Technical Appendix
March 2024 CPS Auxiliary Data

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Overview of the 2024 CPS Auxiliary Data

The Current Population Survey Annual Social and Economic Supplement (CPS ASEC)—also called the March CPS or ASEC—is the data source most often used for estimating health insurance coverage in the United States. The survey asks respondents about their health insurance coverage during the previous calendar year, as well as at the time of survey in March, and those who answer "no" to every question about each major type of insurance coverage are considered uninsured. Because the insurance questions are not mutually exclusive, the March CPS captures multiple sources of health insurance both during the prior year and at the time of the survey. The survey generates nationally representative estimates of health insurance coverage and includes limited information on health expenditures and the cost of health insurance. However, several important characteristics of health insurance that are particularly relevant to employer-sponsored coverage are not contained in the March CPS.

To address these limitations, the Employee Benefits Security Administration (EBSA) at the U.S. Department of Labor (DOL) annually produces an Auxiliary Data file, which contains recoded and imputed employment and health insurance variables, and a bulletin with summary tables based on the enhanced data. This technical appendix describes the current imputations and edits performed in order to provide detailed estimates of ESI for CY 2023.

While EBSA annually produces this Auxiliary data file, sometimes there are revisions to the CPS instrument that cause a break in the time series. Every 10 years for example, the Census Bureau surveys the U.S. population, and the CPS weights are subsequently updated. The March 2022 CPS was the first to use the updated 2020 Census weights. Thus, the March 2024 CPS allows for a consistent three-year time series by looking back to the March 2023 and 2022 surveys.

The March 2024 Auxiliary Data imputations mostly follow the methodology used in prior years, with updated data sources to reflect the newest available information. The imputations performed can be broken down into two main categories: access to coverage and coverage characteristics. The access to coverage category captures whether an employer provides coverage and details about those that do, including employer size (number of employees) and sector (private, Federal, or state/local). Coverage characteristics include funding type, plan type, and estimates of retiree and COBRA coverage. Starting with the CY 2010 Auxiliary Data, we imputed a variable for actuarial value—the average proportion of covered charges paid as benefits by insurance—for active employees with health insurance in their own name.

In general, we imputed insurance as well as characteristics of the employers providing coverage for employees and other persons with employer-sponsored insurance coverage in their own name. For those with coverage through their current employer, no imputation was necessary but for those with coverage from a former employer, the current employer characteristics may not match the employer providing coverage. ESI dependents were assigned the characteristics of the primary policyholder when that person could be found. A link for one policyholder, as provided on the CPS data, was maintained for each dependent on the March CPS file, including ESI policyholders who were also dependents. Previous Auxiliary Data files allowed for two policyholder links, but that information is no longer available in the underlying March CPS data. For those with ESI coverage as both a policy holder and dependent, a second set of variables for both size and sector providing coverage is still included for those with ESI as both a policyholder and a dependent where the policyholder link is maintained on the CPS file. In addition, we included Federal and state-based marketplace coverage as reported on the unedited CPS dataset, but we have edited whether the coverage was subsidized.

Our starting data set was the March 2024 CPS. Below is a list of enhancements made and variables added to the Auxiliary Data file. A description of each of the variables named below can be found in the memo

"Layout of the March 2024 CPS Auxiliary Data (ASCII)" provided as part of the Auxiliary Data package on the DOL website.[1]

- Source of coverage and employer offers of coverage (PRIOR, EEPRIOR, OFFER): Although the March CPS asks if insurance coverage is provided by an employer, it does not distinguish whether the coverage is from a current or former employer. This distinction is imputed using the three most recent years (2020–2022) of data from the Medical Expenditure Panel Survey Household Component (MEPS-HC) and the MEPS-HC Person Round Plan (PRPL) file. We assigned employer offers of coverage using information from the CPS point-in-time variable on employer offers of insurance, as released on the ASEC, or used the expanded universe ASEC variables, or, finally, imputed using MEPS-HC data.[2]

- Sector and size providing coverage (NEWSECTOR, NEWSECTOR2, NEWSIZE, NEWSIZE2): We imputed employer sector and size for persons with coverage from a former employer using the three most recent years of data (2021–2023) from the Medical Expenditure Panel Survey Insurance Component (MEPS-IC), as provided by the Agency for Healthcare Research and Quality (AHRQ). Size of employer for state and federal workers has been edited for logical consistency as well and is included on the file as EMPSIZE.

- Funding status, plan type, and COBRA/retiree partition (SIFLAG, LEVEL, NEWSIZE_200, HMOFLAG, RETFLAG, FUNDING2, NEWSIZE2_200): We used data from the 2021–2023 MEPS-IC to impute funding status. For type of coverage for those with ESI and to partition coverage from a former employer into retiree and COBRA, we used the MEPS-IC, along with partitions and trends from the KFF Employer Health Benefits Survey (EHBS) through 2023. This year we have also included an imputation for level-funded plans for smaller employers, based on data from the EHBS.

- Federal estimates: We used U.S. Office of Personnel Management (OPM) data by type of plan on employees (postal and non-postal), dependents, and annuitants covered under the Federal Employees Health Benefits (FEHB) Program to provide estimates at the Federal level.

- Medicare secondary payer (MSPFLAG): Data from the CPS based on age and size of employer providing coverage (for actives) was used to denote if Medicare was primary or secondary for those persons with Medicare and ESI.

- Actuarial values (AV, AVCELLAVG, AVPLANTYP): We used health plan details from the 2022-2023 EHBS, historical data from prior EHBS reports, data on plan benefits and out-of-pocket costs from the Health Care Cost Institute (HCCI), and KFF research to calculate actuarial values. We then imputed the values onto active policyholder records.

- Health spending (OOPEXP): CPS introduced variables on out-of-pocket (OOP) spending and person-paid health insurance premiums with the March 2011 CPS. After examining these variables and comparing them to other sources, EBSA decided to include the OOP variable, beginning with the March 2012 Auxiliary Data and Health Insurance Coverage Bulletin. Although the Census Bureau revised the premium variable to be consistent with health insurance in the 2019 ASEC, it continues to be potentially problematic when compared to other sources, and so once again is not included in the Auxiliary Data.

- Union sponsorship (UNION, EEUNION, UNIONWORK): We used data from the March CPS to identify current workers who obtain coverage through a union plan. We used data directly from the March CPS for the portion of the sample who were asked this question, and then using this, imputed data for the remaining workers. For private sector retirees and COBRA recipients, union probability cells calculated from the Survey of Income and Program Participation (SIPP) 2008 Panel Wave 6 (2010) were

[1] https://www.dol.gov/agencies/ebsa/researchers/data/auxiliary-data

[2] The Census Bureau released two sets of the "offers" variables.

enhanced and updated with trend data from 2010 – 2022 Group Health Plans Bulletins (GHPB), comprised of Form 5500 data on certain employer-sponsored welfare benefits plans, which looked at the prevalence of retiree vs active collectively bargained coverage for private sector employers size 100 or greater. This relationship was used to adjust the conditional probabilities from the SIPP data, to impute all other cases of union sponsorship to persons with coverage from a former employer in the private sector (for all sizes). Public sector trends of active coverage were essentially flat over the time period, and so these conditional probabilities were not adjusted.

Coverage through an ACA Marketplace plan (EXCHANGE, SUBSIDY): The ASEC file contains information about whether people obtained other private insurance through the Federal or state marketplaces and whether that coverage was subsidized. The CPS estimate of Marketplace coverage differs from that reported by the Centers for Medicare and Medicaid Services (CMS). We did not edit the CPS exchange coverage variable, and so we have not adjusted for the CPS undercount. We did, however, edit the subsidy responses in the CPS to indicate that coverage was subsidized for those under 400% of the federal poverty level.

