

Counting the Uninsured: A Review of the Literature

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Mathematica Policy Research, Inc.

Occasional Paper Number 8



**Assessing
the New
Federalism**

*An Urban Institute
Program to Assess
Changing Social Policies*

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**The Urban
Institute**

2100 M Street, N.W.
Washington, D.C. 20037
Phone: 202.833.7200
Fax: 202.429.0687
E-Mail: paffairs@ui.urban.org
<http://www.urban.org>

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This report is part of The Urban Institute's *Assessing the New Federalism* project, a multi-year effort to monitor and assess the devolution of social programs from the federal to the state and local levels. Alan Weil is the project director and Anna Kondratas is deputy director. The project analyzes changes in income support, social services, and health programs. In collaboration with Child Trends, Inc., the project studies child and family well-being.

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Assessing the New Federalism

Assessing the *New Federalism* is a multi-year Urban Institute project designed to analyze the devolution of responsibility for social programs from the federal government to the states, focusing primarily on health care, income security, job training, and social services. Researchers monitor program changes and fiscal developments. In collaboration with Child Trends, Inc., the project studies changes in family well-being. The project aims to provide timely, nonpartisan information to inform public debate and to help state and local decisionmakers carry out their new responsibilities more effectively.

Key components of the project include a household survey, studies of policies in 13 states, and a database with information on all states and the District of Columbia, available at the Urban Institute's Web site. This paper is one in a series of occasional papers analyzing information from these and other sources.

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Counting the Uninsured: A Review of the Literature

Although most researchers agree that the number of uninsured is increasing, they often disagree on the actual number of uninsured—or even how the uninsured should be defined and measured. For example, although the most widely cited estimate of the number of uninsured nonelderly individuals in America is about 41 million, which is based on the March 1997 Current Population Survey (CPS), there is debate over whether this estimate is closer to the number of uninsured at a point in time or the number of uninsured throughout the year. Moreover, estimates of the uninsured using alternative data sources, or using CPS data that have been adjusted to account for underreporting of Medicaid, vary from the basic CPS estimate by as much as one-half.

This paper reviews the literature on the recent estimates of the uninsured and why the estimates from various databases differ. We review the estimates of the uninsured based on the following databases: the March CPS, the Survey of Income and Program Participation (SIPP), the National Health Interview Survey (NHIS), the National Medical Expenditure Panel Survey (MEPS), and the Community Tracking Study (CTS). The analyses presented here draw heavily from previous and ongoing work sponsored by the Department of Health and Human Services (DHHS), Office of the Assistant Secretary for Planning and Evaluation (OASPE).¹ Although the analyses encompass measuring the health insurance status of all persons, many of the examples presented in this paper relate specifically to children because they have been the focus of much of the recent literature. This is relevant given the recent passage of the State Children's Health Insurance Program (CHIP), which provides states with \$24 billion in federal matching funds over the next five years

to provide insurance to uninsured children in low-income families. Nevertheless, the lack of health insurance is a problem that affects adults and children alike, and the measurement issues presented in this paper pertain to both.

Measuring the Uninsured

Published estimates of the number of uninsured will differ depending on the design of the survey used for the estimate and whether the data are adjusted in any way. There are several aspects of survey design that can affect final estimates of the uninsured and health insurance status in general. Some aspects, such as the definition of uninsured, will have predictable effects on insurance rates. For example, one would expect the NHIS to have higher uninsured rates than the CPS because the NHIS purports to measure those uninsured at a point in time whereas the CPS purports to measure those uninsured throughout an entire year. Other aspects, though, such as sample design and survey administration, may affect uninsured rates in significant but unpredictable ways. The following are some of the aspects of survey design that can differ and may have significant effects on insurance status:

- **Coverage.** What are the characteristics of the sample frame? What were the response rates? What, if anything, is known about the characteristics of non-respondents?
- **Instrumentation.** How were the insurance questions phrased and sequenced? How many insurance questions were asked? What types of skip patterns were imposed? How were the uninsured identified (for example, as an actual category or as a residual of those not reporting any other types of coverage)? What was the recall period? How were multiple types of insurance handled? How was dependent coverage captured—by proxy or by imputation?
- **Survey Administration.** What was the mode of administration—in-person or via telephone? How were proxies used? What was the level and scope of interviewer training, especially with regard to the administration of insurance questions?
- **Estimation.** How were the weights developed? What types of imputations were performed on the insurance questions, including both logical and statistical? If imputations were not performed, were those with nonresponse to insurance questions excluded from the estimates?

In addition to survey design, differences in how the data are interpreted or adjusted can also have significant effects on insurance status. For example, estimates of the uninsured done by the Urban Institute using CPS data are lower than estimates by other groups using the same data because the Urban Institute adjusts its estimates for the underreporting of Medicaid in the CPS.

The primary goal of this paper is to present side by side the various estimates of the uninsured in the recent literature to demonstrate the degree to which they differ. A secondary goal is to describe some of the characteristics of the

various survey designs in order to explain some of the differences. Readers should be cautioned, though, that a more thorough analysis of each survey would have to be undertaken to determine more precisely why estimates differ.

CPS Estimates of the Uninsured

The most commonly cited estimates of the number of uninsured children—those produced by the Census Bureau, the Congressional Budget Office (CBO), the U.S. General Accounting Office (GAO), the Employee Benefit Research Institute (EBRI), and the Urban Institute—use the March CPS as their source. The CPS, which is the source of the official government statistics on employment and unemployment, is a nationally representative monthly survey of approximately 57,000 households in the United States. The sample is based on the civilian noninstitutionalized population of the United States, which includes persons living in households and group quarters (e.g., college dormitories and rooming houses) but does not include residents of institutions (e.g., homes for the aged) and persons living abroad. As well as being nationally representative, the sample is also representative of each of the 50 states and the District of Columbia, although for most states the samples are too small for precise state-level estimates.

The main purpose of the survey is to collect, by means of personal interviews, information on the employment status of the population during the survey month. In addition, supplemental questions are regularly added to the core questionnaire on topics such as health, education, income, and previous work experience. The March CPS contains supplemental questions on the health insurance status of each person in the household in the prior calendar year. Specifically, respondents are asked whether they had any of various types of private or public health insurance in the previous year. Respondents are permitted to report more than one type of health insurance coverage, although it is impossible to tell from the data whether persons with multiple types of coverage had the coverage concurrently or at different times during the previous year.

Respondents are never asked directly whether they were uninsured in the previous year. Instead, estimates of the uninsured are calculated as a *residual*—that is, the uninsured are all those who do not report having some type of coverage in the previous year. As a result, the uninsured are those without any coverage *throughout* the previous year. However, some researchers believe that the CPS estimates of the uninsured are too high and, thus, that many respondents may be reporting their health insurance status as of the interview date. This and other issues pertaining to estimates of the uninsured according to the CPS are discussed below.

The two principal classes of estimates of the uninsured using the CPS are (1) those done by the Census Bureau, CBO, GAO, and EBRI; and (2) those done by the Urban Institute. These estimates are summarized in table 1. The Urban



Table 1 CPS Estimates of the Uninsured by State

Source	Data	Time Period	Universe	Number (millions)	Percent
Census Bureau, EBRI, CBO, GAO, and others	1996 CPS	1995	Uninsured throughout 1995 (or point estimate, depending on interpretation of CPS definition of uninsured)	9.8	13.8
			Children ages ≤17	10.5	14.0
			Children ages ≤18	30.5	19.0
			Adults ages 18-64	40.3	17.4
			Nonelderly ages 0-65	40.6	15.4
Urban Institute	1996 CPS	1995	Uninsured throughout 1995 (or point estimate, depending on interpretation of CPS definition of uninsured). Adjusted for the Medicaid undercount in the CPS using the TRIM2 model.	6.9	9.8
			Children ages ≤17	7.6	10.3
			Children ages ≤18	28.8	18.0
			Adults ages 18-64	35.7	15.5
			Nonelderly ages 0-65		

Institute's estimates of the uninsured differ from the other estimates because they adjust for the underreporting of Medicaid in the CPS.

Census Bureau, CBO, GAO, and EBRI Estimates

Beginning with the March 1995 CPS, when the health insurance questions were revised to eliminate the possibility of respondent inconsistencies, the Census Bureau (Bennefield 1996a), CBO (Bilheimer 1997), GAO (1997), and EBRI (Fronstin 1996a) began publishing identical estimates of the number of uninsured.² Using the March 1996 CPS, they found the following:³

- **Children ages 0 to 17:** 9.8 million uninsured (13.8 percent of all children)
- **Children ages 0 to 18:** 10.5 million uninsured (14.0 percent of all children)
- **Adults ages 18 to 64:** 30.5 million uninsured (19.0 percent of all adults)
- **All persons ages 0 to 65:** 40.3 million uninsured (17.4 percent of all persons)⁴

None of these organizations adjusted their estimates for the underreporting of Medicaid in the CPS.

