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Sample Design of the 2020 Medical Expenditure Panel Survey Insurance Component

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Abstract

The primary purpose of this report is to describe the data collection, sample design, sample allocation, and sample selection process for the 2020 Medical Expenditure Panel Survey Insurance Component (MEPS-IC). This information is important for researchers using the data who wish to understand the details of its sampling design. Following a brief overview, both the private-sector and public-sector (state and local government) designs are described. The details presented in this report apply specifically to the 2020 data year; however, the appendices include a history of sample allocation changes to the MEPS-IC.

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The estimates in this report are based on the most recent data available at the time the report was written. However, selected elements of Medical Expenditure Panel Survey (MEPS) data may be revised on the basis of additional analyses, which could result in slightly different estimates from those shown here. Please check the MEPS website for the most current file releases.

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Background

The Medical Expenditure Panel Survey Insurance Component (MEPS-IC) is an annual federal survey of employers that is a major source of information on employer-related health insurance in the United States. The survey is sponsored by the Agency for Healthcare Research and Quality (AHRQ) and conducted by the U.S. Census Bureau. It is designed to collect employment-related health insurance information, such as whether insurance is offered and if so, the annual premiums; enrollments; employee contributions; and types of offered plans, deductibles, coverage, and copayments. Employer characteristics such as firm size, type of industry, average payroll per employee, and other items are also collected.

The survey was first administered in 1997, with data collected for the entire 1996 calendar year. Each year, many tables of estimates are published on the Medical Expenditure Panel Survey (MEPS) website for each annual survey (http://meps.ahrq.gov/mepsweb/data_stats/quick_tables.jsp#insurance). Starting with the 2020 MEPS-IC, data will also be available in a more flexible Tableau format. These tables provide estimates at the national, state, and Census geographic division levels as well as for selected metropolitan statistical areas. Data from the MEPS-IC are only released in aggregate tabular format because of Census Bureau confidentiality restrictions. Researchers can apply for permission to use the restricted-access microdata at designated Research Data Centers (RDCs). For more information about these RDCs, see https://www.census.gov/about/adrm/fsrdc/locations.html.

This report describes the data collection, sample design, sampling allocation, and sample selection process for the 2020 MEPS-IC. Necessary changes were implemented to the data collection process in 2020 due to the health pandemic. These process adjustments are described in the Data Collection Process Overview section. A glossary of terms related to the MEPS-IC is available at http://meps.ahrq.gov/mepsweb/survey_comp/ic_ques_glossary.shtml.

Data Collection Process Overview

The MEPS-IC survey data are collected each year from employers in both the private sector and state and local governments using three primary modes: telephone, mail (paper), and internet. In addition, personal visits are used to contact some of the largest employers. The general order of data collection operations is:

1. Phone research

The goal of the phone research operation is to try to get the name and contact information of the primary person who will complete the MEPS-IC survey and determine if the business has gone out of scope (closed, moved, etc.). This operation occurs from April through June.

In 2020, an alternative phone research operation was developed to account for Census Bureau interviewers who were not telework-ready due to COVID-19. Instead of using Bureau-issued laptops, interviewers collected telephone numbers and relevant information in spreadsheets.

2. Prescreener

The goal of the prescreening operation is to reach the appropriate contact person to determine whether the employer offered health insurance to its employees. This operation occurs from June through August. During the prescreener, if the employer reports not offering insurance, then characteristics about the business are collected, the survey case is complete, and the business is classified as a respondent. For employers that report offering insurance, the number of plans is collected, and then the Census Bureau mails the survey forms. If no contact is made with the employer during the prescreener, survey forms are mailed to the employer's location.

In 2020, by the start of the prescreener operation in June, all interviewers had received Bureau-issued laptops and were fully teleworking. For employers that offered health insurance, interviewers began to also collect the contact person's email address to facilitate and promote web response. Survey forms were not mailed to the employer's location if no contact was made. Instead, the nonrespondents were sent to the mail operation described below.