Caution should be used when interpreting imputed variables for small sample sizes. Users should refrain from reporting statistics at the state level for imputed variables, such as funding, union coverage, plan types, and coverage from a former employer.

Imputation Steps

The 13 steps we used to impute data are described in detail below.

Step 1: Imputing coverage from a current versus former employer

The March CPS captures whether insurance coverage is provided by an employer but not whether the coverage is from the policyholder's current or former employer. To impute the employer status, MEPS-HC 2020–2022 data were averaged to calculate probabilities of coverage through a former versus a current employer. The results were enhanced with data from the 2023 MEPS-IC, which provides policyholder counts from non-Federal employers for those with active, retiree, and COBRA coverage. Although we used the 2023 MEPS-IC data for private employers, we used a three-year average (2020–2022) for state and local employers, because single-year estimates were often delayed and those that were available had large standard errors and a high level of variability. We used data from the FEHB Program to provide estimates at the Federal level.

We initially checked all March CPS records to determine whether we could accurately identify source of employer coverage (current versus former). If a person did not work at all during a year but had ESI in their own name, we assigned them coverage by a former employer.[3] For all others, we needed to impute the source of the coverage. We used the 2020–2022 MEPS-HC to calculate probabilities of having coverage through a former employer by age, work status, and presence of retiree income. Then we adjusted these relative probabilities to reproduce the target likelihood of coverage from a former employer, based on the MEPS-IC and the MEPS-HC.

As in the previous surveys, the 2024 CPS contains a large number of non-workers with ESI in their own name, which must be categorized as "former employer coverage." For policyholders under 40, we categorize this coverage as COBRA. We allowed the prior target to deviate from the MEPS-IC indicated COBRA and retiree targets and used the average of the 2022 MEPS-HC and 2023 MEPS-IC as a target for total prior percent. This methodology differs from that used prior to March 2019, when the number of CPS non-workers did not present an inconsistency with the COBRA counts indicated in the MEPS-IC. It should be noted that the current COBRA percent on the Tool is not inconsistent with that found on the MEPS-HC PRPL file.

Valid codes for status were set as:

0 = No ESI
1 = Coverage through a former employer
2 = Coverage through a current employer

For CY 2023, this process resulted in 82.8 million ESI policyholders with coverage through their current employer and 13.1 million with coverage through a former employer.

Exhibit 1 shows the results of the source of coverage imputation for persons with ESI in their own name.

[3] Workers are classified by the CPS variable WEXP whose universe includes those age 15+. https://www2.census.gov/programs-surveys/cps/techdocs/cpsmar24.pdf. Alternatively, auxiliary data users can identify workers using the variable "OFFER", where workers have values greater than zero.

Exhibit 1: Persons with ESI in Own Name, by Employment Status
(in millions)

Employment Status	ESI Policyholders
Worked in past year	86.0
Coverage from current employer	82.8
Coverage from former employer	3.2
Did not work in past year	9.9
Total	**95.9**

Note: Components may not sum to total due to rounding.

Step 2: Imputing whether current employer offers ESI

Although the March CPS captures whether individuals are covered by ESI, the public data does not reveal whether the respondent's employer offers insurance.[4] Imputing coverage through a current versus former employer (described in the previous step) creates a subset of persons who, by definition, have an employer that offered coverage.[5]

For the subset of workers (ESI dependents only) who appear to have the same job as they had the previous year and are not insured through their employer either currently or in the prior year, we used the March 2024 point-in-time offer status to inform the assignment of offer/eligibility (PEOFFER, PECOULD, etc.).

We then used the expanded universe point-in-time offer status to assign status using similar logic (ESIOFFER, ESICOULD, etc.).

- If the person's employer did not offer a health insurance plan to any of its employees, then status was set to "not offered."
- If the person's employer offered a health insurance plan to any of its employees and the person was deemed to be eligible, then status was set to "employer offered, eligible, not enrolled."
- If the person's employer offered a health insurance plan to any of its employees and the person was ineligible, then status was set to "employer offered, not eligible, not enrolled."

Several variables indicated whether a person was eligible to purchase an employer's health plan if one was offered as well as reasons for ineligibility or non-enrollment. We combined the response to eligibility with the reasons for declining coverage or ineligibility when assigning values to our recoded OFFER variable.

Respondents were allowed to choose more than one reason for declining coverage or for ineligibility. ARC chose to recode those who responded with either "contract or temporary employees not allowed in plan" or "haven't yet worked for this employer long enough to be covered" as "ineligible." If a respondent only gave "too expensive" as the reason for ineligibility, ARC recoded the record to "eligible, not enrolled."

The response "have a pre-existing condition" is listed under both the reason for ineligibility and reason for not enrolling variables. If this was the only response in both cases, ARC did not make any recodes and the raw eligibility response was used to assign eligibility.

For all other workers, we needed to impute whether the employer offered health insurance, and if so, whether the worker was eligible.[6]

Using data from the 2020–2022 MEPS-HC, we calculated three-year averages of offers and eligibility, then projected them to 2023 based on changes observed in published tabulations from the MEPS-IC. This allowed us to adjust for changes in employer offers. Once we projected offer and eligibility rates to 2023, we calculated the probability of working for an offering employer and being eligible for coverage based on sector (private, Federal, and state/local), firm size (less than 25, 25–99, 100–499, and 500 or more), and hours worked (less than 30 versus 30 or more per week).[7]

Valid codes for offer status at the person level were set to:

1 = Enrolled, coverage through current employer

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[4] The CPS captures point-in-time offers of coverage for March 2024, but the Auxiliary Data is based on the calendar year 2023 employment and insurance variables. The ASEC dataset has two sets of variables (one where the universe is limited to ESI dependents who work and are not self-employed and another with an expanded universe).

[5] These were workers covered by their current employers.

[6] An employer is considered to offer coverage if it offers coverage to any employee, even if not all employees are eligible for the coverage.

[7] For imputation purposes only, hours worked was split at 30 per week to be consistent with the Affordable Care Act.

2 = Employer offered, eligible, not enrolled
3 = Employer offered, not eligible, not enrolled
4 = Not offered

Federal and state employees whose offer status was set as “not offered” were changed to “offered, not eligible.” These workers may have responded incorrectly because they misinterpreted the “not offered” category. For example, part-time workers who were ineligible for coverage may have responded “not offered” when, in fact, the employer offered coverage to eligible workers, and so should have been coded as “employer offered, not eligible, not enrolled.”

Exhibit 2 shows the results of the coverage imputation for all workers.

Exhibit 2: ESI Coverage of Workers, by Offer Status
(in millions)

Offer Status	Workers
Employer offers coverage	136.7
Employee has coverage from employer	82.8
Employee eligible, not enrolled	35.5
Employee not eligible, not enrolled	18.4
Employer does not offer coverage	36.5
Total	**173.2**

Step 3: Imputing the sector that provides coverage

The March 2024 CPS contains information on employment in the prior year (CY 2023), upon which our insurance estimates are based. It does not, however, provide any information on prior employment, and so we needed to impute both sector and size of employers that provided coverage for those who have health insurance from a former employer.

For individuals who reported receiving pension or survivor's payments, we used the sector of the employer that provided the payments as the sector most likely to provide health insurance coverage as part of a retirement package. For policyholders without such payments, we imputed the sector providing coverage based on geography (state) and age of policyholder (under 55, 55–64, and 65 and older). We used data from the 2020–2022 MEPS-HC, the 2023 MEPS-IC survey, and the 2023 FEHB Program to determine target probabilities.

