

Preliminary Analysis of Medicaid Enrollment Status in the Current Population Survey

Ming-Yi Mah, Dean Resnick

U.S. Census Bureau, 4600 Silver Hill Road, Washington, DC, 20233

Abstract

Medicaid recipient estimates from surveys are lower than administrative data counts of enrollment. It is believed that Current Population Survey (CPS) non-respondents have a higher percentage of Medicaid enrollees than the respondents of the survey, and thus would account for a portion of the underestimate. This paper compares the CPS 2002 response rates for people enrolled and not enrolled in Medicaid. Medicaid data were matched with the CPS respondent and non-respondent data to compare the rates of Medicaid enrollment. The results show that the CPS non-respondents do not

have a higher percentage of Medicaid enrollees than the respondents, and that some demographic groups are in fact more likely to respond to the CPS if they are receiving Medicaid benefits.

KEY WORDS: CPS, Medicaid undercount, Survey non-respondents

1. Introduction

Survey data often are used to evaluate the performance of public programs, such as impoverished family support services (e.g., Medicaid, TANF, and food stamps), because they can be more timely and accompanied by more complete family situation data than program administrative records. One outstanding issue with the use of survey data for this purpose is that survey data often generate under-estimates of program participation when compared to counts generated by administrative records.

Analyses by the U.S. Census Bureau and other organizations show that much of this under-estimation appears related to false-negative program participation reporting by survey respondents. However, the research community is also concerned that the under-estimation is exacerbated by the survey weighting process, in particular weighting adjustments made for non-response. One possible hypothesis is that program participants tend to be members of non-responding households more likely than for responding households. Not only would such a situation cause problems for the use of survey data for public program evaluation but it could also bias other statistics generated from surveys.

This study attempts to determine whether non-response adjustments are biasing Current Population Survey (CPS) estimates of Medicaid enrollees. To answer this question, administrative records are used to determine how Medicaid coverage levels compare between members of responding and non-responding households. For responding households, members' enrollment status is available based on individual record matches of CPS to Medicaid enrollment administrative records. This type of determination cannot be made directly because there is not a survey-collected roster of household members.

However, CPS household records can be linked to the Census Bureau compiled administrative record data (in

the Statistical Administrative Record System—StARS) according to common street address. In some cases, persons associated with an address in StARS may not be the same persons residing at that address at the time of the survey. However, this happens only in the minority of cases and, even then, in aggregate, the enrollment status of the misidentified (as residents) persons should tend to be similar to that of the actual residents.

After the likely residents of the non-respondent housing units are identified, these likely residents are matched at an individual-level record to see if these persons were enrolled in Medicaid during the survey's reference period. The reference period is the calendar year previous to the survey's time of fielding. At this point there is enough data to compare enrollment rates of non-responding households to responding households. The results show that non-responding households tend to have similar Medicaid enrollment profiles to responding households, even across basic demographic categories, such as race and ethnicity. Therefore, the non-response adjustments are not likely generating bias in estimated Medicaid enrollment figures.

2. Background

Social programs like Medicaid are intended to help those who need assistance. In an ideal situation all people who qualify for Medicaid should be receiving benefits. However, it is difficult to determine what proportion of eligible people are enrolled in Medicaid. Surveys are used to estimate the Medicaid enrollment rates. One of these surveys is the CPS.

This report is released to inform interested parties of ongoing research and to encourage discussion of work in progress. Any views expressed on statistical methodological, technical, or operational issues are those of the author(s) and not necessarily those of the U.S. Census Bureau.

Several research projects have been conducted to examine the Medicaid undercount in surveys. For example, a research project conducted at the U.S. Census Bureau compared the CPS to Medicaid data for data from 2000. This study showed that the CPS undercounts the number of Medicaid participants by 31.7% compared to national enrollment counts based on administrative records (University of Minnesota, (b), 2007). This undercount limits the ability of the CPS to evaluate a public program like Medicaid and provide accurate enrollment estimates.

Other research found that reporting error and frame coverage issues have led to estimated undercounts of program participants (Resnick, Love, Taueber, and Staveley 2004). For example, a study on the difference in household survey counts and administrative records data for food stamps participation was conducted in 2004. The Census Bureau's 2001 Supplementary Survey (SS01) and the Maryland Client Automated Resource and Eligibility System (CARES) were the two data sources used.

The supplementary surveys conducted in 2001 and 2002 were designed to provide a bridge of information for a permanent American Community Survey, which will replace the decennial long form in future censuses. CARES maintains the administrative records for food stamps in the state of Maryland.

