

Employee Benefits Survey (EBS) Manual

A Guide for States Implementing a Benefits Survey

Provided by the National Employee Benefits Consortium

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DRAFT
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This product is the result of collaboration between the Bureau of Labor Statistics and 19 states. The Nebraska Workforce Development, Labor Market Information Center spearheaded the Consortium. The other participating states were: Alabama, Alaska, California, Florida, Idaho, Iowa, Kansas, Minnesota, Missouri, Montana, New Hampshire, New Mexico, North Carolina, North Dakota, South Carolina, South Dakota, Washington, and Wyoming.

The charter, set up by the Workforce Information Council, was to examine the needs, methods, and costs, and to establish a nationwide program to provide consistent benefits information for states and local areas. The Benefits Information Work Group was established to complete that task.

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Report Purpose

This manual is designed to provide basic guidance to labor market and similar analysts for conducting a local or statewide employee benefits survey. Included is a bibliography on employee benefits surveys, an introduction to the questionnaire, sampling guidance as well an introduction to the data collection software developed by the National Employee Benefits Consortium. There are also helpful tips on conducting and marketing the employee benefits survey results, among other useful topics. Sections of the manual were written by Consortium members under the auspices of the National Employee Benefits Consortium, which provided the final review. The Consortium intends to update this manual when necessary and as funding is available.

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Introduction

A wide variety of customers benefit from the information that is obtained through benefits surveys. Job seekers can use benefits information to make decisions regarding employment. Employers, economic developers and others can use this information to assess their competitive position in the labor market. The Employee Benefits Consortium was established to help states meet the information needs of such customers.

National Employee Benefits Consortium: Background

The Workforce Investment Act of 1998 stressed the need for expanded data at both state and local levels. This Act also emphasized that standardized data collection for comparison across states would provide a consistent means for business and job seekers to make informed employment decisions.

Benefits information is already being collected through the National Compensation Survey (NCS) by the U.S. Bureau of Labor Statistics (BLS). Although the NCS provides excellent data for national use, it cannot be used to develop estimates for state and local areas, and the collection methods are cost prohibitive for individual states to employ. A few states do collect benefits information, but collection methods vary greatly and are not comparable across the nation.

In order to provide labor market consumers consistent information, it is necessary to develop a standardized survey instrument and methodology that can be used by all states and will produce information useful to all customer groups. These groups include, but are not limited to, economic developers, local employers, career centers, job seekers, students, and employees looking for upward mobility across the lifespan of their careers.

The Employee Benefits Consortium began in September of 2001 to assist the Workforce Information Council in addressing this fringe benefit data gap. Membership included of state LMI representatives, The Bureau of Labor Statistics, and the Employment and Training Administration. Nebraska chaired the Consortium and represented the state level membership of the Workforce Information Council. The role of the Bureau of Labor Statistics was to provide technical expertise in benefits collection and survey methodology and design. The purpose of this Consortium is to "assist the Workforce Information Council by examining the need for and recommending approaches to developing state and local information about benefits provided to workers by employers." This guide reflects the Consortiums' final recommendations to states desiring to implement an employee benefits survey.

The Survey Questionnaire

The survey questionnaire was created by the National Employee Benefits Consortium based on models used by several states. Many drafts of the survey form were developed throughout the course of the Consortium. The final survey instrument was developed based on the results of feedback of multiple tests. Cognitive testing of the survey instrument was conducted by the University of Alabama. The Consortium’s recommended survey questionnaire can be found in Appendix A.

Survey Questions

Questions included in the survey instrument were selected based on a number of criteria. A comprehensive list of employee benefits was developed by the Consortium. Benefits data users were surveyed to determine the types of information most in demand. Additionally, input was provided by the Bureau of Labor Statistics of the most requested types of benefits data. This information was used to develop a list of survey questions.

All questions included were determined to be “core” elements of the survey. For each survey element, the level of detail that should be collected was determined by the Consortium. The four levels of detail identified were:

1. Incidence: whether the benefit is offered by the employer to employees; availability. These questions can be answered with a simple yes/no response.
2. Provisions: stipulations, qualifications, or minimal details of a benefits plan. Responses to these questions will provide information about the benefit, if it is offered. Examples would be whether or not there is a waiting period for medical insurance, or the number of days of paid sick leave offered per year.
3. Participation: enrollment of those offered a benefit. The number of employees offered a benefit that choose to enroll; the number that choose to “take up” the benefit.
4. Cost: the cost to the employer of offering the benefit. Costs borne by the employee (such as the employee portion of health insurance premiums) are not collected.

Core Data Elements

The table below describes the core elements contained in the Employee Benefits Survey.

Survey Element	Coverage
Insurance <ul style="list-style-type: none"> • Medical (employee & family*) • Dental (employee & family*) • Vision 	Incidence, Provisions, Participation, and Cost
Insurance <ul style="list-style-type: none"> • Life • Short-term Disability • Long-term Disability 	Incidence, Provisions, and Participation
Retirement <ul style="list-style-type: none"> • Defined Contribution • Defined Benefit 	Incidence, Provisions, Participation, and Cost
Paid Leave <ul style="list-style-type: none"> • Vacation • Sick • Holiday • Consolidated 	Incidence and Provisions

<p>Other Benefits</p> <ul style="list-style-type: none"> • Child Care • Education/Tuition Assistance • Non-production Bonuses • Flexible Spending Accounts • Shift Differentials 	<p>Incidence</p>
<p>* Family insurance coverage is defined as employee <i>plus</i> other(s) such as spouse, children, dependents, etc.</p>	

Detailed explanations of each question included in the survey can be found in Appendix B.

Survey Masthead

The masthead is the information printed at the top of the survey form. It should include the respondent’s mailing address as well as the pertinent details about the entity sending the form such as the name of the state, agency, and mailing address.

The purpose of the masthead is to let respondents know who is asking them to participate in the survey. Secondly, if the return envelope is separated from the survey form, the masthead will supply respondents with the return address.

Supplemental State Questions/Modules

The survey recommended in this manual includes only *core* data elements and questions. Due to the nature of testing both the technical and cognitive aspects of the instrument, the Consortium recommends that states do not modify the survey.

The research community is aware that the perception of meaning in a question is extremely important, as is the placement sequence of that question within a survey instrument. The core instrument developed by the Consortium has been tested and piloted. Consequently, states should not change the wording, order of the questions, or insert State specific questions within the body of the core instrument. To do so may alter the validity of responses to the original core questions.

The Consortium recognizes that some states may need to collect data that is not included in the core set of questions. States looking to collect additional benefits information may want to consider a supplemental survey to collect this data. If a state must add questions to the Consortium-designed survey, they should be placed *after* the questions developed and tested by the Consortium. The Consortium-developed survey ends after the section titled ‘Cost of Benefits.’

Survey Timeline

Key items such as staffing, printing of survey materials, and sample refinement are critical to the Employee Benefits research effort. The amount of time and staff workloads required for these elements should be considered prior to starting the survey. The timing of the survey can have a strong impact on the survey response rate. Tax season, end of budget year, and holidays are among the timing influences that should be taken into consideration.

NOTE: Changes in benefits may occur as a result of contractual or collective bargaining agreements, therefore consideration should be given to setting response dates that may cross calendar or fiscal year timelines.

The timeline presented is recommended by the Consortium as a guideline for states implementing an Employee Benefits Survey. There are many things that may influence the actual time needed to complete the survey. For instance, the first time the survey is conducted additional time may be necessary to become familiar with the survey process; subsequent surveys may not require the same amount of time for all activities.

Time	Task
During the 1st 4 Weeks (Month 1)	<ul style="list-style-type: none"> • Draw the sample. • Print business reply envelopes with appropriate postal permits/frank (may need to order separate postal permit) • Establish budget codes for time and materials. • Begin cleaning sample. <ul style="list-style-type: none"> - Identify the businesses with an out-of-state address or no address. - Identify multiple units (for example, cities, counties and school districts). - Identify businesses with the same mailing address. - Use a program such as ZP4 to validate addresses and flag addresses not recognized by the post office.
5th Through 8th Week (Month 2)	<ul style="list-style-type: none"> • Create a data entry system. • Start contacting certainty units and correcting addresses. <ul style="list-style-type: none"> - Call certainty unit employers to verify mailing addresses and get contact names. - Find addresses for businesses with an out-of-state address, an address that flags using ZP4 (optional), or no address. • Print and mail pre-survey postcards. • Correct addresses from returned postcards. • Finalize design of survey instrument, cover letter, and mailing insert. • Print mock up survey instrument and inspect for printing errors. • Print surveys and inserts. • Finalize sample database. • Finalize mailing list.
9th Through 12th Week (Month 3)	<ul style="list-style-type: none"> • All surveys mailed. • Re-mail returned bad-address surveys. • Review completed surveys. • Begin data entry.
13th Through 16th Week (Month 4)	<ul style="list-style-type: none"> • Print and mail 2nd round. • Continue review. • Continue data entry.
17th Through 19th Week (Month 5)	<ul style="list-style-type: none"> • Begin reminder calling. • Continue review. • Print and mail 3rd round (optional). • Continue data entry.
19th Week through 22nd Week (Month 5)	<ul style="list-style-type: none"> • End data collection. • Finalize database for data analysis.
23rd Week through 26th Week (Month 6)	<ul style="list-style-type: none"> • Estimate production and analysis. • Narrative and report writing.

There may be state-specific issues that will impact the amount of time needed to conduct an Employee Benefits Survey. The amount of time necessary for things such as printing survey materials, obtaining postal permits, creating a data entry system, or drawing the survey sample will vary from state-to-state. Prior to starting the survey, states should review the timeline and identify areas where the Consortium's estimated timeline may need to be adjusted.

Cost of Conducting the Survey

Prior to starting an Employee Benefits Survey, states may want to consider the cost of conducting the survey. The actual cost of the survey will vary depending on a number of factors. Examples include the sample size, level of staff working on the survey, printing and postages costs, and which options are utilized in the survey (such as a Frequently Asked Questions (FAQ) sheet, toll-free telephone number, etc.). States interested in more detailed information in the costs of a benefits survey are encouraged to contact states that have conducted surveys. The following is a list of expenses that states may need to include in their budget to conduct a survey using the Consortium's recommendations.

Printed Materials

These are the documents that will need to be created and printed prior to the survey round. At a minimum, states will need to print survey forms and envelopes (window and postage-paid return). Printing costs will vary based on other materials that states decide to use for the survey, the number printed, and printing options within the state.

Required printed materials:

- Survey Questionnaires
- Postage paid return envelopes
- Window Envelope to Mail
- **Recommended printed materials:**
- Pre-survey Postcards
- Cover Letter
- Follow-up Cover Letters
- Frequently Asked Questions sheet

Examples of these materials can be found in the appendices of this manual.

Staff Costs

This is staff time and overhead to conduct the study – from pre-survey planning to reporting of the results. Staff pay will likely be one of the highest costs of conducting a benefits survey. Staff needs will include, but not be limited to, pre-survey preparations, sample selection, telephone duties, data entry, analysis, report writing, problem solving and project coordinator. Costs for conducting a benefits survey will depend on the level of staff working on each piece of the survey. Examples of staff classifications that may work on the benefits survey include:

Research Analyst(s)
Administrative Assistant(s)
Research Supervisor
Mail Center (inserting, labeling or duplicating)
Graphics Designer
Web Page Specialist
Database Technical Assistance

Communications Unit

States must make lines of communication available to employers. Examples include a toll free or other telephone number, email, fax, or a web site. Employers should be instructed to call if they have any questions, want an alternate response method or to verbally complete their survey over the telephone.

At a minimum, employers will be able to speak to someone by phone, send a fax, and have an email address to which survey questions and responses can be sent.

The avenue of contact should be available to two or more staff so that incoming matters are addressed immediately during normal work hours. Phone coverage should continue even if one of the staff members is unavailable. If a unique phone number is used, Employee Benefits Survey staff should answer the line differently than their personal office number, referring to it as the "Employee Benefits ...<insert mode of communication>." The telephone number may continue to be "active" even after the data collection period had ended. This allows late responders to have their information and questions processed even if the data is too late for inclusion in the survey results.

Mailing, Duplicating and Data Processing Unit

Recommended alternatives for preparing surveys include securing the assistance of a mailing, duplicating and data processing unit. Typically, this unit prints, addresses, stamps and mails materials for the state. Using a mailing, duplicating, and data processing unit may save time and money because of their experience printing large quantities of things such as post cards, letters, and survey forms. The staff may not be directly involved with the benefits survey and should be notified well in advance of the survey schedule in order to place it on their timetable.

Resources for printing the survey documents will vary from state to state and may include one of the following methods:

- The survey document can be printed with the mailing address and survey identification number directly on the survey using a mail merge.
- The survey document can be printed with blank areas for the mailing address and the survey identification number. At the time of each mailing, the mailing address and survey identification number can be printed on these pre-printed forms.
- If unable to print directly on the pre-printed forms, mailing labels can be placed on the pre-printed forms.

Postage

Postage to send all survey materials will be a large part of the budget in conducting a benefits survey. Items requiring postage will include, but not be limited to: pre-survey notification postcards, mailing of questionnaires for each survey round, return postage for completed surveys, and mailing of results to respondents. Additionally, any materials returned with bad addresses will require additional postage to be re-mailed. Prior to printing survey materials, states are encouraged to contact the U.S. Post Office to determine the best postage options for the survey.

Other expenses

These are additional expenses that may be incurred in conducting a benefits survey. Examples may be costs of a toll-free telephone number, long-distance charges for follow-up phone calls, charges for software or programming of software, creation of the final survey results, and other expenses. States may wish to contact those states that have conducted a benefits survey for examples of budgets for conducting the survey.

Sampling

A primary goal of the Employee Benefits Consortium is to design a survey program which would allow description of the most important employer-offered benefits by allowing the production of estimates concerning benefit incidence and participation rates, selected provisions, and costs which are comparable¹ across States and with the Federal National Compensation Survey results. One method of achieving this goal is for States to employ similar sample designs and selection procedures when conducting their survey of Employee Benefits. However, as States choosing to implement an Employee Benefits survey will have varying, if not unique, information needs as well as variable levels of resources, the Consortium's strategy for achieving similar sampling across states is to specify general design parameters and recommend practices for sample design and selection as well as provide minimum requirements for reporting level, estimation strata, and estimate precision. These minimum requirements can be enhanced and expanded by States to address their unique information needs while still supporting estimates which are comparable across States.

The first section of this chapter presents the Consortium's recommended sample design specifications and selection process; the second section includes a detailed explanation of these recommendations and guidance regarding modification of the Consortium's sample design to meet State-specific information needs. Note that the sampling plan presented here applies only to surveys whose primary purpose is description; States intending to use survey results for other purposes, such as explanatory or hypothesis-testing statistical procedures, are urged to consult statistical practitioners for guidance in developing an appropriate sampling plan. In addition, the information presented here is intended for States who wish to enhance the Consortium's recommended minimums while generally following the Employee Benefits Survey sample specifications; States choosing to diverge from the specifications outlined here are also urged to consult with statistical practitioners for guidance.

Sample Specification Recommendations

Recommended Sampling Plan (Design and Practices)

The Consortium's recommended minimum reporting level, estimation strata, sampling strata, and estimate precision targets are summarized as follows:

Reporting Level: Statewide

Estimation Strata: Industry (18), size class (5), and population density category (2/3)

Sampling Strata: Industry by size class by population density category

Precision Target: Error of plus or minus 5 percent points with 95% confidence

The table below, "Minimum Division of Sampling and Estimation Strata Characteristics," shows the recommended minimum division of strata delimiters. Use of the recommended minimums will enable States to produce survey estimates by industry, size class, and, if applicable, population density category with a relatively small sample. In addition, the recommended minimums can be expanded upon to meet

¹ In this sense, comparable refers to the ability to make informational or evaluative comparisons as opposed to statistical comparisons such as t-tests. In addition, unless specifically accounted for in the sampling design, it is not recommended that data be aggregated across States.

the unique information needs of individual States while still supporting the production of comparable estimates. See the second section of this chapter for more information regarding the definition of reporting levels, estimation strata, sampling strata, and precision targets, as well as methods for implementing modifications which will allow States to address their specific information needs while still producing estimates which are comparable across states.

Minimum Division of Sampling and Estimation Strata Characteristics

Characteristics	Recommended Classes
Industry	Mining (NAICS 21) Utilities (NAICS 22) Construction (NAICS 23) Manufacturing (NAICS 31-33) Wholesale trade (NAICS 42) Retail trade (NAICS 44-45) Transportation and Warehousing (NAICS 48-49) Information (NAICS 51) Finance and Insurance (NAICS 52) Real estate and rental and leasing (NAICS 53) Professional, scientific, and technical services (NAICS 54) Management of companies and enterprises (NAICS 55) Administrative support and waste (NAICS 56) Educational services (NAICS 61) Health care and social assistance (NAICS 62) Arts, entertainment, and recreation (NAICS 71) Accommodation and food services (NAICS 72) Other services, excluding public administration (NAICS 81)
Size (Employment)	Less than 10 employees 10 to 49 employees 50 to 99 employees 100 to 249 employees 250 or more employees
Population Density Category*	<i>Pre-2000 Typology</i> Metropolitan Non-Metropolitan <i>2000 Typology</i> Metropolitan Micropolitan Non-Core Based Statistical Area

* States without significant levels of diversity among the population density categories may opt to not use this classification as a sampling/estimation strata. For States with significant variation, a choice between the two currently used typologies is required; see the second section of this chapter for further information.

The population for the Employee Benefits survey is defined as non-governmental (private) employers, excluding those in agriculture and private households, which is represented by a frame based on the quarterly EQUI file; States may use the file from the most recently available quarter or the most

representative quarter². Sampling units are defined as establishments (reporting units) with positive employment (i.e., greater than zero) in the most recent quarter of the State's EQUI.

The recommended method of sample selection is Probability Proportionate to Size (PPS), which specifies allocation of the sample to sampling cells (i.e., intersections of industry, size class, and population density category) based on the proportion of the total (frame) employment contained within the cell. Within sampling cells, sample units are selected based on the cell's sampling interval, with certainty units identified as those sampling cell members with employment greater than the cell's sample interval. The minimum sampling cell allocation is one sample unit.

The recommended minimum sample size for an Employee Benefits survey using the specifications outline here is 674 sample units. This figure was determined by calculating the number of completes required to meet the precision targets and adjusting for non-response and post-selection exclusion³. The actual sample size for any given State will be larger than 674, as additional sample units are required to allocate at least one sample unit to each populated sampling cell, produce variance estimates, and meet reporting goals while protecting the confidentiality of respondents⁴.

Sampling Process

The Consortium's recommended sampling process is outlined below, along with an example of the process using a simulated population of employing establishments. Consult the second section of this chapter for additional information and guidance regarding modification of these practices to accommodate sample design changes necessary to address State-specific information needs.

Step 1. Prepare Sampling Frame

- a. Construct a list of units eligible for sample membership from the most recent or most representative EQUI by selecting records with the following characteristics⁵:
 - Single or sub-unit establishment unit (Multiple Establishment Employer Indicator code \neq 2)
 - Private ownership (Ownership code = 5)
 - Industry sector other than agricultural or public administration (NAICS code first two digits \neq 11 or 92)
 - Non-private household establishment (NAICS code \neq 81411)
 - Employment greater than 0 in the last month of the quarter (Third Month Employment $>$ 0)
 - Physical location within state borders (State Code = FIPS code of State)
 - Note that establishment with industry and/or location is unknown should not be excluded from the sampling frame unless it is known that they are otherwise ineligible for inclusion in the survey sample.