The Urban Institute's Estimates

The Urban Institute's estimates of the uninsured differed from others because the Institute adjusted for the underreporting of Medicaid in the CPS. The Institute used its Transfer Income Model (TRIM2), a microsimulation model, to test for Medicaid eligibility among nonreporters of Medicaid and then selected individuals to participate so that the size of the resulting Medicaid population in the model matched Health Care Financing Administration (HCFA) administrative data according to age and disability status of all persons ever enrolled in Medicaid in a given year. Using the TRIM2 model with March 1996 CPS data, the Institute found the following:

- **Children ages 0 to 17:** 6.9 million uninsured (9.8 percent of all children)
- **Children ages 0 to 18:** 7.6 million uninsured (10.3 percent of all children)
- **Adults ages 18 to 64:** 28.8 million uninsured (18.0 percent of all adults)
- **All persons ages 0 to 65:** 35.7 million uninsured (15.5 percent of all persons)

The estimate of 6.9 million uninsured children in 1995 is 30 percent lower than the CPS estimates that include no adjustment for the underreporting of Medicaid. In all, the Institute simulated 2.9 million children to participate in Medicaid who reported no health insurance coverage in the CPS.

Researchers debate whether the Institute's adjustment for the underreporting of Medicaid yields improved estimates of the uninsured. The Institute's adjustment may overcompensate for the underreporting because the adjustment is based on administrative estimates of the number of persons ever enrolled in Medicaid during the year, while CPS estimates of the uninsured are probably a mix of those uninsured at a point in time and those uninsured throughout the previous year. Also, even though the Institute adjusts for



Medicaid underreporting, it makes no adjustment to reported private employment coverage, which could also be underreported. This is important because the uninsured are calculated as a residual; therefore, accurate estimates of the uninsured require accurate estimates of coverage for all other types of insurance. Despite these potential problems, the fact remains that Medicaid appears to be underreported in the CPS and therefore will affect most estimates of the uninsured in one way or another. The issues of underreporting of Medicaid and whether the CPS estimates may reflect those enrolled at a point in time are described in more detail below.

CPS Health Insurance Measurement Issues

When interpreting estimates of the uninsured done by researchers using the CPS, it is important to understand that these estimates are affected by various measurement issues. These issues include the following: the time frame of the CPS measures of health insurance, Medicaid underreporting, imputation of health insurance coverage, and undercoverage of the sampled population.

Time Frame

If respondents answer the CPS health insurance questions as intended—that is, as coverage at any time during the previous year—then estimates of the uninsured should be interpreted as those without coverage *throughout* the previous year. However, some researchers believe that the CPS estimates of the uninsured are too high and, thus, that respondents may be reporting their health insurance status as of the interview date. Swartz (1986) compared CPS estimates of the uninsured with estimates from three other surveys that asked respondents about their health insurance coverage as of the interview date and found that the CPS estimates more closely resembled the point-in-time estimates of these surveys.⁵ CBO also considers its CPS-based estimates of the uninsured to be closer to a point-in-time estimate rather than an estimate of those uninsured throughout the previous year (Bilheimer 1997).

There is some evidence, though, that some CPS respondents interpret the questions correctly and report their status as of the previous year. For example, in 1995, 15 percent of children enrolled in Medicaid according to the CPS also reported coverage by private health insurance (Fronstin 1996a). These children are probably not reporting their current status, since it is unlikely that this many children would be covered by Medicaid and private insurance at the same time. Instead, some were probably covered by private insurance for part of the year and Medicaid for part of the year.

Other evidence also suggests that many respondents interpret the questions correctly. For example, Kronick (1989)⁶ found that private employer-sponsored health insurance coverage in the CPS is more consistent with employment status in the previous year than in the interview month. In addition, the first round of the Medical Expenditure Panel Survey (MEPS), which asked respondents whether they were uninsured continuously from January 1, 1996,

to their interview date three to six months later (and links their responses to employment-related data), provided estimates that were slightly higher than the CPS (Beauregard et al. 1997).⁷ If the CPS were a point-in-time estimate, then the MEPS estimate should have been lower than the CPS. This suggests, at a minimum, that the CPS is not strictly a point-in-time estimate.

In another analysis, Bennefield (1996c) compared longitudinal data from the SIPP with the standard health insurance data from the CPS and with data from experimental questions on the March 1995 CPS that asked about current health insurance status. Bennefield's results indicated that CPS respondents interpreted the standard health insurance questions correctly and provided their health insurance status as of the previous year. However, he found that respondents may have had recall problems and failed to report some coverage and, as a result, the CPS estimates of the uninsured looked more like point-in-time estimates. Some researchers, though, doubt the usefulness of the experimental health insurance questions on the CPS because they yielded extremely large numbers of uninsured.⁸

Long and Marquis (1996) compared the March 1993 CPS estimates of the uninsured in 10 states with the findings from the Robert Wood Johnson Foundation (RWJF) Family Health Insurance Survey. The RWJF survey was administered to approximately 2,000 families each in Colorado, Florida, Minnesota, New Mexico, New York, North Dakota, Oklahoma, Oregon, Vermont, and Washington during 1993. The uninsured and those covered by Medicaid were oversampled. The content includes considerable detail on insurance status—both current and throughout the previous year. Across the 10 states included in the RWJF survey, the CPS estimate of the uninsured for all persons (14.7 percent) fell between the RWJF estimate of the currently uninsured (15.7 percent) and the uninsured throughout the previous year (12.2 percent). Long and Marquis also examined each state individually and found that for 9 of 10 states, the CPS measure fell between the RWJF current and throughout-the-previous-year measures; in the remaining state, the CPS estimate was above the RWJF estimate of the currently uninsured by only 0.2 percentage point. Long and Marquis concluded that using the CPS as if it were a measure of the currently uninsured generally will understate estimates of the uninsured at a point in time.

The conclusion we draw from this evidence is that the CPS probably contains a mixed bag of reporting—that is, some respondents report health insurance status during the previous year, some report it as of the interview date, and some fail to report it altogether—which, in the end, yields estimates that are somewhere between a point-in-time and an uninsured-throughout-the-year estimate.

Medicaid Underreporting

One potential weakness of the CPS is that the number of persons reporting Medicaid is lower than the number of persons ever enrolled in Medicaid in a given year according to administrative data from HCFA—the agency that



administers the Medicaid program. This problem is often referred to as “underreporting” and can lead to overestimates of the uninsured if many of those that appear uninsured are actually enrolled in Medicaid.⁹

Underreporting is thought to occur because survey respondents may not admit to being covered due to the stigma associated with public assistance programs, because they are not currently receiving health services, or because they may not realize they are enrolled in Medicaid. Another possibility is that respondents who are enrolled in a Medicaid managed care plan report being enrolled in private managed care. If so, then the problem of Medicaid underreporting could get worse as more states adopt Medicaid managed care programs.

In 1995, 36.7 million nonelderly individuals were enrolled in Medicaid at some point during the year according to HCFA, a 21 percent difference from the CPS estimate of 29 million. As shown in table 2, Medicaid underreporting has become worse in the past few years: 19.8 percent in 1994 and 15.5 percent in 1993 (Fronstin 1997b; HCFA 1996).¹⁰ Medicaid underreporting for children ages 0 to 17 follows the same general trend as that for all nonelderly individuals, although the underreporting rate is slightly higher. In 1995, for example, 16.5 million children were enrolled in Medicaid according to the CPS versus 21.4 million according to HCFA data—22.9 percent underreporting (table 2; Fronstin 1997a; HCFA 1996).

The extent of Medicaid underreporting in the CPS is difficult to determine because of some confounding factors. On the one hand, the above comparisons are only valid if the CPS Medicaid question was answered as intended—that is, whether one was ever enrolled in Medicaid during the previous year. However, the CPS probably provides something in between a point-in-time and an ever-enrolled estimate. As a result, the above comparisons probably overstate Medicaid underreporting somewhat.¹¹ On the other hand, Medicaid underreporting may be understated somewhat because the Census Bureau does some recodes to the CPS data that assign Medicaid to persons who may not actually be covered by Medicaid. Specifically, all those reporting Indian Health Service coverage, “other government” coverage, and “other” coverage were recoded to Medicaid, which resulted in an additional 1.6 million persons ages 0 to 64 reporting Medicaid in the March 1996 CPS (6 percent of the 29 million persons reporting Medicaid). These issues need to be investigated further before firm conclusions can be drawn concerning the extent to which Medicaid is underreported in the CPS.