3. Mail

After the survey cases leave the prescreening operation, the mail operation begins with the mailing out of survey materials. This operation occurs from June through October. An initial letter, describing the purpose of the survey, along with the survey forms are mailed to employers. The letter requests that completed survey forms be returned within 30 days. The employers are offered the choice of responding either by completing the paper form and returning it by mail or completing the survey electronically using the respondent portal on the internet. If the employer has not responded within 40 days, a follow-up letter and additional survey forms are mailed.

In 2020, due to the pandemic, the Census Bureau did not have sufficient onsite staff to conduct the mail operation. Instead of sending the full mail package (initial letter and survey forms), a new letter was developed and mailed to employers that encouraged them to create an account and complete the survey online. Secure messaging was a new method used to email the contact person, granting them internet access using their authentication code to complete the survey. Forms were also mailed later in the summer.

4. Personal visit

The goal of the personal visit operation is to contact some of the largest nonresponding employers (those with 5,000 or more employees) to update prior survey data. Because they are selected into the survey every year, the point of contact has already been established from previous surveys, and it is already known if they offer insurance to their employees based on their prior responses. This operation occurs from August through December.

In 2020, due to the pandemic, there were no personal visits. In June, a new advanced email letter with a link to the respondent portal was developed and sent to the largest employers, and a reminder email letter was subsequently sent in October to encourage internet response.

5. Problem resolution

The problem resolution (PR) operation corrects missing and inconsistent respondent data that logical edits and other data edits cannot resolve. PR does not occur for all missing and incorrect data; it is conducted only in cases with failures with key variables. This operation occurs from September through February. Both internet responses and mail responses are eligible for PR. During this procedure Census staff attempt to hand-edit the data using paper forms, but if this is not possible, they contact the respondent by telephone to resolve the issue.

In 2020, Census staff were provided with electronic instead of paper PR listings because staff were working from home due to the pandemic. In addition to telephone calls, secure messaging via email was newly used to reach respondents who may not have been accessible by phone.

6. Telephone follow-up

The telephone follow-up (TFU) operation and problem resolution occur simultaneously. If the employer does not respond to the mailed survey forms, or fails to provide an internet response, an attempt is made to administer an abbreviated version of the survey by telephone. TFU is conducted using CATI (computer assisted telephone interviewing) as well as using paper forms for some larger employers.

In 2020, during the TFU operation some of the contact persons requested that interviewers send them an email to complete the survey. Secure messaging, which was newly available, made it possible to use email to grant online access to the respondent portal. There were other contact persons who requested the full mail package. Although the mail operation had minimal staff due to the pandemic, a limited number of packages were mailed upon request.

Sample Design Process Overview

The MEPS-IC is a nationwide sample of private-sector establishments and state and local governments. Data are collected from samples selected from two sampling frames that, together, cover nearly all of the employers in the United States, with

the exception of the federal government and the U.S. military, which are not part of the target population. The two sampling frames are as follows:

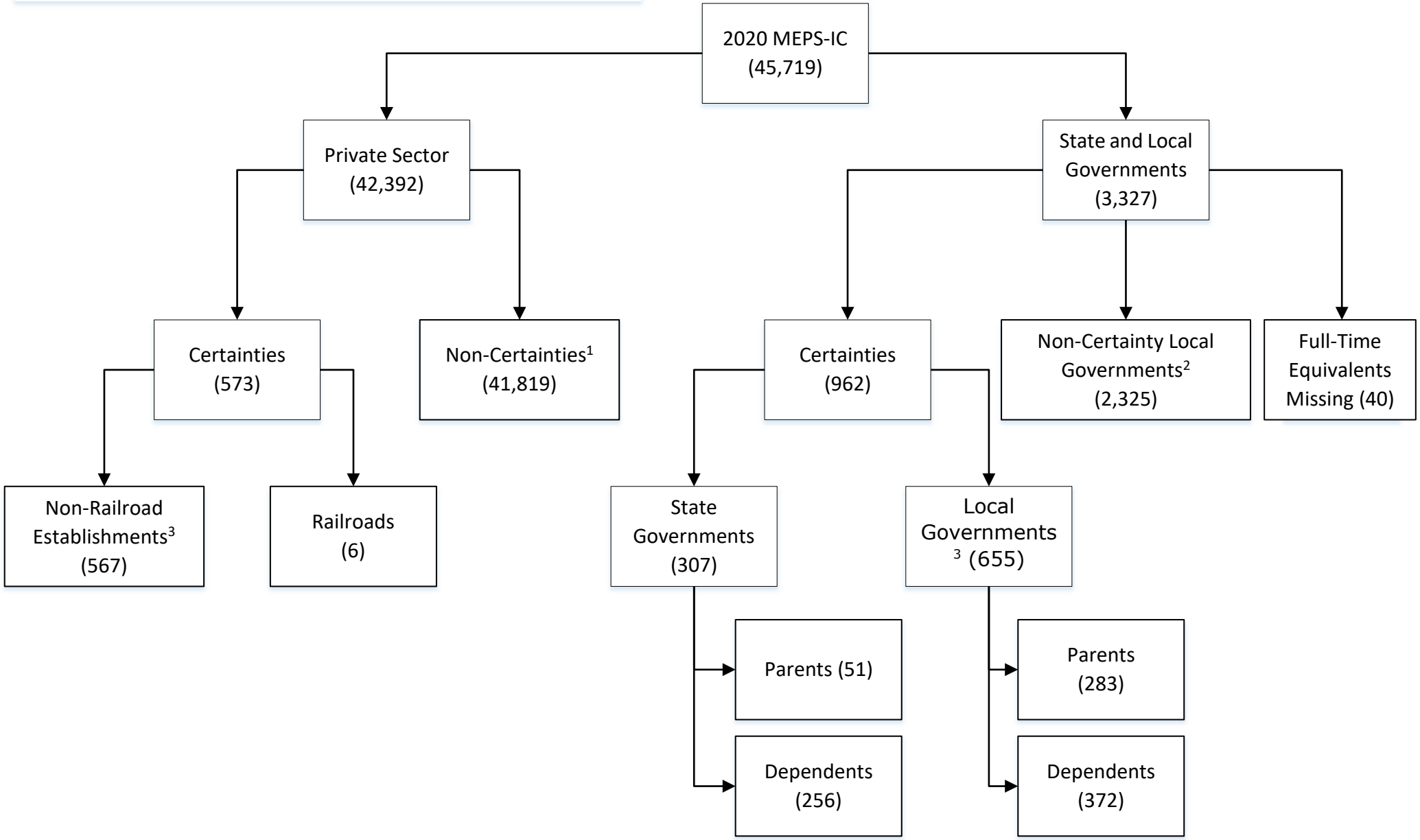
Private Sector
The U.S. Census Bureau's Business Register (BR) is a confidential list of private-sector establishments. The list is developed and maintained by the Census Bureau and continually updated. It is the source of official Census Bureau figures on the number and employment size of business establishments in the United States.

State and Local Government (Public) Sector
The frame of the state and local government sector for the MEPS-IC is the Governments Master Address File (GMAF), constructed with units that are eligible from the Census of Governments (COG) and updates from several annual economic surveys. The COG is conducted every 5 years by the Census Bureau and is updated continually between Census years. For more information about the COG, see http://www.census.gov/econ/overview/go0100.html.

The two prongs of the survey undergo separate sample selection and estimation processes. The combined sample consists of almost 46,000 employers (see figure 1).

The overall sampling goal for the MEPS-IC is to produce nationally representative estimates for the private and state and local government sectors separately and combined as well as by state for the private sector and by Census division for state/local governments. There were several precision goals for the 2020 MEPS survey in terms of relative standard errors as shown in appendix A. Figure 1 provides an overview of the sampling processes and sample sizes in 2020. Subsequent sections of this report on the private sector and the state and local government sector describe these sampling processes in more detail.

Figure 1. 2020 MEPS-IC Sample Allocation Summary



Footnotes

[1]Employment < 5,000, stratified by state
[2]Employment < 5,000, stratified by division
[3]Employment >= 5,000

Private Sector

Frame
The private-sector frame is created from the Census Bureau's BR and is constructed each year in March, following the timing of payroll imputation processing, which is usually not completed until February. For the private sector, an establishment is defined as a particular workplace or location, while a firm is a business entity consisting of one or more business establishments under common ownership or control. In this report, establishments within firms that have more than one establishment are referred to as multi-units, while other establishments are referred to as single-units.