For dependents, we used the sector of the policyholder to determine the likely source of coverage. For dependents without a link to a policyholder record, we used their demographic characteristics (age and presence of survivor's income) to determine the sector providing coverage.

Exhibit 3 shows the results of the sector imputation for all persons with ESI. Persons with ESI both in their own name and as a dependent are reported only in the "ESI in Own Name" column. Those categorized as private, self-employed incorporated, and self-employed unincorporated are collapsed to the category "private sector." Those with Federal, state, or local are considered "public sector." While not used in the exhibit below, the sector of the employer providing dependent coverage, for those with ESI as both policyholder and dependent, is provided on the Auxiliary data file when a valid policyholder link is maintained on the CPS (variable NEWSECTOR2).

Exhibit 3: ESI Coverage, by Hierarchical Status and Sector
(in millions)

Sector	ESI in Own Name	ESI as Dependent
Private sector	72.2	62.5
Current employer	67.8	59.8
Former employer	4.5	2.7
Public sector	23.7	19.8
Current employer	15.1	15.7
Former employer	8.6	4.2
Total	**95.9**	**82.3**

Note: Components may not sum to total due to rounding.

Step 4: Imputing the size of employer that provides coverage

The March CPS contains an interval variable on employer size for the job held longest during the prior year. This variable refers to the size of the firm (including employees at all locations) rather than that of the establishment (employees at a single workplace), though tabulations suggest that not all respondents answer appropriately. Although it is impossible to determine whether workers in the private sector include all employer locations when reporting their employer size, we assumed that persons working for either a state or the Federal government should fall into the largest employer size category. We edited the responses accordingly. Edited employer size is reported on the Auxiliary data file for all workers (EMPSIZE).

As noted previously, because the CPS provides information on current but not former employment status, we needed to impute the size of employers that provided coverage for those who have health insurance from a former employer. This imputation was performed similarly to the sector imputation.

We imputed employer size for covered persons, including both policyholders and dependents, based on the prior sector imputation. Similar to the edit done for workers, we assigned all covered persons in either the state or Federal government sector to the largest CPS employer size category (1,000 or more). Then, all other covered persons were assigned an employer size based on state, age (under 55, 55–64, or 65 and older), and sector.

As with the sector imputation, we used MEPS-IC as the primary data source. We assigned dependents linked to a policyholder the same status as the policyholder. If we did not find a policyholder, we used characteristics of the dependent. Dimensions were essentially the same as those used for the policyholder imputation, except that the age category for dependents included younger groupings.

Exhibit 4 shows the results of the employer size imputations. Persons with ESI both in their own name and as a dependent are reported only in the “ESI in Own Name” column. While not used in the exhibit below, the size of the employer providing dependent coverage, for those with ESI as both policyholder and dependent, is provided on the Auxiliary data file when a valid policyholder link is maintained on the CPS (variable NEWSIZE2).

Exhibit 4: ESI Coverage, by Hierarchical Status and Employer Size
(in millions)

Employer Size (NEWSIZE)	ESI in Own Name	ESI as Dependent
Less than 100	20.6	16.2
Current employer	20.2	16.1
Former employer	0.4	0.2
At least 100	75.3	66.1
Current employer	62.6	59.4
Former employer	12.7	6.7
Total	**95.9**	**82.3**

Note: Components may not sum to total due to rounding.

Step 5: Imputing whether coverage was fully insured or self-insured

The March CPS does not include details about a person's health plan, including information indicating funding status. Therefore, we do not know whether an ESI plan is fully insured, meaning the employer contracts with another organization to assume financial responsibility for the enrollees' medical claims and administrative costs, or self-insured, meaning the employer assumes some or all of these costs directly. All information on plan funding for persons with ESI has been imputed for the Bulletin as part of the Auxiliary Data.

We obtained data on funding status for persons in non-Federal plans from tabulations of the 2021–2023 MEPS-IC files provided by AHRQ. The tabulations were performed at the state (or consolidated geographic) level for each year. Although the proportion of persons covered funding status vary by state, the relative values for each state compared to the national average are consistent.

In addition to the MEPS-IC information, we also looked at the EHBS for 2023 to determine the appropriate penetration levels of self-insurance by size of employer. For CY 2023, the EHBS self-insurance percentage did not align with the MEPS-IC information, so we only used the MEPS-IC for the target.

We used the 2023 MEPS-IC levels of self-insurance by sector (private versus state/local), along with the three-year state averages, to determine state-specific targets for persons with ESI. All persons enrolled in Federal plans were assumed to be in fully insured plans.

Exhibit 5 shows results of the funding status implementations.

Exhibit 5: ESI Funding Status, Self-Insured vs. Fully Insured
(in millions)

Funding Status	Number with ESI
Self-insured	100.6
Fully insured	77.6
Total	178.2

Note: Components may not sum to total due to rounding.

Step 6: Imputing whether coverage for smaller employers was level-funded

Level-funding refers to a process, often used by smaller (<200) employers, where the employer self-insures the health plan, but also purchases stop-loss coverage with a low attachment point, paying a fixed monthly amount for both the health plan and stop-loss coverage with the possibility of a return for overpayment. According to the 2021-2023 EHBS, level-funding has become more widely used and is now being captured as part of the survey for employers under size 200 who provide coverage. In order to reflect the increase in prevalence for this funding option for smaller employers, beginning with March 2022 we have added an imputation step for level-funding for persons with coverage from employers under size 200, which includes both private sector and local government coverage.

Given that the reference data looks only at employers under size 200, and the CPS file includes employer size breaks at 100 and 500, the first step was to impute a size break at 200 in the Auxiliary Data. Data from the MEPS-HC was examined, but did not prove helpful, and so a trendline analysis was used on the CPS data by size (separate for private sector and local governments) to obtain preliminary estimates of the partitions. Specifically, the ESI policyholder count by size was fit to a power model using an Excel trendline. In addition, the percent self-insured by size was fit to a polynomial of order 2 trendline in Excel to maintain appropriate levels of self-insured in each size group. These estimates were used as rough guidelines, along with actuarial judgement, for the imputation. Once size was imputed, ARC then imputed whether coverage was level-funded for the under 200 subgroup. Given that both fully and self-insured plans were reported as level-funded in the EHBS data, our EHBS-targets maintained this partition. The variable was imputed first for policyholders. Dependents received the status of their policyholder when a link was available, otherwise dependents were imputed. State and Federal covered workers were not included because the employer size for those persons is greater than 200.

Finally, a third variable was added to the Auxiliary Data to indicate whether coverage was either self-insured or level-funded versus fully insured. This variable is merely a recode of the previously imputed funding status and level-funded variables. Exhibit 6a shows the results of the level-funded imputation, while Exhibit 6b shows the recoded self-insured or level-funded tabulation. The tables use the size of employer providing coverage (NEWSIZE_200) which includes a size break at 200. While not used in the exhibit below, the variable NEWSIZE2_200 is also provided on the Auxiliary data file as the size of employer providing dependent coverage for those with ESI as both a policyholder and dependent and it includes a break at size 200.

Exhibit 6a: Level-Funding Status for Persons with ESI from Smaller Employers
(in millions)

Level-Funding Status	Number with ESI
Self-insured	8.3
Level-funded	5.1
Not level-funded	3.2
Fully insured	36.5
Level-funded	11.8
Not level-funded	24.7
Total covered by smaller (<200) firms	44.8

Note: Components may not sum to total due to rounding.

Exhibit 6b: Self- or Level-Funded versus Fully Insured for Persons with ESI from Smaller (<200) Employers

(in millions)

Funding Status	Number with ESI
Self-insured or level-funded	20.1
Fully insured	24.7
Total covered by smaller firms	44.8

Note: Components may not sum to total due to rounding.