Imputation of Health Insurance Coverage

Estimates of the uninsured based on the CPS and other surveys can also vary because of the different ways that these surveys deal with nonresponse to the health insurance items. All survey data have some degree of nonresponse to the health insurance questions (and most of the other questions as well). Some survey data retain the missing data and have a coverage category called “unknown.” Other surveys exclude these persons from tabulations and reweight

Table 2 *CPS Estimates of Medicaid Enrollment, Nonelderly and Children, 1992 to 1995 (Numbers in Millions)*

	1992	1993	1994	1995
Nonelderly Enrollees (Ages 0–64)				
CPS	26.5	29.0	28.7	29.0
HCFA	31.4	34.3	35.8	36.7
Underreporting Percent	15.6	15.5	19.8	21.0
Child Enrollees (Ages 0–17)				
CPS	15.1	16.7	16.1	16.5
HCFA	18.4	20.2	21.0	21.4
Underreporting Percent	17.9	17.3	23.3	22.9

Sources: CPS enrollment numbers from EBRI (Fronstin 1997a and 1997b); HCFA enrollment numbers from 2082.

Notes: Child enrollees = number of children ages 0–14 plus one-half of the children ages 15–20 (HCFA does not report number of children ages 0–17 in the 2082).

HCFA data represent those ever enrolled during the year and include the institutionalized. CPS data are best interpreted as in between a point in time and those ever enrolled during the year and do not include the institutionalized.

That the number of children with Medicaid fell from 1993 to 1994 in the CPS may be an artifact of the mid-decade shift in the sample framework for the CPS (Swartz 1997).

the remaining persons to a population control total. Finally, some surveys impute data for the missing values. The CPS uses a statistical method called “hot decking” to impute insurance (or no insurance) to persons with missing health insurance data. In addition, the CPS also logically imputes Medicaid to children under age 21 in families where either the householder or spouse reports being covered by Medicaid. In addition, all adult Aid to Families with Dependent Children (AFDC) recipients and their children, and Supplemental Security Income (SSI) recipients living in states that legally require Medicaid coverage of all SSI recipients, were also assigned Medicaid coverage. It is the logical imputation of Medicaid that makes the CPS differ from most other surveys. Of the 29 million persons ages 0 to 65 with Medicaid on the March 1996 CPS, 16 percent (4.7 million) had Medicaid logically imputed.¹²

We do not know how estimates of the uninsured and Medicaid underreporting would have been affected had the CPS not logically imputed Medicaid, for some of these people would have ended up with Medicaid through statistical imputations. In any case, the effect of logical imputation should be considered when comparing estimates of the uninsured.

Undercoverage of the Population

According to the Census Bureau (Bennefield 1995), all demographic surveys, including the CPS and the SIPP, suffer from undercoverage of the population. Undercoverage results from missed housing units in the sampling frame and missed persons within sampled households. The Census Bureau estimated that the overall CPS and SIPP undercoverage rate is about 7 percent and that undercoverage varies with age, sex, and race. It reported that for some groups, such as 20- to 24-year-old black males, the undercoverage



rate is as high as 27 percent. The Census Bureau noted that even though its weighting procedures partially correct for the bias due to undercoverage, the final impact of undercoverage on estimates is unknown. This problem could bias estimates of the uninsured if the groups that are missed in the survey are either disproportionately insured or disproportionately uninsured.

SIPP Estimates of the Uninsured

The SIPP is a multipanel longitudinal survey of adults in a sample of approximately 20,000 households selected to be representative of the non-institutionalized resident population of the United States. We focus on data from the 1990, 1991, and 1992 SIPP panels. These panels followed sampled adults for approximately two-and-a-half years, interviewing them either in person or by telephone every four months.¹³ During each SIPP interview (called a wave), household-, family-, and person-level information is collected for each of the previous four months on income, labor force activity, program participation (such as AFDC, Food Stamps, and Medicaid), and health insurance status.

The value the SIPP adds to analyses of the uninsured is that it allows researchers to examine the dynamic aspects of the uninsured that are not apparent in static estimates. For example, Swartz and McBride (1990) pointed out that data collected at a point in time from a population with dynamic movements are more likely to contain people who are in long spells without health insurance, even though most people have fairly short spells (this phenomenon is described in more detail below).¹⁴ In short, static data may present a myopic picture of the uninsured. The SIPP's longitudinal data, in contrast, can present a more complete picture of the uninsured by answering questions such as:

- How many are uninsured in at least one month of a given year?
- How many are uninsured throughout a given year?
- How does the number of uninsured in a one-year period compare with that of a two-year or more period?
- What is the average duration of all spells of uninsurance? How does this compare to the average duration for all those uninsured at a point in time?

As one might expect, as the reference period for SIPP estimates of the uninsured lengthens, the percent uninsured throughout decreases while the percent uninsured in at least one month increases. As shown in table 3, estimates of uninsured children in 1993 versus the 32-month period from early 1991 through mid-1993 illustrate this point:¹⁵

- 6.5 percent of children ages 0 to 18 were uninsured throughout 1993 (Bilheimer 1997), while only 3.2 percent of children ages 0 to 17 were uninsured throughout the 32-month period (Bennefield 1995).

Table 3 SIPP Estimates of Uninsured Children by Source

Time Period	Universe	Estimate Definition	Number (millions)	Percent	Source	Panel
1990	Children ages ≤18	Average monthly uninsured	11.1	16.2	The Lewin Group (1997, Draft)	not cited
	Children ages ≤17	Point estimate of uninsured in wave 1 of 1990 panel (10/89 to 4/90)	—	13.3	Urban Institute (Blumberg et al. 1997)	1990
1991	Children ages ≤18	Average monthly uninsured	11.5	16.5	The Lewin Group (1997, Draft)	not cited
1992	Children ages ≤17	Point estimate of uninsured in wave 8 of 1990 panel (10/89 to 4/90)	—	13.3	Urban Institute (Blumberg et al. 1997)	1990
	Children ages ≤18	Average monthly uninsured	12.4	17.2	The Lewin Group (1997, Draft)	not cited
1993	Children ages ≤18	Uninsured throughout	—	6.5	CBO (Bilheimer, 1997)	1992
		Uninsured at any given time	—	13.5		
		Uninsured at least one month	—	15.5		
		Average monthly uninsured	13.0	17.9	The Lewin Group (1997, Draft)	not cited
24-month period from February 1991 to January 1993	Children ages ≤17	Uninsured throughout	3.0	—	Families USA (1997)	1991
	Children ages ≤17	Uninsured at least one month	20.5	—		
	Children ages ≤17	Uninsured 12 months or longer	9.6	47		
32-month period from early 1991 through mid-1993	Children ages ≤17	Uninsured throughout	2.2	3.2	Census (Bennefield 1995)	1991
		Uninsured at least one month	19.6	29.0		
28-month period from early 1992 through 1994	Children ages ≤17	Uninsured at least one month	—	30.0	Census (Bennefield 1996b)	1992
		Median number of months uninsured	4.0	—		



- 15.5 percent of children ages 0 to 18 were uninsured at least one month in 1993 (Bilheimer 1997), while 29.0 percent were uninsured at least one month throughout the 32-month period (Bennefield 1995).

Thus, for a given reference period, the percentage of children uninsured throughout is considerably less than the percentage uninsured in at least one month. This simply suggests there is substantial churning among uninsured children. From the examples above, 6.5 percent were uninsured throughout 1993 versus 15.5 percent uninsured at least one month.¹⁶ The evidence of churning is even greater as the reference period increases: 3.2 percent were uninsured throughout the 32-month period versus 29.0 percent for at least one month. In short, although a substantial number of children are uninsured at a point in time (about 14 percent according to the CPS), the SIPP data tell us that the problem of uninsured children is even more widespread—over a two-and-a-half-year period almost one-third of all children will be uninsured at some point (Swartz 1994).¹⁷

Presented in table 4 are various estimates of the uninsured for all persons ages 0 to 64. These estimates, as well as those for children only presented in table 3, are provided simply to give an overall picture of the uninsured according to the SIPP. We do not attempt to compare and contrast these estimates with one another because SIPP estimates can vary based on the specific files and methodology used, and most researchers do not publish their precise methodology.

