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State Health Insurance Coverage Estimates: A Fresh Look at Why State Survey Estimates Differ from CPS

Introduction

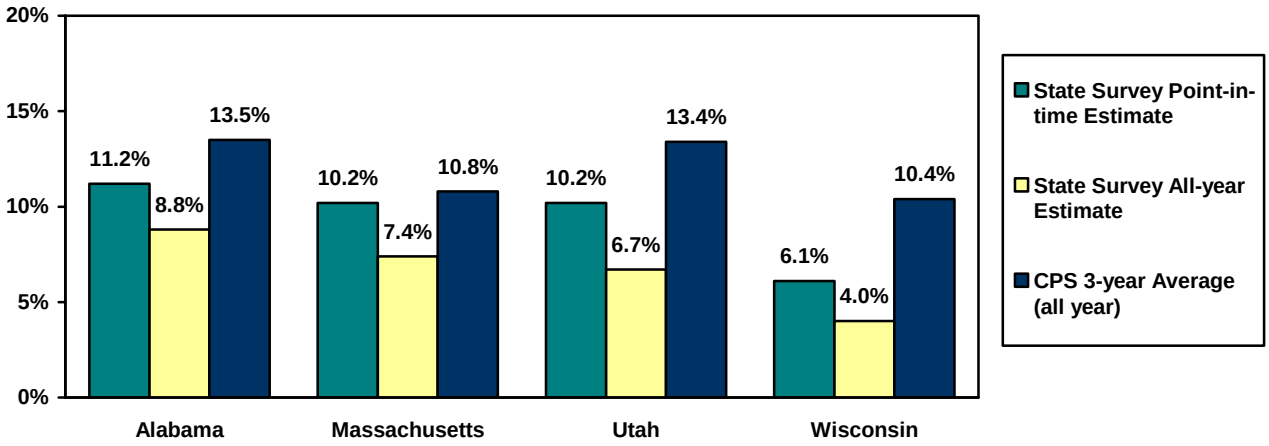
The U.S. Census Bureau produces state-level estimates of the distribution of health insurance coverage on an annual basis.[1] Although the Census Bureau's estimates of coverage are often cited in academic and policy circles, analysts suspect that they overstate rates of all-year uninsurance and understate Medicaid enrollment. For a variety of reasons, many state analysts prefer to collect and make use of their own survey data. Over 40 states have recently conducted their own population surveys to get state-level estimates of health insurance coverage.[2]

State survey estimates of uninsurance are typically lower than the estimates produced by the Census Bureau's Current Population Survey, Annual Social and Economic Supplement (CPS). These discrepancies fuel the debate about the number of uninsured and may threaten the validity and usefulness of survey data to inform policy decisions around access to health care and insurance. In this brief we compare state survey and CPS estimates of uninsurance, analyze factors with the greatest potential to explain these differences, and discuss the policy implications of this persistent discrepancy.

Comparison of Estimates Derived from State Surveys and the CPS

We compared CPS all-year uninsurance estimates to estimates of uninsurance at the time of the survey (point-in-time) across 24 states, 15 of which also produce all-year estimates. Figure 1 compares state uninsurance estimates for four geographically dispersed states with estimates from the CPS three-year average uninsurance estimates.[3] For this comparison we selected states in which the survey provides both point-in-time and all-year estimates of uninsurance.[4]

Figure 1: Comparison of State Survey Estimates and Current Population Survey Estimates of Uninsurance



Source: U.S. Census Bureau and states[5].

We find that state survey point-in-time estimates are almost uniformly lower than CPS all-year estimates. Table 1 shows that, on average among the 24 states, the state surveys specify a point-in-time rate of uninsurance that is 22.4 percent lower than the three-year all-year CPS estimate. When comparing available all-year uninsurance rates from state surveys to the CPS, estimates are even further apart. State all-year uninsured estimates are, on average, 46.0 percent lower than the three-year CPS rate of uninsurance.

Table 1. Comparison of Average State Survey Point-in-time and 12-month Estimates and Current Population Survey 3-year Average Estimates of Uninsurance

	Average
Average State Survey Point-in-time Uninsurance Estimate (average of 24 state surveys*)	10.8%
Average State Survey All-year Uninsurance Estimate (average of 15 state surveys**)	7.5%
CPS 3-Year Average Uninsurance Estimate (2002-2004)	13.8%
Difference Between Point-in-time and CPS as a Percent of the CPS 3-Year Estimate	-22.4%
Difference Between All-year and CPS as a Percent of the CPS 3-Year Estimate	-46.0%

Source: U.S. Census Bureau and states[6].
* States include AL, AR, CA, CO, CT, FL, GA, IL, IN, KS, ME, MA, MN, MO, NH, OK, OR, PA, SD, UT, VT, VA, WA, WI
**States include AL, CA, CO, CT, GA, IN, MA, MN, MO, OK, OR, UT, VT, VA, WI

Reasons for Differences

There are several methodological reasons why state surveys produce lower estimates of uninsurance than those produced by the CPS. The key reasons for discrepancies are discussed below.