Step 7: Imputing type of plan

As noted in the prior step, the March CPS does not contain detailed information on the health plan in which an individual is enrolled. As with plan funding, we imputed all details on the type of plan held by a person covered by ESI.[8] Prevalence of coverage by plan type—Health Maintenance Organization (HMO), Preferred Provider Organization (PPO), Point-of-Service Plan (POS), and high deductible health plans (HDED)—was based on data from the 2023 MEPS-IC and the change in prevalence from 2022 to 2023 found in the EHBS. AHRQ presented these data by funding status (self-insured versus fully insured) and geography (nine U.S. geographic regions as well as by state).[9] We imputed along these dimensions and by size of employer.

For Federal plans, we based the allocation on the OPM's 2023 FEHB Program data on employees (postal vs. other), annuitants (retirees), and dependents, by plan type (HMO versus PPO).

Exhibit 7 shows the results of the funding and plan type imputations.

Exhibit 7: ESI Coverage, by Funding Status and Type of Plan
(in millions)

Funding Status	Total	HMO	PPO	POS	HDED
Self-insured plans	100.6	7.6	55.0	6.0	32.0
Fully insured plans	77.6	16.8	31.8	11.1	17.9
Total	178.2	24.4	86.8	17.1	49.9

Note: Components may not sum to total due to rounding.

[8] Plan types were Health Maintenance Organization (HMO), Preferred Provider Organization (PPO), Point-of-Service Plan (POS), and high deductible health plans (HDED); the latter of which includes, but is not limited to, IRS-qualified HDHP plans.

[9] We averaged three years of unpublished MEPS-IC data provided by AHRQ to obtain target percentages by plan type for each state. In cases where the sample size was small, we used three years of data by geographic region rather than state.

Step 8: Imputing the partition of COBRA versus retiree coverage

The March CPS also lacks information on whether coverage by a former employer is retiree or COBRA coverage. We imputed retiree versus COBRA coverage for the Bulletin as part of the Auxiliary Data.

As part of the American Plan Rescue Act, COBRA subsidies were enacted in April 2021.[10] Additionally, EBSA and the Internal Revenue Service released a rule that temporarily extended the time people had to elect and pay for COBRA coverage.[11] With the end of the Public Health Emergency in April of 2023 (originally scheduled for May of 2023), the COBRA extensions expired on July 10, 2023, while the subsidies had expired earlier. The COBRA counts in the Auxiliary Data, which represent coverage in CY 2023, are most influenced by employer-sponsored insurance coverage among the non-worker population (particularly those under 40) and are higher than counts found in the MEPS-IC for CY 2023.[12] Our process is laid out in detail below.

We obtained 2023 target counts of persons with either COBRA or retiree coverage by averaging the estimated counts from the 2023 MEPS-IC and 2022 MEPS-HC. We used OPM data for the FEHB Program. We based the split of this total "prior employer" group into COBRA versus retiree coverage on the percentage split from the 2023 MEPS-IC found in the AHRQ data. We based assignments of retiree or COBRA coverage on a person's characteristics, using CPS data and data from the MEPS-HC. The 2024 ASEC contains a large number of non-workers with ESI coverage in their own name. Our COBRA counts are higher than targeted due to the non-workers but not inconsistent with the estimates found in the MEPS-HC PRPL file.

In general, we assigned coverage for policyholders first, then made the same assignment for their dependents. We assigned dependents without policyholders, usually those with coverage from outside the household, based on their own characteristics. In our allocation, we used the following March CPS characteristics: age, presence of pension income, sector providing health coverage, and categorical amount paid by employer toward health coverage (all, some, or none).

The age groups we used were under 40, 40-54, 55–64, and 65 and older. Presence of pension income is based on the March CPS variable "retirement income, pension source" (or survivor's income, if a dependent). We assumed the income to be pension-related if the source was company or union pension, Federal government retirement, state or local government retirement, or U.S. railroad retirement.[13] The amount paid by an employer toward coverage is captured by the March CPS and categorized as either all, some, or none.

We assigned some to either COBRA or retiree with "certainty" (that is, person-level characteristics alone determined the type of coverage held), and we assigned others based on certain probabilities, along with the targeted counts of persons with each type of coverage.

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[10] H.R. 1319 American Rescue Plan Act of 2021. 117th Congress (2021-2022). 3/11/2021. Public Law No: 117-2. https://www.congress.gov/bill/117th-congress/house-bill/1319/text.

[11] Extension of Certain Timeframes for Employee Benefit Plans, Participants, and Beneficiaries Affected by the COVID-19 Outbreak. A Rule by the Internal Revenue Service and the Employee Benefits Security Administration on 5/4/2020. 85 FR 26351, pp. 26351-26355. https://www.federalregister.gov/documents/2020/05/04/2020-09399/extension-of-certain-timeframes-for-employee-benefit-plans-participants-and-beneficiaries-affected.

[12] Private sector estimates from the MEPS-IC (2023). Agency for Healthcare Research and Quality, Center for Financing, Access and Cost Trends. 2023 Medical Expenditure Panel Survey - Insurance Component. https://www.meps.ahrq.gov/data_stats/summ_tables/insr/national/series_4/2023/ic23_iva_b.pdf

[13] The redesign of the income questions, which began with the split panel design of the March 2014 CPS and became standard for the entire sample starting with the March 2015 survey, has improved identification of pension income and decreased the amount of retiree imputations necessary.

The allocation rules and guidelines for assigning individuals to retiree or COBRA coverage are listed below, based on whether there is certainty or probability involved.

If the person was under 40 years old, we assigned COBRA with certainty. If pension income was present, we decided status with certainty as follows:

- If the person had pension (or survivor's) income and coverage was from the public sector, we deemed coverage retiree.
- If the person had pension (or survivor's) income, coverage was from the private sector, and employer payment was anything (including unknown) other than "none," we deemed coverage retiree.
- If the person was under 65, had pension (or survivor's) income, coverage was from the private sector, and employer payment was "none," we deemed coverage "COBRA."
- If the person was 65 or older, we deemed coverage retiree.

If no pension (or survivor's) income was present, we assigned coverage as follows:

- The count of persons allocated to retiree or COBRA coverage based on presence of pension income was subtracted from the target counts of retiree and COBRA coverage, by sector and age.
- We used data from the MEPS-HC and MEPS-IC to develop probabilities of retiree versus COBRA coverage for this remaining group by age, employer payment, and sector (for private, state, and local coverage), but we used FEHB Program data to determine the probability of retiree coverage for those with Federal coverage.
- We assigned persons 66 and older who had Medicare to retiree coverage, while persons 65 and under were permitted to be assigned COBRA as part of the transition to Medicare.

Exhibit 8 shows the results of the COBRA and retiree assignments for persons with coverage from a former employer (policyholders and dependents combined).

Exhibit 8: ESI Coverage from a Former Employer, by Age, Sector, and Retiree vs. COBRA Coverage (in millions)

Sector	Under 55	Age 55–64	65 and Older
Private sector	4.1	0.9	2.2
Retiree coverage	0.9	0.8	2.1
COBRA coverage	3.2	0.1	0.0
Public sector	3.1	2.4	7.3
Retiree coverage	2.7	2.4	7.3
COBRA coverage	0.4	0.0	0.0
Total	7.2	3.3	9.4

Note: Components may not sum to total due to rounding.

Step 9: Imputing Medicare Secondary Payer (MSP)

When assigning primary coverage to individuals with more than one source of coverage during the year, the Bulletin generally ranks ESI above all other sources. However, when a person has both Medicare and ESI, this is not always the case.