For the 2020 MEPS frame, a single-unit establishment was included if its annual payroll was greater than zero in 2019, while multi-unit establishments were included if the annual payroll was greater than zero in 2018. Two different years were used to develop the 2020 MEPS frame because a major change to the frame construction occurred in 2008 when the survey switched from retrospective (with the interview conducted in the calendar year following the survey reference year) to current (with the interview year the same as the survey reference year) (Kearney and Sommers, 2006). This change impacted the choice of data to use to determine whether establishments are in scope and which data are available to place them in strata. Consequently, the data year used for multi-units is one year older than for single-units because multi-unit imputation processing was not completed at the time of frame construction. There were about 7.7 million private-sector establishments in the United States in 2020. All large establishments with 5,000 or more employees were selected with certainty.

The following types of establishments on the BR are considered out of scope: U.S. Post Offices; private households; public administrations; insurance and employee benefit funds; trusts, estates, and agency accounts; offices of bank holding companies; and offices of other holding companies. They are considered out of scope because they are not part of the target population for the private-sector portion of the survey. Unincorporated self-employed establishments with no employees are excluded from the MEPS-IC frame.

Special processing occurs for railroads and single-unit agriculture production establishments. Railroads are handled in a special way because these data do not correspond to any one state (or site) and are often at the firm level instead of the establishment level. Thus, state-level data for railroads are not available on the BR. Because of this, all railroad firms are included in the sample (i.e., treated as certainties). In addition, the negligible number of non-railroad establishments associated with these firms are excluded from the frame. Single-unit agriculture production establishments are temporarily pulled out from the MEPS frame before the private-sector sample is drawn because there are no edits for them on the BR. These establishments are edited separately; known out-of-scopes are removed, and employment is imputed if it is missing or zero using annual payroll data, average

quarterly wage factors, and other data from the Bureau of Labor Statistics. After the editing process, these agricultural establishments are added back to the MEPS frame in preparation for sampling. On average, about 750 of these cases are sampled each year.

When frame construction is complete, four panels are created where each non-certainty establishment is randomly assigned to one of the four panels (see Sample Allocation and Selection section below for definition of "certainty" and "non-certainty" establishments). When combined with the certainty establishments, each of these panels is nationally representative. Multi-unit establishments on the prior year's frame are assigned to the same panel as the prior year, while single-units and new multi-unit establishments are randomly assigned across the four panels. Each year, two of the four panels are selected for the survey. These two panels include one new panel and one old panel overlapping with the prior year. This strategy helps to reduce the reporting burden for single-units by reducing their chances of being repeatedly included across years into the MEPS-IC sample.

Sample Allocation and Selection

The private-sector sample is drawn at the establishment level, not at the firm level, so it is possible to have more than one establishment sampled from the same firm. There is a certainty stratum which contains establishments with employment of 5,000 or more. All of these establishments are in the United States, and the certainty establishments are not part of the state allocation process for the non-certainty sample described below. Railroad establishments are also selected with certainty into their own stratum.

For the non-certainty establishments, the optimal national allocation to states would be to allocate them proportionally to the number of establishments within each state. However, for most states this would result in far too small a sample to meet state estimation goals. From experience with past MEPS-IC surveys, it has been determined that a sample of approximately 500 establishments per state yields estimates that meet most state estimation goals using state stratification and allocation processes. To meet state precision goals, a sample of a uniform size could be allocated to each state. An allocation of a sample of uniform size to each state would produce state estimates that meet state estimation goals, but would be 50 percent less precise nationally than proportional allocation and would not produce national estimates that meet the precision target. Therefore, a compromise allocation was developed, which starts by proportionally allocating about 21,000 sample establishments (based on the assumption of an 80 percent response rate) among the states. The allocation is then augmented for the 42 smallest states so that each of the 11 smallest states receives 495 additional sample establishments, and each of the next 31 larger states receives 535 additional sample units. The nine largest states are not augmented and therefore receive their entire sample allocation from the proportional allocation of the 21,000 units. Note that Washington, DC, is included in the state allocation. This allocation results in sampling error for national estimates about 20 percent higher than if the entire

sample were proportionally allocated. However, these estimates do meet national and state estimation goals (appendix A).