For each unit selected, the following data fields are to be retained for use in the sample design and selection process:

- Third Month Employment

² For example, say the most recent EQUI file was for the fourth quarter. If the State has significant seasonal employment and/or employers who close during the fourth quarter months, the State may deem the third or second quarter file as more representative and so use it to form the frame for the Employee Benefits survey.

³ The adjustment for non-response was calculated using the Consortium's recommended minimum response rate of 60%. The adjustment for post-selection exclusion (i.e., sample units discarded due to ineligibility) was calculated using the Consortium's recommended allowance of 5%. See the second section of this chapter for further information.

⁴ The recommended disclosure criteria for employee benefits estimates is based on the "3/6/60" method; see the second section of the chapter for further discussion of this method.

⁵ References in parentheses are to EQUI data fields and codes as shown in *ES-202 Operating Manual, Appendix B*.

- County Code
- NAICS Code.

The figure below, "Selecting Frame Members from EQUI File." shows a sub-set of the records from the simulated EQUI and their frame disposition. For the simulated state, the frame contains 197,949 units with a total employment of 3,080,371.

Selecting Frame Members from EQUI File

Record #	MEEI Code	Ownership Code	NAICS Code	3rd Month Employment	State Code	County Code	Frame Disposition
1	1	5	541410	15	18	12	Include
2	2	5	331491	84	18	44	Exclude (Master Record)
3	1	2	485113	72	18	56	Exclude (non-private)
4	3	5	999999	64	18	14	Include
5	4	5	112910	7	18	2	Exclude (agriculture)
6	5	5	422310	0	18	6	Exclude (no employment)
7	1	5	337910	123	24	82	Exclude (out-of-state)
8	3	5	811122	17	18	999	Include

- b. Assign each frame unit into a sampling cell by determining its NAICS sector, Size class, and Population Density category (shown in the table, "Minimum Division of Sampling and Estimation Strata Characteristics").
 - i. For most industries, the NAICS sector is equal to the first two digits of the NAICS code. The exceptions are Manufacturing (NAICS codes beginning with 31, 32, or 33), Retail Trade (NAICS codes beginning with 44 or 45), and Transportation (NAICS codes beginning with 48 or 49).
 - ii. Assign size class category based on the level of employment in the third month of the quarter.
 - iii. Population density category is assigned according to the unit's county designation in the chosen OMB typology (see the second section for further details); available electronically from <http://www.whitehouse.gov/omb/infoereg/statpolicy.html>.

Step 2. Construct matrix of sampling cells

The matrix of sampling cells includes two data items within each cell: the number of units and the percent of total employment contained within the sampling cell units. This information will be used to allocate the sample among the sampling cells. The sampling cell matrix for the simulated State is shown in the table below, "Matrix of Sampling Cells." Each cell in the matrix shows the number of frame units included in the given intersection of industry sector and size class, as well as the total employment of these units. *Note that for ease of explanation, the remaining examples will only use stratification by only industry and size class.*

Matrix of Sampling Cells

		Under 10	10 to 49	50 to 99	100 to 249	250 or more
Mining (21)	<i>units</i>	45	52	2	2	1
	<i>employment</i>	56	541	161	211	576
Utilities (22)	<i>units</i>	104	30	22	6	2
	<i>employment</i>	127	349	1,166	718	1,135
Construction (23)	<i>units</i>	21,257	4,422	403	149	32
	<i>employment</i>	91,297	92,235	31,954	27,398	15,164
Manufacturing (31)	<i>units</i>	5,633	3,380	937	887	509
	<i>employment</i>	9,130	82,671	68,553	136,999	292,453
Wholesale trade (42)	<i>units</i>	10,985	2,935	310	151	36
	<i>employment</i>	18,354	59,896	22,965	22,904	22,812
Retail trade (44)	<i>units</i>	23,513	7,900	1,059	482	94
	<i>employment</i>	73,853	155,760	73,251	69,297	54,143
Transportation and warehousing (48)	<i>units</i>	3,687	1,103	238	122	60
	<i>employment</i>	12,662	27,494	22,924	18,327	59,532
Information (51)	<i>units</i>	267	805	158	78	49
	<i>employment</i>	307	14,500	13,832	13,704	27,952
Finance and insurance (52)	<i>units</i>	9,390	1,972	168	91	58
	<i>employment</i>	30,844	35,563	13,773	13,940	47,215
Real estate and rental and leasing(53)	<i>units</i>	7,364	1,015	20	10	2
	<i>employment</i>	10,922	18,260	1,058	1,202	1,250
Professional, scientific, and technical services (54)	<i>units</i>	17,614	2,630	255	117	2
	<i>employment</i>	39,704	50,356	14,564	13,892	10,064
Management of companies and enterprises (55)	<i>units</i>	526	148	21	75	48
	<i>employment</i>	642	1,532	1,058	10,912	32,919
Administrative support and waste and remediation services (56)	<i>units</i>	9,448	2,267	421	335	127
	<i>employment</i>	27,390	46,421	18,262	51,362	60,161
Educational services (61)	<i>units</i>	561	173	18	8	24
	<i>employment</i>	745	1,819	936	998	28,094
Health services (62)	<i>units</i>	10,177	5,053	690	490	124
	<i>employment</i>	60,796	105,027	50,948	73,627	106,005
Arts, entertainment, and recreation (71)	<i>units</i>	685	911	153	65	4
	<i>employment</i>	735	22,825	13,695	7,741	2,480
Accommodation and food services (72)	<i>units</i>	6,378	7,503	1,021	193	4
	<i>employment</i>	24,301	172,014	73,038	27,417	2,427
Other services (81)	<i>units</i>	15,163	1,943	18	67	3
	<i>employment</i>	38,536	34,233	3,125	14,249	20,333
Unknown/Unclassified (99)	<i>units</i>	412	73	4	0	0
	<i>employment</i>	2,072	1,214	212	0	0

Step 3. Perform initial sample allocation

The initial sample allocation distributes the "base" sample ($n_s = 674$) among the cells in the sampling matrix according to the percent of total frame employment included among the units in each cell, with the additional conditions that each populated cell receive at least one sample unit and that the maximum which can be allocated to a given cell is the total number of units included in the cell. For example,

consider the cell in the upper left corner of the matrix, which contains the frame members classified as NAICS sector 21 (Mining) and size class 1 (less than 10 employees); this cell contains 45 units whose total employment is 56. As stated above, the total frame employment is 3,080,371 and so this cell contains 0.001% of the total frame employment and would be allocated one sample unit; even though this cell's percent allocation of the base sample is 0 ($674 * .00001 = 0.009486 \approx 0$), because it is populated it is allocated one sample unit. In contrast, consider the cell in the lower right corner of the matrix, which contains the frame members classified as industry 81 (Other Services) and size class 5 (250 or more employees); this cell contains three units whose total employment is 20,333. The percent allocation of the base sample for this cell would be four, as the cell contains 0.7% of the total employment ($674 * .007 = 4.45 \approx 4$), but since the cell contains only three units, its allocation is three.

The results of the allocation of the "base" sample are shown in the table below, "Results of Initial Allocation." Note that total number of sample units allocated ($n_a = 666$) is less than the "base" sample size ($n_s = 674$). In practice, this is not unexpected as the number of sample units allocated to some sampling cells is greater than the number of frame units in the cell. The opposite case (i.e., number of sample units allocated > "base" sample size) is also possible, due to populated cells with few units and/or a small proportionate share of total employment. For a State using the full sample stratification recommendation (i.e., stratification by industry, size, and population density), it is more likely that this second case will occur.

Results of Initial Allocation

	Under 10	10 to 49	50 to 99	100 to 249	250 or more	Total
Mining (21)	1	1	1	1	1	5
Utilities (22)	1	1	1	1	1	5
Construction (23)	19	20	6	5	3	53
Manufacturing (31)	1	18	14	29	63	125
Wholesale trade (42)	4	13	5	5	4	31
Retail trade (44)	16	34	16	15	11	92
Transportation and warehousing (48)	2	6	5	4	13	30
Information (51)	1	3	3	2	6	16
Finance and insurance (52)	6	7	3	3	10	29
Real estate and rental and leasing(53)	2	4	1	1	1	9
Professional, scientific, and technical services (54)	8	11	3	3	2	27
Management of companies and enterprises (55)	1	1	1	2	7	12
Administrative support and waste and remediation services (56)	5	10	3	11	13	42
Educational services (61)	1	1	1	1	6	10
Health services (62)	13	22	11	16	23	85
Arts, entertainment, and recreation (71)	1	4	2	1	1	9
Accommodation and food services (72)	5	37	15	5	1	64
Other services (81)	8	7	1	3	3	22
Unknown/Unclassified (99)	1	1	1	0	0	3
Total	95	199	92	108	169	666

Step 4. Adjust cell allocations to meet reporting requirements

This step of the process involves adjusting sample unit allocations to meet reporting requirements related to disclosure. Specifically, each cell or aggregation of cells for which survey estimates are to be reported (e.g., estimation strata) must contain three establishments and six employees to protect the confidentiality of respondents. In addition, no single employer can account for more than 60% of an estimation strata's total employment. Of course, meeting this standard is a function of the number of sample units allocated to the cells within the estimation strata, the characteristics of the units selected within the estimation strata, and the actual response received from the selected units within the estimation strata. Thus, it's not possible to guarantee that all of the desired estimation strata will meet the disclosure thresholds solely through the sample design process. However, the sample design must allocate sufficient units to each estimation strata so that it will be possible to meet the disclosure criteria. As each estimation strata must contain data from three units, at least five units should be allocated to the sampling cells or aggregation of sampling cells corresponding to the desired estimation strata; the minimum of five was determined by dividing the minimum number of completes (3) by the response rate target (60%).

Determining whether additional allocations are required to meet reporting goals requires examination of the sample unit allocations by estimation strata. In this case, the estimation strata are equivalent to the marginals (the totals shown in the final row and column of the table) in the table "Results of Initial Allocation," Examination of the marginals from the table "Results of Initial Allocation" indicates that the allocation of the "base" sample achieves the reporting requirements goal (i.e., at least 5 units per estimation strata); the smallest number of units allocated to an industry sector is 5 (Mining and Utilities) while the smallest number of units allocated to a size sector is 92 (50 to 99 employees). In general, States that are following the Consortium's recommendations regarding estimation strata will find that the allocation of the "base" sample will usually also satisfy requirements for confidentiality in terms of the number of units allocated to each estimation strata. Note that this allocation adjustment is not requirement for "remainder" categories (e.g., the "Unknown/Unclassified" industry row in the "Results of Initial Allocation" table) unless the State wishes to exceed the Consortium's minimum estimation strata and report estimates for units in these categories.

However, if it had been necessary to increase the sample unit allocation to meet the reporting minimum, the additional sample units should be allocated proportionally by employment. For example, say the cells shown below formed an estimation stratum for the simulated State; the first row of each cell shows the number of units within the cell, the second shows the total employment of the cell, and the third shows the number of sample units allocated to each cell.

	<i>Cell 1</i>	<i>Cell 2</i>
<i>units</i>	25	15
<i>employment</i>	125	690
<i>sample unit allocation</i>	1	1

The two cells were allocated a total of two sample units and so the allocation must be increased by three to reach the minimum of five. The three additional sample units are allocated by calculating the percentage of employment in each cell and then dividing the additional units accordingly. ***Cell 1*** has 15% of the total employment ($125 / (125+690) * 100$) while ***Cell 2*** has 85%. As 15% of three is less than one (0.45), all three of the additional sample units necessary for the estimation strata consisting of the aggregation of ***Cell 1*** and ***Cell 2*** to meet the five unit minimum are allocated to ***Cell 2***.

Step 5. Adjust allocation to support variance estimates

Stable variance estimates require 30 degrees of freedom which translates (roughly) into 120 sample units for each cell or aggregation of cells for which stable variance estimates are desired⁶. As this figure refers to the number of completes, the target (120) is adjusted by the response rate target (60%) which produces a minimum required allocation of 200 sample units.

For the simulated State’s sample to support stable variance estimates for each estimation strata, the sampling cells within each industry sector will require a varying number of additional sample units. For example, the cells within industry sector 21 (Mining) will require an additional 195 units, while those within sector 31 (Manufacturing) will require an additional 75 units. Likewise, the cells within each size class will also require additional sample units. As the need for additional units greater for the industry sectors, which require a total of 2,931 additional units, compared to the size class categories (3334 additional units), the adjustments will concentrate first on meeting the target allocation (200 units) for the industry sectors.

As with the other sample unit allocations, the additional sample units are allocated among the cells in proportion to their share of the total employment; for this case, the relevant total employment is the total employment in the estimation strata. For example, the five cells within the Manufacturing industry sector from the “Matrix of Sampling Cells” table are shown below. The first row (Units) shows the total number of units in each cell while the second (Emp. Share) shows the percent of total Manufacturing employment in each cell. The number of units allocated in the previous steps (Org. Units) is shown in the third row while the number of units allocated in this step (Add’l Units) is shown fourth with their sum (Total Units) in the final row. As stated above, a total of 75 additional were allocated to these five cells in this step of the process; the number distributed was determined by multiplying the percent of employment by the number of additional units to be allocated. For example, for the first cell (Under 10 employees), 1.5% of total Manufacturing employment is among units of this size class and so it was allocated one of the 75 additional units ($.015 \times 71 = 1.09 \approx 1$).

	Under 10	10 to 49	50 to 99	100 to 249	250 or more
Units	5,633	3,380	937	887	509
Emp. Share	1.5%	14.0%	11.6%	23.2%	49.6%
Org. Units	1	18	14	29	63
Add’l Units	1	11	9	17	37
Total Units	2	29	23	46	100

In some cases it may be necessary to perform the allocation of the additional units in an iterative process, meaning that it may take multiple passes over the group of cells whose allocation is being adjusted to reach the target number of units in the variance estimation strata. For example, say the three cells below constitute a population for which the State wishes to support stable variance estimation. In the original allocation of sampling units, these three cells received 50 units and so an additional 150 units is required to meet the target allocation for variance estimation. **Cell 1** contains 65% of the total employment in the three cells and so would receive 97 of the 150 additional units. However, the total number of frame members in the cell is 85, and so only 52 units are allocated to this cell during the second allocation; this means that only 104 additional units were allocated and so the group of cells is still below the target of 200 units. Thus, a second pass is required to allocate enough units so that the total allocation for the three cells equals 200.

⁶ See the **Variance** chapter of the manual for further details regarding the derivation of this figure.

	<i>Cell 1</i>	<i>Cell 2</i>	<i>Cell 3</i>	Total
Units	85	150	95	330
Employment Share	65%	25%	10%	100%
Initial Allocation	33	12	5	50
Second Allocation				
<i>Pass 1</i>	52	37	15	104
<i>Pass 2</i>	0	33	13	46
Total	52	70	28	150
Total Allocation	85	82	33	200

The results of the second allocation are shown in the table below. Note that the total allocation for two of the industry sectors (Mining and Utilities) is below the target of 200 units; this occurs because the total number of frame units in these sectors is less than 200. Also note that, after this allocation, many of the cells have a 100% sampling rate (i.e., all frame units in the cell are included in the sample). Note that this allocation adjustment is not requirement for “remainder” categories (e.g., the “Unknown/Unclassified” industry row) unless the State wishes to exceed the Consortium’s minimum estimation strata and report estimates for units in these categories.

Results of Second Allocation (Adjustment for Variance Estimation)

	Under 10	10 to 49	50 to 99	100 to 249	250 or more	Total
Mining (21)	45	52	2	2	1	102
Utilities (22)	104	30	22	6	2	164
Construction (23)	71	73	24	21	11	200
Manufacturing (31)	2	29	23	46	100	200
Wholesale trade (42)	25	82	32	31	30	200
Retail trade (44)	35	75	34	32	24	200
Transportation and warehousing (48)	21	48	40	31	60	200
Information (51)	1	52	50	48	49	200
Finance and insurance (52)	47	55	20	20	58	200
Real estate and rental and leasing(53)	67	116	7	8	2	200
Professional, scientific, and technical services (54)	66	85	24	23	2	200
Management of companies and enterprises (55)	16	40	21	75	48	200
Administrative support and waste and remediation services (56)	26	46	17	51	60	200
Educational services (61)	43	107	18	8	24	200
Health services (62)	30	54	25	37	54	200
Arts, entertainment, and recreation (71)	3	101	60	32	4	200
Accommodation and food services (72)	16	116	48	18	2	200
Other services (81)	85	74	7	31	3	200
Unknown/Unclassified (99)	1	1	1	0	0	3
Total	705	1,234	475	521	534	3,469

Step 6. Adjust allocation to comply with resource constraints

If a state has determined that available resources constrain the sample size to a maximum which is less than the total sample size after Step 5, the State will have to either adjust its allocation so that the total sample size is at or below the maximum or identify additional resources to support the additional units necessary to meet its goals. If the State chooses to adjust its allocation, the recommended strategy is to revise a reporting or estimation goal so that the sample size (allocation) requirement is lower.

In practice, it may be that there are resources available to support a sample larger than that required to meet a State's reporting and estimation goals. In this case, the State has several alternatives, including:

- allocating additional units uniformly across the sampling cell matrix
- allocating additional units to critical cells to ensure sufficient response
- directing resources to more intensive follow-up to increase response rate.

Whether this final adjustment is to correct a "too-large" or "too-small" sample, a particular State's strategy will depend on its information needs and customer requirements.

Step 7. Select Sample Units

The Consortium's sampling specifications recommend using Probability Proportionate to Size (PPS) sample selection methods. This method of sample selection is applied independently to each populated sampling cell. Implementation of this method will be illustrated using the simulated sampling cell (shown below) which contains six units with a total employment of 1,894; four (4) sample units were allocated to this cell.

Simulated Sampling Cell

<u>establishment</u>	<u>employment</u>
A	256
B	262
C	267
D	253
E	264
F	592

To perform PPS selection:

- a. Calculate initial sampling interval by dividing the sum of total employment within the cell by the number of sample units allocated to the cell. For the simulated sampling cell shown below, the initial sampling interval is 473.5 (1,894/4).
- b. Identify certainty units, which are those sampling cell members with employment greater than the sampling interval calculated in step a. For the simulated sampling cell, establishment F is a certainty unit, as it has employment (592) greater than the sampling interval (473.5).
- c. Recalculate the sampling interval, excluding the certainty units identified in step b from both the numerator and denominator. For the simulated sampling cell, this recalculation is as follows:

$$SI = \frac{1,894-592}{4-1} = \frac{1302}{3} = 434$$

- d. Identify any additional certainty units based on the re-calculated sampling interval from step c. If any are found, re-calculate the sampling interval excluding these units and repeat until no additional certainties are found. As the remaining simulated sampling cell units have employment which is less than the re-calculated sampling interval (434), establishment F is the only certainty unit identified for this cell.

Note: The final Sampling Interval calculated for each cell needs to be retained. The sampling interval will be used to calculate Sample Weights for all units selected to be in the survey sample (see the Weighting chapter of this manual).

- e. Generate a list of the non-certainty units sorted in ascending order of employment and calculate cumulative employment for each unit. The results of this step for the simulated sampling cell are shown below.