- **Population Coverage and Sample Design**
  Most state surveys use telephone survey random digit dialing (RDD) to sample households with active telephone lines only. By contrast, the CPS uses an area probability design drawing from address frames that include households with and without active telephone lines.[7] Approximately 2.4 percent of U.S. households did not have phones in 2000 and members of these households were much more likely to be uninsured.[8] Relying exclusively on telephone sampling may bias estimates downward.

  An emerging population coverage issue for state telephone surveys is the growth of exclusive cell phone-only households.[9] In 2005 it was estimated that 6.7 percent of households were cell phone-only households, a significant increase from 4.5 percent in 2004.[10] The estimate increased to 9.6 percent in 2006[11]; when considering the 2.4 percent of households without any phone, this leaves approximately 13 percent of the households inaccessible using RDD.

  The CPS includes cell phone-only households in their area probability design, whereas the state RDD samples usually purge cell phone numbers. Evidence suggests that people in cell phone-only households are significantly more likely to lack health insurance compared to people with landline telephone service.[12] The expectation is that state RDD surveys will have lower uninsurance rates as a result.

- **Questions Measuring Health Insurance Coverage**
  Respondents in the CPS are asked about their insurance status in February, March or April for the prior calendar year (January to December) in order to match the referent period for income and employment questions. This means respondents must try to recall insurance coverage for a period that began 14 to 16 months prior to the interview. The long recall period may decrease the accuracy of coverage reports.[13] By contrast, state-specific surveys ask about the respondent's insurance at the time of the survey (in addition, some ask about coverage over the prior year), which increases the likelihood of accurate reporting.[14]

  The CPS is a labor force survey that adds a supplement at the end which includes health insurance questions. By contrast, many of the state surveys focus specifically on health insurance, placing these items close to the beginning. State surveys have an advantage over the CPS, as the health-related content focuses the respondents' attention in a way that may enhance the accuracy of reports about health insurance irrespective of their placement in the overall survey.

- **Non-Response Bias**
  The CPS continues to enjoy high response rates of about 84 percent.[15] RDD surveys have experienced a significant decline in response rates over the past 10 years.[16] For example, recent response rates for the Behavior Risk Factor Surveillance System (BRFSS) survey, a decentralized telephone survey conducted by states, hover around the 50 percent range, whereas rates for general population telephone surveys in the late 1980s were typically in the vicinity of 70 percent.[17] Similar downturns have been observed in the University of Michigan's Survey of Consumer Attitudes where the response rates have declined approximately 1.5 percent every year since 1996, so that by 2003 the response rate was 48 percent.[18] However, there is no evidence to suggest that lower response rates have led to biased health insurance estimates.

- **Data Processing**
  Data processing prior to estimation of coverage rates may also account for some of the discrepancy between estimates. Less than three percent of cases have missing data on health insurance items in most state surveys; therefore, these data are seldom imputed and estimates are made from complete cases only.[19] Imputation is a data processing technique for dealing with item non-response; i.e., a survey response that does not have all items answered. Most of the techniques use information from the completed cases to impute a model-based estimate to the cases with missing data.

  By contrast, the CPS data are fully imputed and edited with 13 percent of the sample missing health insurance data, mostly for those who respond to the monthly CPS survey but refuse to take the ASEC supplement. The statistical method used to impute missing health insurance data creates bias in state estimates of coverage because "state" is not one of the variables in the model.[20] In addition, recent research shows that the Census Bureau's method for imputing health insurance leads to an undercount of people with employer-sponsored coverage and an overcount of people who are uninsured.[21]

Conclusions and Policy Implications

Estimates of uninsurance from state specific surveys are almost consistently lower than rates from the CPS. Fundamental design and administration features of state surveys and the CPS contribute to persistent differences in state estimates of uninsurance.

With regard to population coverage, sample design and non-response bias (e.g., households lacking telephones, increases in cell phone-only households, declining response rates), the CPS has the advantage in that its area probability sample design includes people living in households with and without active telephone lines. States typically lack the resources to do in-person surveys and must rely on RDD telephone surveys.

State surveys have the advantage in the area of measurement in that they typically focus on health insurance and access to care, ask about *current* health insurance coverage, and state survey analysts have greater flexibility to alter their instruments to accommodate changes in the local insurance offerings and state-specific names of public programs (e.g. MinnesotaCare, BadgerCare). By contrast, the primary purpose of the CPS is to collect information about labor force participation and questions about health insurance coverage must adhere to the time frame (calendar year) in which the labor force questions are asked.

Both sources of state-specific estimates of insurance coverage have merit and limitations making them more relevant for specific purposes. Contrasting trends in the number and characteristics of the uninsured across states requires use of the CPS. If interested in specific information about subpopulations of uninsured within a given state, state surveys are preferred because of their larger sample size and the ability to alter the sample design to focus on subpopulations of interest.

Although the estimates derived from the CPS and state surveys are consistently different, ongoing research is investigating whether the trends in the estimates are similar over time, telling a coherent story about the distribution of insurance coverage and characteristics of the uninsured. Policy analysts have much to gain in drawing on both sources of data to inform decisions.