Table 1 provides the 2020 MEPS private-sector sample allocation for non-certainties by state. The total allocated sample size is 41,819.

Table 1. Private-Sector Non-Certainty Allocations by State, 2020[*]

State	Sample Size	Total Responding (Rounded)[†]
Alabama	726	400
Alaska	672	400
Arizona	726	350
Arkansas	672	350
California	1,991	950
Colorado	726	400
Connecticut	726	400
Delaware	672	300
District of Columbia	672	300
Florida	1,103	550
Georgia	726	350
Hawaii	672	300
Idaho	672	400
Illinois	1,463	700
Indiana	726	450
Iowa	726	450
Kansas	672	400
Kentucky	726	350
Louisiana	726	350
Maine	672	400
Maryland	726	350
Massachusetts	726	350
Michigan	866	450
Minnesota	726	400
Mississippi	672	350
Missouri	813	450
Montana	672	400
Nebraska	672	450
Nevada	672	300
New Hampshire	672	400
New Jersey	817	350
New Mexico	672	350
New York	2,292	950
North Carolina	725	400
North Dakota	672	400
Ohio	781	450

[*] The Census Bureau has reviewed this data product for unauthorized disclosure of confidential information and has approved the disclosure avoidance practices applied. (Approval ID: CBDRB-FY21-ESMD002-027)

[†] Total responding (rounded) as of April 13, 2021.

State	Sample Size	Total Responding (Rounded)†
Oklahoma	726	400
Oregon	726	400
Pennsylvania	1,137	550
Rhode Island	672	350
South Carolina	726	400
South Dakota	672	450
Tennessee	726	400
Texas	1,871	850
Utah	726	400
Vermont	672	400
Virginia	726	400
Washington	726	400
West Virginia	672	400
Wisconsin	726	450
Wyoming	672	400
Total	**41,819**	**22,000**

After the state sample sizes are determined, the sample is allocated into 14 strata within each state. The 14 strata are defined by a combination of establishment size and firm size. The 2020 MEPS strata boundaries and allocations are listed in table 2. Note that these stratum boundaries are evaluated periodically and subject to slight modifications in different years.

Table 2. Private-Sector Stratum Boundaries and Non-Certainty Allocations, 2020[‡]

Stratum	Firm Size (# of Employees)	Establishment Size (# of Employees)	Total Allocation Across States
11	1–12	1–4	6,085
12		5–12	4,844
21	13–91	1–26	5,222
22		27–91	4,402
31	92–755	1–18	1,532
32		19–67	1,666
33		68–142	1,335
34		143–286	1,179
35		287–755	768
41	756+	1–20	4,192
42		21–86	3,538
43		87–275	2,734
44		276–925	2,769
45		926–4,999	1,553

A composite of two different allocations based on the Neyman optimal allocation formula (Cochran, 1977) is used to obtain the state-level non-certainty allocation for the i^{th} stratum within each state as follows:

$r_{si} = .01\ n_{si} + .99\ m_{si}$

The first allocation is performed as follows based on the standard deviation calculated for the estimated percent of all establishments that offer health insurance:

$$n_{si} = \frac{N_{si}S_{1si}}{\sum_{i=1}^{14} N_{si}S_{1si}} n_s$$

where

N_{si} is the number of establishments in the i^{th} stratum in the s^{th} state,

n_s is the state sample size,

S_{1si} is the standard deviation for the s^{th} state and the i^{th} stratum calculated based on the percentage of all establishments that offer health insurance, and

n_{si} is the allocation to the i^{th} stratum in the s^{th} state.

[‡] The Census Bureau has reviewed this data product for unauthorized disclosure of confidential information and has approved the disclosure avoidance practices applied. (Approval ID: CBDRB-FY21-ESMD002-027)

The second allocation is performed in the same manner but using a different key MEPS-IC estimate (total enrollees) as follows:

$$m_{si} = \frac{N_{si} S_{2si}}{\sum_{i=1}^{14} N_{si} S_{2si}} n_s$$

where

N_{si} is the number of establishments in the i^{th} stratum in the s^{th} state,

n_s is the state sample size,

S_{2si} is the standard deviation for the s^{th} state and the i^{th} stratum calculated based on total enrollees, and

m_{si} is the allocation to the i^{th} stratum in the s^{th} state.