<u>establishment</u>	<u>employment</u>	<u>cumulative employment</u>
D	253	253
A	256	509
B	262	771
E	264	1035
C	267	1302

- f. Select a random "start" by selecting a random number greater than 0 and less than or equal to 1 $\{(0,1] \}$ from a uniform distribution. Compute an initial comparison point by multiplying the final sampling interval by this random number. For the example shown here, the random number was 0.89 and so the initial comparison point is 386.26 (434×0.89).
- g. Compute additional comparison points by adding the final sampling interval to the initial comparison point. The number of additional comparison points is equal the number of sample units allocated to the cell minus the total number of certainty units identified within the cell. For the simulated cell, four sample units were allocated and one certainty unit was identified; thus, a total of three comparison points are required. Computation of the comparison points for the simulated cell is shown below.

<u>comparison point #</u>	<u>calculation (random = 0.89)</u>	<u>comparison point value</u>
1	$434 * 0.89$	386.26
2	$386.26 + 434$	820.26
3	$820.26 + 434$	1254.26

- a. For each comparison point, identify the first establishment in the list for which the cumulative employment is greater than or equal to the comparison point value; the identified establishment is then selected as a sample unit. For the simulated cell, the selected non-certainty units are A, E, and C (see below).

<u>establishment</u>	<u>employment</u>	<u>cumulative employment</u>		
D	253	253		
A	256	509	←	Comparison Point 1 [386.26 <= 509]
B	262	771		
E	264	1035	←	Comparison Point 2 [820.26 <= 1035]
C	267	1302	←	Comparison Point 3 [1254.26 <= 1302]

Once sample selection is finalized, the State can proceed with sample “cleaning” and administration of the survey as described in the following chapters. Also, information on location in the sampling cell matrix and selection order should be retained for sample members as it forms the basis of calculation of analysis weights and variance estimates⁷.

Further Sampling Information and Discussion

General Design Parameters

The recommended sample design for Employee Benefits Surveys is a single-stage, stratified sample of private employers chosen using probability proportionate to size selection. The term single-stage refers to the selection process and indicates that sampling units will be chosen directly from the sampling frame as opposed to multi-stage selection where the initial selections are of population segments and the primary sampling unit differs from the sample unit. States that choose to employ a multi-stage sample, such as one where sample units are drawn from randomly selected geographic areas, are urged to seek statistical consulting, particularly for guidance in determining analysis weights and variance estimates.

The Consortium recommends use of a stratified sample to increase the efficiency of the sampling plan. A stratified sample is considered to be more efficient than a simple random sample because sample membership is controlled such that important covariates of the phenomena under study are represented adequately in the sample. For employer-offered benefits, previous studies have demonstrated that the most important covariates are industry and establishment size (i.e., number of employees) and so the Consortium recommends that industry and size be used as stratifiers in the sample design for the Employee Benefits survey. In addition, after controlling for industry and size, variation due to geographic location can be observed; at least part of this remaining variation is associated with differences in population density (i.e., location in a metropolitan area versus non-metropolitan area). Thus, if a State has sufficient variation in terms of population-density classifications, it is recommended that this characteristic also be used as a stratifier. The definition of sampling strata depends on the chosen estimation strata and may be the same or sub-divisions of the estimation strata; the Consortium’s recommended minimum sampling strata are described in the following section.

The recommended population for the Employee Benefits survey is private employers. For design of a survey’s sampling plan, the choice of the population is the specification of the group(s) to which the estimates refer; the sample is designed to represent this population and survey estimates are

⁷ Specifically, calculation of analysis weights requires the sample interval of the unit’s sampling cell and estimation of the variance requires retention of the unit’s selection order within its sampling cell.

constructed to generalize to this group. The Consortium recommends use of private employers as the sample population for primarily practical reasons. First, most States will have access to a relatively complete sampling frame (e.g., list of population members) for this population, namely the quarterly EQUI files from the ES-202 program; use of another population may require significant expenditures to gain access to an appropriate sampling frame⁸. Second, as there are relatively frequent studies of benefits offered by Federal, State, and Local governments⁹, exclusion of public sector employers, who may be represented to some degree in the EQUI, will enable use of a smaller sample without loss of information. The Consortium also recommends exclusion of agricultural and private-household employers from the population, as these types of employers rarely offer benefits and may not be well-represented in the EQUI. In addition, the Consortium recommends that the sample unit for an Employee Benefits survey be a single physical location or reporting unit as designated in the EQUI; States using frames other than their EQUIs should choose a sample unit comparable to reporting units as defined in the EQUI.

Finally, the Consortium recommends that States use probability proportionate to size (PPS) selection methods to choose sampling units. As employer size is an important covariate of the phenomena under study, PPS selection allows for implicit stratification by size which reduces the number of sampling strata and increases the efficiency of the sample. States which choose to use other methods for selecting their sample, including both other probability methods and non-probabilistic schemes, are urged to seek guidance for development of their sample design and estimation processes.

In general, States that choose alternative design parameters for their Employee Benefits survey sample must exercise caution if they intend to produce estimates which are comparable with those produced by other States and/or the National Compensation survey. States are urged to follow these general design parameters if at all possible; most information needs regarding description of employer-offered benefits can be addressed with the sample design specified here. In addition, a critical criterion in the development of the Consortium-specified sample design parameters was efficient use of resources in terms of both sample size and estimation procedures, as well as ease of implementation.

Recommended Minimums

In general, the size of a survey sample depends on three factors:

1. Detail required for survey estimates
2. Required level of survey estimate precision
3. Resources available to administer the survey

The greater the level of detail required for survey estimates, such as the need to produce a set of estimates for multiple population sub-groups or to produce estimates by cross-classifications of important covariates, the larger the sample size required. Likewise, higher precision of the survey estimates requires larger samples. The available resources determine the maximum sample size possible and so design of a survey sample often depends on balancing detail and precision requirements within resource constraints. That is, it is usually necessary to accept lower levels of precision in order to increase the number of population sub-groups for which estimates can be generated or to decrease the number of population sub-groups in order to achieve a desired level of precision. Achieving both a high level of detail and high degree of precision is usually beyond the means of the survey sponsors.

⁸ Availability of the frame is not the single consideration in choosing a sampling frame; coverage of the population of interest and accuracy of frame data are also relevant. The final cost for using an incomplete and/or inaccurate frame may be higher than the cost of gaining access to a complete and accurate frame.

⁹ For example, Workplace Economics, Inc. publishes an annual survey of the benefits offered by state governments (see www.workplace-economics.com) and the Bureau of Labor Statistics publishes a periodic report of benefits offered by state and local governments (see www.bls.gov).

Level of Detail

The level of detail required for survey estimates is specified by determining the reporting levels and estimation strata. The reporting levels are the population sub-groups for which it is desired to provide a set of survey estimates. For example, a State may wish to provide a set of estimates for sub-state areas such as workforce investment or economic development regions. In effect, each reporting group is a separate population on which the survey is to be administered simultaneously. Estimation strata refer to the population sub-groups within which estimates are to be calculated. For example, a State may wish to provide estimates by industry and size class.

The recommended minimum for the Employee Benefits survey is to define a single reporting group (i.e., Statewide results) and to define estimation strata by industry (NAICS sector) and size class (five category classification used for sampling; see the table "Minimum Division of Sampling and Estimation Strata Characteristics"). In other words, the Consortium recommends that, at a minimum, each survey estimate be produced for the sample as a whole, the eighteen NAICS sectors, and the five size classes for a total of 24 variations of each estimate¹⁰; note that the recommended minimum estimation strata are not cross-classifications. States requiring survey estimates with a greater level of detail are advised to use sub-divisions of the recommended minimums so that it will be possible to provide comparable estimates. For example, if a State wishes to provide survey estimates by geographic region, the regional definitions should be constructed so that the sum of all the regions is equal to the total area of the State. Likewise, if a State chooses to use finer divisions of size and/or industry, the only requirement is that the chosen classification be aggregatable to the specified minimum division.

In addition, if the State has sufficient variation in terms of population density categories, it is recommended that this characteristic also be used to define estimation strata. Population density category refers to the designations assigned by the Federal Metropolitan Area program of the Office of Budget and Management based on Decennial Census data indicating the degree of economic ties between population nuclei and adjacent communities. The designations classify counties (city/township in New England) as being either within population nucleus and its adjacent area or "outside" of a population center; prior to 2000, the areas designated as within a population center were referred to as "Metropolitan Statistical Areas" (MSA). In most States, the division of counties/townships between metropolitan and non-metropolitan areas is not one-sided, meaning a significant portion of the land area is within a MSA and a significant portion is outside of the MSAs; in these cases, population density category is recommended as an estimation strata delimiter. However, if the State's land area is classified as primarily metropolitan or non-metropolitan, use of population density category as an estimation strata delimiter is not appropriate.

For States using population density category as an estimation strata delimiter, it is necessary to determine the appropriate aggregation level and designation year. As mentioned above, prior to 2000, only two (primary) designations were in use: Metropolitan and Non-Metropolitan. However, the standards used to assign population density designations are reviewed and amended periodically to address operational and conceptual issues. In 2000, OMB released new standards for the designations which included a three-category typology. Specifically, in the new standard, the areas formerly known as Metropolitan areas are now referred to as "Core-Based Statistical Areas" which includes two types of population centers: Metropolitan areas formed around a nucleus with a population of 50,000 or more and Micropolitan areas formed around a population nucleus of size between 10,000 and 50,000. In

¹⁰ Note that two additional estimate variants (i.e., by class of worker - full/part-time status) are also recommended for production by the Consortium. These variants do not need to be considered in the sample design process.

addition, in 2003 new designations of counties/townships were released; the new designations use the 2000 revision of the typology and are based on the results of the 2000 Decennial Census.

The issue here is that implementation of the new standards is a gradual process and most currently ongoing data collection programs will not be reporting data using the new standards until 2005 or 2006. Thus, States who wish to use or provide data on employee benefits in a manner consistent with other labor market data will need to review how and when the new standards are to be implemented for their State¹¹; the National Compensation Survey, which is the primary source of national-level data on Employee Benefits, plans to implement the new designations in their 2005 sample with estimates published by Metropolitan, Micropolitan, Core-Based Statistical Area, and non-CBA in 2006. Other considerations relevant to determination of which designations to use are the expected frequency with which the State expects to collect Employee Benefit data and whether the State wishes to ensure a high degree of comparability between its periodic collections of Employee Benefits data. The Consortium recommends that States attempt to mirror the National Compensation Survey implementation plan if possible. Specifically, use three population density classifications as estimation strata: Metropolitan counties/towns, Micropolitan counties/towns, and non-CBA counties/towns. However, if the division of the State's counties/towns among the three categories is not of sufficient variation, an alternative would be for States to use two categories: Core-Based Statistical area and Non-CBA. Regardless, if the State use population density category as an estimation strata delimiter, the State should make certain to specify which designations are in use when disseminating survey results.

As stated above, the number of reporting levels and estimation strata has a determining effect on the sample size; as the number of reporting groups and/or estimation strata increases, so does the size of the sample required to support production of the estimates. Note that the effect on the sample size of increasing the number of reporting groups by one is of several orders of magnitude greater than the effect of increasing the number of estimation strata by one. This is because each reporting group is considered a separate population for determination of the sample size and so each additional reporting group effectively doubles the sample size required. In contrast, the effect of estimation strata on the sample size is the requirement that there be sufficient number of sample members within the strata to support the production and publication of estimates. Methods to estimate the sample size requirement under various reporting level and estimation strata configurations are discussed later in this chapter.

As discussed above, the Consortium recommends the use of sampling strata formed by the intersection of industry, size class, and, if appropriate, population density classification. If the minimum reporting level and estimation strata are being used, the stratification characteristics shown in the Matrix of Sampling Cells are the recommended minimum division. Use of this stratification scheme will result in a maximum of 180/270 sampling strata (18 industry classes X 5 size classes X 2 or 3 population density categories). The actual number of stratification cells may be less than the maximum due to null intersections between stratification characteristics (i.e., certain combinations of industry, size, and population density category will contain no members of the population/sampling frame). In addition, if the sampling frame contains establishments with unknown industry and/or geographic location, including those designated as "Statewide" location, a remainder class should be added to the relevant stratification characteristics as all sample frame members should fall into one (and only one) stratification cell.

If a State chooses to use more than a single reporting group, the sample stratification scheme should be replicated within each reporting group. For example, if a State chose to use seven geographic regions of the State's land area as reporting groups, the sample stratification scheme shown above would be

¹¹ See http://www.bls.gov/lau/lamet_implement3.htm for a summary of the Bureau of Labor Statistics' plans for implementing the new population density designations and assignments.

replicated within each area, resulting in a maximum of 1,260/1,890 sampling strata. Likewise, if a State chooses to use more finely defined estimation strata, the sampling strata should be adapted so that each sampling strata is either a sub-divisions of an estimation strata or its equivalent. For example, say a State wanted to produce estimates by the cross-classification of industry and size class. As these estimation strata are equivalent to sampling strata, no alteration of the sample stratification scheme is necessary¹². However, if the State chose instead to use finer size class divisions, the size class categories used to define sampling strata should be amended to be equivalent or smaller than the finer estimation strata categories.

Note that the recommended sample strata along with the sample unit selection method (PPS) result in double-stratification of the sample on the size class characteristics. That is, PPS results in implicit stratification of the sample by size and so it is not necessary to use explicit stratification by size to ensure the sample is representative in terms of size class. However, using both explicit and implicit stratification for size class facilitates some aspects of sample design, which is particularly important for States evaluating multiple combinations of reporting groups and estimation strata to determine the appropriate and achievable design for their Employee Benefits survey sample as well as for States who desire to report estimates by the cross-classification of industry and size. Using both explicit and implicit stratification may result in an increase in the size of the sample and so States with extremely limited resources may choose to only use implicit stratification by size for definition of sampling cells.

Estimate Precision

The precision of the survey estimates is a statistical measure of the expected differences between the measures taken of sample members and those which would result from measurement of the total population. Put simply, data from a sample allows estimation of a range within which it is relatively certain that the “true” population value falls. The precision of this estimate is the magnitude of the range and the probability level that the estimated range includes the true population value; the former is generally referred to as the sampling error while the later is generally referred to as the confidence level. Generally, the lower the acceptable level of error and/or the higher the acceptable confidence level, the larger the sample size required to meet the precision targets.

Specification of acceptable error and confidence level can be very complicated, particularly in the case where there are multiple characteristics for which population estimates are desired. In general, the most conservative approach is to use the acceptable error and confidence level for the data element with the highest precision requirements; this is generally the data element with the highest level of variability and/or the most importance for users of the survey data. However, when there is limited or no prior knowledge regarding the characteristics under study it can be difficult to determine which of the many data elements included in the survey should be used to specify the survey’s precision targets. In addition, if there is limited or no information as to the expected degree of variability in the population characteristics under study, it can be difficult to determine an acceptable level of error. In these cases, an acceptable approach is to specify the acceptable error level in terms of the most conservative possibility. For the Employee Benefits survey, the recommended practice is to specify precision targets for dichotomous data elements (i.e., percentage estimates) with the assumption that the population distribution is 50-50. With this type of data element, a generally acceptable precision target for informational purposes, and the recommended practice for the Employee Benefits survey, is an error of plus or minus five percentage points with 95% confidence.

¹² Note that production of estimates by the cross-classification of industry and size would require a much larger sample than that required by the Consortium’s recommended estimation strata (i.e., production of estimates by industry and by size).

Note that these estimate precision specifications apply to estimates for the population(s) specified by the reporting levels. That is, for a State using the Consortium's recommended minimums, the precision specifications apply to the estimates made for the State as a whole, and not the estimates by industry, size class, and population density category which will have a higher degree of variability. In effect, the recommended minimum estimate precision sacrifices precision for detail, which is the primary trade-off made in designing a survey sample in the presence of resource constraints.

Recommended Practices

There are a number of steps necessary to select the survey sample, including preparation of the sampling frame and strata, determining the "base" sample size, adjustments for non-response and other factors, and selection of sample members. The Consortium's recommended practices for performance of these steps is described below, along with limited discussion of appropriate modification techniques which may be necessitated by a State's particular information needs.

Preparation of the Sampling Frame

Preparation of the sampling frame for the Employee Benefits survey is accomplished by construction of a list of units eligible for inclusion in the sample and then stratification of this list into a matrix of sampling cells. As discussed above, the recommended population for the Employee Benefits survey is private employers, excluding those in agricultural industries and private households. In order to produce a sampling frame which is representative of this population, the recommended practice is to construct the list of eligible units from the most recent or most representative quarterly EQUI¹³ file (see footnote 2 for more information about choice of EQUI quarter).

If a State chooses to use a different population than that recommended by the Consortium, the appropriateness of the EQUI as the source of the sampling frame should be considered. Specifically, the EQUI almost completely enumerates the recommended survey population, as these types of employers are almost universally covered by Unemployment Insurance. Coverage of other types of employers, including those in the public sector, agriculture, and private households varies across States and so, if these employers are to be included in the survey population, alternative sources for construction of the frame should be considered. However, note that use of alternative frame sources may require additional steps to produce survey estimates and/or may not allow implementation of the design and sampling recommendations presented here.

Finally, States may wish to avoid over-burdening its employers by excluding employers who are sample members for other surveys, such as the Occupational Employment Statistics or Current Employment Statistics programs from the Employee Benefits survey; the Consortium recommends against this practice for several reasons. First, this exclusion will necessitate additional measures to select sample members and compute estimation weights. In addition, given the definition of certainty unit used for these surveys, it is most likely not possible to develop a representative sample of the employers in the State without including some employers who are OES or CES sample members; that is, exclusion of employers based on their participation in another survey program may introduce bias into the survey results. States choosing to exclude employers are urged to seek consultation regarding appropriate modifications to the sample selection and estimation methods described here. However, all employers meeting the criteria described above should be included in the sample frame, regardless of whether the State intends to set their selection probability to zero.

¹³ States may choose to also include records from the Federal Railroad Unemployment Insurance (FRUI) program. The unit records should be selected from the FRUI establishment file using the same criteria as those used for selecting records from the EQUI.

Preparation of the Sampling Strata

Preparation of the sampling strata involves the stratification of frame members into a matrix of sampling cells defined by the intersection of industry, size, and population density category. For most employers in the frame this is a relatively simple operation which involves, at the most, re-coding EQUI codes to fit the sampling strata characteristics. However, for units belonging to multiple-unit employers, it may be necessary to choose between two industry codes and two size classes. For example, auxiliary units often have an auxiliary industry code if the primary economic function of the sub-unit differs from the primary economic function of the company as a whole. In addition, the size class of a sub-unit may be different than the size class of the company as a whole. For the Employee Benefits survey, the recommended practice is to use the establishment's industry code and size class for the purposes of developing the sampling cells.

Another issue may arise for States using population density category as a reporting level, estimation strata, or sampling strata delimiter. As discussed above, new definitions of metropolitan areas based on 2000 Census results were recently released; in many States, these new definitions represent significant changes in the population density categorization of the State's land area. If population density category is to be used as an estimation strata delimiter, the State must determine which version of the typology and designations it wishes to use for the Employee Benefits Survey (see discussion in the "Recommended Minimums" section above). However, if the State choose to not use population density category as an estimation strata and there is sufficient variation in the designations assigned to the State's counties/towns, it is recommended that population density categories be used as sampling stratifiers and that States use the most recent designations of metropolitan, micropolitan, and non-CBA counties/towns.

Generally, the sampling cell delimiters will be the intersections of industry, size, and population density categories; if the State chooses to use only implicit stratification by size, then the delimiters will be the intersection of industry and population density category. However, the precise definition of the sampling cell delimiters depends upon the decisions made regarding reporting level and estimation strata as discussed in the previous section (Recommended Minimums). If a State chooses to use multiple reporting groups, each group should be treated as a separate population and have its own sampling cell matrix. Additionally, remainder cells should be included if the frame contains units with either unknown industry or unknown/Statewide locations.