SIPP Health Insurance Measurement Issues

The SIPP asks respondents whether they were covered by employer- or union-sponsored insurance, other private health insurance, Medicare, military health care, or Medicaid. Like the CPS, estimates of the uninsured using the SIPP are calculated as a *residual*—that is, the uninsured are those who do not report receiving coverage of any type. Unlike the CPS, though, SIPP respondents are asked about health insurance coverage in each month of the four-month reference period.

The SIPP may also underreport Medicaid. For example, HCFA administrative data show that 35.7 million persons were ever enrolled in Medicaid in 1992. In comparison, Bennefield (1996c) calculated that 12.3 percent of all persons, or approximately 30.5 million persons, reported Medicaid for at least one month in 1992 based on the SIPP—an underreporting of about 15 percent. Therefore, the number of uninsured based on the SIPP may be overestimated somewhat, assuming that private health insurance is reported accurately (or, at least, not overreported). Also like the CPS, the SIPP suffers from undercoverage of the population in general. According to the Census Bureau, though, the final impact of undercoverage on estimates is unknown.

Various SIPP estimates of the uninsured, even those for the same time period, may not be comparable because there are a number of different alternatives for

Table 4 SIPP Estimates of Uninsured for All Persons Ages 0–64 by Source

Time Period	Universe	Estimate Definition	Number (millions)	Percent	Source	Panel
1991	All persons	Uninsured throughout	—	7.0	Bennefield 1996c	1991
1992	All persons	Uninsured throughout	—	7.6	Bennefield 1996c	not cited
		Uninsured throughout	18.1	7.2	Census (Bennefield 1995)	1991
1993	All persons	Uninsured first quarter (point estimate)	—	14.8	Bennefield 1996c	not cited
		Uninsured at least one month	50.7	20.3	Census (Bennefield 1995)	1991
		Uninsured throughout	19.4	—	Census (Bennefield 1996b)	1992
		Uninsured throughout	—	7.7	Bennefield 1996c	not cited
1994	All persons	Uninsured first quarter (point estimate)	—	14.6	Bennefield 1996c	not cited
		Uninsured at least one month	53.6	21.2	Census (Bennefield 1996b)	1992
32-month period from early 1991 through mid-1993	All persons	Uninsured first quarter (point estimate)	—	14.5	Bennefield 1996c	not cited
		Uninsured throughout	9.7	4	Census (Bennefield 1995)	1991
28-month period from early 1992 through 1994	All persons	Uninsured at least one month	64	26.5		
		Uninsured throughout	11.9	4.8		
		Uninsured at least one month	66.6	27.0	Census (Bennefield 1996b)	1992
		Median number of months uninsured	5.7	—		



analyzing a given time period based on the SIPP. Some examples of these alternatives are as follows:

- Because SIPP panels overlap, researchers often have a choice of SIPP panels for a given time period, or researchers can combine SIPP panels.
- The weights researchers use will depend on the length of the time period analyzed and the specific SIPP file used. Researchers may use calendar year weights, panel weights, or wave-specific weights.
- Some researchers may have used sophisticated duration estimates, while others may have used simple slice-in-time analyses.

This last point deserves further explanation. Researchers' estimates of the uninsured using the SIPP can vary substantially depending on whether they use duration estimates for *all spells observed over a period of time* or whether they simply examine *spells in progress at a point in time*. Examining spells in progress at a point in time is useful if you want to understand the characteristics of those uninsured at a point in time. However, Swartz and McBride (1990) pointed out that uninsured spells in progress at a point in time are disproportionately long spells, whereas most spells are actually fairly short. Using data from the 1984 panel of the SIPP, Swartz and McBride demonstrated this phenomenon by comparing the distribution of spell lengths for all persons for whom they could observe a spell beginning in the SIPP with the distribution of spell lengths among persons whose spells were in progress at a point in time. Using a survival analysis technique, they found that half of all observable spells ended within five months, and another 16.5 percent ended within five to eight months. Only 15 percent of all spells lasted more than two years. In contrast, among spells in progress at a point in time, 58 percent lasted more than two years and only 13 percent ended within five months.

SIPP versus CPS Estimates of the Uninsured

Bennefield (1996c) compared the SIPP and CPS estimates of the uninsured and offered explanations as to why they seem to differ. Bennefield compared the CPS estimates of the uninsured for 1991, 1992, and 1993 with two types of estimates from the SIPP: (1) the SIPP first quarter average monthly estimates for 1992, 1993, and 1994, which can be considered point-in-time estimates; and (2) the SIPP estimates of those uninsured throughout the year for 1991, 1992, and 1993. He chose the SIPP first quarter average monthly estimates for his SIPP point-in-time estimates because they correspond with March, the month in which the CPS collects data about the previous year. Bennefield found that the CPS estimates are more similar to the SIPP point-in-time estimates than the uninsured-throughout-the-year estimates, which are typically cited as the evidence that CPS respondents were reporting their current health insurance status (table 5). He found uninsured rates of 14 to 15 percent for all persons for both the CPS estimate and the SIPP point-in-time estimate.¹⁸ In contrast, he found uninsurance rates of 7 to 8 percent for the SIPP uninsured-throughout-the-year estimates.¹⁹

Table 5 Health Insurance Status of All Persons: CPS versus SIPP for Various Years			
	1993 (or Q1 1994)	1992 (or Q1 1993)	1991 (or Q1 1992)
Percent Uninsured			
CPS	15.3	14.7	14.1
SIPP Annual	7.7	7.6	7.0
SIPP Point-in-Time	14.5	14.6	14.8
Percent with Private Coverage			
CPS	70.2	71.1	72.2
SIPP Annual	81.2	81.7	83.4
SIPP Point-in-Time	71.9	72.4	72.7
Percent with Medicaid			
CPS	12.2	11.2	10.7
SIPP Annual	12.9	12.3	11.5
SIPP Point-in-Time	11.3	10.2	9.4

Source: Bennefield (1996c).

Bennefield showed that the estimate of the uninsured throughout a given year using the SIPP was substantially lower than CPS estimates because the SIPP has substantially more persons reporting *private* health insurance coverage. For example, according to the SIPP, 81 percent of persons reported private health insurance at any time during 1993. In contrast, only about 72 percent reported it at a point in time in the SIPP in 1993, which was substantially closer to the 70 percent private coverage estimate from the CPS. Unlike estimates of private insurance, estimates of government-sponsored health insurance were generally consistent across time frames and surveys—the CPS Medicaid coverage rates were 11 to 12 percent for the periods analyzed, and both the insured at any time during the year and point-in-time SIPP Medicaid coverage rates were 9 to 13 percent for the periods analyzed. It is not clear what conclusions should be drawn from the fact that private health insurance coverage accounted for much of the difference between the CPS and the SIPP uninsured-throughout-the-year estimates. On the one hand, if recall problems were to blame for higher CPS estimates of the uninsured compared with SIPP, then respondents seemed to be more likely to fail to recall private insurance than public insurance. Such an explanation is plausible if those publicly insured are more likely than those privately insured to have coverage throughout the year.

Even though the CPS estimates of the uninsured are more widely cited, Census Bureau officials suggest that SIPP may be better suited to measure health insurance information for a number of reasons.²⁰ First, the SIPP may have less recall error than the CPS because it has a shorter recall period (four months for the SIPP versus over one year for the CPS). Second, respondents may be more likely to answer the SIPP health insurance questions because the questions are somewhat more detailed (for instance, they ask about Medicare plans A and B and ask to see Medicare and Medicaid cards) and are better positioned at the



beginning of the interview. Third, the SIPP attempts to interview each person in the household age 15 and over, whereas the CPS interviews only one person, who may not provide accurate information on all household members. Finally, the SIPP is especially designed to measure program participation (such as Medicaid), whereas the CPS is primarily a labor force survey. The principal drawbacks of the SIPP, though, are that the data are not as timely as the CPS (the 1993 SIPP panel is the most recent available) and the sample frame is not representative at the state level for analyses of programs such as the CHIP.²¹

Other Estimates of the Uninsured

The CPS and the SIPP are the most commonly used surveys to measure the health insurance status of individuals, primarily because of their rich economic and demographic data, and repetition on a regular basis. Nevertheless, other surveys that measure the health insurance status of individuals are gaining prominence. Below, we present the estimates from three of these surveys: (1) the National Health Interview Survey, (2) the Medical Expenditure Panel Survey, and (3) the Community Tracking Study. For each survey, we present their estimates of the uninsured and then give some detail, if available, on the survey design and health insurance measurement issues. The uninsured estimates for these surveys are presented in table 6.