Using probabilistic matching techniques the SS01 estimated that approximately 87,000 households received food stamps in 12 months, while CARES shows approximately 158,000 households received food stamps. This means that the SS01 is underreporting food stamp participation by 50%. Resnick et al. (2004) found that the main cause of undercount is survey misreporting and a general misunderstanding of what the question is asking the respondent.

Other potential issues could be that survey non-respondents are different from respondents in terms of program participation, and that weighting adjustment procedures do not fully account for these differences. By using similar techniques as the food stamps study, this study compares the respondent and non-respondent Medicaid data from the 2002 CPS. Estimating the person and household enrollment rates of those on Medicaid for respondents and non-respondents to the CPS will determine if a proportion of the Medicaid undercount can be attributable to the non-respondent results.

3. Methods

Three data sources were used in this analysis. They are the CPS, the StARS database, and the Medicaid Statistical Information System (MSIS).

Current Population Survey

The CPS is a monthly survey co-sponsored by the Census Bureau and the Bureau of Labor Statistics (BLS). It provides information about the labor force status of the civilian noninstitutionalized population. The basic monthly CPS provides a national estimate of the monthly unemployment rate and other employment, earnings and demographic characteristics. Its main focus is on employment data, although the CPS ASEC (Annual Social and Economic Supplement) collects Medicaid enrollment data. More information about the CPS can be found in the U.S. Census Bureau (2002).

Statistical Administrative Records System

StARS is a research project designed to build databases of personal and address data using administrative records from various government agencies, primarily for application to decennial census research and development. StARS is compiled of administrative data from seven sources, including:

1. Internal Revenue Service (IRS) Individual Master File-1040 Returns
2. IRS Information Returns Master File – W-2's and 1099
3. Centers for Medicare and Medicaid Services (CMS) Medicare Enrollment Database
4. Housing and Urban Development (HUD) Tenant Rental Assistance Certification System
5. HUD Public and Indian Housing Information Center
6. Selective Service Systems Registrant File
7. Indian Health Services Registration File

The purpose of StARS is to create a complete profile for each individual. The IRS files provide general information about a person, such as their name and address, while the remaining files attempt to complete the information about a population. For example, HUD records fill in data for people who have low incomes and Indian Health Services file yields information about Native Americans. StARS contains individual information for approximately 93% of the general population.

Medicaid Statistical Information System

MSIS records contain information about Medicaid enrollees. The purpose of MSIS is to collect, manage, analyze, and disseminate information on those eligible for Medicaid and beneficiaries. It also tracks payment and utilization of Medicaid benefits for enrollees. MSIS houses data for a federal program that collects records from individual state-run programs (CMS 2007).

The uses of MSIS data include (CMS 2007):

- Health care research and evaluation activities
- Program utilization and expenditures forecasting
- Analyses of policy alternatives

- Responses to congressional inquiries
- Matches to other health related databases

There are important considerations when working with federal Medicaid data. It may be difficult to complete some analyses across states and/or across years because eligibility rules and program benefits can vary across states and across years (Medicaid FAQ 2007). Another consideration is that some people enroll in Medicaid in multiple states.

For this study, the CPS, StARS, and MSIS files are merged together to produce two analysis files. The first analysis file contains the CPS respondent data. The CPS respondent data are linked to a Personal Identification Key (PIK) and merged directly with the MSIS data. However, the second analysis file for CPS non-respondents only has address information. This is where StARS contributes to this research project. By probabilistically matching addresses from the non-respondent CPS data to the StARS data, we can find a PIK for most of the non-respondent individuals. This new file with a PIK can then be merged with MSIS data to determine the Medicaid status of the CPS non-respondents. Figures 1 and 2 show the CPS respondent and non-respondent flow charts respectively.

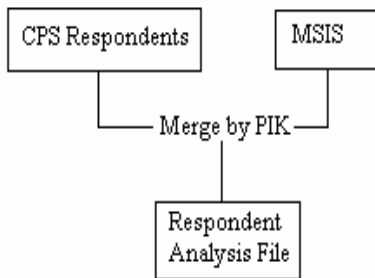


Figure 1 CPS Respondent Flow Chart

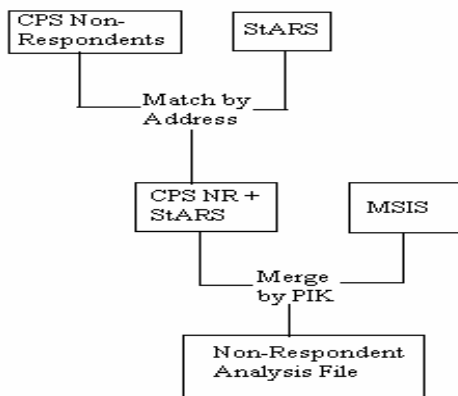


Figure 2 CPS Non-Respondent Flow Chart

The non-respondent analysis file showed that there were 6,566 households that were flagged as a non-respondent household. Of those 6,566 households only 4,993 could be matched with StARS. Thus, 1,573 of the non-respondent households were not accounted for. This means that our data does not accurately reflect the sample of non-respondent households.