The final allocation, r_{si}, is the weighted allocation obtained by taking the weighted value of the optimal allocations for the two variables. The weighting factors for the final allocation (0.01 and 0.99) were determined based on an evaluation of the best overall balance in precision of estimates for the two variables.

Once these allocations are completed, each establishment in a stratification cell is given the same chance of selection equal to

$p_{si} = r_{si}/N_{si}$ where r_{si} is the final allocation within the state.

At this point, in order to reduce the reporting burden on large firms—where a single respondent may sometimes be able to provide the information for more than one establishment owned by that firm—the probabilities are adjusted.

The values of the p_{si} for all establishments linked to the same firm on the frame are summed. This yields the number of establishments that are expected to be selected for that firm. For a small number of firms, this expected value is large and potentially a burden for the responding firms. Moreover, since the insurance offered to employees of establishments within very large firms is often similar, it is more efficient to reduce the sample within these firms both to minimize burden and increase the sample for other establishments.

To reduce this expected number of establishments, the probabilities of selection are reduced to a level that minimizes response burden using adjustment factors that are based on firm size. To make up for this reduction in sample, the probability of selection for all other establishments in a stratification cell that contains an establishment with a reduced probability of selection is increased (see example in appendix B). The increase is calculated by the amount necessary to have the sum of the probabilities of selection within the strata equal r_{si}. Once these probabilities of selection are finalized, the allocated samples are selected using systematic

sampling. To perform this selection, the file is sorted by state, strata, industry, and number of employees. This assures a good balance of establishments within strata.

Prior to 2007, a birth sample was included in the sample allocation, in order to capture any newly created establishments after the frame was constructed but prior to data collection. However, the switch to current year data collection in 2008 eliminated the need for an annual birth sample. While the primary focus for this report is the 2020 survey design, there have also been other significant changes to the sampling design since 2003. A history of the changes to the sample allocations can be found in appendix C.

The sample sizes for private-sector establishments, reported by single-unit and multi-units, beginning with the 1996 survey can be found at the following link: http://meps.ahrq.gov/mepsweb/survey_comp/ic_sample_size.jsp.

In some years slight modifications are made to the MEPS-IC to improve various aspects of the survey. For details see Section VIII at the following link: http://meps.ahrq.gov/mepsweb/survey_comp/ic_technical_notes.shtml.

State and Local Government

Frame

The frame of state and local governments for the MEPS-IC is the GMAF, constructed with units that are eligible from the COG and updates from several annual economic surveys. The GMAF universe is updated continuously, although a formal and comprehensive update occurs during the COG. The COG identifies and describes all units of governments in the United States and provides benchmark figures of public finance and public employment, including how governments are organized, how many people they employ and payroll amounts, and the finances of governments. The COG occurs every 5 years for years ending in "2" and "7," and the 2017 COG was used for the 2020 MEPS-IC frame. There are also annual surveys, such as the Boundary and Annexation Survey, the Annual Survey of State and Local Government Finances, and the Annual Survey of Public Employment and Payroll (ASPEP), which provide periodic updates to the GMAF. From the survey/Census collection period, the data are reviewed and edited as necessary, and the GMAF universe is updated 1.5–2 years following the initial collection cycle. A parent government is defined as a state or local governmental entity, while dependent agencies are associated with a parental governmental agency and include entities such as community colleges, libraries, school boards, etc. The sampling unit for governments is the parent agency along with its dependent agencies (if any). Note that starting in 2017, and continuing for 2020, all dependent agencies were sampled for certainty governments (see Sample Allocation and Selection section below for definition of "certainty" governments). There were about 97,000 state and local governments in the United States in 2020. The federal government, the U.S. military, and U.S. Post Offices are considered out of scope for the survey.

