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WORKING PAPER: ESTIMATING THE NUMBER OF INDIVIDUALS IN THE UNITED STATES WITHOUT HEALTH INSURANCE

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Estimating the Number of Individuals in the U.S. Without Health Insurance

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EXECUTIVE SUMMARY

Although there are multiple sources of data on the uninsured, the Census Bureau's Annual Social and Economics Supplement (ASEC) to the Current Population Survey (CPS) is often the main focus of analytic work. Some of the reasons for this are: it is the most widely cited source of data, it has the largest sample size of any major survey with data on the uninsured, it can be used for state-level analysis, and it contains detailed data allowing for analysis of the uninsured by income level. However, one factor that has complicated the analysis of the uninsured is that this supplement to the CPS has changed considerably over time, making longitudinal analysis less reliable.

Without adjusting for these changes, we are able to look only at the most recent survey years which use a consistent methodology. For CY 2003, the CPS estimates that 45.0 million individuals, or 15.6 percent of the U.S. civilian non-institutionalized population, were without health insurance for the entire year. This number is a full year uninsured estimate based on the structure of the CPS questionnaire – which asks respondents about their insurance coverage at any time during the prior calendar year. When compared, however, to other surveys that examine both full year and point in time uninsured, the CPS estimate appears to more closely resemble the point in time estimate from these other surveys.

While some analysts have suggested, as far back as 1986, that the CPS represents a measure of the uninsured at a point in time, ASPE believes that it is more likely that the CPS does represent the full year uninsured, but that the estimate is inflated due to poor reporting of Medicaid coverage and perhaps other coverage types as well.

In order to more fully examine this premise, it becomes necessary first to adjust for the survey changes that have occurred in the CPS over time. Focusing mainly on the period from CY 1994 (March 1995) forward but looking back as far as CY 1987 (March 1988), these changes (and our adjustments) include: a) updating the survey weights to reflect the new decennial Census, b) adjusting for consistency in the insurance questionnaire which was modified beginning in March of 1995, c) adjusting for consistency in employer sponsored insurance (age of policy-holder, coverage from outside of household), and d) adjusting for inclusion of questions to verify uninsurance and coverage under SCHIP.

Once these changes have been taken into account and adjusted for, the Medicaid undercount can then be considered. For CY 1995, the CPS showed just over 30 million persons covered by Medicaid. CMS data, however, suggests that approximately 39 million non-institutionalized persons were covered under Medicaid some time in that year. By CY 2002, this discrepancy has doubled, with the CPS finding fewer than 29 million ever covered by Medicaid, while CMS data suggests an "ever enrolled in Medicaid" count on the order of 46 million in the non-institutionalized population.[1] The CPS counts are lower by subpopulation both when compared

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[1] Explained in more detail in the body of this paper, CMS presents Medicaid enrollment statistics both from MSIS data as well as summary historical counts and projections of the Medicaid population on their website. Our use of

to CMS estimates as well as when compared to data from other surveys.

For CY 2003, correcting for an undercount of 17 million persons lowers the full year uninsured estimate by just over 9 million persons. For CY 2003, with this adjustment, the almost 36 million uninsured (as compared to an unadjusted 45.0 million) is more consistent with the full year uninsured count reported by MEPS of 31.7 million (although for an earlier year).

these estimates of the Medicaid population is explained in detail in the Technical Appendix to this document.

INTRODUCTION

As policy makers continue to search for solutions to the problem of the uninsured, analysts have sought ways to better understand who comprise the uninsured population and how this population has changed over time. Although there are multiple sources of data on the uninsured, the Census Bureau's Annual Social and Economics Supplement (ASEC)[2] to the Current Population Survey (CPS) is often the main focus of analytic work. Some of the reasons for this are: it is the most widely cited source of data, it has the largest sample size of any major survey with data on the uninsured, it can be used for state-level analysis, and it contains detailed data allowing for analysis of the uninsured by income level (a significant factor given how most proposed solutions to the uninsured problem are means-tested in some manner). However, one factor that has complicated the analysis of the uninsured is that this supplement to the CPS has changed considerably over time, making longitudinal analysis less reliable.

These survey changes create sources of discontinuity in the CPS data that need to be adjusted for over time in order to allow policymakers to understand the trends in both direction (increases or decreases in coverage) and level (how many people are insured or uninsured). As a result, the Office of the Assistant Secretary for Planning and Evaluation (ASPE) has been working with Actuarial Research Corporation (ARC) to refine the CPS time series and account for other CPS data issues.

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[2] The Annual Social and Economics Supplement to the CPS was formerly known as the March Demographic Supplement and is also known as the "March CPS." Data on the ASEC is collected in March and insurance information refers back to the prior calendar year (for example the 2003 ASEC is collected in March 2003, with insurance information from CY 2002).

This report discusses estimates of the number of uninsured from the unadjusted CPS, looks at the CPS in the context of other surveys that estimate the number of uninsured, and discusses revisions to the survey and how we have adjusted for them in order to have a consistent time series. Finally, we will look at how a particular limitation with the CPS estimates (the count of persons with Medicaid) can be adjusted for, and how this affects the estimate of the uninsured.

How Our Approach is Different: The focus of this report is covered lives, e.g. the counts of people who have or do not have health insurance coverage during different time intervals or at specific points in time. The number of uninsured reported will vary substantially depending on the approach selected. The report does not address changes in health insurance benefits, shares of premiums paid by employers and employees, or other changes in the health insurance market that occurred over the period studied. We concentrate on data from the last nine years, starting with the March 1995 CPS and ending with the most recent (March 2004) year available. We begin at March 1995 due to the many major changes in the survey that occurred that year and which affect the insurance estimates from that point forward. In addition, we have also applied our methodology back to CY 1989 (March 1990) in order to look at changes in insurance over a longer time period. Due to the many improvements that occurred with the March 1995 survey, we are more confident in our estimates from that point forward. Our methodology is explained below, and in more depth in the methodological appendix accompanying this paper.

CPS PORTRAIT OF THE UNINSURED POPULATION

Before discussing changes to the survey over time, it is important to first be familiar with the

characteristics of the uninsured based on the most recent CPS. This will establish a baseline

against which the insights gained from creating a more consistent time series can be measured.

Using data from the 2004 Annual Social and Economics (ASEC) Supplement to the Current

Population Survey (formerly called the March Demographic Supplement), which contains

information on insurance for calendar year 2003, ASPE examined the demographic

characteristics of the uninsured population. The CPS estimates that 45.0 million individuals, or

15.6 percent of the U.S. civilian population, were without health insurance for the entire year in

2003. The main source of health insurance coverage was employer-sponsored insurance (60.4%

of persons had such coverage), followed by Medicare (13.7%) and Medicaid (10.7%).