National Health Interview Survey

The National Health Interview Survey (NHIS) is a continuing nationwide survey of the U.S. civilian noninstitutionalized population designed to be the principal source of information on the health of the population of the United States.²² The survey is conducted by the National Center for Health Statistics (NCHS). According to NHIS data, there was a monthly average of 11.5 million uninsured children ages 0 to 17 in 1994 (NHIS 1996). This should be considered a point-in-time estimate of the uninsured because the reference period for the health insurance questions was the month prior to the interview month. That this estimate is 17 percent higher than the CPS estimate of the uninsured supports the view that the CPS is somewhat lower than a point-in-time estimate of the uninsured.

The main objective of the NHIS is to monitor the health of the U.S. population through the collection and analysis of data on a broad range of health topics. Although the NHIS has been conducted continuously since 1957, its content has been updated every 10 to 15 years in order to incorporate the latest population information and statistical methodology into the survey design. The estimates presented above are from the sample design used from 1985 to 1996.

The sample design of the NHIS follows a multistage probability design that permits a continuous weekly sampling of the U.S. population. The survey is designed so that the sample scheduled for each week is representative of the target population, and the weekly samples are additive over time. The weekly

Table 6 Other Estimates of the Uninsured

Source	Data	Time	Universe	Estimate Definition	Number (millions)	Percent
NHIS Correspondence (1996)	National Health Interview Survey (NHIS)	1994	Children ages ≤17	Uninsured defined as lacking coverage in previous month. Estimate is a 12-month average of survey responses.	11.5	—
Beauregard et al. (1997)	1996 Medical Expenditure Panel Survey (MEPS)	First half of 1996	Nonelderly ages 0–64 Children ages ≤17	Without insurance throughout the first half of 1996.	44.5 11.0	19.2 15.4
Reschovsky et al. (1997)	Community Tracking Study (CTS)	Late 1996 / early 1997	Children ages ≤18 Nonelderly ages 0–64	Point estimate.	8.8 35.4	12.1 15.4

samples are consolidated to produce quarterly files (each consisting of data for 13 weeks). The weights are adjusted so that each quarterly file represents the U.S. population. These quarterly files are later consolidated to produce the annual file, which is the basis of most tabulations of the NHIS data. The yearly sample is composed of 36,000 to 47,000 households, including 92,000 to 125,000 persons, depending upon the year. Interviews are conducted in person by Census Bureau staff and response rates are high, ranging from 94 to 98 percent over the years.

The NHIS questionnaire used from 1985 to 1995 contained two major parts. The first part consisted of topics that remain relatively the same from year to year. Among these topics were the incidence of acute conditions, the prevalence of chronic conditions, and utilization of health care services. The second part of the NHIS consisted of special topics added as supplements to each year's questionnaires. Between 1985 and 1995, health insurance status was only included as periodic supplemental questions. Because supplements were not always administered to a full year's sample, sample sizes and response rates differed somewhat from that of the full sample.

The NHIS health insurance questions typically asked about all types of insurance coverage, including private, public, and other coverage. Like the CPS and SIPP, the uninsured are a residual of those not reporting any other type of coverage. The NHIS did not impute health insurance coverage—those with item nonresponses were generally coded as unknown.²³ However, for most estimates made by NCHS, the unknowns were excluded from the estimate and the remaining persons were reweighted to make up the difference. The reweighting had the effect of assuming that those with nonresponses had roughly the same insurance characteristics as all other respondents.

The NHIS has not been a commonly used source for health insurance status because the supplements that asked about health insurance were not conducted on a regular basis. This may change, though, because, beginning in 1997, health insurance questions are included as part of the core questionnaire of the NHIS. The new health insurance questions ask whether a family has health insurance coverage and who in the family is covered. Respondents are asked to provide the full names of their plans and the annual amount spent on premiums, including health insurance premiums. The redesigned survey will also have observations in every state for the first time (although the sample will be too small to provide state-level estimates in all states), making the NHIS a candidate for analyzing the effectiveness of CHIP programs.

Medical Expenditure Panel Survey

The Medical Expenditure Panel Survey (MEPS), cosponsored by the Agency for Health Care Policy and Research (AHCPR) and the National Center for Health Statistics, was designed to yield comprehensive data that estimate the level and distribution of health care use and expenditures, monitor the dynamics of the health care delivery and insurance systems, and assess health care

policy implications. Beauregard et al. (1997) used MEPS to develop a national estimate of the uninsured population, defined as those who were uninsured continuously from January 1, 1996, to their first-round interview date three to six months later.²⁴ By this measure they found that 19.2 percent of all nonelderly persons ages 0 to 64 (44.5 million persons) and 15.4 percent of children ages 0 to 17 (11 million children) were uninsured.

Although these estimates appear higher than those of the CPS (17.4 percent for nonelderly and 13.8 percent for children) and other data sources, Beauregard et al. concluded that once time-period and definitional issues are considered, their estimates are consistent with the findings of the CPS. In reaching this conclusion, though, they assumed the CPS measured the uninsured throughout the previous year. If, instead, the CPS is viewed as a point-in-time estimate of the uninsured, or even a mix of point-in-time and uninsured-throughout, then the MEPS and CPS findings are not necessarily consistent, since the MEPS estimate of those uninsured throughout a three- to six-month period should be considerably less than a point-in-time estimate. Additional research comparing MEPS and CPS estimates of the uninsured is warranted before firm conclusions can be drawn.

MEPS is the third in a series of national probability surveys conducted by AHCPR on the financing and utilization of medical care in the United States. The National Medical Care Expenditure Survey (NMCES, also known as NMES-1) was conducted in 1977, and the National Medical Expenditure Survey (NMES-2) in 1987.

The MEPS collects data from a nationally representative sample of households through a rotating panel design. The sample of 9,400 households is a subsample of the households responding to the 1995 NHIS and is representative of the civilian noninstitutionalized population of the United States. The data are collected through a precontact interview followed by a series of five rounds of in-person interviews over a two-year period. As a rotating panel survey, this series of data collection rounds is begun again each subsequent year on a new sample of households drawn from the NHIS sampling frame to provide overlapping panels of survey data, which when combined with other ongoing panels will provide continuous estimates of health care expenditures at both the personal and household level. The data presented here are from the first round of the MEPS and had an overall response rate of 78 percent.

Each MEPS interview collects information pertaining to a specific time period called the “reference period.” The reference period for the first round of the MEPS began January 1, 1996, and ended on the date of each responding unit’s first-round interview, conducted from March through June 1996. The health insurance section of the MEPS collects information about private and public health insurance programs. It identifies the household members covered by health insurance and various details about their plans. For employer-sponsored coverage, a link is created to job characteristics collected in the employment section of the questionnaire. Like most other surveys, the



uninsured are a residual of those not reporting any other type of coverage. For individuals who are uninsured at the beginning of the year, information is collected on the length of time they have been uninsured. Additional questions clarify whether each person identified by each policy was covered throughout the reference period.

According to AHCPR, minimal editing and imputing were done to the MEPS data. A small number of cases reporting AFDC or SSI coverage were assigned Medicaid coverage. In addition, Medicaid was assigned to persons who paid nothing for their other public insurance when such coverage was through a Medicaid HMO. Some editing was also done for Medicare coverage, but only for persons over age 65. All other coverage types were unedited and unimputed (Vistnes and Monheit 1997). The few cases with nonresponses for all the health insurance questions were coded as uninsured.

It is difficult to determine whether MEPS underreports Medicaid because AHCPR reports Medicaid together with other public insurance in a single category called public insurance, which includes Medicaid, Medicare, military health care, and other public programs (Vistnes and Monheit 1997). Moreover, it does not include in this category anyone who might have had both public insurance and private insurance during the reference period. Instead, these persons are reported as being privately insured.

Community Tracking Study

The Community Tracking Study (CTS) household survey is sponsored by the Robert Wood Johnson Foundation and conducted by the Center for Studying Health System Change. The survey is designed to track changes in the health care system over time and to gain a better understanding of how health system changes are affecting both consumers and providers. Using the CTS, Reschovsky et al. (1997) estimated that at any point in time from late 1996 to early 1997 there were approximately 35.4 million uninsured nonelderly persons ages 0 to 64 (15.4 percent of all nonelderly persons) and 8.8 million uninsured children ages 0 to 18 (12.1 percent of all children).

The CTS survey consisted of primarily telephone interviews of a sample of 33,000 households that were representative of the contiguous 48 states. The telephone sample was supplemented by a field sample of households without telephones. The interviews, which were conducted between July 1996 and July 1997, gathered information on all adults and one randomly chosen child in each household. Altogether, the survey has information on about 60,000 individuals. The overall response rate of the survey was 65 percent.