For most covered workers, ESI plans are primarily responsible for payment. The Medicare Trust Funds are protected by the Medicare Secondary Payer (MSP) Act, which makes Medicare the secondary payer in specific instances, thus shifting costs away from the Medicare program.[14] Under MSP rules, non-workers (retirees) with ESI always have Medicare as the primary payer. For workers, the primary payer depends on the size of the employer and whether the individual qualifies for Medicare due to age or disability. Because the March CPS does not ask which of these two insurers is the primary payer, we imputed this variable in accordance with MSP rules.

For active employees (and their dependents), a determination of primary payer depends on age and employer size. For workers or their spouses who are 65 or older, ESI is the primary payer if the employer size is 20 or more, but Medicare is the primary payer if employer size is under 20. For those younger than 65, ESI is the primary payer if the employer size is 100 or more, but Medicare is the primary payer if employer size is under 100.

Starting with the March 2019 CPS, the Census Bureau revised the employer size categories to partition end points at 10, 25, and 100; the previous breakpoints were 10, 50, and 100. We modified our analysis to use these new size categories and no longer include an additional partition at size 20 in order to determine MSP splits (size 25 is used as a proxy for size 20). For dependents with both Medicare and ESI coverage, we used the dependent's age, but we obtained the size category from the policyholder. We included a variable in the Auxiliary Data file for all persons with both ESI and Medicare to indicate primary payer.

The 2024 CPS contains a variable indicating whether coverage is concurrent when more than one type of health insurance is present. When the coverage is not concurrent, we assume Medicare is primary with certainty.

Exhibit 9 shows the results of the MSP imputation for persons with Medicare and ESI.

Exhibit 9: Medicare Secondary Payer Coverage, by Age
(in millions)

MSP Status	Under 65	65 and Older
Medicare primary	0.2	8.9
Medicare secondary	0.5	2.2
Total	0.7	11.0

[14] The Centers for Medicare and Medicaid Services (CMS) explanation of Medicare Secondary Payer can be found at http://www.cms.gov/Medicare/Coordination-of-Benefits-and-Recovery/Coordination-of-Benefits-and-Recovery-Overview/Medicare-Secondary-Payer/Medicare-Secondary-Payer.html. Legislation (42 U.S.C. § 1395y(b)(2)) can be found at https://uscode.house.gov/view.xhtml?req=(title:42%20section:1395y%20edition:prelim).

Step 10: Imputing actuarial values (AVs)

Although the March CPS includes limited data on the cost of health insurance and annual medical expenditures, it does not collect the information required to determine the richness (actuarial value (AV)) of an individual's health insurance plan. AVs represent the fraction of covered medical expenses paid for by health insurance plans, calculated as an average over a standard population. We imputed variables that represent the actuarial value of active employer-sponsored health insurance coverage by sector, plan type, and funding for employees with health insurance in their own name from a current employer.

We use the in-network cost sharing parameters from the largest plan for each responding employer in the 2023 KFF EHBS due to the lack of important coverage parameters for smaller plans.[15] We added plans from last year's EHBS for public sector plans (given the stability in their AVs) in order to have an adequate sample size for imputing.[16] The calculation process began by using these plan parameters along with the our proprietary claims repayment program (the ARC Ratebook) which includes several years of data from the MEPS-HC that act as the basis of spending. Spending is benchmarked to national levels of employer-sponsored insurance coverage consistent with the National Health Expenditure Accounts (NHEA), as well as adjusted for the distributions of spending found in our analysis of the 2021 MarketScan data for persons with active employer-sponsored insurance.[17] The actuarial value calculation was also updated to allow for both prescription drug copays and coinsurance in the model (instead of converting the latter to the former as was done to fit the model in prior years).

We also reviewed data on plan benefits and out of pocket costs from a KFF analysis of the Truven Health Analytics MarketScan Commercial Database and the 2022 HCCI Health Care Cost and Utilization Report in an effort to benchmark our targets in evaluating plan benefit richness, and thus indirectly evaluate average actuarial values.[18] These sources showed a steady and relatively flat trend in overall actuarial values over time for ESI, though they showed increasing richness for prescription drug coverage and decreasing richness for outpatient and office-based services. It should be noted that both the MarketScan and HCCI data look at actual spending (both in- and out-of-network usage) and so our target average AV represents the actual mix of spending, as opposed to an in-network mix only. The 2021 MarketScan data, however, shows fairly limited use of out-of-network services, and even less out-of-network payment for these services when used.

We used the KFF EHBS plan data for the largest plan offered from the 2023 survey by plan type and funding (self-insured versus fully insured as well as level-funding,[19] as collected by the survey and imputed per Step 6 above), as well as sector. We added public sector plans from the 2022 survey, as there was stability of

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[15] This is a change from last year's methodology, where we included all responding firms in the AV calculation, but noticed this year that due to specific cost sharing parameters not being collected, the actuarial values were not representative of actual coverage.

[16] KFF. (October 2023). 2023 Employer Health Benefits Survey. https://files.kff.org/attachment/Employer-Health-Benefits-Survey-2023-Annual-Survey.pdf.

[17] The analysis of the 2021 Merative™ MarketScan® Commercial Claims data was conducted as part of our work for the Department evaluating actuarial values. Employer Sponsored Insurance Actuarial Values and Sensitivity Analysis. (September 27, 2024) https://www.dol.gov/sites/dolgov/files/ebsa/researchers/analysis/health-and-welfare/employer-sponsored-insurance-actuarial-values-and-sensitivity-analysis.pdf.

[18] KFF analysis of Truven Health Analytics MarketScan Commercial Claims and Encounters Database, 2006 – 2016. https://www.healthsystemtracker.org/brief/increases-in-cost-sharing-payments-have-far-outpaced-wage-growth; Health Care Cost Institute. 2022 Health Care Cost and Utilization Report. (April 2024). https://healthcostinstitute.org/images/pdfs/HCCI_2022_Health_Care_Cost_and_Utilization_Report.pdf.

[19] Level-funding was only maintained for private sector policyholders, given the small number of records that were local government employees in the sample. For public sector policyholders, we used the original self- vs. fully insured imputation against the EHBS data.

richness but a need for greater sample size. This process ensured that targets were stable and reproduced what appeared to be the trends and distributions found in both the HCCI data and the KFF/ MarketScan analysis, as well as the levels found in our own MarketScan work.[20] For 2023, the overall AV is fairly close to 0.86, with large employer plans being slightly richer.

This process represents a change from the imputations performed prior to March 2020, which used AVs as calculated from the 2005 and 2015 National Compensation Survey (NCS), and an update to our work with the March 2020 through March 2021 surveys. Using the NCS, ARC had calculated AVs for private sector plans based on the plan specifications (cost sharing and covered services) provided in the survey and presented the distributional results by plan type, funding, and employer size. ARC updated this work in 2017 using the distributional results from the NCS data set 113, which includes plans collected from June 2014 through July 2015.[21,22] However, the methodology of using the NCS distribution artificially lowered the mean AV and likely did not capture the change in benefit richness by service, which could affect the shape of the distribution. Last year, our work was enhanced by the distributions in the MarketScan data, which allowed us to adjust the ARC Ratebook's underlying claims data to be more representative. This year, due to the limited data available on cost-sharing for plans in the EHBS which were not the largest employer plans, we limited our EHBS plan universe to the largest plans offered by each employer. Before doing so, we examined the relative actuarial values of largest vs. all other plans for years before the variable reduction in the survey. In addition, due to the absolute reduction in number of plans available for analysis, we enhanced our dataset to include public sector "largest" plans from the 2022 EHBS.