Table 1 contains a more detailed breakdown of the uninsured population. An important

consideration to keep in mind when reviewing the demographics of the uninsured is that there

are several ways to analyze the data. For example, one can determine the uninsured rate of a

given demographic group, such as "what percentage of men are uninsured?" Alternatively, one

can calculate the percentage of the uninsured that is comprised of given demographic group,

such as "what percentage of the uninsured are male?" Table 1 shows, for some key demographic

groups:

- the total number of individuals within those groups,

- their percentage of the population,

- the number of uninsured within those groups,

- the uninsured rate for the group, and finally,

- the percent of the total uninsured population the uninsured from that group represent.

Characteristic	Total US Population (Millions)	Percentage of the Total US Population	Number of Uninsured (Millions)	Percentage of the Group Uninsured	Percentage of the Total Uninsured
Table 1. The Uninsured in 2003 According to the Unadjusted CPS					
Total Population					
	288.3	100%	45.0	16%	100%
Poverty					
Below 100%	36.4	13%	11.2	31%	25%
100- 200%	53.5	19%	13.3	25%	30%
200- 300%	49.5	17%	8.2	16%	18%
300- 400%	40.0	14%	4.8	12%	11%
400- 500%	31.5	11%	2.6	8%	6%
500% and Over	77.4	27%	5.0	6%	11%
Age					
Below 18	73.6	26%	8.4	11%	19%
18- 24	27.8	10%	8.4	30%	19%
25- 34	39.2	14%	10.3	26%	23%
35- 44	43.6	15%	7.9	18%	18%
45- 54	41.1	14%	6.0	15%	13%
55- 64	28.4	10%	3.7	13%	8%
65 and Over	34.7	12%	0.3	1%	1%
Parental Status					
Parents	65.5	23%	10.9	17%	24%
Childless Adults	114.7	40%	25.5	22%	57%
Children	73.4	25%	8.3	11%	29%
Race/ Ethnicity					
White	194.9	68%	21.6	11%	48%
African-American	35.7	12%	6.9	19%	15%
Hispanic	40.4	14%	13.2	33%	29%
Other/ Mixed	17.3	6%	3.3	19%	7%
Immigration Status					
Citizen	267.2	93%	35.4	13%	79%
Non-Citizen	21.1	7%	9.6	45%	21%
Work-Status					
Full Time	156.5	54%	20.5	13%	46%
Part Time or Part Year	55.3	19%	12.6	23%	28%
Not Working	76.5	27%	11.9	16%	26%

Table 1. The Uninsured in 2003 According to the Unadjusted CPS					
Characteristic Firm Size	Total US Population (Millions)	Percentage of the Total US Population	Number of Uninsured (Millions)	Percentage of the Group Uninsured	Percentage of the Total Uninsured
Under 10	32.1	11%	9.5	30%	21%
10 to 24	15.3	5%	3.9	26%	9%
25- 99	19.5	7%	3.7	19%	8%
100- 499	19.8	7%	2.8	14%	6%
500- 999	8.0	3%	1.0	12%	2%
1,000 and Over	57.3	20%	6.1	11%	14%
Children or Not Working	136.3	47%	18.0	13%	40%
Source: 2004 CPS					

As seen in Table 1, the uninsured are more likely to be low and middle income working individuals who are under 35, not parents, white, and citizens who work for small firms. Table 1 also shows, however, that the uninsured population contains disproportionate numbers of Hispanics and non-citizens. In terms of their share of the population, the uninsured come from all demographics groups and the problem is not isolated in one or two groups. For example, while just over 50% of the uninsured are adults who are not parents, parents represent 25% of the uninsured, and children 20%.

THE CPS DATA IN CONTEXT

Any discussion of the uninsured should be clear about the multiple methods and data sources available for measuring the number of individuals who lack health insurance. There are three basic ways to count the number of uninsured: 1) those uninsured for a full year,[3] 2) those ever uninsured during a year, and 3) those uninsured at a specific point in time. The estimates obtained from the CPS, and noted above, are technically full-year uninsured estimates.[4] While there is some debate on what the CPS actually measures, the structure of the CPS questionnaire asks respondents about their insurance coverage at any time during the prior calendar year, which implies those who indicate no coverage therefore must have been uninsured for the entire year.

There are three other major government surveys that also measure the number of uninsured (in addition to measuring many other topics). These are the Medical Expenditure Panel Survey (MEPS), the National Health Interview Survey (NHIS), and the Survey of Income and Program Participation (SIPP). While the CPS provides the most widely-quoted estimate for the number of uninsured, the design of the survey only allows an estimate of the number of people uninsured for a full year. The MEPS, NHIS and SIPP each provide three estimates for the number of uninsured: 1) full year uninsured, 2) point in time uninsured, and 3) ever uninsured in year.

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[3] While persons uninsured for all of CY 2003 could be uninsured for longer than 12 months, the reference period of the CPS is limited to a single year.

[4] There has been considerable debate on the interpretation of the CPS in the academic and policy communities. As will be discussed, many believe the CPS is actually a better measure of the number of uninsured at the time of the survey, not the number of uninsured for the previous calendar year.

The following chart lays out estimates of the uninsured from these four surveys.

Table 2. Uninsured Estimates from Various National Surveys				
		Method of Estimate		
Survey	**Most Recent Year**	**Uninsured For Full Year**	**Point in Time Uninsured**	**Ever Uninsured During the Year**
Current Population Survey (CPS)	2003	45.0 million 15.6% of total pop	N/A	N/A
Medical Expenditure Panel Survey (MEPS)	2001	31.7 million 11.2% of total pop	45.9 million 16.7% of total pop	64.4 million 22.7% of total pop
Survey of Income and Program Participation (SIPP)	1998	21.1 million 8.0% of total pop	40.5 million 14.6% of total pop	56.8 million 20.8% of total pop
National Health Interview Survey (NHIS)	2002	25.8 million 9.4% of total pop	39.7 million 14.3% of total pop	49.9 million 18.4% of total pop
Note: "N/A" = Survey does not capture this dimension				

The estimates of the uninsured differ widely based on the time frame used to measure the lack of coverage and based on the survey used. The CPS full-year uninsured estimate appears more consistent with the point-in-time measures of the NHIS, MEPS and SIPP, and is far higher than those surveys' full-year measure. For this reason, some analysts have suggested, as far back as 1986, that the CPS represents a measure of the uninsured at a point in time, rather than for a full year.[5] For reasons to be discussed later in this memo, ASPE believes that it is more likely that the CPS does represent a measure of the full-year uninsured, but is an estimate that is inflated due to poor reporting of Medicaid coverage, and perhaps other coverage types as well. The three

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[5] Katherine Swartz, "Interpreting the Estimates from Four National Surveys of the Number of People Without Health Insurance," Journal of Economic and Social Measurement, vol. 14 (1986), pp. 233-242.

other surveys have a more modest undercount of the Medicaid population, and are also thought to have a more accurate estimate of the uninsured.