Sample Allocation and Selection

The 2020 MEPS-IC state and local government sample consists of three components: certainties, sampled non-certainties, and sampled cases missing full-time equivalent (FTE) employment data. The certainty governments comprise the 51 state governments (including Washington, DC) and any local government with over 5,000 employees (655 cases in 2020). All certainty cases are assigned a base sample weight equal to 1.0.

The non-certainty government sample covers all other governments (except for missing FTE cases described in the last paragraph of this section below) and is stratified by the nine Census divisions. The divisions are defined in table 3 below.

Table 3. Census Division by State

Census Division	States
New England	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
Middle Atlantic	New Jersey, New York, Pennsylvania
East North Central	Illinois, Indiana, Michigan, Ohio, Wisconsin
West North Central	Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota, South Dakota
South Atlantic	Delaware, District of Columbia, Florida, Georgia, Maryland, North Carolina, South Carolina, Virginia, West Virginia
East South Central	Alabama, Kentucky, Mississippi, Tennessee
West South Central	Arkansas, Louisiana, Oklahoma, Texas
Mountain	Arizona, Colorado, Idaho, Montana, Nevada, New Mexico, Utah, Wyoming
Pacific	Alaska, California, Hawaii, Oregon, Washington

A non-certainty sample size of 200 governments is allocated to each Census division for a total of 1,800. To perform the selection using probability proportional to size (PPS) sampling, each government is given a measure of size equal to the square root of its total FTE employment (which includes any dependent agency employment). The selection probability (p_{ij}) for a single government is determined

as the total final Census division non-certainty state government allocation (i.e., 200), times the government's measure of size, divided by the sum of all measures of size for all governments within the Census division on the frame.

$$p_{ij} = \frac{200 * MOS_{ij}}{\sum_{i=1}^{n_j} MOS_{ij}}$$

where

MOS_{ij} is the square root of the non-certainty government FTE employment for the i^{th} government unit in the j^{th} Census division, and

n_j is the total number of units in the j^{th} Census division.

The non-certainty government sample within each Census division is selected using systematic PPS sampling from a file sorted by state, type of government (county, city, township, school district, special district) within the state, and by FTE employment within type of government. For every selected case, a base sample weight equal to the inverse of the selection probability (p) is assigned.

Table 4 provides the 2020 non-certainty sample allocations for the public sector.

Table 4. State and Local Government Allocations per Census Division, 2020[§]

Census Division	Selected Sample	Total Sample (parent and dependent agencies)
New England	200	299
Middle Atlantic	200	235
East North Central	200	217
West North Central	200	217
South Atlantic	200	337
East South Central	200	282
West South Central	200	250
Mountain	200	251
Pacific	200	237
Total	**1,800**	**2,325**

Finally, it should be noted that cases that have missing FTE employment on the frame are placed into a separate file for processing before the non-certainty sample is drawn. A systematic sample of 40 cases is drawn from the cases in this file. To perform this selection, the file is first sorted by state, type of government, and total employees within type of government (if available). Every sampled case determined

[§] The Census Bureau has reviewed this data product for unauthorized disclosure of confidential information and has approved the disclosure avoidance practices applied. (Approval ID: CBDRB-FY21-ESMD002-027)

to be in scope is assigned a base sample weight equal to the number of missing FTE cases divided by 40.

Summary

This report describes the sample design, sample allocation, and sample selection processes for both the private sector and state and local governments within the MEPS-IC. This information is important for researchers using the data who wish to understand its sampling structure. The details presented in this report apply specifically to the 2020 data year. Insurance Component data files are not available for public release; however, an extensive series of published tables is available at http://meps.ahrq.gov/mepsweb/survey_comp/Insurance.jsp.

References

Cochran, W. G. *Sampling Techniques, 3rd Edition.* 1977. John Wiley and Sons, New York.