The CTS collects information about all private and public health insurance programs that respondents are covered by as of the interview date. Unlike all the other surveys presented here, the uninsured in the CTS are not calculated as a residual. Instead, all those not reporting any types of coverage are asked to verify that they are uninsured or whether they have health insurance coverage

through a plan not previously mentioned. Reschovsky et al. pointed out that the additional insurance coverage captured through this last question helps to explain why the CTS had lower uninsured rates than the CPS. Overall, about 2.3 million nonelderly persons reported insurance coverage only after being asked this last question, or just under half of the 5 million-person difference between the CTS and CPS estimates of the uninsured. Reschovsky et al. acknowledged, though, that the debate over whether the CPS is a point-in-time or period-of-time estimate confounds comparisons between the CTS and the CPS. If the CPS is closer to an uninsured-throughout-the-year estimate, then the CTS estimate, which is clearly a point-in-time estimate, would be expected to be higher rather than lower than the CPS estimate.

The CTS does some minor imputation of health insurance coverage and, like the MEPS, codes as uninsured persons with all missing or “don’t know” responses to the health insurance questions. Like most other surveys, the CTS also appears to underreport Medicaid. In 1996, 36.3 million nonelderly individuals in the 48 contiguous states were enrolled in Medicaid at some point during the year, according to HCFA. In contrast, 17.4 million nonelderly individuals were enrolled in Medicaid at a point in time according to the CTS, a difference of over 50 percent. We would expect the CTS estimate of Medicaid coverage to be less than the HCFA estimate because of time-frame differences (CTS is a point-in-time measure and the HCFA data are for those enrolled at any time during the year) and because the CTS does not capture Medicaid enrollees who also have private coverage. However, we believe that these two factors alone are unlikely to lead to a 50 percent difference in the estimates.

State-Level Estimates

Several researchers have combined CPS surveys to increase the sample sizes enough to produce state-level estimates of the uninsured. Below, we give an overview of two of these studies, one by the Urban Institute and one by Families USA.

The Urban Institute

Winterbottom et al. (1995) combined data from the March 1991, 1992, and 1993 CPS surveys to obtain state-level estimates of the health insurance status of individuals. Because CPS households are interviewed for two consecutive years and Winterbottom et al. only wanted to include each household once, they included all the observations from the 1993 CPS plus approximately half of the observations from the 1991 and 1992 surveys. Thus, combining three years of CPS data doubled the sample size, which reduced the sampling variance.²⁵ Winterbottom et al. then used the Urban Institute’s TRIM2 model to adjust for underreporting of Medicaid.

Winterbottom et al. found that the rate of uninsurance among children ages 0 to 17 varied by state and region. For example, in the West South Central



region—the region with the highest rate of uninsurance—18.5 percent of children were uninsured.²⁶ In contrast, in the East North Central region—the region with the lowest rate of uninsurance—6.8 percent of children were uninsured.²⁷ Winterbottom et al. pointed out that uninsurance rates vary by region and state for a number of reasons, including the rate of employer-sponsored insurance coverage and the rate of Medicaid coverage. Winterbottom et al. used the following example of the uninsurance rates of all persons age 0 to 64 to illustrate their point:

The Middle Atlantic region has the lowest rate of employer coverage among its poverty population—only 11.5 percent have employer-sponsored coverage—significantly lower than the 15.8 percent coverage in the Mountain States. However, because the Middle Atlantic region has a high rate of Medicaid enrollment in the poverty population—53 percent of the poor get their primary coverage through the program—its uninsured rate of 25.1 percent is not the highest. The Mountain States, with greater employer coverage among the poor, have a higher uninsured rate (32.6 percent) than the Middle Atlantic region because Medicaid covers fewer of the poor in the Mountain States region (40 percent).

Families USA

Families USA (Families USA 1997) used March 1995 and 1996 CPS data in combination with imputation equations developed from the 1991 SIPP panel to estimate the number of children ages 0 to 17 who were without health insurance in one or more months over the two-year period from 1995 through 1996.²⁸ It estimated that 23.1 million children, or 33 percent of all children, were without health insurance in at least one month of the two-year period from 1995 to 1996. Families USA noted that the proportion of children with gaps in health insurance varied significantly from state to state due to differences in state economies and residents' income, the prevalence of jobs that offer employer-based coverage, the scope of public insurance programs (especially Medicaid), and the existence of other state health reforms. It found the highest proportions of uninsured children in southern and southwestern states. This supports the finding of Winterbottom et al. that the three regions with the highest proportion of uninsured children are (1) the West South Central, (2) the South Atlantic, and (3) the East South Central. According to Families USA, the following 10 states had the highest percentage of children who experienced gaps in their health insurance during the period 1995 through 1996: Texas (46 percent); New Mexico (43 percent); Louisiana (43 percent); Arkansas (42 percent); Mississippi (41 percent); District of Columbia (39 percent); Alabama (38 percent); Arizona (38 percent); Nevada (37 percent); and California (37 percent). Families USA did not report confidence limits for these estimates.

Counting the Uninsured: Implications for CHIP

On October 1, 1997, \$4.2 billion in federal funds for fiscal year 1998 were made available to states under CHIP to initiate and expand health insurance

coverage for uninsured children in low-income families. CHIP, the new Title XXI of the Social Security Act, was established by the Balanced Budget Act of 1997 (P.L. 105-33) and provides states with \$24 billion in federal matching funds over the next five years. Under the law, states may provide coverage for children in low-income families by creating a separate child health insurance program, expanding the Medicaid program, or a combination of the two.

The Balanced Budget Act of 1997 also added three options for states to expand coverage of children under Medicaid. First, states now have the option of establishing presumptive eligibility guidelines to cover children temporarily who appear eligible for Medicaid but are not yet enrolled. States already have a similar option for establishing presumptive eligibility guidelines for pregnant women—approximately 30 states have exercised this option. Second, states have the option to guarantee 12 months of coverage to children enrolled in Medicaid regardless of changes in the child's family income. Finally, states have the option to accelerate the phase-in of Medicaid coverage for children under age 19 in families with income below 100 percent of the federal poverty level.

States have already begun to develop and submit plans to insure children under CHIP, either by expanding their Medicaid programs, creating new state programs, or a combination of the two.²⁹ Both implementing and evaluating these various programs will require estimating the number of uninsured children in each state.

Implementing CHIP

Implementing CHIP requires accurate estimates of the number of uninsured children in each state for two principal reasons. First, CHIP funds are allocated based largely on the number of uninsured in each state. For example, for fiscal year 1998, funding was allocated based on the number of uninsured in each state who are under 19 years of age and whose family income is at or below 200 percent of the federal poverty level. In later years, funding will be allocated based on the number of uninsured as well as the overall number of children with incomes below 200 percent of poverty. The official estimates of the uninsured in each state for CHIP funding will be made by the Census Bureau using three-year averages of combined CPS data. The 1998 estimates were made using the March 1994, 1995, and 1996 surveys. Using the CPS to make state-level estimates of the uninsured in order to allocate CHIP funds has possible drawbacks, though.

One drawback is potential Medicaid underreporting. If Medicaid underreporting affected all states to the same degree, then funds would generally be allocated equitably. However, researchers suspect that Medicaid underreporting may be more prevalent in states with Medicaid managed care programs or with higher poverty-related eligibility thresholds. If those that fail to report Medicaid report private insurance instead, then estimates of the uninsured will not be



affected. But if they report no insurance, then estimates of the uninsured will be too high.

Another drawback is sampling variability. Although the Census Bureau pools three years of data to make state-level estimates of the uninsured for allocating CHIP funds, pooling three years of CPS data only doubles the sample size because the samples overlap. Moreover, since the two samples are not independent (they tend to be pulled from the same neighborhoods), the doubled sample size yields something less than a proportionate reduction in variance. In short, even with the pooling of three years of data, CPS estimates of the uninsured in smaller states will still have fairly large variances.

Although the CPS has weaknesses that could affect the allocation of CHIP funds, it still provides the best data available for this purpose. For allocating CHIP funds, the CPS data are superior to the other data mentioned in this paper along a number of dimensions: they are more timely, have a larger sample size, are representative at the state level, and are updated regularly. Policymakers may be able to improve the funding allocation method by adjusting the CPS data for Medicaid underreporting. Policymakers could also reduce CPS estimated variances by using sophisticated small-area estimation techniques, such as those used to allocate funding to states for the Special Supplemental Nutrition Program for Women, Infants, and Children (WIC) (Schirm and Long, 1995). These improvements, though, would take time, and CHIP funds are already being allocated.