More detailed data from the 2001 MEPS provide an example of the dynamic nature of insurance coverage. According to MEPS, 64 million people, or 23% of the population, experienced at least one month without coverage. Of those, 51% were uninsured for all of 2001, and the remaining 49% were uninsured for varying lengths of time:

- 20% were uninsured for 3 months or less;

- 14% were uninsured for 4 to 6 months;

- 12% were uninsured for 7 to 9 months;

- 4% were uninsured for 10 or 11 months.

Those who are uninsured for shorter time periods may represent different policy challenges and solutions. In addition, both the health and economic consequences of spells of uninsurance of different lengths are likely to vary for different subgroups of the uninsured. Policy makers who seek to expand coverage to the uninsured need to consider the dynamic nature of insurance coverage.

SURVEY REVISIONS THROUGH TIME

As noted earlier, there have been changes to the CPS over time that have clarified the estimates of specific insurance classes as well as changes that have affected the measurement of overall levels of insurance coverage. These changes have included the following:

- In the late 1980s, estimates of private insurance were refined with respect to what was employer-sponsored, by broadening the universe of who were asked this question beyond just workers and their family members. In addition, questions were also added at the household level to pick up coverage of children that might have been missed (employer-sponsored insurance) from outside the household and Medicaid).

- Several major revisions to the CPS occurred in the mid 1990s. Census converted to a CATI/CAPI process, which has been thought to increase detection of insurance coverage. In addition, beginning with the March 1995 CPS, the questionnaire was changed to expand the categories of coverage a person could have. This allowed for a more accurate detection of Medicaid (although it resulted in fewer Medicaid covered persons as the "other government coverage" categories increased), as well as more accurate non-hierarchical counts of persons covered by private insurance (both employer sponsored and individual).[6]

- In March 2000, the survey added a verification question to clarify the number of uninsured.

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[6] For example, the survey update allowed identification of spouses who had insurance in their own name from their own employer in addition to being listed as a dependent on another policy, a change that increased the counts of persons with employer-sponsored insurance policies.

- In March 2001 the survey also added a question to pick up coverage under the State

   Children's Health Insurance Program (SCHIP).

- March 2002 saw the additional change of weights based on the 2000 Census.

- While the March 2003 CPS saw some changes to such fields as industry, occupation, and

   racial classification, the insurance portion of the survey remained the same as in March

   2002 and March 2001. March 2004 followed the format and classifications found in

   March 2003.

Although the improvements to the CPS over time have been extremely helpful, they have made

it more difficult to model trends over time. In addition, there are specific issues with certain

insurance coverage estimates from the CPS - in particular, the reported Medicaid population is

much lower than that implied by program statistics from the Centers for Medicare and Medicaid

Services (CMS), and lower than that found in other surveys such as MEPS and the SIPP.

Using the most recent surveys (March 1995 through March 2004), we have attempted to adjust

for the survey changes, including insurance verification and SCHIP coverage, as well as for the

shortfall in Medicaid enrollees captured by the survey. In addition, we have imposed consistent

definitions on certain types of insurance (such as a consistent minimum age to be a policy holder

with employer-sponsored insurance). For those adjustments that represented a change in the

survey, we have used the more current data in order to adjust the data from earlier survey years.

The adjustments were made to a uniform set of file extracts for the period March 1995 through

March 2004. The initial files contained no adjustments; merely using the insurance definitions and weights provided by Census for each year but recoded into a more standard format. The following adjustments were then made to the files: a) updating the survey weights to reflect the new decennial Census, b) adjustments for employer sponsored insurance (age of policy holder, coverage from outside of household), c) adjustment for verification and SCHIP, and d) adjustment for Medicaid undercount. These adjustments are briefly described below, and are addressed in more detail in the appendix of this document (See "Technical Appendix: A Longitudinal Model of Health Insurance: An Update of Employer Sponsored Insurance, Medicaid, and the Uninsured").

Updating the Survey Weights: The March CPS includes a supplement weight which allows the records to sum to the total non-institutionalized population. Each person is assigned a weight based on person characteristics (such as race, etc) such that the records sum to the total population in accordance with the Bureau's projections of Decennial Census population levels.

The first adjustment made to the time series was to allow for a consistent weight basis for the time series. When the March 2002 file was released, the weights were benchmarked to the 2000 Census. Previously, the years from 1990 forward had been benchmarked to the 1990 Census. Census then released sets of 2000 consistent weights for both March 2000 and March 2001. Moving to 2000 weights more accurately reflects the underlying population, but causes some discontinuity in the time series in the first year the new weights are used.   To correct for this, we determined the total change in population due to the shift to 2000 consistent weights and then

spread the increase smoothly back across 10 years. Specifically, we calculated the percentage increase in the population for CY 2000 and 2001 by race and by age and then averaged the percentage increase across the two years for each cell. This increase was then spread across ten years (the full decade) with CY 2000 having the full increase and CY 1991 having a factor of 1.00 (unchanged). These factors were used to increase the person weights, record by record, on the CPS files from March 1995 through March 1999.

Employer Sponsored Insurance (ESI) Adjustments: Due to changes in the CPS over time, as well as Census assumptions in recoding the unadjusted data, there were significant discontinuities in the ESI estimates that needed to be adjusted for, in order to be able present a consistent time series. Our three main issues are: age of ESI policy holder, addressing coverage from outside the household, and addressing duplicate coverage at the person level.

Our first ESI adjustment was to enforce a consistent minimum age for ESI policy holders. Census coding prior to March 1995 did not permit ESI policy holders to be under age 15. The new questions that begin in March 1995 do not have this rule in place, and as a result the ages for some policy holders seem unreasonably low. For consistency, we have instituted a rule that states a person must be at least age 18 (unless married) to be considered an ESI policy holder, otherwise they are changed to be a dependent.   This adjustment was done for all years, and while it does not affect the level of total ESI coverage, it does show a very small shift from policy holders to dependents.

The goal of our second ESI adjustment was to consistently define whether coverage from outside the household was employer sponsored or non-group in nature. After 1995, Census coding rules placed anyone with coverage from outside the household, who was age 15 or older, into private non-group status. We looked at family characteristics, such as the presence alimony, child support, or multiple persons with outside coverage, in order to determine when group coverage was likely and reassigned these cases as ESI. In doing so, the goal was to keep families together under one ESI policy when there were several persons in a family with outside coverage. The effect was to increase the number of persons with employer-sponsored group coverage by about a million persons each year (a less than one percent change).