We imputed both "cell-based actuarial values"—averages by sector, plan type, and funding—and "plan-specific actuarial values" onto the Auxiliary Data. Although the cell-based values are useful at the aggregate level, they are not helpful for performing detailed analysis of partitions beyond these broad cell groupings. For this reason, we imputed plan-specific values using a plan-to-person, record-by-record match prioritized by size.

The EHBS also reports whether high deductible plans have health savings accounts (HSAs) or health reimbursement accounts (HRAs). We maintained the HSA/HRA partition from the data and, along with the imputed AVs for high deductible plans, imputed a flag noting whether the plan was considered an HSA or an HRA.

Exhibit 10 shows the resulting plan-specific average actuarial values. The averages shown below include HSA/HRA partitions as subsets of the high deductible plan type.

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[20] The analysis of the 2021 Merative™ MarketScan® Commercial Claims data was conducted as part of our work for the Department evaluating actuarial values. Employer Sponsored Insurance Actuarial Values and Sensitivity Analysis. (September 27, 2024) https://www.dol.gov/sites/dolgov/files/ebsa/researchers/analysis/health-and-welfare/employer-sponsored-insurance-actuarial-values-and-sensitivity-analysis.pdf.

[21] Final Report: Analysis of Actuarial Values and Plan Funding Using Plans from the National Compensation Survey, A RC (May 12, 2017), https://www.dol.gov/sites/default/files/ebsa/researchers/analysis/health-and-welfare/analysis-of-actuarial-values-and-plan-funding-using-plans-from-the-national-compensation-survey.pdf (compiled for the Office of Policy and Research (OPR), Employee Benefits Security Administration (EBSA), Department of Labor (DOL)).

[22] Because NCS microdata is generally not publicly available, our work drew on the most recent data set available to ARC, per our analysis of actuarial values and plan funding.

Exhibit 10: Average Actuarial Values for Persons with Active ESI in Own Name, by Sector and Type of Plan
(in millions)

Sector	Total	HMO	PPO	POS	HDED-Total	HDED-HRA	HDED-HSA
Private sector plans	0.8591	0.8826	0.8682	0.8625	0.8324	0.8389	0.8302
Public sector plans	0.8746	0.9360	0.8804	0.9004	0.8137	0.8127	0.8142

Step 11: Examining CPS variables on health spending

Starting with the March 2011 CPS, the Census Bureau has included information on out-of-pocket spending for over-the-counter purchases, medical care and equipment, and health insurance premiums.

As in years past, we examined levels of out-of-pocket spending and found them compatible with estimates from the MEPS-HC by age and insurance status. In addition, when we examined the distribution of spending for those with out-of-pocket spending, we found these distributions to be robust at both the high and low ends. So, we are again including the CPS estimates of out-of-pocket spending in the March 2024 Auxiliary Data and tables. The out-of-pocket variable included in the Auxiliary Data is the sum of the CPS variables on over-the-counter purchases and medical care. No edits or imputations beyond this summation are performed on the CPS values.

The questionnaire asked policyholders: "[Earlier I recorded that (your/name's) employer or union did not pay for (your/his/her) entire health insurance premium.] Last year, how much did (you/name) pay out-of-pocket for ALL health insurance premiums [covering (yourself/himself/herself) or others in the household]? Include both comprehensive and supplemental plans (such as vision and dental insurance)."

This question specifically asks to exclude Medicare premiums as deducted from SSA/SSI payments and appears to try to include only those persons with ESI. However, it asks for coverage beyond traditional insurance. Given the lack of specificity of what is contained in the answer, as well as a lack of detail of how this was asked for persons without ESI, we excluded these variables from the Auxiliary Data in the past.

Although the 2024 ASEC reports a second premium variable that has been edited for consistency, the results still produce estimates that do not line up with what is known from other sources, such as the MEPS-IC. In particular, the ratio of family to single contributions is lower (just over two, versus closer to four from MEPS), with the single amount appearing higher and the family amount appearing lower. Despite some improvements, at this point, we continue to exclude it from the Auxiliary Data file.

Exhibit 11 shows averages for out-of-pocket spending by type of insurance held.

Exhibit 11: Mean Out-of-Pocket (OOP) Spending, by Hierarchical Insurance (counts in millions, spending in dollars)

Insurance	Counts	Mean OOP
Insured	305.2	$1,024.13
ESI policyholder	89.0	$1,374.33
ESI dependent	80.2	$849.92
Medicare	59.8	$1,415.16
Other private health insurance – policyholder	12.3	$1,372.24
Other private health insurance – dependent	7.6	$834.24
Other public	56.2	$251.74
Uninsured	26.4	$573.13
Total population	331.7	$988.18

Step 12: Imputing whether coverage was provided through a union arrangement

For workers aged 15 or older, the March CPS provides limited information on whether a person is a member of a labor union or of an employee association similar to a union (CPS person variable: A-UNMEM). For nonmembers, the March CPS asks if the person is covered by a collective bargaining agreement (CPS person variable: A-UNCOV). For simplicity, we summarize the two CPS union variables into a single variable, which was coded to have values of either "1" (union) or "2" (not union). We categorized all persons who indicated either union membership or coverage through a collective bargaining agreement as "union" and those who did not as "not union."

However, the usefulness of these questions is limited by the fact that they are asked to only one-quarter of the working population (those who were in their fourth or eighth month of the survey) and exclude the self-employed. For this reason, we imputed union membership to all other private (with the exception of the self-employed) and public sector workers, and we imputed union coverage to all persons with ESI. This results in three imputed variables: one for all workers (union membership), one for ESI policyholders (union coverage), and one for ESI dependents (union coverage).

We began the assignment process by looking at private and public sector workers. If the March CPS union variables give a valid union status, we assigned union membership (yes or no) with certainty. For all other persons (those without a valid CPS union status), we imputed union membership. We calculated the likelihood of union membership using CPS records that had a valid set of responses to the union questions, with the resulting probabilities based on:

- age (under 35, 35–54, 55–64, and 65 and older),
- collapsed industry/sector of employment to private sector and likely union (mining, construction, manufacturing, transportation, utilities) and private sector and not likely union (agriculture/forestry/fishing, wholesale, retail, finance/insurance/real estate, services, healthcare), and public sector,
- size of employer (under 25, 25–499, and 500 and over),
- hours worked (under 30 per week and 30 or more per week), and
- geographical region.

Next, we assigned, with certainty, union coverage status for ESI policyholders with coverage through their current employer based on their union worker status. This step was straightforward, as these records kept their assignment from the prior step.

We then imputed union coverage for ESI policyholders with coverage from a former employer, whether or not they currently work. We did this to reflect the status of the employer providing coverage, whereas the union variables described above were based on the characteristics of the current employer.

We used probability cells from the 2008 Wave 6 panel of the SIPP (2010 data) for those with coverage through COBRA or as a retiree. Probability cells for COBRA coverage include age (under 55, 55 and older), size of employer providing coverage (under 100 and 100 or more), employer sector (private, Federal, state/local) and work status (work and no work). Probability cells for retirees include an additional age break at 65 and omit work status. More recent data at this level of detail remains unavailable. Previously we had supplemented the SIPP 2010 probabilities with trend data from both the NHIS (2010-2018) and SIPP (2010-2019), but the only discernable trend was for retirees 65 and older, who were slightly more likely to have coverage from a union. Seeking additional, more recent data, we have updated our methodology to use data from the 2010 – 2022 Group Health Plans Bulletins (GHPB), which shows a slight decline in collectively bargained coverage among private sector employers with plan size 100 and up, for both actives and retirees. We used the relationship between retiree and active coverage trends to adjust our base SIPP probabilities, incorporating a slight increase in trend for the 65 and over population. The adjustment was made for all employer sizes for the private sector only.