Table 1 Household Counts

	Non-Response Households
CPS	6,566
CPS Matched with StARS	4,993
Difference	1,573

An adjustment factor was created and applied to the 1,573 non-respondent households not found in StARS. The adjustment categories were based on the type of living quarters and tract income level. Living quarters type includes private homes and group quarters. All people living in the same tract with the same living quarters type will receive the same adjustment factor since it is assumed that people with similar incomes live in similar neighborhoods. This adjustment factor weights the data to make it more representative of the entire universe and is used to create new frequencies for the non-respondent data. The adjusted weights attempt to reduce bias in this analysis due to non-matches, but there is no way to assess if bias remains in our results.

4. Results

Frequencies and cross-tabulations are computed to see if the percentages of Medicaid recipients are similar for CPS respondent and non-respondent data. The graph of Medicaid status (Figure 3) shows us that the respondent Medicaid rates look similar to the adjusted non-respondent rates. A chi-square test in Table 2 shows that there is no significant difference between the respondents and the adjusted non-respondents in Medicaid enrollment as the p-value is 0.802. Since enrollment rates for respondents and adjusted non-respondents are similar, the Medicaid undercount cannot be attributable to the non-response.

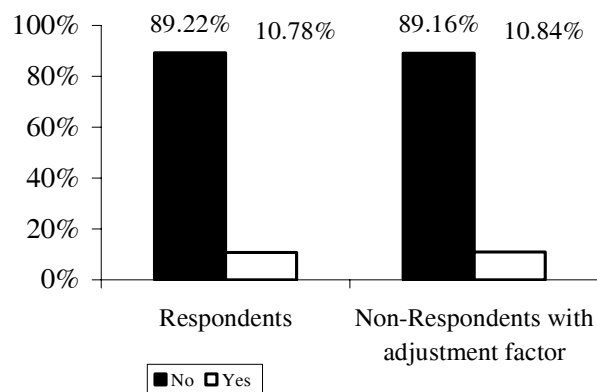


Figure 3 Medicaid Status Distribution for Respondents and Adjusted Non-Respondents

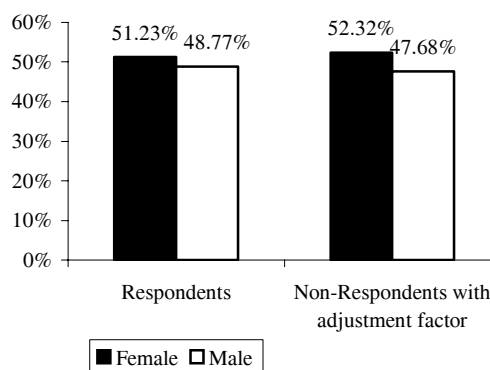


Figure 4 Gender Distribution for Respondents and Adjusted Non-Respondents

Table 2 Medicaid Enrollment and CPS Respondent Status

	Respondents	Adjusted Non-Respondents	Total Count
On Medicaid Count	91.03% 20,807	8.97% 2,051	22,858
Not on Medicaid Count	91.08% 172,195	8.92% 16,870	189,065
$X^2 = 0.063$ p-value = 0.802			

The percentage breakdowns of Medicaid status by sex and race are analyzed using chi-square tests. The gender distribution (Figure 4) shows that females have a higher response rate for the CPS than males, which is expected. However, it is also expected that males have a higher non-response rate. The gender distribution clearly shows that there are more non-response females than males. In fact, the percentage of males in the non-respondent with adjustment factor category is less than the percentage of the respondent males. However, a chi-square test comparing the male CPS response status and Medicaid enrollment shows no significant difference between the respondents and adjusted non-respondents ($p = 0.189$).