Our final ESI adjustment, which was only applied to the pre-March 1995 surveys, enabled us to better identify non hierarchical private insurance coverage. The coding rules that Census employed prior to March 1995 did not allow identification of spouses who had coverage both in their own name and as a dependent. By looking at the raw data from March 1995 forward we were able to notice trends in duplicate coverage and impute them back onto the earlier years. While absolute (net) counts of covered persons did not change, the gross counts of those covered did change in order to take into affect the duplicate coverage issue.

Adjusting for Verification: The March 2000 CPS added a question to verify that individuals who indicate they lack coverage are indeed uninsured.[7] The uninsured on the CPS had historically been a "residual" of those who answered they did not have other coverage types.

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[7] From 2004 ASEC Questionnaire: "I have recorded that (name/you) (was/were) not covered by a health plan at any

Research from other surveys suggested that asking individuals directly if they were uninsured would capture more people with coverage, hence the decision to add a question directly verifying no coverage. As it turned out, the verification question, overall, finds about 8% fewer uninsured each year.

Given the addition of the verification question has increased the number of persons reporting insurance coverage, we have adjusted the CPS in years prior to 2000 to mimic the effect of the verification question in those years. That is, each insurance category was adjusted, by age group, to approximately represent what would have been picked up had the verification question been asked in the earlier years. The uninsured have been reduced, within age group, proportional to the effects of verification found on the March 2000 through March 2004 CPS files. They are then given the coverage profile of those found to have coverage only through the verification questions.

Adjusting for SCHIP: In 1998, the State Children's Health Insurance Program (SCHIP) was implemented, and since then has become a growing source of coverage for children. In March 2001, the CPS added a question to measure coverage under SCHIP.[8] As with the verification question, the methodology mimicked the effect of the new SCHIP question as if it has been asked in 1999 and 2000, which was to lower Medicaid counts slightly (under a half million), and

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time during 2003. Is that correct?"
[8] From 2004 ASEC Questionnaire: "In (state) the (fill state CHIP program name) program (also) helps families get health insurance for CHILDREN. (Just to be sure,) Were any of the children in this household covered by that program?" READ IF NECESSARY: "(fill in state CHIP program name) is the name of the (state's) CHIP program. It is the same as Children's Health Insurance Program, which helps pay for children's health care."

trivially affect the uninsured. It should be noted that the SCHIP adjustment referred to here is not an "undercount" adjustment. SCHIP coverage was not imputed to levels found in the program itself, but was imputed to levels consistent with the amount found on the March 2001 and 2002 CPS files in order to mimic the effect of having the question present in the survey from the start of the SCHIP program. That is, given that the March 2001 CPS found approximately 80% of the actual SCHIP enrollment from CY 2000,[9] we impute approximately 80% of SCHIP for CY 1999 and 1998 onto the March 2000 and March 1999 files.

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[9] SCHIP counts on the March 2001 CPS were 69% of program counts (CMS) for FFY00, and 87% of the December 2000 point in time count according to the Kaiser Family Foundation. An average of these was used to compute the target for March 2000 and March 1999, based on FFY99, FFY98, and Dec 1999 and Dec 1998 numbers.

MEDICAID UNDERCOUNT

As mentioned previously, the CPS has historically generated an "ever covered" count of
Medicaid persons well below that reported by CMS administrative data for the civilian non-
institutionalized population. For CY 1995, the CPS showed just over 30 million persons covered
by Medicaid. CMS data, however, suggests that approximately 39 million non-institutionalized
persons were covered under Medicaid some time in that year.[10] By CY 2002, this discrepancy
has doubled, with the CPS finding fewer than 29 million ever covered by Medicaid, while CMS
data (2003 CMS Statistics, and 2004 Program Information on Medicaid and SCHIP, as well as
projections from the CMS Office of the Actuary) suggests an ever enrolled in Medicaid count on
the order of 46 million in the non institutionalized population.[11] The historical data suggests the
discrepancy is growing.[12] This may be due to the growth in Medicaid among non cash and part
year persons, both of which are groups that the CPS has historically had difficulty identifying.

Looking at subpopulations, for CY 2001 CMS found between 22.7 and 23.9 million children
with Medicaid at some point during the year,[13] plus some disabled children included in the 8.0
million "disabled" category. For comparison, MEPS found 20.8 million children, the SIPP
found 20.7 million children, and the March 2002 CPS found 14.3 million children.

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[10] The derivation of the Medicaid control totals and its use in adjusting the file is described in detail in the Technical
Appendix to this document.
[11] While MSIS data has approximately 47 million ever covered in FY 01, data from CMS (2003 CMS Statistics,
found at http://www.cms.hhs.gov/researchers/pubs/03cmsstats.pdf, Table 11) comes in with 44.3 million eligibles
(persons receiving benefits + non users) in FY 01, 51.0 million in FY 02, and 53.0 million in FY 03. data
compendium comes in slightly lower with 46 million ever enrolled in FY 01, and projections of 49 and 51 million
for FY 02 and FY 03, respectively. In addition, it has point in time totals at 39.9 million for FY 02 and 41.4 million
for FY 03.
[12] See "Table 14: Uninsured Impact in Millions of Persons," section 3.3 of the Technical Appendix.
[13] See footnote #10 for different estimates of Medicaid enrollment from CMS.

The challenge for our analysis was to determine a reasonable methodology to adjust the CPS to match CMS data for Medicaid enrollees. While on the surface it may seem reasonable to assign Medicaid to those who report being uninsured on the CPS, such a decision rule would be overly simplistic given that people can report more than one coverage type on the CPS. That is, just as individuals can have more that one coverage type over the course of a year, either sequentially or simultaneously, the CPS gives respondents an opportunity to report more than one type of coverage.

This question of how to assign Medicaid to enough individuals to match CMS totals has important implications for the number of uninsured to be found on an adjusted CPS. If most of the individuals to whom Medicaid is assigned have reported other coverage, then the new estimate of the uninsured that results will be similar to the current estimate. But if most of the individuals to whom Medicaid is assigned have reported being uninsured, then the resulting adjusted uninsured estimate will be significantly lower.

In the end, we chose to not to directly consider respondents' reported coverage status as a factor in determining whether to assign Medicaid coverage. Rather, the method that we use to control to CMS enrollment totals is to assign Medicaid coverage to those who fit the CPS demographic and income profile of persons who already report Medicaid on the CPS. This "looking at the CPS Medicaid persons" is done on a cell by cell basis, where the cells are based on age (<21, 21-64, 65+), type of Medicaid, and duration of Medicaid (full vs. part year), and is described in

detail in the appendix to this paper.

Our methodology results in a middle ground with respect to whether individuals assigned coverage come from the uninsured or not, with half of the newly covered Medicaid enrollees coming from the previously uninsured and half from those with other coverage. That is, assigning Medicaid coverage to persons who look demographically like the CPS persons with Medicaid results in taking about half of the shortfall from other insured groups (but did not remove the insurance they did respond to having).