For ESI dependents (including those who were also policyholders), we created a variable with the same categories as those for policyholders. We used the affiliation of the policyholder whenever a link was available. In the absence of a direct link, we imputed the status based on sector of coverage, size of employer providing coverage, age of dependent, and whether coverage is active, COBRA, or retiree.

Exhibit 12a shows the results of the assignment of union membership and coverage for all workers. Exhibit 12b shows the assignment of union coverage for all persons with ESI (policyholders and dependents), both workers and non-workers.

Exhibit 12a: Union Membership or Coverage for All Workers
(with or without ESI, no self-employed)
(numbers in millions)

Union Status	Total Workers
Union members	17.4
Not union	139.4
Total	156.8

Exhibit 12b: Union Membership or Coverage for All Persons with ESI
(workers and non-workers)
(numbers in millions)

Union Status	Total ESI
Union members	30.7
Not union	141.7
Total	172.4

Note: ESI includes both policyholders and dependents but excludes those with coverage through self-employment.

Step 13: Whether coverage was provided through an ACA Marketplace plan

Since October 2013, individuals have been able to purchase an ACA Marketplace (or "exchange") health insurance plan for the following calendar year through state or Federal health insurance exchanges, in addition to purchasing directly from insurance companies. Open enrollment sign-up for exchange coverage for CY 2023 took place between November 1, 2022, and January 15, 2023, with special enrollment permitted outside this window.

The CPS has collected information on whether private insurance was Marketplace coverage, but that information was not released until the March 2019 data. The data now includes indicators for Marketplace coverage and whether that coverage was subsidized. After tabulating the data, ARC noted a shortfall of 2.9 million persons in the overall Marketplace coverage counts in the CPS (13.3 million) compared to CMS' average effectuated enrollment (16.2 million). Last year was the first time the shortfall was apparent – with the March 2023 CPS reporting 1.7 million fewer enrollees for CY 2022 compared to CMS. CMS reported a 20% increase in CY 2023 over CY 2022 (on top of the prior year's 15% increase) while the CPS shows a much more modest increase. ARC has also determined that the proportion of those with subsidized coverage (71% of enrollees) is lower than the expected level of 92% when compared to the CMS average monthly effectuated enrollment data by state and income level for 2023.[23]

No adjustment has been made to the survey data for the enrollment shortfall. We do, however, reduce the subsidy discrepancy by editing the Auxiliary Data to assume all persons whose family incomes are less than 400% of the Federal poverty level (FPL) actually receive a subsidy for their Marketplace coverage.[24] Because we expect that some whose survey reported income meets or exceeds 400% FPL actually do receive a subsidy, we make no edits to remove a report of receiving a subsidy. Counting all enrollees under 400% FPL plus those over 400% FPL reporting a subsidy results in an estimate of 85% of enrollees who receive an advance premium tax credit, which is closer to the CMS reported percentage (92%) than the raw level of 71%.

Exhibit 13 shows the income distributions of persons with Marketplace health insurance coverage, both raw and edited, based on the official CPS weights.

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[23] Effectuated Enrollment: Early 2024 Snapshot and Full Year 2023 Average, Centers for Medicare and Medicaid Services, Table 5 (March 15, 2024). https://www.cms.gov/files/document/early-2024-and-full-year-2023-effectuated-enrollment-report.pdf.

[24] Poverty has been tabulated using the CPS variable POVLL, which may differ from the actual poverty calculation used to determine eligibility for Medicaid, CHIP, or subsidies through the ACA Marketplace. We made a simplifying assumption to move people from unsubsidized to subsidized coverage if their poverty was under 400% FPL. Given the inherent intricacies in actual eligibility calculations, we did not remove a subsidy from any record (including those above 400% FPL) where receipt was indicated.

Exhibit 13: Marketplace Counts, by Subsidy
(in millions)

Income Band	Subsidized (raw)	Not Subsidized (raw)	Subsidized (edited)	Not Subsidized (edited)	Total
Less than 250% FPL	4.4	0.9	5.3	0.0	5.3
250%–399% FPL	2.5	0.9	3.4	0.0	3.4
At least 400% FPL	2.6	2.0	2.6	2.0	4.6
Total	9.5	3.9	**11.3**	**2.0**	**13.3**

Note: Components may not sum to total due to rounding.

Revisions to the March CPS and Our Methodology

CPS Revisions

The March CPS underwent major enhancements and revisions for 2014, but the U.S Census Bureau initially released only some changes to the research community and did not include any changes to the basic March data set.[25] The 2019 CPS ASEC was the first production file to contain the reformatted data.

The 2019 CPS presented new variables in the main data release, with the Census Bureau introducing a new processing system to "better extract, impute, and weight data collected using the redesigned CPS ASEC questionnaire."[26] The new processing system allows for a wider range of family definitions, including same sex partnerships and marriages. It also includes variables indicating subannual coverage, concurrent coverage, exchange coverage and subsidy, point-in-time coverage, and out-of-pocket medical expenses based on an alternative definition.[27]

Versions of the Auxiliary Data prior to March 2019 maintained links for two policyholders. That information is no longer available in the March CPS data beginning with the March 2019 survey, and so we removed the second policyholder line number variable from the Auxiliary Data as well.

Although weights are provided for all records, infants do not have previous year health insurance information reported. We adjusted our Auxiliary Data weights so these infants have a weight of zero for purposes of tabulating health insurance coverage.

Response Rates and the Public Health Emergency

The COVID-19 Public Health Emergency (PHE) emerged as interviews began for the ASEC in the spring of 2020. Interviews for the ASEC began on March 15, 2020 and, due to COVID-19, were only performed via telephone rather than a combination of phone and in-person. This resulted in a higher non-response rate compared to prior years (and higher income households were considerably more likely to respond to the CPS ASEC), so multi-year comparisons were not possible.[28] While the March 2021 survey contained

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[25] In years prior to 2019, the research releases included (a) a single point-in-time coverage variable ("Was person covered at time of questionnaire"); (b) a clarification on type of coverage (employer-sponsored, individual private, or other), if coverage is provided from outside the household; and (c) point-in-time variables on employer offers of health insurance coverage for those who were employed but did not have employer-sponsored coverage. For March 2019 and subsequent years, the data release included the expanded set of questions as asked.

[26] Updates to the Processing of Out-of-Pocket Medical Expenditures and Medicare Premiums, U.S. Census Bureau, SEHSD Working Paper Number 2019-31. https://www.census.gov/content/dam/Census/library/working-papers/2019/demo/sehsd-wp2019-31.pdf.

[27] The Census Bureau uses "subannual" to denote less than a year—they ask monthly but only report coverage as none, part year, or full year.

[28] Non-Response Rates: https://www.census.gov/programs-surveys/cps/technical-documentation/methodology/non-response-rates.html; In May 2021, the Census Bureau released a working paper (Coronavirus Infects Surveys, Too: Survey Nonresponse Bias and the Coronavirus Pandemic. Rothbaum, Jonathan. Bee, Adam. U.S. Census Bureau. May 3, 2021. https://www.census.gov/content/dam/Census/library/working-papers/2020/demo/sehsd-wp2020-10.pdf) that noted non-respondents tended to be more strongly associated with income and the patterns were different by education, Hispanic origin, nativity, and citizenship when compared to respondents. A recent blog post from the Census Bureau (https://www.census.gov/newsroom/blogs/research-matters/2021/09/pandemic-affect-survey-response.html) indicated non-response improved for March 2021 but did not return to pre-pandemic levels. In 2022, CPS non-response rates remain high (https://www.census.gov/programs-surveys/cps/library/visualizations/non-response-rates-visualization.html).

less non-response bias than the March 2020 survey, the bias remained higher than it was pre-pandemic.[29] Despite the ending of the PHE, the non-response rate has not improved for the March 2022, 2023, or 2024 surveys, and non-respondents still look dissimilar to respondents.