Determine Sample Size and Allocation

The determination of the sample size for a stratified sample begins with the determination of the number of response required for statistically valid results with a simple random sample (SRS) of the sampling frame constructed for the stratified sample. For a dichotomous response (i.e. yes/no question), the number of completed responses required to estimate the proportion of the population represented by the sampling frame falling into one of the response categories with an error of plus or minus .05 and 95% confidence is 384¹⁴. Note that this figure applies to each population (i.e., reporting groups/levels) included in the survey sample. So, if a State has chosen to report survey estimates for three geographic regions, the SRS number of completes for the total sample would equal 1,152 (384 x 3).

The next step is to determine the base sample size for the stratified sample by adjusting the SRS number of completes for non-response and post-selection exclusion. The size of the non-response

¹⁴ Different levels of precision (error) and risk tolerance (confidence), as well as varying assumptions about the population distribution will cause variation in the SRS sample size. Additionally, SRS samples drawn from small populations will also vary from this size. See Appendix K. for details regarding the derivation of the SRS size for these situations.

adjustment is a function of the expected cooperation rate of frame members selected for sample membership, which is in turn (partially) a function of the resources devoted to soliciting and ensuring participation in the survey effort. Specifically, the extent of the pre-notification efforts, such as postcard and/or telephone contact prior to survey administration, as well as the extent of follow-up efforts, such as repeated mailings and/or telephone contact with (initial) non-respondents, will have a positive impact on cooperation rates and thus an inverse effect on the size of the non-response adjustment. The recommended practice for the EB survey is to utilize strategies, particularly follow-up, to achieve a minimum response rate of 60%.

An adjustment for post-selection exclusion is necessary to allow for discrepancies between the sampling frame and the actual population of employing units. That is, given the difference between the reference period of the EQUI file which serves as the basis for the sample frame and the fielding period of the Employee Benefits survey, it is possible that some portion of the employers chosen for the sample will be out of scope (i.e. out of business or otherwise ineligible for sample membership). Increasing the sample size to account for this possibility ensures that adequate numbers of responses will be obtained from the survey effort. The size of the adjustment should be determined from previous experience using EQUI-based samples, information on employer "death" and "birth" rates, and the amount of resources available for address refinement and other sample "cleaning" procedures. The recommended practice is to allow for a post-selection exclusion rate of 5%.

Thus, the base sample size for the stratified sample is calculated as follows:

SRS number of responses	384
Adjustment for non-response	÷ .60
<i>Sub-total</i>	<i>640</i>
Adjustment for post-selection exclusion	÷ .95
Base Sample Size	674

Thus, for States following the Consortium's recommended minimums, the recommended sample size is 674, plus whatever additional units are necessary to cover all population sample strata (see below).

In order to ensure coverage of all stratification cells, the base sample is allocated among the cells in a systematic fashion. As the Employee Benefit survey sample design is based on PPS sampling, the portion of the sample allocated to each stratification cell is approximately equal to the portion of the total employment of all frame members represented by the units in the cell. For example, if the sum of the employment of the establishments in a given stratification cell is 3,000 and the sum of the employment of all establishments included in the sampling frame is 300,000, 1 percent of the sample units should be allocated to that cell. So, with a base sample size of 674, 6 ($674 \times .01$) sample units would be allocated to that cell¹⁵. However, every populated cell (i.e. cell that contains at least one member of the sampling frame) must be allocated at least one unit of sample and the maximum number of sample units which can be allocated to a cell is the number of frame members located within the cell.

The next step is to adjust the sampling cell allocations to ensure sufficient response to support reporting objectives. Specifically, there must be sufficient data gathered from each estimation strata so that the confidentiality of respondents is protected. For the Employee Benefits survey, the minimum population for which results can be reported is a cell or aggregation of cells with three establishments and six employees. In addition, no single employer can account for more than 60% of the total employment. Note that these figures refer to the number of responses and not the number of sample units, which

¹⁵ Generally, rounding is not applied during allocation of the sample to stratification cells.

includes both respondents and non-responders, and so cell allocations should be reviewed with possible non-response effects in mind. If it appears doubtful that a cell or group of cells for which it is desired to report results will meet the reporting minimums, the cell's sample allocation can be increased up to the total frame population. For cells where the frame population is below the reporting minimum, results must either be suppressed or aggregated prior to publication of survey results.

In addition, the sample allocation must be such that it will support the production of variance estimates for the survey results. Due to the sample's complex design, the Consortium recommends that standard sample variance methods, which are designed for use with simple random samples, not be used to produce variance estimates for the Employee Benefits survey. The recommended practice is to use replicate methods which will produce unbiased variance estimates if the sample is of sufficient size; further discussion of variance estimation is included in the survey estimation chapter of the manual. Generally, these replicate methods require at least 30 degrees of freedom to produce stable variance estimates; however, the stability of the variance estimate is a function of both the number of cases used to compute the estimate and the variability of the data element for which the variance estimate applies. As it is unlikely that resources would permit a sample sufficient to produce stable variance estimates for all survey estimates, especially if the State has chosen finely defined estimation strata, the Consortium recommends that States instead ensure that the sample will support stable variance estimates for each population (i.e., reporting group) included in the sample; if the above practices regarding sample size are followed, additional measures should not be necessary to achieve this goal. States may also desire to produce stable variance estimates for certain critical sub-populations; if this is case, States should design their samples so that the sampling cells representing the critical sub-populations have around 100 to 120 responses. Achieving this goal may require that additional sample units be allocated to these cells; if so, the additional sample is allocated using the same methods described above.

Once all sampling cell adjustments are complete, the final sample size can be determined by summing the allocations across all cells. This number can be used to estimate the cost of administering the survey to determine if sufficient resources are available. If not, it will be necessary to amend sample design choices in order to reduce the sample size in accordance with the resource constraints. The most appropriate amendments will depend on each State's unique situation but it is possible to provide some general guidance for States who are administering an Employee Benefits survey to provide descriptive information about employer-offered benefits. First, as less precision is generally acceptable for descriptive surveys, States that calculated their sample size using precision targets higher than the Consortium recommendations should consider relaxing these targets; if the State used the Consortium recommended precision targets, further relaxation is not likely to result in any appreciable reduction in sample size requirements. Next, if the State set minimum response targets to support stable variance estimation for individual or groups of sampling cells, the State should consider reducing its goals related to the production of stable variance estimates. Finally, if the State is using multiple reporting groups, it should consider combining all or some of these groups and/or using the defining characteristic(s) of the reporting groups as estimation strata delimiters rather than reporting groups. This last strategy will most likely result in the greatest reduction in sample size requirements.

Sample Selection

As discussed above, the recommended practice for the Employee Benefits survey is to select sample members using probability proportionate to size (PPS) methods. Under PPS selection, the chance an individual unit will be selected is roughly proportionate to its size (employment) and so units with larger (relative) employment will have (comparatively) greater probability of being selected for sample membership. For sampling cells, PPS is implemented via allocation of sample units based on the proportion of total frame employment contained within the cell. Within sampling cells, PPS is implemented by basing selection on the cell's sample interval.

The sample interval for any given sampling cell is defined as:

$$\frac{\sum_{i=1}^{N_s} emp_i}{n_s} = \frac{\text{sum of the employment } (emp_i) \text{ of all units } (N_s) \text{ in cell } s}{\text{number of sample units allocated to cell } s (n_s)}$$

If any unit within a sampling cell has employment greater than or equal to the cell's sample interval, the unit is considered a certainty unit, meaning that it will definitely be chosen for sample membership (i.e., has a selection probability of 1). If any certainty units are identified in any given cell, the cell's sample interval is recalculated excluding the certainty unit(s) from both the numerator and denominator. The remaining units are then compared to the recalculated sampling interval to determine if there are additional certainty units, with the process repeated until no additional certainties are identified.

Once the final sample interval has been determined, non-certainty units are selected with the following process:

1. Generate a list of non-certainty units sorted in ascending order of employment and calculate cumulative employment for each unit.
2. Select a random start between 0 and 1 and compute an initial comparison point by multiplying the final sampling interval by the random start.
3. Assign 'hits' systematically using the initial comparison point and other comparison points obtained by adding multiples of the final sample interval to the initial comparison point.
4. Select units whose cumulative employment is the first to be greater than or equal to one of the comparison point values.

See the first section of this chapter for an illustration of the PPS selection process. The units drawn from each sampling cell are selected independently, meaning that the process outlined above is performed separately for each sampling cell.

Summary

The sampling methodology outlined here was designed to allow States a large degree of flexibility in the production of estimates which can be compared to those produced by other States. However, the goal of the sampling plan is to support the provision of descriptive information at a relatively high level of detail, which necessitates a sacrifice in the level of estimate precision. States are advised to exercise caution and to seek statistical consultation if their information needs require deviations from the sampling methodology outlined here. In addition, States are advised and requested to publish indicators of estimate precision (variance) to assist users in the evaluating and using the results of the Employee Benefits survey.

Pre-Survey Activities

The information in this section is provided to help states realize the scope of preparation needed to conduct the survey. Needs will vary from state to state and thought should be given to providing the following resources

The Consortium recommends that at a minimum, survey administration should include two mailings. Pre-survey postcards and telephone calling for address refinement are also recommended.

NOTE: It is critical that States review their need for mailing permits, printing materials and any other logistical resources that may require extended effort and time to obtain.

Postcard

In addition to providing courtesy notification to employers in the sample, the postcard may serve to initiate address cleanup or to remind employers to complete the survey.

Ideally, the postcard should be designed and printed in a colorful and appealing manner. Yellow is used frequently in marketing as it has been shown that messages tend to be more memorable when this color is used. The message should be descriptive, compelling and encourage the recipient to participate in the research.

Postcards should be mailed far enough in advance to allow time for address correction of returned cards, but not so far in advance that employers lose continuity between the card and the survey. Postcards mailed about four weeks preceding the survey packet will provide opportunities for address cleanup before the first round of surveys are mailed.

States may choose to use a pre-survey postcard, but may also use the postcard as a follow-up reminder for non-respondents. Specific usage of this postcard is left up to individual states in order to best suit the needs of that state. Postcards have proven invaluable to other survey activities in the past. Examples of postcards and other mail-out materials designed by the Consortium can be found in Appendix C.

Address Refinement

The purpose of address refinement is to ensure that the establishment identification and mailing address labels used for the mail-out packages are appropriate and accurate. If this information is incorrect, it will adversely affect both the survey response rate and the quality of reported data. *The time and effort spent in the address refinement stage of survey activities will contribute significantly to the overall success of the survey.*

Address refinement includes identifying whether the sample represents numerous units within a large firm or a single firm, as well as identifying the units that do not wish to participate or are out-of-business. The units with large numbers of employees are contacted for the purpose of verifying addresses, establishing contact with the person responsible employee benefits, determining whether this unit reports for other units, and notification of the upcoming survey. Calls to these businesses will improve the database prior to the first mailing of the survey.

Postcards are an excellent way to verify mailing addresses. The following table illustrates some of what the Post Office will return:

Problem	Remedy
<ul style="list-style-type: none"> • Address correction label attached 	Make the correction
<ul style="list-style-type: none"> • Forwarding Order Expired 	Search electronic and paper directories for a better address. Call the business to verify it is the unit in the sample.
<ul style="list-style-type: none"> • Moved left no address 	The business might be under a new name or has closed. Check to see if there is a predecessor/successor relationship. Call the employer.
<ul style="list-style-type: none"> • No mail receptacle 	The physical location address is viable but the proper mailing address is likely to be a P.O. Box number. Call the employer.
<ul style="list-style-type: none"> • Other reasons for return listed such as: "No such street", "No such number". 	Whenever possible, research why these were returned as undeliverable and correct.

When no address is available from the U.S. Postal Service, use databases such as those mentioned later in this chapter to find updated addresses and telephone numbers.

Accounting Firm and Payroll Services Addresses

The primary purpose of the state Unemployment Insurance (U.I.) File (from which the EQUI file is derived) is to collect information on the unemployment insurance taxes paid by employers. Because of this, addresses on the file are generally for the office that handles the tax payments. Many companies hire an outside accounting firm to handle tax payments. Therefore, an accounting firm's address will sometimes appear on the EQUI file instead of the actual physical location of the establishment.

Additionally, many firms contract payroll related functions to a payroll services company. This can lead to a payroll service company's address appearing on the EQUI file.

Accounting firms and payroll services companies generally do not have or cannot report the information needed to complete the employee benefits survey for their clients. Therefore, instead of mailing survey forms to the accounting firms and payroll services companies, it is more effective to mail them directly to the establishments for which data are requested.

States should note, however, that the accounting or payroll services firm itself may be the surveyed establishment, in which case the firm's address should remain on the record.

- Records of surveyed accounting firms should have only that firm's name in the trade name field and NAICS 541211.
- Records of surveyed payroll services firms should have only that firm's name in the trade name field and or NAICS 541214 and 541219.

Address refinement procedures

- Inspect each record to determine whether all fields including address, city, state, and zip code are present and complete. Update records that have inadequate information in any of the fields.

Identify records with out-of-state addresses. These records typically contain the address of a regional or central office of the company. If available, replace the out-of-state address with the reporting establishment's in-state address. If an in-state address cannot be found, leave the out-of-state address on the record.

Examples of Problem Mailing Addresses

Problem	Incorrect Address	Correct Address
Inadequate street address	Industrial Avenue Springfield VA Fairfax County VA	9187 Industrial Avenue Springfield VA 22150-0050
Corporate office address	<u>Corporate Office Address</u> 100 Enterprise Blvd. Boston MA 02538-7338	<u>Establishment Address</u> 380 Maple Lane Chicago IL 60057-1157
Accounting firm address	<u>Accounting Firm Address</u> PO Box 812 Atlanta GA 30712-3112	<u>Establishment Address</u> 91890 Suburban Road Los Angeles CA 90784-2201
Incomplete Reporting Unit Description	<u>Original Reporting Unit Description (RUD)</u> Macon County GA	<u>Reporting Unit Description (RUD)</u> Plant No. 2, Macon County GA Or Store 614 Or Macon Cnty GA Trim Plant

Name Lines

There are several things to keep in mind while reviewing the name of a business. When correcting the legal and trade names, it is important to eliminate as many abbreviations as possible. If there is a person's name listed for the legal name, it is important to find a "Doing Business As" (DBA) name to replace the person's name. If the trade name is the most common name used by the public, try to use that in the Legal Name line.

Reporting Unit Description

This line is important for the multi-establishment employers (multi's). Because these employers have several locations throughout the state, it helps to identify the location we are sampling. That is the purpose of this line. Include as much information as possible to eliminate confusion for the employer.

Make sure that you have a complete address for the business. Many times the zip code is not known and you will need to search for one. If you have an out-of-state address, look for the mailing address of the physical location in your state. An out-of-state address usually indicates that the information will be going to a corporate or regional office. It is usually easier to obtain information from the unit in your state, but it depends on the company. It may be necessary to make a phone call in these instances.

When looking at addresses an important thing to look for are the addresses to the major accounting firms, like the Frick Co. and Gates-McDonald & Co. Many employers use these companies to handle the financial side of their business, including payroll. However, sending the survey form to these addresses is not recommended.

Delete the address of the reporting establishment's accounting firm, if present, and enter the physical address of the establishment.

Try to be as specific as possible on the multi-units by including a county name or even part of the street address for the location in question. Often times the multi-units will send the forms to their corporate office to complete, so anything that can be done to help identify the location we are sampling will help clear up any problem reporting.

Remove all references to tax or insurance departments in these fields. (These departments may appear in the trade or legal name fields of the EQUI File). Leave the Contact field blank or refer to the Personnel Department in lieu of the tax or insurance department.

Enter the publicly used company name in the trade name field and put the parent company name in the legal name field when both a publicly used company name and a parent company name appear on an address (or are known to the state).

Sources of Information for Address Refinement

States will need to obtain accurate address information from various sources. Commonly available sources of address information are listed below. States should use these, as well as other sources at their disposal, to obtain valid information for address refinement. To keep costs down, address refinement should be conducted en masse if possible by making electronic file comparisons. Otherwise, states will need to plan for increased costs due to a need for more time and/or personnel to refine addresses one at a time.

In cases where an establishment address cannot be obtained from any other source, states may consider telephoning the establishment to get the address. During the telephone conversation, states can also ask to whom the survey form should be sent.

Sources for Address Refinement

- Telephone numbers of establishments can be obtained from the EQUI file, directory assistance, and Internet-based telephone books.
- America's Labor Market Information System (ALMIS) Employer Database is a quarterly updated employer database. It includes the company name, address, telephone number, type of business (SIC/NAICS code), contact name and human resource executive for over 12 million American businesses. This system allows you to search by company name, yellow page heading (SIC/NAICS Code), city, zip code, county, area code, number of employees, etc. It is published by InfoUSA. Contact your state ALMIS database administrator for information about accessing the Employer database.
- Internet search engines such as www.google.com, www.lycos.com and www.yahoo.com can serve as helpful tools in locating a firm's web site and possibly its physical or mailing address.
- Business Directories are helpful sources of address information. Dun and Bradstreet's "Dun's Business Identification Service," for example, may be ordered from the company on microfiche. This is a listing of business establishments and their mailing addresses. Dun and Bradstreet searches may also be performed on-line at www.dunandbradstreet.com. Another popular on-line business search is www.hoovers.com.

- Manufacturing and Industry Directories are sometimes prepared by state governments. These publications, if available, may be of some use for refinement purposes. The Thomas Register is an example of an Internet-based directory of companies engaged in manufacturing www.thomasregister.com/.
- Multi-establishment Files may be available from the state QCEW unit. These files list the individual establishments of companies that have multiple establishments (MWR).
- Other state Surveys' Address Files (e.g., CES Registry and CES-QCEW Crosslist) if available, may be useful in obtaining current information for establishments in the Employee Benefits Survey sample.
- Postcards that have been returned by establishments can be used to identify addresses that need refinement prior to initial mail-out.
- Telephone directories including Business Advertising Directories or "Yellow Pages" are usually the most current and accurate source of address information. States should obtain current directories for areas within their boundaries if possible. PROPHONE is a national and regional telephone directory on CD-ROM that may be of use in finding alternative addresses for postal returns. Examples a few of Internet-based telephone directories include www.anywho.com/, www.123-yellow-pages.com/, www.switchboard.com, www.questdex.com, www.daplus.us and www.superpages.com.
- State Business Directories are compiled for some states from current Yellow Pages. They are alphabetical listings statewide, by category, and by city.
- ZIP Code Directories are useful in supplying missing ZIP Codes or in correcting erroneous ZIP Codes. The ZIP Code Directory can be purchased from the United States Post Office. The Directory can also be accessed via the Internet at www.usps.com/ncsc/lookups/lookup_zip+4.html. Post Office approved software can be utilized to correct many address mistakes. These programs will correct street names (ex. Grand Street to Grand Avenue) and will correct postal format (ex. Southwest Lake to SW Lake).
- A service known as the National Change of Address can update business address if they've moved. This is beneficial if you're mailing thousands of surveys and the addresses may be old. There is a minimal cost for using this service.

The Survey Packet

At a minimum, states will need to prepare and mail the survey questionnaire, business reply mail envelopes, and window envelopes. Items such as a cover letter are highly recommended for inclusion with the survey. There are a number of other optional materials the Consortium has identified that states may choose to include in the survey packet mailed to employers. Although the following discussion gives many recommendations, the design layout of the accompanying documents is left to the individual state offices.