Davis, K. *Sample Design of the 2017 Medical Expenditure Panel Survey Insurance Component.* Methodology Report #31. July 2018. Agency for Healthcare Research and Quality, Rockville, MD. https://meps.ahrq.gov/data_files/publications/mr31/mr31.pdf

Kashihara, D. *Construction of Weights for the 2011 Medical Expenditure Panel Survey Insurance Component.* Methodology Report #28. October 2013. Agency for Healthcare Research and Quality, Rockville, MD. http://www.meps.ahrq.gov/mepsweb/data_files/publications/mr28/mr28.pdf

Kearney, A., and Sommers, J. P. Switching from Retrospective to Current Year Data Collection in the Medical Expenditure Panel Survey-Insurance Component. 2006. In *JSM Proceedings,* Business and Economic Statistics Section. American Statistical Association, Alexandria, VA.

Sommers, J. P. *List Sample Design of the 1996 Medical Expenditure Panel Survey Insurance Component* (AHCPR Pub. No. 99-0037). Methodology Report #6. 1999. Agency for Health Care Policy and Research (AHCPR), Rockville, MD. https://meps.ahrq.gov/data_files/publications/mr6/mr6.pdf

Appendices

Appendix A. 2020 MEPS-IC Relative Standard Error Estimation Goals

	Private		State and Local Government	
	National	**State**	**National**	**Division**
Average Premiums	0.0050	0.0300	0.0075	0.0375
Average Contributions	0.0150	0.0900	0.0200	0.1000
Proportions	0.0075	0.3000	0.0100	0.0500

Appendix B. Example of Revised Selection Probabilities for Two Private-Sector Firms

Firm	Selection Probability	Revised Selection Probability
Firm ABC		
Establishment #1	0.55	0.34
Establishment #2	0.75	0.53
Establishment #3	0.75	0.53
Firm DEF		
Establishment #1	0.20	0.85
Total	2.25	2.25

Let's say Firm ABC has three establishments. If we sum the selection probabilities in column two for the firm, it yields the expected number of establishments to be selected (2.05) for Firm ABC. However, two establishments may be a response burden for the firm. Thus, we reduce the selection probabilities for all establishments for Firm ABC and make up for this reduction by an increase for Firm DEF.

Appendix C. History of Changes to the MEPS-IC Sample Allocation

Year	Changes
2003	**Private sector**—The strata within each state were redefined, and a separate certainty stratum was created. Logistic regression was used to assign establishments to strata in order to obtain a reduction in variance. https://meps.ahrq.gov/data_files/publications/mr18/mr18.shtml#WithinStates Additional funding due to the dropping of the Household Component-Insurance Component link sample allowed for sufficient sample in every state for the purpose of making state-level estimates. Virginia purchased additional sample for their state to support sub-state estimates. See following link for full list of additional samples purchased by states in earlier years: https://meps.ahrq.gov/survey_comp/ic_technical_notes.shtml#stateestimates. **State and local governments**—The nine Census divisions were used as non-certainty strata instead of states.
2004	**Private sector**—Within each state, allocation to the strata was determined separately to avoid assigning to a stratum a sample size that was larger than the number of establishments available within that stratum. Due to budget restrictions, the non-certainty strata sample was reduced across all states by approximately 4 percent.
2005	**Private sector**—The allocation was increased for Alaska and Louisiana for this year only. In total, 770 establishments were added to the sample and evenly divided between the two states. The extra sample was allocated across the strata that were less likely to have health insurance or likely to contain only small businesses.
2006	**Private sector**—Budget constraints required an additional reduction of 100 establishments from the total allocation. Also, the one-time increase in the allocation for Alaska and Louisiana was dropped.

2007	Due to the transition from retrospective to current-year data collection, there was no survey to collect data for 2007.
2008	**Private sector**—Allocation returned to the original stratification method used prior to 2003, with establishment and firm size classes used for placing establishments into strata. The allocation at the state level was the same as in 2006, and a majority of states had 14 strata. However, smaller states had eight strata because the strata in these states were collapsed due to small allocations in 1996–2002.
2009–2010	**Private sector**—All states were assigned 14 strata, and the strata boundaries were redefined.
2011	**Private sector**—Funding provided for an additional 200 sample cases to be included in the overall sample.
2014	There was a change in the method for calculating standard errors to the Taylor series method.
2017	**Private sector**—Sampling of all certainty establishments. **Private sector**—Increase sample for an additional 700 government units, and sampling of all dependencies for certainty governments.