Updates to Methodology and the Auxiliary Data

A mapping from the March 2024 CPS insurance variables to the Auxiliary Data variables is provided in Exhibit 14a. Exhibit 14b displays the additional variables for point-in-time insurance coverage in their original (Census Bureau) and recoded form (consistent with those in Exhibit 14a).

Exhibit 14a: 2024 CPS Auxiliary Data Insurance Variables Mapping from Raw Data, Coverage in Prior Year

Coverage in Prior Year	CPS Variables	Auxiliary Data Variable
ESI policyholder	OWNGRP	ESIPH
ESI dependent	DEPGRP, OUTGRP	ESIDEP
OPHI policyholder	OWNDIR	OPHIPH
OPHI dependent	DEPDIR, OUTDIR	OPHIDEP
Marketplace/Exchange	MRK	EXCHANGE
Medicare	MCARE	NMCARE
Medicaid	CAID	NMCAID
CHIP	PCHIP	CHIPP
Military	MIL, CHAMPVA, VACARE	CHAMP
Other (public)	OTHMT	OTHER
No health coverage	NO_COV_CYR	UNINS
Coverage from outside household	OUTGRP, OUTDIR, OUTMIL	OUTTYP
Concurrent coverage	COV_MULT_CYR	CONCURR
Marketplace/Exchange coverage subsidized	MRKS	SUBSIDY

[29] Keisler-Starkey, K. and Bunch, L. (2021). Health Insurance Coverage in the United States: 2020. Current Population Reports. U.S. Census Bureau. https://www.census.gov/content/dam/Census/library/publications/2021/demo/p60-274.pdf.

Exhibit 14b: 2024 CPS Auxiliary Data Insurance Variables Mapping from Raw Data, Point-in-Time Coverage

Point-in-Time Coverage	CPS Variables	Auxiliary Data Variable
ESI policyholder	NOW_OWNGRP	PITESIPH
ESI dependent	NOW_DEPGRP, NOW_OUTGRP	PITESIDEP
OPHI policyholder	NOW_OWNDIR	PITOPHIPH
OPHI dependent	NOW_DEPDIR, NOW_OUTDIR	PITOPHIDEP
Marketplace/Exchange	NOW_MRK	PITEXCHANGE
Medicare	NOW_MCARE	PITNMCARE
Medicaid	NOW_CAID	PITNMCAID
CHIP	NOW_PCHIP	PITCHIPP
Military	NOW_MIL, NOW_CHAMPVA, NOW_VACARE	PITCHAMP
Other (public)	NOW_OTHMT	PITOTHER
Uninsured	NOW_COV	PITUNINS
Coverage from outside household	NOW_OUTGRP, NOW_OUTDIR, NOW_OUTMIL	PITOUTTYP
Marketplace/Exchange coverage subsidized	NOW_MRKS	PITSUBSIDY

In addition, the following revisions have been made to our methodology over the last few years:

- As noted in Step 5, the MEPS-IC and the EHBS self-insurance levels (and trend) differ for CY 2020. Beginning with the March 2021 Auxiliary Data, we only used the MEPS-IC as source data.
- Beginning in CY 2021, the EHBS notes an increase in level-funded plans which may be reported as either self- or fully insured. These level funded plans are now imputed to the Auxiliary Data for all persons with ESI through a smaller employer (size <200).
- As noted in Step 10, beginning with the March 2020 (CY 2019) survey, ARC did not use the NCS distribution for the imputation of actuarial values. The EHBS and mean AVs from HCCI were used for both private and public sector plans. In addition, enhancements have been made to the underlying spending database used to calculate the actuarial values to more closely reflect the distribution of spending on both the high and low end, as well as the proportion of non-users.
- Due to the imposition of a minimum retiree coverage age of 40, the COBRA counts are higher than suggested by the MEPS-IC. The CPS includes more non-workers with ESI coverage as a policyholder than the MEPS-IC shows. Thus, this year, we used the average of the MEPS-IC and the MEPS-HC prior percentage as a target for prior coverage count. We based the split into COBRA versus retiree coverage on the MEPS-IC.
- The exchange counts on the raw March 2024 CPS are lower than the published CMS counts, but no edit has been made to the overall exchange level on the survey data. The subsidized counts are also notably lower. As in prior years, ARC has edited the subsidy flag so that all persons under 400% FPL are flagged as receiving a subsidy.

Useful Links

Current Population Survey's Annual Social and Economic Supplement (March CPS)

- The main CPS page is found at https://www.census.gov/programs-surveys/cps.html. It contains links to details such as methodology, data, definitions, and technical documentation.
    - The codebook for the March 2024 CPS, which includes mention of survey changes, is found at https://www2.census.gov/programs-surveys/cps/techdocs/cpsmar24.pdf.
    - Health insurance estimates from the CPS are from the Annual Social and Economic Supplement, with the main publication page for all Census Bureau health insurance reports found at https://www.census.gov/topics/health/publications.html.
    - The main report from the March 2024 survey, "Health Insurance Coverage in the United States: 2023," contains information collected only in the March CPS. Previous publications included estimates from the American Community Survey (ACS) for some state-level tables.
        - The report itself can be found at https://www2.census.gov/library/publications/2024/demo/p60-284.pdf.
    - Working papers on health insurance and income/poverty, respectively, can be found at https://www.census.gov/topics/health/health-insurance/library/working-papers.html and https://www.census.gov/topics/income-poverty/library/working-papers.html.
    - Further explanation of the changes and enhancements to the March 2014 CPS can be found at https://www.census.gov/topics/health/health-insurance/guidance/cpsasec-redesign.html.
    - Research files (2014-2019) with data on point-in-time insurance coverage variable information and information on refinements to coverage from outside the household can be found at https://www.census.gov/data/datasets/time-series/demo/health-insurance/cps-asec-research-files.html.

Medical Expenditure Panel Survey (MEPS)

- The main MEPS page is found at http://meps.ahrq.gov/mepsweb/, and background information is available at http://meps.ahrq.gov/mepsweb/about_meps/survey_back.jsp.
- Two of the main components are the Household Component (MEPS-HC) and Insurance Component (MEPS-IC). Links to those are found at http://meps.ahrq.gov/mepsweb/survey_comp/household.jsp for the HC and http://meps.ahrq.gov/mepsweb/survey_comp/Insurance.jsp for the IC.

Survey of Income and Program Participation (SIPP)

- The Survey of Income and Program Participation, a longitudinal panel survey, is conducted by the Census Bureau. Information on the SIPP can be found at https://www.census.gov/programs-surveys/sipp/about.html.
- Reports based on SIPP data can be found at https://www.census.gov/programs-surveys/sipp/library/publications.html.

KFF Employer Health Benefits Surveys (EHBS)

- Archive of surveys from 2023 and earlier can be found at http://kff.org/health-costs/report/employer-health-benefits-annual-survey-archives/.
- The 2023 survey is found at https://www.kff.org/health-costs/report/2023-employer-health-benefits-survey/.

Federal Employees Health Benefits (FEHB) Program

- An overview of the program can be found at http://www.opm.gov/healthcare-insurance/healthcare/.
- Frequently asked questions, including about Medicare and the FEHB Program, are at http://www.opm.gov/FAQS/topic/insure/index.aspx?cid=3d961dac-81d1-44e2-998c-ed80029feb70.