Finally, it is important to recognize that the number of uninsured will never be exactly pinned down. Different surveys produce different estimates because of the many complex choices involved in collecting health insurance data. While research should focus on producing better estimates, the number remains just that: an estimate.

Acknowledgements

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This issue brief is an update of an earlier SHADAC issue brief from 2001, "State Health Insurance Coverage Estimates: Why State-Survey Estimates Differ from CPS." All SHADAC issues briefs are available online at www.shadac.org.

Notes

[1] C. DeNavas-Walt, B.D. Proctor, and C.H. Lee, "Income, Poverty, and Health Insurance Coverage in the United States: 2004," Current Population Reports, P60-229. (Washington DC: US Census Bureau, 2005).

[2] L.A Blewett et al., "Monitoring the Uninsured: A State Policy Perspective," *Journal of Health Politics, Policy and Law* 29, no. 1 (2004): 107-45; and State Health Access Data Assistance Center (SHADAC), "Summary of Household Population Surveys Conducted by States," Working paper (Minneapolis MN: University of Minnesota, 2006).

[3] The use of three-year CPS averages is intended to increase the precision of uninsurance estimates that are otherwise more variable from year to year. R.J. Mills and S. Bhandari, "Health Insurance Coverage in the United States: 2002," Report no. P60-223 (Washington DC: US Census Bureau, 2003).

[4] For the complete analysis see K.T. Call, M. Davern, L.A. Blewett, "Estimates of Health Insurance Coverage: Comparing State Surveys to the Current Population Survey." *Health Affairs* 26, no. 1 (2007):269-78.

[5] U.S. Census Bureau, Table 11: Income, Poverty and Health Insurance in the United States: 2004. Exceptions are estimates for the under age 65 population for CA, FL, KS, NJ; SHADAC analyses of microdata (August 2005 release). With the exception of sources listed here, state specific survey estimates are from HRSA SPG reports found at http://www.statecoverage.net/hrsa.htm: California Health Interview Survey/ Ask CHIS 2.0.; Florida Health Insurance Study. Insurance Coverage Updates. Fact Sheet No 1; April 2005; 2004 Minnesota Health Access Survey; 2004 Missouri Health Care Insurance and Access Survey, February 2005; 2004 Oklahoma Health Care Insurance and Access Survey: Select Results. Oklahoma Health Care Authority. April 2005; The Health Insurance Status of Pennsylvania's Statewide Survey Results, May 2005; 2004 Utah Health Status Surveys, Utah Department of Health; Wisconsin Department of Health and Family Services. Wisconsin Health Insurance Coverage, 2003, September 2004. Also refer to K.T. Call, M. Davern, L.A. Blewett, "Estimates of Health Insurance Coverage: Comparing State Surveys to the Current Population Survey." *Health Affairs* 26, no. 1 (2007):269-78.

[6] Ibid.

[7] U.S. Census Bureau, "Current Population Survey Technical Paper #63," Report no. TP63RV (Washington DC: US Census Bureau, 2002)

[8] M. Davern et al., "Telephone Service Interruption Weighting for State Health Insurance Surveys," *Inquiry* 41, no. 3 (2004): 280-90.

[9] S.J. Blumberg, J.V. Luke, and M.L. Cynamon, "Telephone coverage and health survey estimates: evaluating the need for concern about wireless substitution," A*merican Journal of Public Health* 96, no. 5 (2006):926-31; and C. Tucker, M. Brick, and B. Meekins, "Telephone service in U.S. households in 2004," presentation at the American Association for Public Opinion Research Annual Meeting, Phoenix AZ, May 2004.

[10] Blumberg et al., "Telephone coverage and health survey estimates: evaluating the need for concern about wireless substitution."

[11] Ibid.

[12] Ibid.

[13] S. Sudman, N. Bradburn, and S. Schwarz, *Thinking about answers* (San Francisco: Jossey-Bass, 1996).

[14] Ibid.

[15] U.S. Census Bureau, "Current Population Survey Technical Paper #63," Report no. TP63RV (Washington DC: US Census Bureau, 2002).

[16] R. Curtin, S. Presser, and E. Singer, "Changes in telephone survey nonresponse over the past quarter century," *Public Opinion Quarterly* 69, no. 1 (2005): 87-98; and Pew Research Center, "Survey experiment shows: Polls face growing resistance, but still representative," (Washington DC: The Pew Research Center for the People and the Press, 2004).

[17] R.M. Groves et al. *Survey Methodology*. (New York: Wiley, 2004).

[18] R. Curtin, S. Presser, and E. Singer, "Changes in telephone survey nonresponse over the past quarter century".

[19] K.T. Call, et al. "The Medicaid Undercount and Bias to Estimates of Uninsurance: New Estimates and Existing Evidence" *Health Services Research*, forthcoming (2008).

[20] M. Davern et al. "Missing the Mark? Examining Imputation Bias in the Current Population Survey's State Income and Health Insurance Coverage Estimates." *Journal of Official Statistics* Sep 2004:20(3):519-49.

[21] M. Davern, "Does Imputation Bias Lead to More Uninsured in the Current Population Survey's Estimates?" Presentation at the AcademyHealth 2005 Annual Research Meeting, Boston MA, 26 June 2005.