The second reason that implementing CHIP requires accurate estimates of the number of uninsured children in each state is that a state's choice to use CHIP funds to expand Medicaid or to establish or expand an existing state child health insurance program depends, in part, on the number of uninsured children in the state and how much it would cost to insure them. For example, expanding Medicaid may be attractive to states because the infrastructure, such as an existing network of providers and procedures for rate setting, is already in place. However, states that expand Medicaid are expanding an entitlement program, which means that once eligibility standards are set, all who meet those standards can enroll. As a result, the costs of entitlement programs are sometimes unpredictable and a state may end up with higher financial obligations than expected, particularly during economic downturns. In contrast, if a state establishes a new program, it can set explicit enrollment and funding caps to ensure that the budget is not exceeded. Therefore, in deciding how to expand health insurance coverage under CHIP, states will have to make some estimate of their number of uninsured children and how much it would cost to insure them.

When estimating the number of uninsured for the purposes of CHIP program planning, policymakers should keep in mind that some groups of uninsured children are not eligible for health insurance coverage with CHIP funds. For example, uninsured children who are already eligible for Medicaid are specifically excluded by the legislation. This is a significant exclusion since

researchers using national survey data have found that anywhere from 21 to 45 percent of all uninsured children may be eligible for Medicaid (table 7). In some states, the population of uninsured children eligible for Medicaid could be even higher.

Policymakers should also keep in mind that some immigrant children may not be eligible for CHIP (or Medicaid) because it is considered a means-tested benefit program, from which some classes of immigrants are prohibited under the Personal Responsibility and Work Opportunity Reconciliation Act of 1996. Specifically, permanent resident immigrant children who arrived in the United States after enactment of CHIP (August 22, 1997) are not eligible. In addition, undocumented immigrants are not eligible for CHIP regardless of their date of entry into the United States. However, many children in immigrant families—both documented and undocumented—were born in the United States and therefore are U.S. citizens and eligible for CHIP.

In addition to affecting CHIP program planning, the number of uninsured Medicaid-eligible children and uninsured immigrant children ineligible for CHIP can affect the allocation of CHIP funds. CHIP funds may not be allocated equitably if estimates of the uninsured in each state include these groups. Although some states clearly have disproportionately more immigrants (for example, California, Florida, and Texas), it is not as clear which states have disproportionately more Medicaid-eligible uninsured. It is plausible, though, that states with optional poverty-related programs that cover older children and children in families with higher incomes may have more Medicaid-eligible uninsured, since these groups tend to participate in Medicaid at lower rates than the traditional cash-related groups. States that lack adequate outreach programs may also have more Medicaid-eligible uninsured. In any case, given the variable nature of state Medicaid programs, it is plausible that some states have disproportionately more Medicaid-eligible uninsured than do others.

Evaluating CHIP

The theory of the devolution of power to the states under the New Federalism is that states know best how to deal with their problems. A corollary to that theory is that public policy will become more effective if states are free to try new and innovative policies that, if effective, can be adopted by other states. Determining whether a policy is effective, though, requires evaluations. Therefore, the law establishing CHIP also requires that states submit evaluations, by 2000, on the effectiveness of their CHIP programs in reducing the number of uninsured.

Evaluating CHIP will require estimating the number of uninsured children and how this number is changing. These estimates are necessary for states to determine how well their programs provide coverage to the previously uninsured and whether their programs tend to crowd out private insurance coverage. It will also require estimating the number of children eligible for CHIP



Table 7 Estimates of the Number of Uninsured Children Who Are Eligible for Medicaid but Not Participating by Source

Source	Data	Time Period	Estimate Definitions and Eligibility Criteria	Uninsured Children Eligible for Medicaid	
				Number (millions)	Percent of All Uninsured
Urban Institute's Estimate Using TRIM2 Model, Which Adjusts for Medicaid Undercount (Ullman, Bruen, and Holahan, 1998)	CPS 3/95 and 3/96	1994–1995	Estimate definition: Children ages ≤18 Eligibility criteria: State-specific poverty related. AFDC children. SSI children. Medically needy children. Assets.	1.6	21
Urban Institute's Estimate Using Unadjusted CPS Data (Ullman, Bruen, and Holahan, 1998)	CPS 3/95 and 3/96	1994–1995	Same as above.	4.5	42
Reschovsky et al. (1997)	CTS	late 1996–early 1997	Estimate definition: Children ages ≤18. Eligibility criteria: State-specific poverty-related criteria only.	3.1	35
Thorpe (1997b)	CPS 3/96	1995	Estimate definition: Children ages ≤18. Eligibility criteria: None given.	3.3	31
GAO (1996)	CPS 3/95	1994	Estimate definition: Children ages ≤11. Eligibility criteria: Poverty-related only. Not state-specific. Only includes children age ≤5 with family incomes below 133% of poverty and children ages 6–11 with family incomes below 100% of poverty.	2.9	30
Center for Budget and Policy Priorities (Summer et al. 1997)	CPS 3/95	1994	Estimate definition: Children ages ≤10. Eligibility criteria: Poverty-related only. Not state-specific. Only the federal minimum poverty-related eligibility criteria for children ages ≤10.	2.7	45

who have private coverage to assess the extent to which CHIP crowds out other coverage.

It is likely that some of the first evaluations of the success of CHIP, both nationwide and at the state level, will be done using the March CPS, since that is typically the most timely survey data available. To interpret the CPS estimates correctly, though, researchers should understand that the data probably represent a mix of those uninsured at a point in time and those uninsured throughout the previous year. Researchers should also understand that, like Medicaid, health insurance coverage under new state programs established by CHIP will probably be underreported in survey data. In fact, underreporting may become even more of an issue as states enroll children in families with higher incomes, who may be more likely to underreport coverage because of the stigma attached to public assistance programs. Finally, if the Census Bureau changes the CPS health insurance questions to capture coverage under non-Medicaid state programs created from CHIP funds, researchers should understand that, in the past, simply changing the wording of health insurance questions affected estimates of health insurance coverage.

Conclusions

Although there is more agreement about the number and proportion of uninsured individuals than in the past, there is still a rather substantial difference of opinion. For the most part, estimates differ depending on whether adjustments for Medicaid enrollment, based on HCFA administrative data, are made to national survey data. This difference of opinion caused the 1995 estimates of uninsured children under age 18 using CPS data to range from 6.9 million (9.8 percent) according to the Urban Institute (which adjusts for Medicaid underreporting in the CPS) to 9.8 million (13.8 percent) according to EBRI, the Census Bureau, CBO, and others (who do not adjust for Medicaid underreporting in the CPS)—a difference of about 30 percent, or nearly 3 million children. This issue of Medicaid underreporting, which is not yet well understood, seems to affect most survey data.

Other issues are also involved in counting the uninsured. There is increased awareness of how critical the time period definition is to estimates. The CPS is designed to measure the number of individuals uninsured *throughout* a given year. Yet most researchers believe the CPS estimates of the uninsured represent a mix of those uninsured throughout the previous year and those uninsured at a point in time.

The extent of churning among the uninsured is not well understood yet. For example, some analyses of SIPP data suggest that almost one-third of all children will experience some period of noncoverage over a two-and-a-half-year period. However, research on the length of spells of noncoverage is still in the early stages and needs more work before the extent of churning is understood.



Another concern is how the national surveys word their questions about insurance coverage. With both the CPS and the SIPP, the number of uninsured must be defined as a residual—that is, the uninsured are those who do not report receiving coverage of any type. The recent CTS survey asked respondents directly whether they were in fact uninsured, and the study authors believe this was a factor in their estimate of the number of uninsured children nationwide being lower than the CPS. In any event, the problem of underreporting coverage, especially public coverage, may get worse. With the moves to managed care, state insurance programs for children, and other state health reform efforts, there may be even more confusion in the future as to what types of coverage low-income persons have. This underscores the value of the CTS survey's approach of asking respondents directly whether they are uninsured if they fail to indicate coverage.

In response to the recently passed CHIP program, states would like more information on counting uninsured children at the state level. However, the national surveys generally lack a sufficient sample size to support state-specific estimates of uninsured children, although some researchers are now combining multiple years of data in order to produce state-level estimates.