For CY 2003, correcting for a Medicaid undercount of 17.1 million (10.4 million children, 5.5 million adults, and 1.2 million aged) lowers the full-year uninsured estimate by just over 9 million persons. For CY 2003, with this adjustment, the almost 36 million uninsured (as compared to an unadjusted 45.0 million) is more consistent with the full-year uninsured count reported by MEPS of 31.7 million, though still higher than other surveys' full year uninsured estimates.[14]

How much of the Medicaid undercount is comprised of otherwise insured persons cannot be known with precision. As discussed in CBO's May 2003 report,[15] some of the undercount is certainly mislabeling of other coverage, such as non employer private insurance. Moreover, research done on the point-in-time Medicaid population in Minnesota found that persons known

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[14] See Table 2 – unpublished AHRQ tabulations of MEPS.
[15] "How Many People Lack Health Insurance and For How Long?," Congressional Budget Office, May 2003 (http://www.cbo.gov/showdoc.cfm?index=4210&sequence=0)

to have Medicaid who responded inaccurately to a survey were unlikely to erroneously report themselves to be uninsured. Instead, the Minnesota survey's undercounted Medicaid population was primarily drawn from other insured categories.[16]

Applying this experience to the CPS, however, is obviously difficult. The CPS appears to overstate the uninsured substantially compared to other surveys. The Minnesota survey was only conducted on persons known to have Medicaid. It is unknown how well that survey's methods would have worked if they were applied to the full population or how their survey's participants would have responded if faced with the full CPS questionnaire (not just the insurance questions). Also, the survey was a conducted in a state with a low uninsured rate and with substantial non-Medicaid public coverage when compared to national levels. The CBO report concludes that "It is not known how those findings may be generalized to other states or other surveys."

A RAND working paper[17] published in June of this past year takes a look at the Medicaid undercount in the context of California specific data. Using multiple years of data from the CPS and from Medi-Cal, the California Medicaid program, the authors were able to look at the insurance profile of those persons who were in both data sets, and assess the impact of adjusting for the undercount on the uninsured. For the March 2000 survey, the authors found there to be 9.7% under reporting of Medicaid for children in California, and adjusting for this had the uninsured rate drop from 17.8% to 11.5%. By comparison, we found underreporting of 9.2%,

[16] "Uncovering the Missing Medicaid Cases and Assessing their Bias for Estimates of the Uninsured," Kathleen Call, et al., Inquiry 38: 396-408 (Winter 2001/02)
[17] "Under-Reporting of Medicaid and Welfare in the Current Population Survey," Jacob Alex Klerman, Jeanne S.

and our adjustment produced a drop in the uninsured rate from 16.9% to 11.0%. Thus these two methods seem to arrive at a similar point of adjustment for Medicaid undercount, when looking at California specific data.

While some studies have addressed the issue of misclassified insurance status, these draw on the fact that they are checking insurance for a specific point in time. Given the CPS asks about "insurance in the last year," it makes sense that the recall errors in CPS would be different than those being asked about "insurance now." It is possible that persons who had insurance at some point during the prior year (and perhaps for only part of the year) and no longer have it at time of survey would not indicate that they had that insurance, thinking instead of their current status. Our adjustments are based on trying to get back to the "ever insured in prior year" concept, as asked by the Current Population Survey.

IMPLICATIONS OF THE ADJUSTED CPS ESTIMATES

The estimates from the March 2004 CPS can tell two stories: one of level and one of trend. Starting with the unadjusted CPS data, the level of uninsured was 45.0 million with a relatively flat trend since 1994, with the exception of a change due to the introduction of the verification questions. With the adjustment for verification, the trend becomes almost entirely flat. Broadening to other categories such as employer sponsored insurance, publicly sponsored insurance, the uninsured, the trends among these subgroups show very little change over the decade. The one noticeable exception is a reduction in the rate of uninsurance in children over the last few years, almost certainly attributable to the passage and implementation of the SCHIP program.
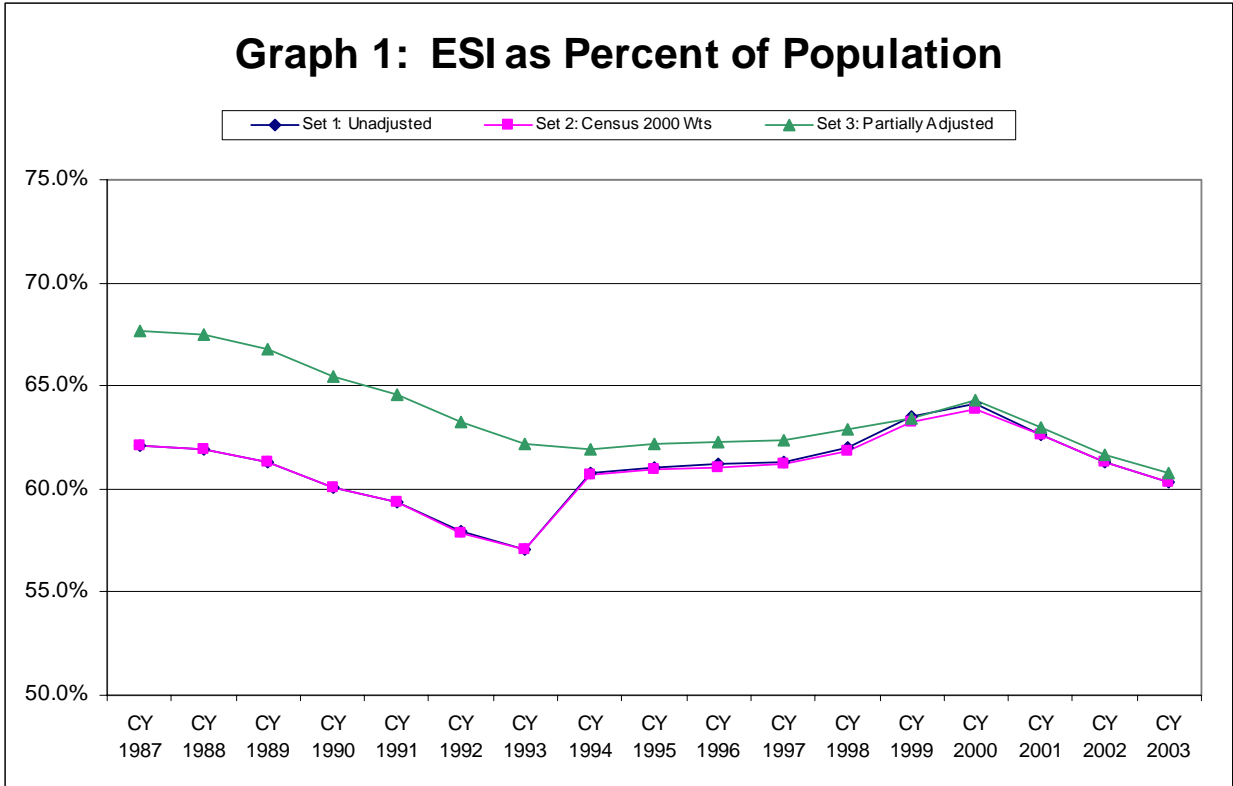
With respect to the measurement of the level of uninsured in the country, however, the adjustments dramatically alter the findings. Overall, the estimate of the proportion of the population without health insurance in CY 2003 drops from 15.6 to 12.5 percent when the CPS sample is fully adjusted as described above. The most significant contributor to this change in level is the adjustment for the Medicaid undercount, which corrects for a discrepancy of just over 17 million individuals between the unadjusted CPS estimates and Medicaid program enrollment data. Just over 9 million (just over 50%) of these "new" Medicaid eligible individuals come from the ranks of the uninsured as previously estimated.