Survey Instrument

The survey questionnaire, as designed by the Consortium, is explained in detail in the Survey Questionnaire section of this manual. An example of the survey instrument can be seen in Appendix A and detailed explanations of the survey questions can be found in Appendix B.

Business Reply Mail (BRM) Envelopes

Businesses receiving a copy of the Employee Benefits Survey should be provided a postage-paid envelope to return the completed survey. States printing Business Reply Mail (BRM) envelopes for use in special mail-outs may refer to LMI Technical Memorandum S-93-2 "Direct Accountability of LMI Mail" dated November 24, 1992 for information pertaining to permit numbers and penalty meter strips or other penalty indicia.

Note: States need to allow for the time necessary to print envelopes with the appropriate permit numbers and penalty meter strips.

The latest *Domestic Mail Manual (DMM)* published by the United States Postal Service should also be used as a reference in these matters. To view this document, go to http://pe.usps.gov/text/dmm300/dmm300_landing.htm.

For state-produced BRM envelopes, states should follow the Domestic Mail Manual guidelines concerning the physical placement of the complete address including the city, state, and ZIP code line.

The sizes of the business reply envelope and the mailing envelope must be coordinated to insure that the business reply envelope will fit easily inside the mailing envelope. In addition, respondents should be able to easily insert the survey instrument inside the business reply envelope to return the survey. Consideration should also be given to allow room in the business reply envelope to open it without damaging the survey instrument (i.e. the survey is cut by the mail-opener when the survey is returned).

The Cover Letter

The Consortium recommends that a cover letter be included with all survey packages. This letter will introduce the Employee Benefits Survey and request the cooperation of sample members in completing the survey form.

To increase response, the letter should be well-designed and be no more than one typed page. It should provide all the necessary information to the respondent and be as brief as possible. It should also be persuasive in nature, telling respondents why their cooperation is important. It is recommended that it be sent with multiple authoritative, highly visible signatures such as the head of the agency conducting

the survey, governor's office, or lead state agency for workforce development. Two examples of cover letters are in Appendix C.

A cover letter should discuss the purpose and importance of the Survey as well as describe how the reported data contribute to the production of Employee Benefits estimates. It should also explain the benefits of the Employer Benefits Survey to the respondent's company.

It is very important to explain how confidentiality of the reported data and the respondent's identity will be handled. If a telephone number or web address is being used to answer employer questions or provide directions, include that information. In closing the letter, express appreciation for the respondent's cooperation.

Frequently Asked Questions (FAQ)

Adding a list of answers to Frequently Asked Questions (FAQs) has helped states obtain increased response rates for the benefits surveys. This sheet is typically one or two pages of some of the most frequently asked questions about the benefits survey. FAQs are beneficial as they help decrease the amount of staff time needed to respond to common questions and assist respondents with simple problems.

Rather than sending a printed list of Frequently Asked Questions and answers, states may choose to list some FAQs or other information on their web site and provide a link to that information. Additionally, some states may choose to mail some of the most common FAQs with the survey and provide additional answers on the Internet. Examples of frequently asked questions can be found in Appendix D.

Follow-up Letter

A follow-up letter is recommended with any survey form mailings following the initial mailing. Since it serves as a reminder to complete and return the survey form, it should be shorter than the initial cover letter.

In addition to information contained in the initial cover letter, the follow-up letter should reaffirm the purpose and importance of the Employee Benefits Survey.

States should consider sending a replacement survey form in follow-up mailings in case the respondent has misplaced the first survey form.

See Appendix C for examples of follow-up letters.

Data Collection

Collection Methodology

Although a variety of methods can be used to collect benefit information from employers, the Consortium recommends using a mail survey. In selecting the method, the need for reliable accurate data is balanced against the costs and resources required to obtain that data. States may wish to supplement data collection efforts by allowing alternative response options such as the Internet, but it is recommended that mail be the primary mode of data collection.

As stated previously, it is recommended that states have a minimum of two survey instrument mailouts, coupled with at least one postcard and telephone follow-up.

Using a mailed survey requires address refinement, document assembly, mailing, receiving returned forms and resending misdirected mail, follow-up, data input, and output for analysis. A mailed survey can be conducted by in-house staff or contracted. Follow-up can be additional mailings or telephone contact. The costs for a mailed survey would include staff, printing, supplies and mailing. A mailed survey requires less staff time than other methods and is fairly inexpensive.

Data collected by phone

Due to the complexities of the survey instrument, it is not recommended that states attempt to collect a large amount of data over the phone. However, some businesses may be unwilling to fill out and mail a paper copy of the survey but willing to provide data over the phone.

States may choose to enter information received on the phone directly into the data capture system, but it is recommended that a paper copy of the responses be filled out. This will ensure that the responses can be verified if necessary.

Guidelines for Follow-up

The amount of follow-up required to obtain an adequate number of respondents is obviously dependent on the willingness of the population to voluntarily respond to the survey. Some employers believe that they are "over-surveyed" by government entities and may resist compliance with the data request. Using highly detailed or complex survey forms and instructions may exacerbate this problem. There is a relationship between the amount of time required to complete a survey and the willingness of participants to complete questionnaires. With this in mind, the need for follow-up may be partially lessened if the survey form is simple, intuitive and easy to complete.

While the number of participants who need follow-up can be reduced, it cannot be completely eliminated. Some employers will probably require follow-up with repeated mailings and phone calls.

Follow-up strategies

A survey is considered useable and complete if questions 1-3 and at least one benefit question are answered. All incomplete surveys will require follow-up to obtain useable information.

To conduct follow-up solicitations properly, states must be able to count and identify establishments that did not respond. States can obtain this information only if they maintain an accurate and up-to-date response management system throughout data collection.

States will find that to obtain an adequate response rate, it may be necessary to follow-up with non-respondents. Follow-up solicitation stresses the importance of cooperation. In addition, follow-up solicitation can be used to verify that the establishment received the survey form and to answer any questions concerning the survey form.

States should avoid making follow-up solicitations to establishments that have indicated that they plan to respond at a later date

Follow-up Methods

There are various methods States can use to conduct follow-up solicitations. A state may use a single follow-up method for all sample units included in a particular follow-up phase, or a state may use a combination of methods, selecting the appropriate one for each unit based on the characteristics of the unit. The methods most practical for the Employee Benefits Survey are described below.

US Postal Mail

The US Postal Service (www.usps.com) offers a number of options for sending and tracking letters. Only regular mail and Certified Mail/Return Receipt are discussed here.

- **Regular Mail** is the least expensive and least time-consuming option. This is the option used in initial mailings and follow-up mailings. However, in comparison with the other methods listed here, it is the least effective in generating a response. Because of these characteristics, this method is best suited for large volume follow-up solicitations.
- **Certified Mail/Return Receipt** provides proof of mailing and delivery of mail. States preparing do-it-yourself mailings can use this method. The sender receives a mailing receipt at the time of mailing, and a record of delivery is maintained by the Postal Service. A Return Receipt to provide the sender with proof of delivery can also be purchased for an additional fee. This method of mailing requires that states prepare and attach a U.S. Postal Service form (PS Form 3811, Return Receipt) to the follow-up mail-out package. While this method is more expensive and time consuming than regular mail, it is also more effective in generating a response. An attractive feature of Certified Mail is that a state can request a signed return receipt from the delivery of the mail-out package. This receipt, showing the date and to whom the mail-out package was delivered, may be helpful if the state eventually telephones the establishment to solicit data.

Telephone Follow-up

Telephone follow-up can be quite expensive and usually requires a substantial amount of time for each contact. For that reason it is not recommended except that it may be the most logical alternative when mailings have not generated a response or when a state suspects that non-response is caused by a need for some clarification or further information.

Whatever reason for the telephone call, begin the call with a friendly greeting that identifies your name and agency name, and then continue with the purpose of the call. For non-respondent follow-ups, to ensure that the telephone contact is as productive as possible, state staff should prepare well for the call. If possible, while the respondent is on the line, inquire about his willingness to complete the form by phone.

Some suggestions for greetings and examples of answers to questions include:

"May I please speak with _____"(if person's name is known)

If the person's name is not known: *"May I please speak with someone in the Human Resources office, or whoever is in charge of benefits at your firm?"* Often the business contact will be a receptionist who will

forward your call to a proper representative. Ask the first contact to spell and properly pronounce the name of the person to whom you are being transferred. You will then be ready to use the person's name from moment one. And if you get the person's voice mail you will be able to use their name properly in your message. You want them to be responsive and to call you back; by using their name it increases the chances that they will return your call.

"Our agency is conducting a survey to gather information about the type of benefits that employers in <area name> are offering. We appreciate those employers who have been able to provide the information and we would like to add your information to the survey."

Offer the employer a variety of ways to provide the information. This may be mail, fax, Internet, or telephone, depending on what your state has selected as methods to respond: *"We have several ways for you to provide the information, including returning a survey by mail, fax, or phone if those are more convenient."*

Be prepared to deal with a lack of enthusiasm on their part. Be prepared to discuss the benefits of their company's participation.

If all efforts fail to persuade the business representative to provide a response, remember to be courteous and *thank them for their time*. Perhaps after the publicity of the Benefits Survey reaches them, they will see the value in the information and may provide requested information in future surveys.

It is helpful to have answers prepared for frequently asked questions. This will be beneficial to the staff making telephone calls or answering the survey line. Examples of frequently asked questions and prepared answers can be seen in Appendix D.

Timeline for Follow-up

The first follow-up solicitation should be conducted approximately four weeks after the initial mailing, or when the responses slow substantially. Past survey experience shows that the following events are good indicators that this point has been reached:

- The daily number of incoming survey forms slacks-off to a handful, and/or
- Approximately 35% of the establishments in the initial mailing have responded.

Conduct the second follow-up solicitation four weeks after the first follow-up mailing. To ensure meeting the usable response rate requirements, phone calls for the purpose of data solicitation should be made to non-respondents concurrent with the follow-up mailings.

The third phase of follow-up solicitation may be conducted if response rates still do not support publication of estimates. See the Data Collection section of the manual for a discussion of survey response rates.

Monitor Response Goals

The three primary monitoring functions will be to track progress toward meeting survey response goals and identifying response gaps. Monitoring the response goals for the survey will be the main way to ensure that enough responses are being received to ensure quality output from the survey.

Response Goals

Midpoint and end-of-survey response goals should be set before the survey begins. Tracking response rates should be done regularly.

Response goals will have to be set for the statewide survey and for each size class and industry. If geographical areas were used to stratify the survey sample, response goals by geographic areas also need to be developed.

Below is an example of weekly response rate goals that could be used to ensure that a 60% response rate is achieved by the end of the survey round. The weeks shown in the timeline below refer to the overall benefit survey project timeline. The entire survey timeline can be seen in the Survey Timeline section of this manual.

Week 9 First mailing sent
Week 10 response rate 10 %
Week 11 response rate 20 %
Week 12 response rate 30 % Second mailing sent
Week 13 response rate 40 %
Week 14 response rate 45 %
Week 15 response rate 50 % Third mailing sent
Week 16 response rate 55 %
Week 17 response rate 60 %

Tracking Progress

States will be responsible for running response reports to ensure they are meeting response rate goals. Response by size class, geographical area and industry should be monitored.

The use of status codes is an important part of data collection and survey processing. The status code denotes the current status of a sample unit. The status code of a unit may be updated many times throughout the survey cycle as the unit passes through the various survey processing steps.

Status codes are an important part of managing survey processing. They are especially important when it comes to sending second and third mailings to units that have not responded. There are many possibilities when it comes to the use and detail of status codes. The employees benefit Consortium recommends the following status codes.

- Usable
- Failed
- Pending
- Refusal
- Out of Business
- Out of scope
- Non-response

Below is a sample response rate table by size class. This same type of table could be used to track response by area or industry sector. The first column in the table lists the size classes. The next two columns list the total sample units and employment of those units for all employers drawn into the survey. The usable units and employment columns show the total number of responses that have passed all edit tests and are usable to calculate benefits information. The failed columns will show the number of surveys who failed edit tests within the system, these units will have to be identified and the errors corrected. The pending column shows the number of units which have sent back a survey but data for

that unit has not been keyed into the system. Placing a unit in pending will ensure that it does not receive additional mailings. The refused/OOB column list the sampled establishments which have refused to send back the survey or are no longer operating. The final column, non-response shows the number of units currently sampled which have not responded to the survey.

Size class	Sample		Usable		Failed		Pending		Refused/OOB		Non-Response	
	Unit	Emp	Unit	Emp	Unit	Emp	Unit	Emp	Unit	Emp	Unit	Emp
1	5	10									5	10
			0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
2	2	10									2	10
			0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
3	4	50									4	50
			0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
4	4	100									4	100
			0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
5	4	320									4	320
			0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
6	3	400									3	400
			0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
7	2	500									2	500
			0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
8	1	600									1	600
			0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
9	1	1000									1	1000
			0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%
TOTAL	26	2990	0	0	0	0	0	0	0	0	26	2990
			0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	0.00%	100.00%	100.00%

The response field on each employer record would be set to non-response at the beginning of the survey. As information is received from each employer, the response field could change to usable, failed, pending, refused, etc.

The Consortium recommends tracking response by unit, however states may also wish to track response by employment (as shown above). If the percentage response for units is higher than employment, it means that the smaller establishments are responding at a higher rate than the larger establishments.

Corrections and additions to employer accounts such as work location and industry that were not made during sample refinement should be made. However, size class changes should not be made, since the

progress report should reflect sampled employment and not reported employment. Size class changes will be made later during the productions of survey estimates.

A key part of monitoring response is to keep up with the survey response, reviewing surveys as they are returned. Establishments with questionable data should be contacted in a timely manner and not just contacted at the end of the survey.

Identifying and Handling Critical Non-respondents

States should identify critical non-respondents beginning with the second follow-up and continue to monitor their status through the end of data solicitation. Since previous solicitations produced no response, states' second and subsequent follow-up efforts for critical non-respondents should be intensified.

A critical respondent is a sample unit from which a completed survey form has not been received, and from which data are extremely important to the generation of valid estimates. In the EBS, a sample of units is selected from each two-digit NAICS/area/employment size class cell on the sampling frame. The total survey sample is an accumulation of these sampling cells. Similarly, estimates are generated from the combination of data from these contributing sampling cells. Since EBS estimates are produced using this building-block procedure, a weak response in any single sampling cell can lead to biased estimates at higher levels.

By week four or the midpoint of the survey, state analysts will want to identify critical non-respondents within the survey. This will be done by running response analysis reports and identifying cells where response rate is low. Analysts need to make sure that the survey response reflects small, medium and large employers; employers in different geographic areas and different industry sectors. Analysts will then have to look at the non-respondents for that cell and contact them to try to gather the survey data.

Although the information will not be directly available from the response progress reports, it is important to review the survey response to make sure that critical questions are being answered. States will need to determine questions that are critical to the success of their survey. Analysts should also compare survey response to minimum publication requirements for each critical question. For example, if the minimum requirement to publish medical benefits by frequency of payment is five establishment responses and that requirement has not been met, additional efforts to gather the needed responses would have to be undertaken.

Editing Survey Responses

States' benefits survey staff should review completed questionnaires before entering benefits data into the data capture system software. These checks verify that data is consistent within each survey. The review of individual survey forms includes the following functions:

- Review questionnaires for completeness and internal consistency
- Contact employers to obtain missing data and resolve inconsistencies among responses
- Correct questionnaires

In addition to editing individual completed survey forms, the entire database of responses should be reviewed. Automated methods of reviewing the database will allow states to double-check for errors that may have been missed in the initial review of survey responses. Data entry errors may also be found when reviewing the entire data set.

Review of Individual Survey Forms (pre-Data Entry Edits)

Benefits survey staff should review each survey form that is returned and prepare it for data entry. Any errors found within the survey responses should be corrected if possible, or marked for follow-up with the respondent. It is recommended that all errors within a survey are identified before respondents are contacted. Because a survey may contain multiple errors, this will ensure that each employer only needs to be contacted once.

The first check that should be done on a survey is that it should be checked to ensure that it is complete. A survey is considered "complete" when Questions 1-3 are filled in, as well as at least one valid response for a benefit item. Surveys that do not meet these criteria should be coded appropriately as a refusal, out of business, out of scope, or other type of non-response.

Those surveys that are determined to be complete should be checked for consistency. Responses to multi-part questions must be internally consistent. In addition, responses to interdependent or linked questions should "match up" on each completed survey. Detailed consistency checks for each survey question can be found in Appendix E.

While reviewing the survey forms, responses may be identified that seem unreasonable. These may be flagged to follow-up with the employer about the response. Outlying responses, such as those that offer a considerably higher number of sick leave days, will be identified and reviewed during estimation.

Under no circumstance should a survey response be deleted or changed without verifying the response with the employer.

The Consortium recommends that all potential errors are flagged. These flagged responses can then be reviewed by a staff member working on the survey and the necessary corrective action can be taken.

Error Check Reminders

Correcting one flagged record may lead to another edit check flag to be raised. For this reason, the survey edit checks should be repeated until no further errors are found within the data.

Many of the edits refer to data that should have been previously checked, so the edit checks should be conducted in order. For instance, the number of employees enrolled in medical insurance (question 5) references the number of employees offered medical insurance (question 4a) which references the number of employees (questions 2 & 3). Questions 2 and 3 should be cleaned prior to running the check on question 4a, which should be cleaned prior to running the check on question 5.

Many of the error checks are dependent on how the data capture system is built. For instance, no text should be allowed in any numeric field. Also, no negative numbers should be allowed. If the data capture system is built to not allow text or negative numbers, an automated error check will not need to be run on the data set for those items.

It is important to understand when certain types of responses should be allowed and when they should be corrected. Some respondents may not distinguish between "no" and "not applicable" when answering the survey. For example, instead of following the skip patterns, some follow-up questions may be checked as "no" because those questions are not applicable to the respondent. The same kinds of issues may occur with respondents writing "0" to mean "not applicable." For instance, question 15 is checked "no" for paid sick leave, but "0" is provided as the response for question 15a. In some cases, "0" may be a valid response. Medical insurance (question 4) may be offered, but zero employees are offered the benefit because they do not meet a certain criteria (such as employee classification, number of hours

worked, time with the company, etc). If the edit checks identify a potential issue, it is imperative that analysts know how to correct the problem.

Data Entry

States will need to consider how survey responses will be entered into a database in order to prepare statistical results. Any type of software such as Microsoft Access, FoxPro, SPSS, SAS or other statistical programs may be used to enter the results of the survey.

Data Entry Systems

States that conducted pilot surveys for the Consortium developed data entry systems for their surveys. Using common software will help to eliminate inconsistencies in the reporting processes and promote comparability across states. It will also minimize the duplication of effort in developing separate systems that serve the same purpose. The systems developed by Consortium states are available for others to use in conducting a benefits survey, however it is important to note that the states that developed the data entry systems will not provide support or updates. Prior to creating a data capture system, states may wish to contact those that have built a system to determine whether or not it will fit their needs.

There are a lot of considerations that need to be made when creating a data capture system. States will need to modify an existing system or build a new system using software they are familiar with. The look and feel, as well as the functionality of the system, should be reviewed by those who will be doing data entry of the surveys to ensure that data entry can be done easily.

At a minimum, a data capture system needs to collect the survey ID number and responses to all questions. Additional information, such as corrections to the address, comments written on the form, responses that don't fit easily into the pre-determined categories, and other information, should also be included.

When building a data capture system, care needs to be taken to ensure that data is properly collected. To minimize data entry errors, closed-ended questions should be entered using limited response options (e.g. Yes/No questions should have a method of data entry operators to select answers rather than having to type "Yes" or "No"). Multiple-response questions should have options listed in a drop-down menu or list.