In conclusion, further research on measuring the uninsured is needed, especially since health insurance coverage trends continue to change. For example, March CPS data since 1994 show that employment-based health insurance coverage of children has actually begun to increase. Nevertheless, the percentage of children uninsured has continued to increase, primarily because Medicaid enrollment seems to be declining (despite the fact that more children should be eligible as the poverty-related expansions are phased in for older children).³⁰ There are a number of possible explanations for the apparent decline in Medicaid enrollment, ranging from a strong economy to the severing of the link between Medicaid and cash assistance for families with dependent children (formerly the AFDC program). However, until the phenomenon of Medicaid underreporting is better understood, it will be difficult to reach firm conclusions about the changing Medicaid caseloads and their effect on the number of uninsured. Medicaid underreporting may also confound important research such as the crowd-out effects of public health insurance expansions and the characteristics of uninsured children who are eligible for Medicaid but not participating. In short, there are many questions still to be answered concerning measuring the uninsured—questions that are important for policymakers to address as long as a substantial number of Americans remain uninsured.

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Notes

1. DHHS, OASPE contract number 100-97-0013, Task Order 2, "Analysis of Children's Health Insurance Patterns."
2. Because of these revisions and a change in the sample framework for the survey in 1995, it is difficult to compare estimates done before and after that year. Researchers believe that these revisions, coupled with the change in the sample framework for the survey in 1995, may have increased the number of persons reporting that they were insured (Swartz 1997). As a result, estimates before the 1995 CPS are not fully comparable to more recent estimates. However, at least one researcher has made adjustments to the CPS data in order to make more valid comparisons of health insurance coverage before and after the 1995 revisions (Fronstin 1997b).
3. March 1997 CPS data are now also available. We present the 1996 numbers here to be comparable to the most recent Urban Institute estimates (discussed next), which are based on the March 1996 CPS and the Urban Institute's TRIM2 microsimulation model. From the March 1996 to March 1997 CPS, the number of nonelderly Americans without health insurance coverage increased from 17.4 percent to 17.7 percent. Children completely accounted for this increase—the percentage of uninsured children ages 0 to 17 rose from 13.8 percent to 14.8 percent—due to a large drop in Medicaid, according to the CPS. This large drop in Medicaid deserves further research, though, since Medicaid 2082 administrative data showed only a small drop during the same time period (Fronstin 1997c).
4. Including the elderly increases this estimate by only 300,000 individuals, since nearly all elderly are covered by Medicare. If the elderly are included, then 15.4 percent of the total population was without health insurance in 1995, according to the CPS.
5. The three other surveys were the National Medical Care Expenditure Survey (1977), the Health Interview Survey (1978), and the National Medical Care Utilization and Expenditure Survey (1980).
6. As cited in Monheit (1994).
7. Of course, the MEPS could have reporting problems similar to those of the CPS. However, the MEPS health insurance questions are much more detailed than the CPS questions, and interviewers are trained specifically in asking health-related questions. The MEPS study is discussed in more detail later in this paper.
8. Personal correspondence with Linda Bilheimer of CBO and Kathy Swartz of the Harvard School of Public Health, September 15, 1997. A good discussion of this issue is also presented in Fronstin (1996b).
9. The CPS public use file released by the Census Bureau imputes Medicaid to certain persons. Therefore, estimates made with the CPS are already adjusted somewhat for Medicaid underreporting. This issue is discussed in more detail in the section on imputation of health insurance in the CPS.
10. Underreporting should be calculated in relation to what HCFA refers to as "Medicaid eligibles," which is defined by HCFA as those ever enrolled during the year. HCFA also reports the number of Medicaid "recipients." Recipients, though, are defined by HCFA as the subset of enrollees, or eligibles, that utilized services during the year. The HCFA data presented here include persons in institutions, even though the institutionalized are not within the sampling frame of the CPS. This should have little effect on the estimates presented here because most institutionalized Medicaid enrollees are elderly (in nursing facilities), while the estimates of the uninsured in this paper focus on the nonelderly. Note, however, that the Urban Institute accounts for the institutionalized when adjusting the CPS for the underreporting of Medicaid.
11. This is a complex issue, though, for it involves understanding both the CPS data and the HCFA administrative data. For example, we know that enrollees may be underestimated in some states because they only report to HCFA those enrollees who received services. This is evidenced by the fact that in six states (Connecticut, District of Columbia, Hawaii, Louisiana, New York, and Tennessee) the number of enrollees is either zero or almost the same as the number of recipients. Nationally, however, enrollees exceeded recipients by 14 percent (HCFA 2082 tables for 1995).

12. Medicaid coverage was statistically (hot deck) imputed for another 3.1 million persons ages 0 to 64.
13. The 1992 panel was extended about one year, to 40 months.
14. They further add that analyses of people in poverty, people receiving welfare (AFDC), and people experiencing unemployment have been consistent in finding that most people who experience any of these situations do so for short periods of time (see, for example, Bane and Ellwood 1986; O'Neill, Bassi, and Wolf 1987; Akerlof and Main 1980).
15. Also shown in table 3 are additional estimates of uninsured children based on the SIPP. Sometimes only a count or a percent is presented in the tables, but not both, because that is all a researcher reported. We do not attempt to calculate implied percents or counts because the denominator over which they are calculated is not always reported and not always obvious.
16. Point-in-time estimates of the uninsured using the SIPP fell somewhere between the uninsured throughout and the uninsured in at least one month estimates. In 1993, 13.5 percent of children were uninsured at any given time (Bilheimer 1997).
17. Swartz (1994) provides a useful overview of the dynamic of people without health insurance, along with references to earlier works on this topic.
18. Bennefield did not cite the denominator for his calculation of the SIPP estimate of all persons who were uninsured. Based on other SIPP literature, the universe of all persons represents about 250 million persons. This would suggest that there were about 37 to 38 million uninsured at a point in time, an often-cited figure.
19. Recall that the point-in-time and uninsured-throughout estimates using the RWJF Family Health Insurance Survey were 15.7 percent and 12.2, respectively. Further analysis of the SIPP and RWJF surveys would be necessary to understand why the RWJF gap is smaller.
20. Interview of Chuck Nelson and Bob Bennefield of the Census Bureau, conducted by Dave Baugh and Roger Buchanan of HCFA (July 23, 1997).
21. Although the CPS is representative at the state level for all states, only larger states have sample sizes large enough to conduct analyses with acceptable precision.
22. The following description of the NHIS is drawn primarily from Adams and Marano (1995).
23. NCHS also counts as uninsured in its official estimates those responding "no" to four or five of the six health insurance questions and "don't know" to the remaining.
24. Full-year 1996 MEPS estimates of the uninsured were not available as of the writing of this paper but are planned once all interviews pertaining to 1996 are completed.
25. The two samples are not independent, in that they tend to be pulled from the same neighborhoods; therefore, the doubled sample size yields something less than a proportionate reduction in variance.
26. The West South Central region includes Arkansas, Louisiana, Oklahoma, and Texas.
27. The East North Central region includes Illinois, Indiana, Michigan, Ohio, and Wisconsin.
28. The imputation equations predict which children will be uninsured in one or more months over the two-year period on the basis of their demographic and economic characteristics. Researchers generally do not use the SIPP alone for state-level estimates because not all states in the SIPP are uniquely identified and because SIPP's relatively small sample sizes make resulting estimates imprecise. Even the CPS, with its larger sample sizes, does not support precise estimates in most of the smaller states.
29. For an overview of how states are responding to CHIP, see Bruen and Ullman (1998).
30. The percentage of uninsured children ages 0 to 17 based on the March 1997 CPS rose to 14.8 percent from 13.8 percent based on the March 1996 CPS. Most of the increase in uninsured children is due to decreased enrollment in Medicaid (Fronstin 1997c).

About the Authors

Kimball Lewis is a research analyst at Mathematica Policy Research, Inc., in Cambridge, Massachusetts. He works on a number of projects using survey and administrative data to study health insurance coverage issues. Other research background includes using microsimulation models to analyze the impact of proposed reforms to the Food Stamp Program and various public assistance programs.

Marilyn Ellwood is a senior fellow at Mathematica Policy Research, Inc. Her main research interest is Medicaid eligibility policy. Her current work includes study of the impact of welfare reform on Medicaid enrollment, children's health insurance, state health reform efforts, and the development of Medicaid administrative data for researchers.

John L. Czajka is a senior sociologist at Mathematica Policy Research, Inc. Currently he is directing a project analyzing patterns of health insurance coverage among children and is participating in another project to develop estimates of the number and characteristics of children who are potentially eligible for New Jersey's initiative under the State Child Health Insurance Program.



The Urban Institute

2100 M Street, N.W.
Washington, D.C. 20037

Phone: 202.833.7200

Fax: 202.429.0687

E-Mail: paffairs@ui.urban.org
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