Over the decade, the adjustments maintain the very small net increase in the uninsured from CY 1994 to CY 2003 (less than one half of one percent). For both the unadjusted and adjusted data,

there is some slight movement upwards and downwards over the time period, but on the whole the trend is fairly flat. When the full period from 1989 through 2003 is examined, the trend shown in the adjusted data and the unadjusted data are quite similar. However, the level of uninsurance suggested by the adjusted data is substantially lower.

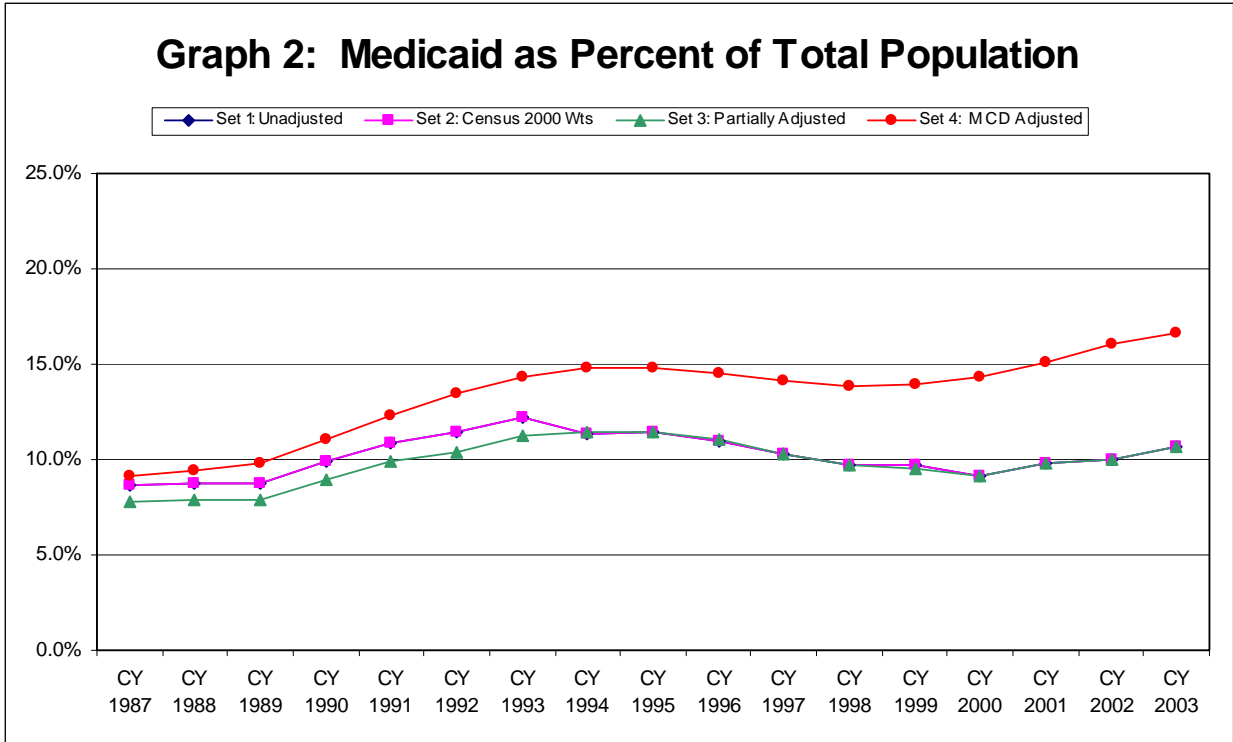The graphs below show the effects of our adjustments on the time period 1989 through 2003. Graph 1 looks at ESI as a percent of the total population. For this population we do not show the Medicaid adjusted percents, as they do not affect the population with employer sponsored insurance. The unadjusted values, set 1, show the major discontinuity from 1993 to 1994, reflecting the substantial improvement in insurance measurement in general, but ESI in particular. The unadjusted ESI percentage for 1994 is about 4 percentage points higher than for 1993, which appears to be entirely attributable to improved survey methods. Adjusting for updated weights (set 2) makes small changes, but the additional adjustments (set 3) which embed the estimated impact of the post-1994 survey make the ESI curve fairly smooth.

Graph 1: ESI as Percent of Population

Legend: Set 1: Unadjusted — Set 2: Census 2000 Wts — Set 3: Partially Adjusted

The ESI change is important in its own right, to the extent policy initiatives are predicated on observed trends in ESI coverage. In Graph 1, we can see an initial slight decline in net ESI coverage rates from CY 1989 to CY 1994 (looking at our adjusted series), but the level has been mostly stable since 1994 except for a slight increase to CY 2000 and then a decline in the last three years. The changes in the survey which contributed to this adjustment are important even if only the uninsured are being analyzed, since they had substantial impacts on coverage in general, and alter the baseline for comparison purposes. Moreover, there is some evidence that ESI may be undercounted on the CPS relative to other national surveys, therefore establishing a consistent baseline will prove important for any follow-up research on an ESI undercount.

Graph 2 looks at Medicaid as a percent of population. As noted earlier, the improvements

introduced in the March 1995 CPS questionnaire reduce the number of respondents with

Medicaid coverage when compared to earlier survey years. While the adjustment for new

weights (set 2) minimally change the unadjusted data (set 1), it is the adjustment for this survey

change (set 3), reducing Medicaid coverage prior to CY 1994, that is most noticeable. This

occurs when other types of (government) coverage are picked up by the survey – types that had

been previously allocated to Medicaid.   There is no change to the uninsured due to this change

in the survey, only a change in the allocation of coverage.