States are encouraged to contact others that have conducted a benefits survey for guidance prior to modifying an existing benefits data capture system or building a new one.

Review of Data Set (post-Data Entry Edits)

Once all surveys have been entered into the database, states should review the data set to look for errors. First, automated methods such as database queries should be used to flag inconsistencies within each individual survey. Flagged responses should be reviewed to determine the source of the problem. Some problems may be data entry errors. Employer contact should be made if necessary to resolve problem responses. A list of edit checks that should be conducted on the data set can be found in Appendix E.

Once all consistency issues are resolved in the survey database, the entire data set should be reviewed to check for outliers. The term "outlier" refers to atypical (unusually small or large values) infrequent observations in a data set. The editing process should identify and investigate outliers among the observations in all preliminary estimates.

Outliers can enter a data set due to errors made in recording and entering data into the computer, incorrectly including an item in the data set, and/or including an unusual data value that has been recorded correctly and does belong in the data set. Outliers, therefore, should not necessarily be deleted. Instead, their accuracy and validity should be investigated to determine whether they represent legitimate data reported by employers. If the outliers are legitimate, the editing process should determine whether the outliers skew the estimates to the point that they should be removed from the observations in the survey sample.

Outliers can be detected using several different statistical measures. Examples shown below are just a few of the methods that states can use to detect outliers. States may choose to identify and use other methods of identifying outliers within their data set.

Stem-and-leaf display

This display is a histogram-like picture of a frequency distribution, except that it lists all data values in an ordered manner in a display that shows the range of the observations, and exhibits the shape and concentration of the distribution including possible outlying values. The stem-and-leaf display is summarized as follows:

- split each observation (i.e., 112) of the data set into two sets of digits, the leading set of digits (11), and the single trailing digit (2). Note: the observation 72 would be split into a leading “7” and trailing “2”.
- use the leading digit(s) of the score as the stem, and use the trailing digit of the score as the leaves.
- list vertically all stem digits starting from the smallest stem at the top to the largest at the bottom.
- draw a vertical line to the right of the stems to separate the stems and leaves.
- place each data point by recording its leaf in the row corresponding to its stem.

Example of Observations

112	72	69	74	106	11
73	128	86	76	105	75
92	108	10	92	134	83
115	96	98	95	133	97
81	116	98	104	502	96

Resulting Stem-and-Leaf

```

1 | 0 1
6 | 9
7 | 2 3
8 | 1 3 6
9 | 2 2 5 6 6 7 8 8
10 | 4 5 6 8
11 | 2 5 6
12 | 8
13 | 3
50 | 2

```

In this example, the last stem and leaf appears to be an outlier due to its isolation from the other observations.

Advantages of the stem-and-leave method are that the figure displays the series' shape, the method makes it easy to spot extreme values, and the stem-and-leaf display is fairly easy to construct.

Disadvantages are that the stem-and-leaf display does not provide a statistical measure to evaluate the existence of outliers and the method checks for outliers for one series at a time, so the user needs to check multiple graphs for more than one series.

Measures of Central Tendency and Dispersion

Central tendency measures provide a quantitative way of detecting and excluding outliers in a data set. The empirical rule of normal distribution can be applied to check the possibility of existence of outliers in the data series. This can be done as follows:

- Graph a histogram of the data if it shows an approximately mound-shaped distribution.
- Calculate the mean and standard deviation.
- The empirical rule states that approximately 95% and 99.7% of the data will fall within two and three standard deviations from the mean, respectively.

Therefore, observations that are plus or minus more than two or three standard deviations might be outliers and should be investigated.

An advantage of using measures of central tendency is that they are very useful for data that are normally distributed or that are approximately normally distributed. Also, this method combines both graphical and statistical measures to detect outliers. The disadvantage is that this method can only be applied to one data series at a time.

Compare Survey Data with Similar Findings

Editing procedures often include a review of the survey data against estimates from previous findings of the same survey program or against other models that these estimates are expected to approximate. Major differences between survey data and estimates published from previous surveys or a related model such as the National Compensation Survey should be flagged. Suspicious estimates can be reviewed to detect and correct major errors or inconsistencies.

Ideally, states participating in the benefits survey would compare their estimates with like information gathered with previous applications of the same survey. Since the state benefits survey is new, this approach to reviewing the survey estimates is not yet possible. Until state benefits survey time-series become available, the Benefits Consortium recommends that states review the reasonableness of their survey findings against similar published data from the National Compensation Survey (NCS).

The NCS gathers information about the incidence, provision, and cost of employee benefits from a national sample of *private* employers and publishes this information at the nationwide level. The NCS also breaks out much of the information it publishes for full time and part time employees, for broad industry groupings, for certain geographic areas, and by two size of firm categories. These published subcategories of information from the national survey are mutually exclusive. The NCS does not publish data at the state level, however, nor does it stratify its published estimates by NAICS super-sector or by the five firm size categories used in the state benefits survey program.

The NCS estimates provide a rough idea of the estimates states may expect from their benefits surveys, but the NCS estimates are not directly comparable to the state benefits survey estimates. Until state benefit survey data become available, however, states should evaluate their preliminary estimates against the most closely related NCS estimates and examine major disparities to ensure that the state estimates are not in error. The estimates that NCS publishes for the nine census divisions are likely to be the most closely related to most of the benefits survey estimates that most states produce.

The tables in Appendix F compare the basic estimates that states will publish from their benefits surveys to data available from recent (since 2000) NCS publications. The tables identify whether the NCS has published similar estimates recently, for what geographic regions the NCS has published similar estimates, how the NCS breaks out those estimates by industry, how the NCS breaks out those estimates by firm size, and whether the NCS publishes those estimates for part-time, full-time, and all employees.

Weighting

Weighting

Construction of analysis weights for the estimation of Employee Benefits results is necessary due to the sample design and selection process. Specifically, as each sampling cell has a (potentially) unique sample interval, the units within the sampling frame have an unequal probability of sample selection and each selected unit “represents” a different fraction of the population. In other words, the characteristics of the sample, by design, are not directly representative of the characteristics of the population. Thus, simple tabulations of survey responses cannot be reliably generalized to the total population. In addition, weighting may be necessary to account for unit non-response and/or unit substitution.

The process outlined below for the construction of analysis weights is appropriate for samples designed and selected in accordance with the recommended practices description in the Sampling chapter of this manual. States using alternative methods for design and selection of the Employee Benefits survey sample should seek statistical consultation regarding construction of analysis weights¹⁶.

Sample Weight

The first step in the construction of analysis weights is the determination of the sample weight (Wt) for each selected unit. The sample weight is equal to the reciprocal of the unit’s sample selection probability. The sample weight for a non-certainty unit *i* is computed as:

$$Wt_i = \frac{\sum_{i=1}^{N_s} emp_i / n_s}{emp_i} = \frac{\text{sample interval for cell } s}{\text{sample unit } i \text{ employment}}$$

Note that computation of Wt uses the same employment level used for frame construction and sample selection. The sample interval should have been retained for each cell of the sample selection matrix (see the Sampling chapter of this manual).

As certainty units have a sample selection probability of 1, Wt for any certainty unit is also equal to 1. Finally, Wt is calculated for all sample units, regardless of their response status.

¹⁶ For instance, States which use sampling frames necessitating benchmarking (see the Sampling chapter of this manual) will need to construct and apply benchmarking factors to produce estimates that are generalizable to the population and should seek consultation as to appropriate methods.

An example of the calculation of sample weight (Wt) for units within a cell is shown below. In this example, the sample interval for the cell was 397. Note: the sample weight (Wt) is calculated for each unit, regardless of response status. Additionally, Wt for unit 4 was set at 1.00 because this unit was found to be a certainty unit during the sampling process.

Unit	Frame Employment	Certainty Unit?	Response?	Wt
1	264	No	Yes	1.50
2	312	No	No	1.27
3	254	No	Yes	1.56
4	417	Yes	Yes	1.00
5	328	No	Yes	1.21
6	289	No	Yes	1.37

In the example above, Wt for each unit is relatively small (ranging from 1.21 to 1.56 for the non-certainty units). However, it is not uncommon for the sample weight to be considerably higher. For instance, if a cell that contains employers in the smallest size classification has a sampling interval of 250, the sample weight (Wt) for employers with only one employee would be 250 (sampling interval of 250 divided by employment of 1).

At a minimum, Wt must be applied to all tabulations of survey results. Additional weighting factors may be applied to account for unit non-response and/or unit substitution. Unit non-response occurs when a unit selected for the sample refuses participation or is determined ineligible after selection. Unit substitution occurs when the participating (responding) unit differs from the selected unit (i.e., a multiple-site employer provides data on all units within the state as opposed to the selected sub-unit). Depending on the level of unit non-response and/or substitution, the additional weighting factors may be large, which could result in undue influence by small sub-sets of respondents on the survey estimates. Thus, if these additional factors are employed, the results of the weight computation should be examined and adjusted if necessary prior to estimation of survey results.

Weighting to Account for non-Response

Calculation of weighting factors to account for unit non-response is based on the matrix of cells constructed during the design of the survey sample. The cells (i.e., groupings of sample units) used to compute non-response factors (Nraf) can be aggregates, sub-divisions, or equivalent to the sampling cells. For the Employee Benefits survey, it is recommended that the non-response cells be defined by cross-classification of industry (NAICS sector), size class (Less than 10 employee, 10-49 employees, 50-99 employees, 100-249 employees, and 250 employees or greater), and, if applicable, population density category.

The basic procedure is to compute a non-response factor (Nraf) for each populated¹⁷ cell by dividing the sum of the weighted employment of all sample units in the cell by the sum of the weighted employment for all responding units in the cell; note that sample units excluded after selection are not included in this calculation.

¹⁷ A populated cell is a cross-classification of industry, size class, and population density category containing at least one population (frame) unit selected for the study which was not excluded post-selection.

For example, the sample units in a given sampling cell are listed in the table below with their frame employment, Wt, and weighted employment. Weighted employment is the frame employment (employment used in sample selection from the EQUI file) multiplied by Wt. Note: the weighted employment will be the same as the sampling interval for all non-certainty units. For certainty units, weighted employment and frame employment will be equal as the Wt is 1.00.

Example Sampling Cell for Calculation of Nraf

unit	Response?	frame employment	Wt*	weighted employment
1	Yes	264	1.50	397
2	No	312	1.27	397
3	Yes	254	1.56	397
4	Yes	417	1.00	417
5	Yes	328	1.21	397
6	Yes	289	1.37	397

*rounded

If unit 2 was the only non-responding unit, the Nraf for the responding units in the cell would be calculated as:

$$Nraf = \frac{(397 + 397 + 397 + 417 + 397 + 397)}{(397 + 397 + 417 + 397 + 397)} = \frac{2402}{2005} = 1.198$$

Sample units in the same cell have the same Nraf and so this factor can be thought of as the additional representation needed by the responding units to account for non-responders with similar characteristics.

In practice, it may not be possible to compute a non-response factor (Nraf) for each populated cross-classification of industry, size class, and population density category because some cells may contain no responding units. If this occurs, these cells should be collapsed or aggregated with neighboring cells to compute Nrafs. For the Employee Benefits survey, it is recommended that cells be first collapsed across size categories, followed by industry categories. For the purposes of collapsing, the term neighboring refers to relation rather than physical proximity (i.e. aggregate cells whose respondents have greater likelihood of similarity in regards to employee benefits). Collapsing of cells may also be necessary in cases where the Nraf is relatively large. After computation of all Nrafs, the total set of factors should be examined to identify any outliers; an outlier is defined as any factors which is substantially greater than the majority of factors. It is advisable to modify any outlier factors, as the use of relatively larger weights can lead to unstable estimates (i.e., large sampling errors); the recommended approach is to collapse the cells where the outlier Nrafs originate as described above¹⁸; see below for an example of Nraf calculation involving collapse of weighting cells.

Nraf Calculation with Collapsing of Cells (Example)

The table below shows a portion of a matrix prepared for calculation of Nrafs; there are five cells, corresponding to the five size classes. In this example, six units were sampled in the "less than 10 employees" size class, nine units in the "10-49" size class, five units in the "50-99" class, eight units in the "100-249" category, and six units in the "250 or more employees" size class. The frame employment

¹⁸ Another approach to handle relatively large weights, referred to as "trimming", involves reducing such weights to an "arbitrary" maximum value based on the distribution of the total set of weighting factors. This practice is considered controversial and States wishing to use such an approach are advised to seek consultation.

(Emp.) of each sample unit is shown, with a ✓ in the R? column if the sample unit responded. In this example, none of the sample units in the size class "less than 10 employees" responded while the other four size classes had varying numbers of returned surveys.

Nraf Calculation Cells – Frame Employment (Example)

< 10		10-49		50-99		100-249		250 or more	
Emp.	R?	Emp.	R?	Emp.	R?	Emp.	R?	Emp.	R?
3		12		54	✓	107		267	✓
5		14	✓	72	✓	111		301	✓
6		15	✓	81		112		475	
7		17		96	✓	123	✓	510	✓
9		17		98	✓	187		612	✓
9		22	✓			210		800	✓
		38	✓			217			
		42	✓			235			
		47							

The non-response factor (Nraf) calculation uses weighted employment for each for each cell. Employment for each unit in the table above must be weighted using the frame employment (shown) and the sample weight (Wt) calculated in the sampling process. The resulting table becomes:

Nraf Calculation Cells – Weighted Employment (Example)

< 10		10-49		50-99		100-249		250 or more	
Emp.	R?	Emp.	R?	Emp.	R?	Emp.	R?	Emp.	R?
223		224		228	✓	231		519	✓
223		224	✓	228	✓	231		519	✓
223		224	✓	228		231		519	
223		224		228	✓	231	✓	519	✓
223		224		228	✓	231		612*	✓
223		224	✓			231		800*	✓
		224	✓			231			
		224	✓			235*			
		224							

* determined to be a certainty unit in the sampling process.

The calculation of the Nraf for the five cells is as follows:

$$\begin{aligned}
 \text{Nraf}_{< 10} &= \frac{223+223+223+223+223+223}{0} = \frac{1338}{0} = \text{Undefined} \\
 \text{Nraf}_{10-49} &= \frac{224+224+224+224+224+224+224+224+224}{224+224+224+224+224} = \frac{2016}{1120} = 1.800 \\
 \text{Nraf}_{50-99} &= \frac{228+228+228+228+228}{228+228+228+228} = \frac{1140}{896} = 1.272 \\
 \text{Nraf}_{100-249} &= \frac{231+231+231+231+231+231+231+235}{231} = \frac{1852}{231} = 8.017 \\
 \text{Nraf}_{250 \text{ or more}} &= \frac{519+519+519+519+612+800}{519+519+519+612+800} = \frac{3488}{2969} = 1.175
 \end{aligned}$$

The Nraf for the first size class (less than 10 employees) is undefined as the denominator, the sum of frame employment for responding sample units, is 0. Also note that the Nraf for the fourth size class (100 to 249 employees) is substantially larger than that calculated for the other size classes; this is due to the fact that only one sample unit in this cell responded to the survey. These results indicate a need to collapse some of the cells in the original matrix so that a Nraf can be produced for all sample units and ensure that the final Nraf are not overly large.

The revised matrix of cells for calculation of Nraf is shown below, along with the Nraf resulting from the revised matrix. The first size class was combined with the second size class and the fourth size class was combined with the fifth size class to produce Nraf which are acceptable for use in the production of survey estimates.

Nraf Revised Calculation Cells (Example)

<50				50-99		100 or more			
Emp.	R?	Emp.	R?	Emp.	R?	Emp.	R?	Emp.	R?
223		224		228	✓	231		519	✓
223		224	✓	228	✓	231		519	✓
223		224	✓	228		231		519	
223		224		228	✓	231	✓	519	✓
223		224		228	✓	231		612*	✓
223		224	✓			231		800*	✓
		224	✓			231			
		224	✓			235*			
		224							

The calculation of the Nraf for the three collapsed cells is:

$$\begin{aligned}
 \text{Nraf}_{<50} &= \frac{223+223+223+223+223+223+224+224+224+224+224+224+224+224+224}{224+224+224+224+224} = \frac{3354}{1120} = 2.995 \\
 \text{Nraf}_{50-99} &= \frac{228+228+228+228+228}{228+228+228+228} = \frac{1140}{896} = 1.272 \\
 \text{Nraf}_{100 \text{ or more}} &= \frac{231+231+231+231+231+231+231+235+519+519+519+519+612+800}{231+519+519+519+612+800} = \frac{5340}{3200} = 1.669
 \end{aligned}$$

Weighting for Differences in Frame & Reported Employment

Calculation of documentation collection adjustment factors (Dcaf) is performed separately for each responding unit and is a ratio of the unit’s frame employment level and the employment level reported on its survey response. The Dcaf will be greater than one when the responding unit is smaller than the sampled unit and less than one when the responding unit is larger than the sampled unit. For example, say a sample unit had a frame employment of 143 (from the EQUI file used for sampling) and reported employment of 200 on their returned survey form. In this case, the Dcaf would be calculated as:

$$\text{Dcaf} = \frac{\text{frame employment}}{\text{reported employment}} = \frac{143}{200} = 0.715$$

The calculation of Dcaf is the same for cases where the reported unit is substantively different from the sampled unit (i.e., corporate-level data reported for a selected sub-unit) and for cases when the selected unit has undergone employment contraction or expansion¹⁹.

Weighting Factors for Survey Estimates

The weighting factor which should be applied during the production of survey estimates is the product of the Wt_i , $Nraf_s$, and Dcaf. Specifically, for estimates relating to the number of establishments in a particular response category, the appropriate weighting factor is computed as:

$$EstFW_i = Wt_i * Nraf_s$$

where Wt_i is the establishment weight for unit i and $Nraf_s$ is the non-response factor for the sampling cell (or aggregation of cells) s which contains unit i . For estimates related to the number of workers in a particular response category, the appropriate weighting factor is computed as:

$$FW_i = Wt_i * Nraf_s * Dcaf_i$$

where $Dcaf_i$ is the unit substitution factor for sample unit i . It is advisable to compare weighted and non-weighted survey estimates during the analysis of survey results to examine the effects of the weighting computations and identify the need for adjustment of weighting factors. However, as discussed above, publication of non-weighted survey tabulations is not appropriate if using a sample designed and selected using the recommended methods for the EB survey. In addition, States choosing other sample design, sampling methods, and/or frames are advised to seek statistical consultation for development of analysis weights.

¹⁹ In the NCS, the documentation collection adjustment factor is only used in cases where the reported unit is substantively different than the sampled unit. However, it will generally be undeterminable from examination of returned surveys which situation exists for units whose reported employment greatly diverges from its frame employment.

Estimates Production

Employee Benefit Survey Estimators

Recommended Minimum Publication Set Proposal

The central goal of the Employee Benefits Consortium is to develop a survey program which can be used by States to address information needs regarding employer-offered benefits as well as provide estimates which are comparable²⁰ across States and with National Compensation Survey estimates. In order to meet this second goal, it is necessary to specify a set of estimators which can be computed by States using the Consortium-provided instrument as the minimum recommendation for publication. Described here is the proposed set of estimators which it is recommended that the Consortium specify for use by States adopting its survey system. Once the final set of estimators is determined, computational formulas for these estimators will be developed.