Table 3 Medicaid Enrollment and CPS Respondent Status for Males

	Respondents	Adjusted Non-Respondents	Total Count
On Medicaid Count	93.55% 8,450	6.45% 583	9,033
Not on Medicaid Count	93.18% 85,668	6.82% 6,269	91,937
$X^2 = 1.729$ p-value = 0.189			

According to Figure 5, about 12 percent of the respondents were Non-Hispanic Black compared to more than 15 percent of the adjusted non-respondents. Since Non-Hispanic Blacks form a disproportionate share of Medicaid recipients (30.0% of enrollees compared to 12.7% of U.S. resident population), it might be expected that the high non-response percentages among non-Hispanic Blacks would cause Medicaid enrollees to be underweighted in the CPS (University of Minnesota (a), 2007). However, a more detailed analysis shows that there is an additional factor at work that appears to almost entirely mitigate the high non-Hispanic Black non-response rate. This factor, as shown in Table 4, is the relatively low non-response rates of non-Hispanic Blacks enrolled on Medicaid (7.8%) compared to that of non-Hispanic Blacks not enrolled on Medicaid (9.2%). So, even though non-Hispanic Blacks are more likely to be non-respondents than members of the general population, this is not true among non-Hispanic Blacks enrolled on Medicaid.

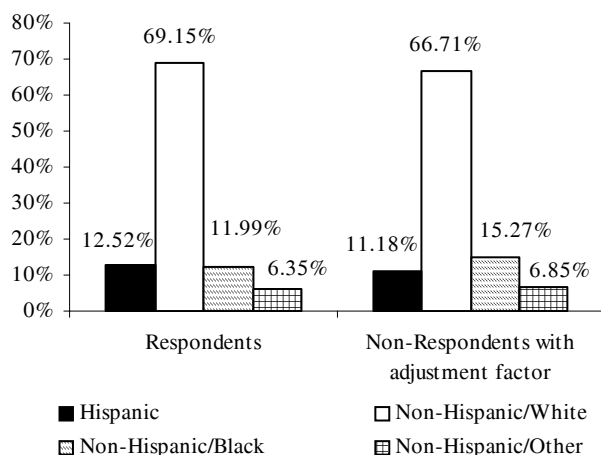


Figure 5 Race Distribution for Respondents and Adjusted Non-Respondents

Table 4 Medicaid Enrollment and CPS Respondent Status for Non-Hispanic Blacks

	Respondents	Adjusted Non-Respondents	Total Count
On Medicaid Count	92.22% 5,026	7.80% 425	5,450
Not on Medicaid Count	90.80 18,107	9.20% 1,835	19,942
$X^2 = 10.422$ p-value = 0.012			

5. Conclusions

The purpose of this paper is to determine if a proportion of the Medicaid undercount can be attributable to the CPS non-respondent results. The results of this study show there is no significant difference in Medicaid enrollment for CPS respondent and adjusted non-respondent groups. The estimated Medicaid undercount cannot be attributable to the CPS non-respondent results. A higher percentage of females than males exist in the CPS respondent and non-respondent groups. And finally, there is no significant difference between Medicaid enrollment and CPS respondent status for males. The data also show that Non-Hispanic Blacks are more likely to respond to the CPS if they are receiving Medicaid benefits.

References

- About the ACS: Survey Definition*, American Community Survey (ACS) U.S. Census Bureau, 27 Sept 2007, <<http://www.census.gov/acs/www/SBasics/SDef.htm>>
- CMS Centers for Medicare and Medicaid Services*, 9 Aug 2007, U.S. Department for Health and Human Services, 27 Sept 2007, <<http://www.cms.hhs.gov/MSIS/>>
- Medicaid Frequently Asked Questions* (2006), Research Data Assistance Center, 27 Sept 2007 <<http://www.resdac.umn.edu/Medicaid/medicaidFAQ.asp#8>>
- Resnick, Dean, Love, Susan P., Tauer, Cynthia and Staveley, Jane M. (2004) Analysis of the 2001 Supplementary Survey food stamp program participation underestimate ASA Proceedings of the Joint Statistical Meetings, 1693-100 American Statistical Association (Alexandria, VA)
- The University of Minnesota's State Health Access Data Center, the Centers for Medicare and Medicaid Services, the Department of Health and Human Services, Office of the Assistant Secretary for Planning and Evaluation, and the U.S. Census Bureau, (2007), "Research Project to Understand the Medicaid Undercount, Phase I Research Results: Overview of National Medicare and Medicaid Files," 26 February 2007, Page 17, Table 5.
- The University of Minnesota's State Health Access Data Center, the Centers for Medicare and Medicaid Services, the Department of Health and Human Services Assistant Secretary for Planning and Evaluation, the National Center for Health Statistics, and the U.S. Census Bureau, (2007), "Research Project to Understand the Medicaid Undercount, Phase II Research Results: Examining Discrepancies Between the National MSIS and CPS-ASEC," unpublished technical report.
- U.S. Census Bureau, (2002), "Current Population Survey Design and Methodology", Technical Paper 63RV, U.S. Census Bureau and Bureau of Labor Statistics, <<http://www.census.gov/prod/2002pubs/tp63rv.pdf>>