Adjusting for the Medicaid undercount (set 4) raises the number of persons covered under

Medicaid and shows the growing gap from the (rising) CPS estimates and (more quickly rising)

program estimates.

Graph 2: Medicaid as Percent of Total Population

Legend: Set 1: Unadjusted — Set 2: Census 2000 Wts — Set 3: Partially Adjusted — Set 4: MCD Adjusted
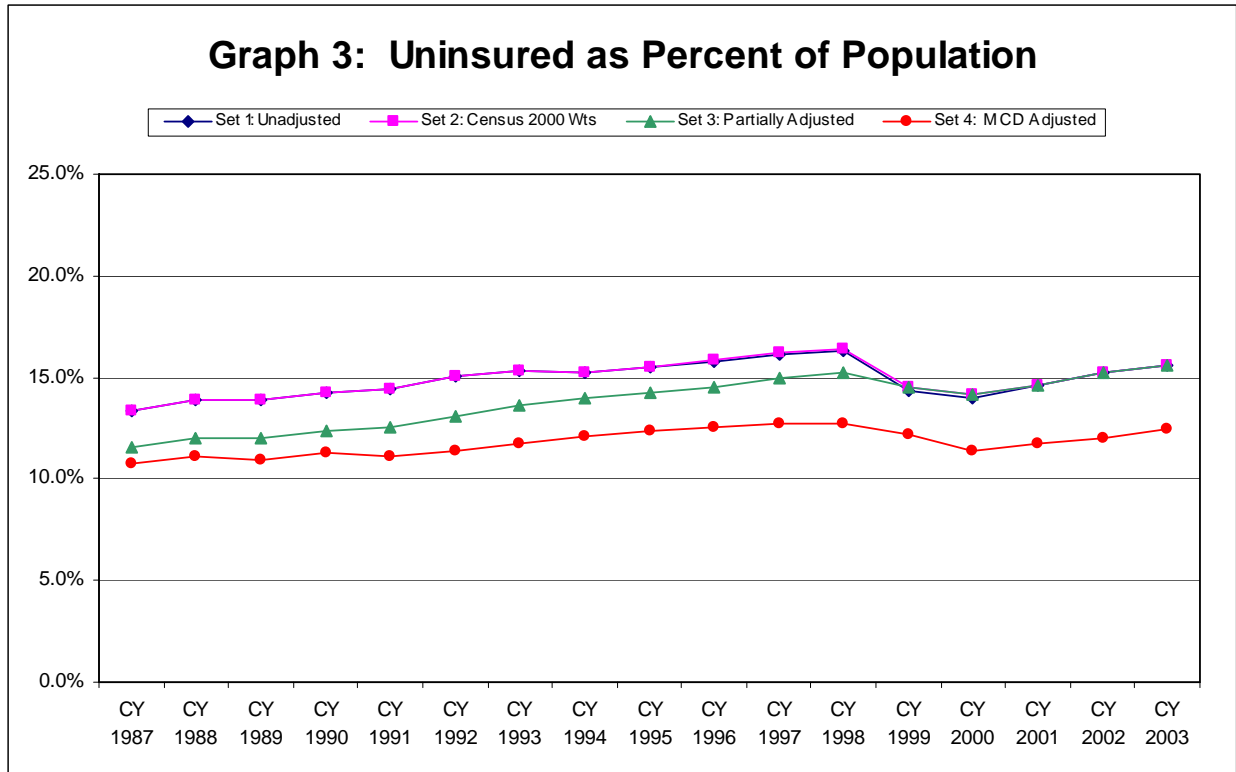
Adjusting for the Medicaid undercount (set 4) raises the number of persons covered under Medicaid and shows the growing gap from the (rising) CPS estimates and (more quickly rising) program estimates.

The final graph, Graph 3, shows that uninsured trend remains mostly flat over the time period, peaking in CY 1998 with a slight decrease afterward but increasing since CY 2000. The pre-1994 levels reflect backcasting the effects of the improved insurance questions. The unadjusted series (set 1) shows a gradual increase, up to 1999 when a major drop appears. Adjusting for new weights only (set 2) makes minimal changes to the pre-1999 story. Adjusting for the major questionnaire improvements in 1999 and later makes the discontinuity much smaller (set 3), but

still has the same general trends. The biggest impact is seen in moving to the fully adjusted (set

4) line, where the Medicaid undercount adjustment is reflected.

Graph 3: Uninsured as Percent of Population

| Set 1: Unadjusted | Set 2: Census 2000 Wts | Set 3: Partially Adjusted | Set 4: MCD Adjusted |

While the technical adjustments to the CPS estimates of the uninsured do not fundamentally

change the picture of a relatively stable trend (i.e., they do not make the problem of the

uninsured disappear or significantly alter the demographic make-up of the uninsured population)

the deeper understanding they give us of the underlying insurance dynamics of the insured and

uninsured populations is useful for policy makers.

For example, the adjustments suggest that the number of full year uninsured children is significantly lower than typically reported: just about 6% (4.4 million) of persons under 18 were uninsured for all of 2003, vs. 12% (9.0 million) before the adjustments.

The adjustments also raise the percentage of the uninsured who are above 300% of poverty, suggesting fewer persons eligible but not enrolled in government programs such as Medicaid. This could have implications for the types of policy remedies that one would propose.

Table 1a, below, shows adjusted values corresponding to those previously shown in Table 1.

Characteristic	Total US Population (Millions)	Percentage of the Total US Population	Number of Uninsured (Millions)	Percentage of the Group Uninsured	Percentage of the Total Uninsured
Table 1a. The Uninsured in 2003 According to the Fully Adjusted CPS					
Total Population					
	288.3	100%	35.9	12%	100%
Poverty					
Below 100%	36.4	13%	7.0	19%	19%
100- 200%	53.5	19%	10.0	19%	28%
200- 300%	49.5	17%	7.4	15%	21%
300- 400%	40.0	14%	4.4	11%	12%
400- 500%	31.5	11%	2.3	7%	7%
500% and Over	77.4	27%	4.7	6%	13%
Age					
Below 18	73.6	26%	4.0	5%	11%
18- 24	27.8	10%	6.9	25%	19%
25- 34	39.2	14%	9.1	23%	25%
35- 44	43.6	15%	6.9	16%	19%
45- 54	41.1	14%	5.3	13%	15%
55- 64	28.4	10%	3.4	12%	10%
65 and Over	34.7	12%	0.2	1%	0%
Parental Status					
Parents	65.5	23%	8.7	13%	26%
Childless Adults	114.7	40%	23.1	20%	68%

