SSI benefit, whether state uses 209[b] Medicaid eligibility criteria, and cost of living)			0.81			0.53

Note. Table presents the results from multiple regression analysis of data from all 50 states (except Nebraska and North Dakota, excluded because of small sample sizes) and the District of Columbia. The population referred to is all persons aged from birth through 21 years. CI = confidence interval; NS = not significant.
[a]Indicates contribution of omitted variable to total R^2.

adjusted R^2 with the variable excluded from the model is presented, indicating how much the omission of the variable would change the adjusted R^2. This difference represents the incremental change in R^2 when adjusting for each variable with the other controls already included. Poverty levels alone doubled the amount of the explained state variations in 1989. In contrast, adding estimates of child health status only marginally increased the adjusted R^2 to 81%, despite statistical significance of each variable. In 1992, the adjusted R^2 from the full model

was only 53%, considerably lower than the variation explained in 1989. As in 1989, only the state's childhood poverty level strongly predicted enrollment. When proportion of the poor population was used as the dependent variable (Table 3), substantially less variance was explained.

Replacement of the state childhood poverty level with the more liberal estimates of Reiss et al.[10] resulted in similar models, although with substantially reduced variance explained (full model, adjusted $R^2 = 0.56$; 1992, adjusted $R^2 = 0.53$).

Poverty rates also explained much of the change in enrollment from 1989 to 1992, with poorer states experiencing greater increases (Table 4). Greater growth in enrollment was also associated with a larger population with disability.

Discussion

This study shows that poverty levels account for almost all of the variation in SSI enrollment among children and adolescents

TABLE 3—Variables Associated with Enrollment in the Supplemental Security Income (SSI) Program among Children and Adolescents Living in Poverty, 1989 and 1992

	1989			1992		
	Coefficient Estimate (95% CI)	P	Adjusted R^2 with Variable Omitted[a]	Coefficient Estimate (95% CI)	P	Adjusted R^2 with Variable Omitted[a]
Infants weighing ≤ 1500 g at birth in 1989, %	0.00449 (0.002, 0.007)	.01	0.03	0.0101 (0.003, 0.017)	.01	0.14
Reported to be in fair or poor health, %	−0.00155 (−0.003, −0.0006)	.01	0.13	−0.0033 (−0.0064, −0.0001)	.05	0.20
Limited in major activity by chronic health condition, %	0.00050 (−0.0002, 0.006)	NS	0.27	0.00074 (−0.0015, 0.003)	NS	0.26
Adjusted R^2 (full model, controlled also for maximum state SSI benefit, whether state uses 209[b] Medicaid eligibility criteria, and cost of living)			0.29			0.25

Note. Table presents the results from multiple regression analysis of data from all 50 states (except Nebraska and North Dakota, excluded because of small sample sizes) and the District of Columbia. The population referred to is all persons aged from birth through 21 years. CI = confidence interval; NS = not significant.
[a]Indicates contribution of omitted variable to total R^2.

TABLE 4—Variables Associated with Change in Child and Adolescent Enrollment in the Supplemental Security Income (SSI) Program, 1989 to 1992

	Coefficient Estimate	95% Confidence Interval		P
Poverty rate, 1989	7.30	3.76,	11.01	.01
Absolute change in the poverty rate, 1989 to 1992	0.34	−0.09,	0.77	NS
Infants weighing ≤ 1500 g at birth in 1989, %	0.32	0.09,	0.56	.01
Reported to be in fair or poor health[a], %	−0.15	−0.05,	−0.26	.01
Limited in major activity by chronic health condition[a], %	0.07	−0.003,	0.14	NS
Maximum SSI benefit (federal plus state)	0.001	−0.002,	0.002	NS
State use of Medicaid 209(b) eligibility criteria	−0.04	−0.002,	0.002	NS
Cost-of-living index	−2.45	−3.88,	−1.02	.01
Adjusted R^2		0.65		

Note. Table presents the results from linear regression analysis of data from all 50 states (except Nebraska and North Dakota, excluded because of small sample sizes) and the District of Columbia. NS = not significant.
[a]The population referred to is all persons aged from birth through 21 years.

across states in 1989. Variations in child health status or program generosity added only marginally to this finding. By 1992, growth in SSI enrollment was substantial, but poverty levels, although still most strongly associated with change, accounted for less of the variation among states.

The strong association between poverty and enrollment suggests relatively little variation in 1989 in state administration of disability determination activities or access of children with disabilities to Medicaid. By 1992, the decreasing association of poverty levels with enrollment suggests differences in state responses to expanded opportunities for enrollment, although the finding could also reflect increased measurement error in our extrapolation from 1989 data to 1992 poverty rates. Extensive outreach programs may have increased applications in certain states. Poverty rates, child health measures, and the cost-of-living index explained more than 65% of the change from 1989 to 1992. Although these data provide no direct information about the potential for fraud, our findings suggest that fraudulent applications had little role in program growth.

The Reiss et al. estimates indicated that more than one third of the population would meet SSI financial requirements,[10] a population more than one and a half times that living in poverty. The much lower association of these estimates with enrollment in comparison with crude poverty levels suggests that the program has targeted very poor populations rather than higher-income families, consistent with studies of other benefit programs.[4]

Child health indicators generally showed significant associations with enroll-

ment, although they accounted for much less variation than did poverty levels. Very low birthweight was associated with higher enrollment rates and increases in enrollment. The proportion of children with activity limitations was positively associated with enrollment in 1989 and with enrollment growth from 1989 to 1992. Of interest is the finding that the proportion of children reported in fair or poor health was more strongly associated with enrollment rates than was the proportion with functional limitations, and that the fair or poor health association was always negative. These 2 questions appear to measure different domains. The National Health Interview Survey, however, provides relatively crude estimates of actual health status, with small sample sizes for many states. The state-level nature of these data limits our interpretation of the findings.[15]

Lack of association of program generosity variables with enrollment suggests that the much greater variation in real benefits based on the family's own income level overshadowed any program effects. This conjecture would explain the contrast between our findings and those from other studies showing that benefit generosity predicts enrollment in transfer programs.[17,18] Our findings suggest state differences in as yet unstudied program characteristics such as personnel qualifications, intake processes for determining eligibility, or the potential for fraudulent applications. Future studies to identify and measure state program characteristics associated with enrollment could help to target program elements amenable to administrative and educational interventions aimed at making SSI enrollment more rational. □

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