The proposed set is presented by survey instrument section in order of appearance on the survey form. For several estimates, there are notes related to clarifications of the data elements which may affect the ability to produce the specified estimates or affect the validity of the resulting measures. All the recommended estimates are in the appropriate form for comparison across States (e.g., percents, averages, rates, etc.); however, in order to compute these estimates it will necessary to first compute count estimates. Thus, States adopting the minimums will also have access to and be able to report the number of establishments or workers if desired. In addition, for the recommended minimum estimators which are affirmative percents (i.e., percent of workers/establishments having some attribute) the actual estimates which will be computed include both the percent having and the percent not having the specified attribute as well as a third percentage/count for non-determinable cases. For recommended minimum estimates which are summary measures (i.e., averages), the actual estimates are the summary measure and an indicator of the non-determinable cases.

The proposed list is intended to represent the minimum breakouts recommended for publishing survey estimates. These breakouts (estimate variants) are determined by the sampling strata and worker classification and form the framework of the minimum estimation strata. (See the table Minimum Division of Sampling and Estimation Strata Characteristics for a detailed list of estimate variants.)

For States adhering to the Consortium's sampling recommendations, this means each estimate will be produced for:

- the entire sample
- employers/workers in each NAICS sector
- employers/workers in each size class
- employers/workers in each population density category.

In addition, separate estimates are recommended for three worker classes:

- all workers
- full-time workers
- part-time workers.

²⁰ In this sense, comparable refers to the ability to make informational or evaluative comparisons as opposed to statistical comparisons such as t-tests. In addition, unless specifically accounted for in the sampling design, it is not recommended that data be aggregated across States.

Note that the worker classes are three additional estimate variants and not additional estimates within the above estimation strata. If the States follow the Consortium's recommendations regarding sample design and survey administration, their sample should be adequate to support most, if not all, of the recommended estimate variants. However, due to population distributions and differential non-response, it may be that not all of the estimates will be of publishable quality. Thus, it will be necessary to also provide guidelines for evaluating the quality of the estimates, including concerns related to protection of respondent confidentiality and statistical validity.

The proposed list was identified by first enumerating and defining a list of possible estimators which could be computed from data collected via the Consortium's survey instrument. This list focused on estimates which directly reflected the data elements included in the instrument and includes both count and percent estimates. The proposed set was drawn from the initial list using two criteria. First, as discussed above, only percent estimators were selected as recommended minimums. Second, the estimators were chosen with a view towards their ease of computation and interpretation to facilitate their adoption by States using the Consortium's survey. Each estimator included in the recommended minimum list can be found in Appendix H. This list contains a reference to its location in the initial enumeration which can be seen in Appendix G.

Finally, development of this list also included consideration of the criteria relevant to definition of a usable survey response. At this point in the development process with only limited information available regarding item-response patterns, it seems unwise to specify the complete definition at this time. However, it is not possible to calculate any survey estimates without information regarding the unit's employment. Thus, the proposed definition of a useable survey response is one which includes a valid response to the first three survey questions (i.e., number of employees, number of full-time employees, number of part-time employees). In addition, information on item non-response should be gathered during the course of the pilot to support development of an expanded definition of a usable survey response.

Minimum Division of Sampling and Estimation Strata Characteristics

Characteristics	Recommended Classes
Worker	<ul style="list-style-type: none"> ▪ All workers ▪ Full-time workers ▪ Part-time workers
Industry	<ul style="list-style-type: none"> ▪ Mining (NAICS 21) ▪ Utilities (NAICS 22) ▪ Construction (NAICS 23) ▪ Manufacturing (NAICS 31-33) ▪ Wholesale trade (NAICS 42) ▪ Retail trade (NAICS 44-45) ▪ Transportation and Warehousing (NAICS 48-49) ▪ Information (NAICS 51) ▪ Finance and Insurance (NAICS 52) ▪ Real estate and rental and leasing (NAICS 53) ▪ Professional, scientific, and technical services (NAICS 54) ▪ Management of companies and enterprises (NAICS 55) ▪ Administrative support and waste (NAICS 56) ▪ Educational services (NAICS 61) ▪ Health care and social assistance (NAICS 62) ▪ Arts, entertainment, and recreation (NAICS 71) ▪ Accommodation and food services (NAICS 72) ▪ Other services, excluding public administration (NAICS 81)
Size (Employment)	<ul style="list-style-type: none"> ▪ Less than 10 employees ▪ 10 to 49 employees ▪ 50 to 99 employees ▪ 100 to 249 employees ▪ 250 or more employees
Population Density Category*	<p><i>Pre-2000 Typology</i></p> <ul style="list-style-type: none"> ▪ Metropolitan ▪ Non-Metropolitan <p><i>2000 Typology</i></p> <ul style="list-style-type: none"> ▪ Metropolitan ▪ Micropolitan ▪ Non-Core Based Statistical Area

* States without significant levels of diversity among the population density categories may opt to not use this classification as a sampling/estimation strata. For States with significant variation, a choice between the two currently used typologies is required; see the second section of this chapter for further information.

Recommended estimators for each survey section are shown below. Each estimator description is followed by a number in parentheses which refers to the full list of estimators shown in Appendix G.

Survey Scope (Questions 1-3)

- Number of establishments studied (E208) - estimate is calculated by counting the total number of usable schedules (units).

- Number of workers in the study (E204) – estimate is calculated by summing the current employment of all usable schedules (units).
- Number of workers represented in the study (E207)
- Number of full-time workers in the study (E205)
- Number of full-time workers represented in the study (E205a)
- Number of part-time workers in the study (E206)
- Number of part-time workers represented in the study (E206a)

NOTE: Survey scope tabulations should be produced for the entire survey.

Insurance (Questions 4-13)²¹

Medical Insurance general (Question 4)

- Percent of all establishments offering medical insurance coverage for workers (E2)
- Percent of all workers offered medical insurance (E4)
- Percent of establishment offering to a majority of workers medical insurance coverage with a waiting period (E7)
- Percent of workers in establishments that offer to a majority of workers medical insurance coverage with a waiting period (E9)

Medical Insurance for single coverage (Question 5)

- Percent of all workers enrolled in medical insurance (E11)
- Percent of all workers offered medical insurance coverage who are enrolled (E14)
- Percent of all workers enrolled in single medical insurance coverage (E13)
- Percent of all workers offered single medical insurance coverage who are enrolled (E15)
- Average (Mean) percentage of the single medical insurance premium paid by the employer for the majority of workers in establishments offering single medical insurance (E16)
- Average (Mean) percentage of the single medical insurance premium paid by the employer for the majority of workers for workers offered single medical insurance (E16)

Medical Insurance for family coverage (Question 6)

- Percent of all establishments offering family medical insurance coverage (E19)
- Percent of all workers offered family medical insurance coverage (E21)
- Percent of all workers enrolled in family medical insurance coverage (E23)
- Percent of all workers offered family medical insurance coverage who have enrolled (E24)
- Average (Mean) percentage of the family medical insurance premium paid by the employer for the majority of workers in establishments offering family medical insurance (E25)
- Average (Mean) percentage of the family medical insurance premium paid by the employer for the majority of workers for workers offered family medical insurance (E25)

Dental Insurance general (Question 7)

- Percent of all establishments offering dental insurance for workers (E28)
- Percent of all workers offered dental insurance (E30)²²

Dental Insurance for single coverage (Question 8)

- Percent of all workers enrolled in dental insurance (E32)
- Percent of all workers offered dental insurance coverage that are enrolled (E35)

²¹ Note: All worker-based estimates for insurance benefits are based on the number of workers reported in each question (i.e., 4a, 5, 5a, etc.)

²²If question 7 is checked "yes," questions 7a, 8, 8a, and 8b are blank, and dental is included in medical, then information from questions 4a, 5, 5a, and 5b will be used to compute the dental insurance estimates.

- Percent of all workers enrolled in single dental insurance coverage (E34)
- Percent of workers offered single dental insurance coverage who are enrolled (E36)
- Distribution (percent) of majority plan contributory status (Employer-paid, Employee-paid, Joint) among establishments offering single dental insurance coverage (E38)
- Distribution (percent) of majority plan contributory status (Employer-paid, Employee-paid, Joint) among workers offered single dental insurance coverage (E41)

Dental Insurance for family coverage (Question 9)

- Percent of all establishments offering family dental insurance (E43)
- Percent of all workers offered family dental insurance (E46)
- Percent of all workers enrolled in family dental insurance (E49)
- Percent of workers offered family dental insurance who have enrolled (E50)
- Distribution (percent) of majority plan contributory status (Employer-paid, Employee-paid, Joint) among establishments offering family dental insurance (E53)
- Distribution (percent) of majority plan contributory status (Employer-paid, Employee-paid, Joint) among workers offered family dental insurance (E56)

Vision Insurance (Question 10)²³

- Percent of all establishments offering vision insurance (E58)
- Percent of all workers offered vision insurance (E60)
- Percent of all workers enrolled in vision insurance (E62)
- Percent of workers offered vision insurance who are enrolled (E63)
- Distribution (percent) of majority plan contributory status (Employer-paid, Employee-paid, Joint) among establishments offering vision insurance (E65)
- Distribution (percent) of majority plan contributory status (Employer-paid, Employee-paid, Joint) among workers offered vision insurance (E67a)

Life Insurance (Question 11)

- Percent of all establishments offering life insurance (E69)
- Percent of all workers offered life insurance (E71)
- Percent of all workers enrolled in life insurance (E73)
- Percent of workers offered life insurance who are enrolled (E74)
- Distribution (percent) of majority plan contributory status (Employer-paid, Employee-paid, Joint) among establishments offering life insurance (E76)
- Distribution (percent) of majority plan contributory status (Employer-paid, Employee-paid, Joint) offered to workers in establishments offering life insurance (E78)

Short-Term Disability Insurance (Question 12)

- Percent of all establishments offering short-term disability insurance (E80)
- Percent of all workers offered short-term disability insurance (E82)
- Percent of all workers enrolled in short-term disability insurance (E84)
- Percent of workers offered short-term disability insurance who are enrolled (E85)
- Distribution (percent) of majority plan contributory status (Employer-paid, Employee-paid, Joint) among establishments offering short-term disability insurance (E87)
- Distribution (percent) of majority plan contributory status (Employer-paid, Employee-paid, Joint) offered to workers in establishments offering short-term disability insurance (E89)

²³ If question 10 is checked "yes," questions 10a -10c are blank, and vision is included in medical, then information from questions 4a, 5, 5a, and 5b will be used to compute the vision insurance estimates.

Long-Term Disability Insurance (Question 13)

- Percent of all establishments offering long-term disability insurance (E91)
- Percent of all workers offered long-term disability insurance (E93)
- Percent of all workers enrolled in long-term disability insurance (E95)
- Percent of workers offered long-term disability insurance who are enrolled (E96)
- Distribution (percent) of majority plan contributory status (Employer-paid, Employee-paid, Joint) among establishments offering long-term disability insurance (E98)
- Distribution (percent) of majority plan contributory status (Employer-paid, Employee-paid, Joint) offered to workers in establishments offering long-term disability insurance (E100)

Paid Time Off (Questions 14-17)

Vacation Leave (Question 14)

- Percent of all establishments offering paid vacation leave to the majority of employees (E102)
- Percent of all workers in establishments offering paid vacation leave to the majority of employees (E104)
- Average number of paid vacation days after 1 year of employment offered by establishments offering paid vacation leave to the majority of employees (E105)
- Average number of paid vacation days after 3 years of employment offered by establishments offering paid vacation leave to the majority of employees (E106)
- Average number of paid vacation days after 5 years of employment offered by establishments offering paid vacation leave to the majority of employees (E107)

Sick Leave (Question 15)

- Percent of all establishments offering paid sick leave to the majority of employees (E111)
- Percent of all workers in establishments offering paid sick leave to the majority of employees (E113)
- Average number of paid sick leave days offered by establishments offering paid sick leave benefits to the majority of employees (E114)

Paid Holidays (Question 16)

- Percent of all establishments offering paid holidays to the majority of employees (E118)
- Percent of all workers in establishments offering paid holidays to the majority of employees (E120)
- Average number of paid holidays offered by establishments offering paid holidays to the majority of employees (E121)

Paid Time Off/Consolidated Leave (Question 17)

- Percent of all establishments offering paid time off/consolidated leave to the majority of employees (E125)
- Percent of all workers offered paid time off/consolidate leave to the majority of employees (E127)
- Average number of paid time off/consolidate leave days offered by establishments offering paid time off/ consolidate leave to the majority of employees (E128)

Retirement (Questions 18-20)²⁴

Retirement Benefits (Question 18)

- Percent of all establishments offering retirement benefits (E132)

²⁴ Worker-based estimates for Question 18 will use total employment figures from Questions 2 and 3; the remaining retirement worker-based estimates will use the number of employees reported in questions 19a, 19b, 20a, and 20b.

- Percent of all workers in establishments offering retirement benefits (E134)

Defined Contribution Retirement Plans (Question 19)

- Percent of all establishments offering defined contribution retirement plans (E136)
- Percent of establishments offering retirement plans who offer defined contribution plans (E137)
- Percent of all workers offered defined contribution retirement plans (E139)
- Percent of workers offered retirement plans who are offered defined contribution plans (E140)
- Percent of all workers enrolled in defined contribution retirement plans (E142)
- Percent of workers who are offered defined contribution retirement plans who are enrolled (E143)
- Distribution (percent) of majority plan contributory status (Employer-paid, Employee-paid, Joint) among establishments offering defined contribution retirement plans (E145)
- Distribution (percent) of majority plan contributory status (Employer-paid, Employee-paid, Joint) among workers offered defined contribution retirement plans (E147)

Defined Benefit Retirement Plans (Question 20)

- Percent of all establishments offering defined benefit retirement plans (E149)
- Percent of establishments offering retirement plans who offer defined benefit plans (E150)
- Percent of all workers offered defined benefit retirement plans (E152)
- Percent of workers offered retirement plans who are offered defined benefit plans (E153)
- Percent of all workers enrolled in defined benefit retirement plans (E155)
- Percent of workers who are offered defined benefit retirement plans who are enrolled (E156)
- Distribution (percent) of majority plan contributory status (Employer-paid, Employee-paid, Joint) among establishments offering defined benefit retirement plans (E158)
- Distribution (percent) of majority plan contributory status (Employer-paid, Employee-paid, Joint) among workers offered defined benefit retirement plans (E160)

Other Benefits (Questions 21-25)

Child Care (Question 21)

- Percent of all establishments offering child care benefits (E162)
- Percent of all workers in establishments offering child care benefits (E164)

Educational Assistance (Question 22)

- Percent of all establishments offering educational assistance (E166)
- Percent of all workers in establishments offering educational assistance (E168)

Bonuses (Question 23)

- Percent of all establishments offering bonuses (E170)
- Percent of all workers in establishments offering bonuses (E172)

Flexible Spending Accounts (Question 24)

- Percent of all establishments offering flexible spending accounts (E174)
- Percent of all workers in establishments offering flexible spending accounts (E176)

Shift Differentials (Question 25)

- Percent of establishments operating on shifts that offer shift differentials (E183)
- Percent of workers in establishments operating on shifts offering shift differentials (E186)

Cost of Benefits (Question 26)²⁵

Medical, Dental, and Vision Insurance

- Average annual employer cost per employee for medical, dental, and/or vision insurance among establishments offering medical, dental, and vision insurance (E192)
- Average annual employer cost per employee for medical, dental, and/or vision insurance among all establishments (E191)
- Annual employer expenditures for medical, dental, and vision insurance as a percentage of annual expenditures for wages and salaries among establishments offering medical, dental, and/or vision insurance (E194)
- Annual employer expenditures for medical, dental, and vision insurance as a percentage of annual expenditures for wages and salaries among all establishments (E193)

Retirement

- Average annual employer cost per employee for retirement plans among establishments offering retirement plans (E198)
- Average annual employer cost per employee for retirement plans among all establishments (E197)
- Annual employer expenditures for retirement plans as a percentage of annual expenditures for wages and salaries among establishments offering retirement plans (E200)
- Annual employer expenditures for retirement plans as a percentage of annual expenditures for wages and salaries among all establishments (E199)

²⁵ Cost measures are based on employment reported in question 26d, as opposed to employees covered/participating in the specified benefit.

Variance

Sampling Variance

The Employee Benefits Consortium recommends that states estimate sampling variances for its survey estimates. Sampling variances should be examined in the evaluation of survey estimates prior to dissemination (i.e., as part of the “macro” editing process) and should be provided to users of the data. Discussed here are the recommended method to estimate the sampling variances and transformations of the estimates to facilitate evaluation of the survey estimates by both state analysts and Employee Benefits data users.

Recommended Method

The recommended method of variance estimation for states following the Consortium’s sample design methods is a form of repeated replication. Use of the “textbook” formula for sampling variance is not appropriate for complex samples; in the case of the Employee Benefits sample design, the deep stratification, sample allocation, and sample selection methods would lead to biased estimates of sampling variance if the “textbook” formula were used²⁶. Repeated replication is not the only variance estimation method developed for use with complex samples, but most of the other methods, such as Taylor-series linearization, require advanced statistical knowledge and/or are not appropriate for all types of measures (i.e., some alternative methods do not produce reliable estimates for non-linear statistics).

The repeated replication method of sampling variance estimation involves generating multiple estimates of a statistic from a single sample and then using these multiple estimates to calculate a sampling variance. The basic idea is to simulate the taking of multiple samples by adjusting the weighting applied to units within a single sample²⁷. This variance estimation method was developed by Census Bureau researchers in the 1960s for the case where two units are selected per stratum (sampling cell) via simple random sampling. In this case, an unbiased estimator of the population mean, \bar{Y} , is:

$$\bar{y} = \sum_{h=1}^L W_h \bar{y}_h$$

where

L = number of strata (sampling cells)

h = stratum index, $h = 1, 2, \dots, L$

$$W_h = \frac{N_h}{N} = \frac{\text{number of units in stratum } h}{\text{number of units in the sample}}$$

$$\bar{y}_h = \frac{y_{h1} + y_{h2}}{2} = \frac{\sum_{i=1}^{N_h} y_i}{2} \quad \begin{cases} y_{h1} = \text{value of } y \text{ for unit 1 in stratum } h \\ y_{h2} = \text{value of } y \text{ for unit 2 in stratum } h \end{cases}$$

The variance estimation replicates are formed by selecting one unit from each stratum. For each replicate, the estimator of \bar{Y} is given as:

²⁶ The “textbook” formula refers to the standard error calculation method used for simple random samples.

²⁷ A more detailed treatment of repeated replicated variance estimation, along with proofs, can be found in: Wolter, Kirk M. (1985). *Introduction to Variance Estimation*. New York: Springer-Verlag.

$$\bar{y}_\alpha = \sum_{h=1}^L W_h (\delta_{h1}^\alpha y_{h1} + \delta_{h2}^\alpha y_{h2})$$

where $\delta_{h1}^\alpha = \begin{cases} 1, & \text{if unit}(h,1) \text{ selected for the half sample} \\ 0, & \text{otherwise} \end{cases}$
 $\delta_{h2}^\alpha = 1 - \delta_{h1}^\alpha$
 $\alpha = \text{replicate index, } \alpha = 1, 2, \dots, k \text{ (} k = \text{total number of replicates)}.$

The set of \bar{y}_α are used to estimate the variance of \bar{y} as follows:

$$\text{var}(\bar{y}) = \frac{\sum_{\alpha=1}^k (\bar{y}_\alpha - \bar{y})^2}{k} .$$

The maximum number of replicates is equal to 2^L , which, as L increases, generally becomes computationally and practically unfeasible. However, it is possible to compute an unbiased estimate of $\text{var}(\bar{y})$ using only a sub-set of the 2^L half-sample, if the sub-set of half-samples is balanced. That is, it is possible to select a sub-set of the half-samples which contain all of the information with respect to $\text{var}(\bar{y})$ contained in the total set of half-samples.