Table 1a. The Uninsured in 2003 According to the Fully Adjusted CPS					
Characteristic	**Total US Population (Millions)**	**Percentage of the Total US Population**	**Number of Uninsured (Millions)**	**Percentage of the Group Uninsured**	**Percentage of the Total Uninsured**
Children	73.4	25%	3.9	5%	12%
Race/ Ethnicity					
White	194.9	68%	17.9	9%	50%
African-American	35.7	12%	4.6	13%	13%
Hispanic	40.4	14%	10.7	26%	30%
Other/ Mixed	17.3	6%	2.7	16%	7%
Immigration Status					
Citizen	267.2	93%	27.3	10%	76%
Non-Citizen	21.1	7%	8.6	41%	24%
Work-Status					
Full Time	156.5	54%	17.2	11%	48%
Part Time or Part Year	55.3	19%	10.5	19%	29%
Not Working	76.5	27%	8.3	11%	23%
Firm Size					
Under 10	32.1	11%	8.6	27%	24%
10 to 24	15.3	5%	3.6	23%	10%
25- 99	19.5	7%	3.3	17%	9%
100- 499	19.8	7%	2.4	12%	7%
500- 999	8.0	3%	0.9	11%	3%
1,000 and Over	57.3	20%	5.5	10%	15%
Children or Not Working	136.3	47%	11.6	8%	32%
Source: ARC Adjusted 2004 CPS					

It should be noted that the count of full year uninsured under the adjusted CPS, approximately 36 million, is more in line with the number of individuals who lack health insurance for a full year under the MEPS and the NHIS surveys. This is shown in Graph 4, below.

Graph 4: Comparison of the Uninsured
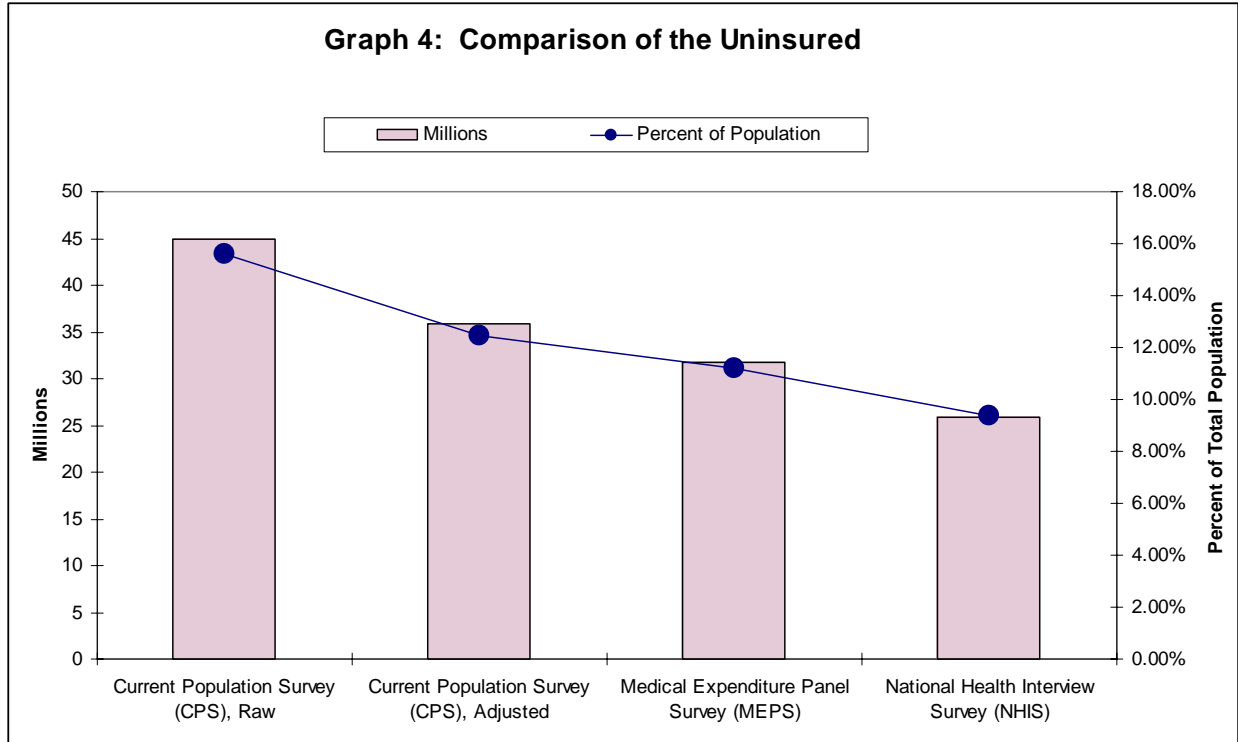
These surveys use more detailed questionnaires than the CPS and obtain more detailed data on health status and usage of health care. As mentioned above, the higher CPS numbers has traditionally led analysts to believe the CPS represented more of a point in time estimate of those without insurance than a count of individuals without insurance for a full year. However, the adjusted time series calls this view into question as the adjusted estimates approach other survey's estimates.

To study this question further would require making similar adjustments to the NHIS and the MEPS, so the difference in estimates could be determined on a fully comparable basis. Given that the NHIS and the MEPS are more detailed health surveys, with different sampling frames and methodologies from the CPS, we believe that any adjustment for a possible Medicaid

undercount in these surveys would be smaller than the adjustment we have made to the CPS.

Published estimates of persons with Medicaid coverage from these surveys support this view.

We plan to pursue this research issue as time and other priorities allow.

Other Research Directions: We anticipate additional research in the area of the Medicaid

undercount and look forward to incorporating the latest, most accurate findings into our model.

Moreover, future work may be warranted in regards to undercounts of other insurance types on

the CPS, particularly ESI given that two-thirds of Americans receives health coverage from their

employer. But beyond the question of undercounts of insurance, as we learn more about the

important policy differences between the short term and the long term uninsured, we are

interested in more detailed analysis of episodes and their economic and health impacts as well as

their implications for using health services.

CONCLUSIONS

We have presented a series of refinements to the CPS to create a consistent time series of data on insured lives from 1989 to 2003. The major differences between the unadjusted and adjusted data during this time period are in the distributions by age (children's uninsured rates are substantially lower) and by income (the proportion of the uninsured who are higher income is substantially higher). The verification adjustments find more coverage among high income persons, including those with employer sponsored insurance. Adjusting for the Medicaid undercount reduces the uninsured rate among lower income persons as well as reducing the percent of the uninsured that are at very low income levels. It also shows the number of full year uninsured to be substantially smaller than that reported by the unadjusted CPS. Trend lines, however, between the adjusted and unadjusted CPS show relatively little change over the period (with the exception of children).

Nevertheless, our methodology can be used to adjust the baseline against which future changes can be measured, and future measurements might then be on a more consistent basis. If trend begins to change dramatically, whether due to future changes in the economy, government policies, or medical technologies, we believe we have a potential tool for more accurately capturing and measuring these changes.