The minimum number of half-samples required to compute a balanced repeated replicate estimate of $\text{var}(\bar{y})$ is the integral multiple of 4, k , which is greater than L . An Hadamard matrix of order k is then used to select the half-samples for estimation of $\text{var}(\bar{y})$.

To explicate, consider the sample shown below, which contains seven strata (sampling cells) with two units each. The strata means, \bar{y}_h , range from 4 to 7.5, and the sample mean, \bar{y} , is 5.4.

Example Sample

Stratum	1		2		3		4		5		6		7	
<i>unit</i>	1	2	1	2	1	2	1	2	1	2	1	2	1	2
y_h	3	6	5	8	6	9	2	6	5	4	7	2	9	4
\bar{y}_h	4.5		6.5		7.5		4.0		4.5		4.5		6.5	
\bar{y}	5.43													

There are 128 (2^7) possible half-samples, but only eight (8) are needed to calculate a balanced, repeated replicate variance estimate. To determine which eight half-samples should be used to produce the estimate, a Hadamard matrix of order 8, shown below, is used. In the matrix, each row represents a replicate (α) and each column represents a stratum (h); since the sample has 7 strata, the eighth column is not used. An entry of +1 in the (α, h) cell indicates the first unit in strata h is included in the indicated replicates, while an entry of -1 indicates the second unit is included.

Hadamard Matrix, order=8

+1	+1	+1	+1	+1	+1	+1	+1
+1	-1	+1	-1	+1	-1	+1	-1
+1	-1	-1	+1	+1	-1	-1	+1
+1	+1	-1	-1	+1	+1	-1	-1
+1	+1	+1	+1	-1	-1	-1	-1
+1	-1	+1	-1	-1	+1	-1	+1
+1	-1	-1	+1	-1	+1	+1	-1
+1	+1	-1	-1	-1	-1	+1	+1

The calculation of the replicate estimates is shown below, with the replicates shown in the columns and the strata (sampling cells) shown in the row. The entry in each cell shows the replicate weight (δ_{hi}^α) multiplied (\cdot) by the unit's measure (y_{hi}). The final row of the table shows the replicate estimates (\bar{y}_α).

Calculation of Replicate Estimates

Stratum		Replicate							
		1	2	3	4	5	6	7	8
1	$\delta_1 y_1$	1.3	1.3	1.3	1.3	1.3	1.3	1.3	1.3
	$\delta_2 y_2$	0.6	0.6	0.6	0.6	0.6	0.6	0.6	0.6
2	$\delta_1 y_1$	1.5	0.5	0.5	1.5	1.5	0.5	0.5	1.5
	$\delta_2 y_2$	0.8	1.8	1.8	0.8	0.8	1.8	1.8	0.8
3	$\delta_1 y_1$	1.6	1.6	0.6	0.6	1.6	1.6	0.6	0.6
	$\delta_2 y_2$	0.9	0.9	1.9	1.9	0.9	0.9	1.9	1.9
4	$\delta_1 y_1$	1.2	0.2	1.2	0.2	1.2	0.2	1.2	0.2
	$\delta_2 y_2$	0.6	1.6	0.6	1.6	0.6	1.6	0.6	1.6
5	$\delta_1 y_1$	1.5	1.5	1.5	1.5	0.5	0.5	0.5	0.5
	$\delta_2 y_2$	0.4	0.4	0.4	0.4	1.4	1.4	1.4	1.4
6	$\delta_1 y_1$	1.7	0.7	0.7	1.7	0.7	1.7	1.7	0.7
	$\delta_2 y_2$	0.2	1.2	1.2	0.2	1.2	0.2	0.2	1.2
7	$\delta_1 y_1$	1.9	1.9	0.9	0.9	0.9	0.9	1.9	1.9
	$\delta_2 y_2$	0.4	0.4	1.4	1.4	1.4	1.4	0.4	0.4
\bar{y}_α		5.29	5.57	4.71	5.57	3.71	5.43	6.00	5.43

The calculation of the replicate variance estimate is shown below. The first column in the table indexes the replicates, the second shows the differences between the replicate mean and the total mean, and the third column shows its square. The sum of the squared deviations of replicate variance estimates from the same estimate is 3.837 and so the variance of the same estimate is 0.48 (3.837/8).

Calculation of Replicate Variance Estimate

Replicate	$\bar{y}_\alpha - \bar{y}$	$(\bar{y}_\alpha - \bar{y})^2$
1	5.29-5.43 = -0.143	0.020
2	5.57-5.43 = 0.143	0.020
3	4.71-5.43 = -0.714	0.510
4	5.57-5.43 = 0.143	0.020
5	3.71-5.43 = -1.714	2.939
6	5.43-5.43 = 0.000	0.000
7	6.00-5.43 = 0.571	0.327
8	5.43-5.43 = 0.000	0.000
	Σ	3.837

Use of repeated replication for calculation of sampling variances for the Employee Benefits survey sample requires some adjustments to the basic method to account for the weighting and selection method (Probability Proportionate to Size [PPS]) as well as the relatively large number of sampling cells and number of units selected per stratum. The necessary adjustments to the basic repeated replication method are summarized below, followed by an example of the implementation of the recommended procedure for variance estimation.

Weighting

The specification of repeated replication variance estimation requires calculation of unit weighting factors separately for each replicate. However, empirical studies of the method indicate that using one set of weights, modified by the δ_α factors for each replicate, provide acceptable results. That is, the ill effects of using whole-sample weights for the half-sample estimates are minimal. Thus, for the Employee Benefits survey, the recommended procedure is to calculate the weighting factors (EstFw_i and WFW_i) for each unit based on the whole sample and then use this single set of weights, modified by the δ_α factors, for the replicated variance estimation.

Units per Stratum (Sampling Cell)

Most, if not all, of the stratum (sampling cells) in the Employee Benefits sample will contain more than two units. In addition, use of the PPS selection method results in a theoretical stratum of size 1 (i.e., each unit is in its own stratum). Regardless of the perspective, the Employee Benefits sample does not conform to the two units per stratum expectation of the basic repeated replication method. Thus, to implement the method for the survey, it will be necessary to create pseudo-strata, containing two units each²⁸, for variance estimation.

Number of Strata (Sampling Cells)

Even with use of balancing, the number of replicates necessary for variance estimation may be large for certain Employee Benefits estimates. For example, a full-sample estimate (e.g., all establishments or all workers) could involve over 3,000 units. Assuming that these units were divided into pseudo-strata of two units each, a fully-balanced replicate estimate would require almost 400 replicates, which may not be computationally feasible. Thus, the recommended procedure for the Employee Benefits Survey is to implement partially-balanced repeated replication.

²⁸ In cases where there are an odd number of units to be assigned to pseudo-strata, some of these strata will contain three units. Modification of the method, which involves using different values of the δ_α factors, will be discussed below.

This variation of the estimation method involves dividing the (pseudo-)strata into equally sized groups and then specifying a fully-balanced replication for the first group, which is then repeated for all groups. Using a partially-balanced design results in some loss of precision in the variance estimation, with greater losses for larger numbers of groups (i.e., fewer replicates). In the case where partial-balancing is indicated due to the number of variance strata, the Consortium recommends that the partially-balanced design have a minimum of 60 replicates, meaning that the number of groups (G) should equal the number of variance estimation strata (L) divided by 60 (k): $G = L/k^{29}$. Thus, in cases where L is close to 60 or G is less than 2, fully-balanced replication should be implemented instead.

Example Implementation

The process of computing the repeated replicate variance estimates starts with the sample of responding units arranged in the strata (cells) used for computation of the non-response adjustment weighting factors ($Nra\hat{w}$) ordered within the strata by selection order, with certainty units first. An example of the starting point is shown in on the next page; note that this example is considerably simplified from what will be encountered in practice, as it is stratified on only two dimensions and there are only a few units in each stratum (cell). The 415 responding units are listed by "id", which in this case is a simple sequence number. There a few gaps in the sequence which indicates non-responding units (e.g., sample unit with id 004 is not listed in the example). Sampling strata (cells) which were combined are indicated by a dashed cell boundary; for example the strata (cells) for size classes 1 and 2 were combined for industry B.

Step 1. Create pseudo-strata for variance estimation

The pseudo-strata are pairs of units and do not cross non-response strata (cell) boundaries. If there is an odd number of units in the cell, the final pseudo-stratum should be a "triple" (i.e., three units) rather than a pair. For example, in the cell for industry A, size class 2 two pseudo-strata are formed, as follows:

- pseudo-strata 4: 008-009
- pseudo-strata 5: 010-011-012.

There are a total of 194 pseudo-strata for the example sample (shown below).

Example Sample for Variance Estimation

Ind.	Size Class									
	1		2		3		4		5	
A	001	005	008	011	013	016	017	022	028	031
	002	006	009	012	014		020	025		034
	003	007	010		015		021	023	029	032
							026	024		035
B			040	043	044	047	050	053	058	061
	036		041		045	048	051	056	059	062
	037		042		046	049	052	054	060	063
							057	055		
C	064	068	069	072	073	077	080	084	087	090
	066		070		074	078	082	085		093
	067		071		076	079	083	086	088	091

²⁹ If L is not evenly divided by k , the number of groups is the integer portion of the results (e.g., if $L/k = 3.56$, then there are 3 groups).

								089	092	094
D	095	098	099	102	104	107	108	112	115	118
	096		100	103	105		110	113	116	
	097		101		106		111	114	117	
E	119	122	126	129	132	135	136	139	143	146
	120	123	127	130	133		137	140	144	147
	121		128	131	134		138		145	
F			153	156					175	178
	148	151		159	163	166	169	172		181
	149	152	154	157	164	167	170	173	176	179
	150			161	165	168	171	174		182
			155	158					177	180
									183	
G	185	188	189	192	195	198	199	202	204	207
	186		190	193	196		200	203	205	
	187		191	194	197		201		206	
H							224	227		
	208	211	214	217	220	223		230	234	237
	209	213	215	218	221		225	228	235	238
	210		216	219	222			231	236	239
							226	229		
							232			
I	241	244	248	252	253	256	260	264	269	
		247	249			259		267	270	
	242	245	250		254	257	261	265	271	
	243	246			255	258		268		
						263	266			
J	272	275	277	281	284	287	288	291	292	295
	273	276	278	282	285		289		293	296
	274		280	283	286		290		294	
K	300	303	305	308	311	314	317	320	324	327
	301	304	306	309	312	315		323	325	
	302		307	310	313	316	318	321	326	
							319	322		
L	328	331	333	336	340	344	345	348	350	353
	329	332	334	337	341		346	349	351	354
	330		335	338	342		347		352	355
M					367	370				
	356	359	362	366		373	375		381	384
	357	360	363		368	371			382	
	358	361	365			374			383	
					369	372				
N			391	394	399	402				
	385	388		397		405	407	410	412	416
	386	389	392	395	400	403	408	411	413	417
	387	390		398		406	409		415	418
			393	396	401	404				

O	419	422	423	426	429	432	434	437	440	443
	420		424	427	430		435	438	441	444
	421		425	428	431		436	439		447
									442	445

Pseudo-strata for variance estimation (Step 1)

#	Units								
1	001-002	40	089-090	79	179-180	118	269-270-271	157	360-361
2	003-005	41	091-092	80	181-182-183	119	272-273	158	362-363
3	006-007	42	093-094	81	185-186	120	274-275-276	159	365-366
4	008-009	43	095-096	82	187-188	121	277-278	160	367-368
5	010-011-012	44	097-098	83	189-190	122	280-281	161	369-370
6	013-014	45	099-100	84	191-192	123	282-283	162	371-372
7	015-016	46	101-102-103	85	193-194	124	284-285	163	373-374
8	017-020	47	104-105	86	195-196	125	286-287	164	375-381
9	021-022	48	106-107	87	197-198	126	288-289	165	382-383-384
10	023-024	49	108-110	88	199-200	127	290-291	166	385-386
11	025-026-027	50	111-112	89	201-202-203	128	292-293	167	387-388
12	028-029	51	113-114	90	204-205	129	294-295-296	168	389-390
13	030-031	52	115-116	91	206-207	130	300-301	169	391-392
14	032-033	53	117-118	92	208-209	131	302-303-304	170	393-394
15	034-035	54	119-120	93	210-211-213	132	305-306	171	395-396
16	036-037	55	121-122-123	94	214-215	133	307-308	172	397-398
17	040-041	56	126-127	95	216-217	134	309-310	173	399-400
18	042-043	57	128-129	96	218-219	135	311-312	174	401-402
19	044-045	58	130-131	97	220-221	136	313-315	175	404-405-406
20	046-047	59	132-133	98	222-223	137	315-316	176	407-408
21	048-049	60	134-135	99	224-225	138	317-318	177	409-410-411
22	050-051	61	136-137	100	226-227	139	319-320	178	412-413
23	052-053	62	138-139-140	101	228-229	140	321-322-323	179	415-416
24	054-055	63	143-144	102	230-231-232	141	324-325	180	417-418
25	056-057	64	145-146-147	103	234-235	142	326-327	181	419-420
26	058-059	65	148-149	104	236-237	143	328-329	182	421-422

27	060-061	66	150-151-152	105	238-239	144	330-331-332	183	423-424
28	062-063	67	153-154	106	241-242	145	333-334	184	425-426
29	064-066	68	155-156	107	243-244	146	335-336	185	427-428
30	067-068	69	157-158	108	245-246-247	147	337-338	186	429-430
31	069-070	70	159-161	109	248-249	148	340-341	187	431-432
32	071-072	71	163-164	110	250-252	149	342-344	188	434-435
33	073-074	72	165-166	111	253-254	150	345-346	189	436-437
34	076-077	73	167-168	112	255-256	151	347-348-349	190	438-439
35	078-079	74	169-170	113	257-258-259	152	350-351	191	440-441
36	080-082	75	171-172	114	260-261	153	352-353	192	442-443
37	083-084	76	173-174	115	263-264	154	354-355	193	444-445
38	085-086	77	175-176	116	265-266	155	356-357	194	446-447
39	087-088	78	177-178	117	267-268	156	358-359		

Step 2. Create pseudo-strata groups

Note that this step is necessary only if the number of pseudo-strata is large (i.e., substantially larger than 60).

a. Determine number of groups

The number of groups (G) is equal to the number of pairs (L) divided by the number of replicates needed (k). In this case, L equals 194 and k equals 60 (the Consortium-recommended minimum) and so $G = 194/60 = 3.23 = 3$ groups.

b. Determine number of pseudo-strata in each group

If L is not a multiple of k , the number of pairs per group must be determined, which is accomplished by dividing L by G . For the example, this equals 64.67 (194/3) which means there will be two groups containing 65 pseudo-strata each and one group of 64 pseudo-strata.

c. Randomly assign the pseudo-strata to one of the groups³⁰

There are several methods which can be used to accomplish this step. For the example, a random number was drawn from a uniform distribution and assigned to each pair. Then, the pairs were sorted by the value of the random number and then split into the three groups; the results are shown below.

Step 3. Create replicates

a. Identify the order of the Hadamard matrix

The order of Hadamard matrix is the multiple of four greater than the number of pseudo-strata. In this case, the number of pseudo-strata is 65, which is the size of the larger groups, and so the order of the Hadamard matrix is 68.

b. Obtain a Hadamard matrix of the proper order.

Hadamard matrices can be obtained from numerous sources, both paper and electronic³¹. Wolter (1985) contains Hadamard matrices up to order 100 and NJA Sloane maintains a library of Hadamard matrices of various order from 1 to 256 (as of this writing) at <http://www.research.att.com/~njas/hadamard/>³³.

³⁰ Methodological research indicates that non-random assignment of the pseudo- or variance estimation strata (cells) to the groups in partially-balanced repeated replication estimation can increase the precision of the estimate. However, implementation of these methods requires previous knowledge regarding the distribution of the units, which will generally be unknown in the case of the Employee Benefits survey.

³¹ Hadamard matrices for a given order are generally not unique; the only requirement for the variance estimation problem is that the matrix be of the correct order.

The Hadamard matrix used in this example was drawn from Wolter (1985).

c. Calculate the δ_{hi}^α factors for each replicate.

The total number of replicates is the same as the order of the Hadamard matrix determined in step 3a. The table below indicates the δ_{hi}^α factors for the first three replicates for the first 10 pseudo-strata in the first group. The entries in the columns for the first member of the pseudo-variance strata (δ_{h1}^α) correspond to the first, second, or third row of the Hadamard matrix, while those in the columns for the other member(s) (δ_{h2}^α) were determined as described above, if the pseudo-strata contains two units. If the pseudo-stratum contains three units, the δ_{h2}^α factor is divided between the two units. For example, consider the pseudo-stratum which contains the following three units: 025, 026, and 027. In the first replicate, δ_{h1}^α is equal to 1 and so δ_{h2}^α is equal to 0 ($0/2 = 0$). For the third replicate, δ_{h2}^α is equal to 0, and so δ_{h2}^α is equal to 0.5 ($1/2 = 0.5$).

The factors for the other groups of pseudo-strata are calculated using the same matrix and are shown (for the first 10 pseudo-strata in each group) in the table below.

Result of Pseudo-strata Grouping (Step 2c)

Group 1									
#	Units	#	Units	#	Units	#	Units	#	Units
14	032-033	83	189-190	41	091-092	110	250-252	86	195-196
67	153-154	130	300-301	97	220-221	46	101-102- 103	16	036-037
111	253-254	122	280-281	64	145-146- 147	3	407-408	112	255-256
4	350-351	55	121-122- 123	4	397-398	4	417-418	103	234-235
99	224-225	5	427-428	121	277-278	26	058-059	48	106-107
11	025-026- 027	6	373-374	6	436-437	96	218-219	82	187-188
113	257-258- 259	31	069-070	7	326-327	59	132-133	7	385-386
60	134-135	8	421-422	127	290-291	65	148-149	109	248-249
9	446-447	9	434-435	119	272-273	61	136-137	9	419-420
27	060-061	10	391-392	135	311-312	10	425-426	40	089-090
117	267-268	129	294-295- 296	102	230-231- 232	77	175-176	36	080-082
80	181-182- 183	12	342-344	12	401-402	18	042-043	12	442-443
71	163-164	75	171-172	134	309-310	120	274-275- 276	13	387-388

³² Construction of a Hadamard matrix is relatively simple for smaller orders. Methods for constructing a Hadamard matrix can be found at <http://www-math.cudenver.edu/~wcherowi/courses/m5410/m5410had.html> and further details can be found in the works cited on this web page.

³³ Construction of a Hadamard matrix is relatively simple for smaller orders. Methods for constructing a Hadamard matrix can be found at <http://www-math.cudenver.edu/~wcherowi/courses/m5410/m5410had.html> and further details can be found in the works cited on this web page.

Group 2

2	003-005	15	399-400	105	238-239	72	165-166	15	354-355
17	040-041	93	210-211- 213	43	095-096	133	307-308	90	204-205
89	201-202- 203	6	013-014	42	093-094	88	199-200	39	087-088
25	056-057	20	046-047	137	315-316	87	197-198	136	313-315
70	159-161	66	150-151- 152	10	023-024	104	236-237	19	444-445
106	241-242	15	034-035	20	362-363	123	282-283	20	333-334
21	389-390	21	317-318	21	393-394	62	138-139- 140	30	067-068
22	352-353	33	073-074	68	155-156	22	382-383- 384	22	371-372
34	076-077	114	260-261	29	064-066	23	052-053	23	365-366
7	015-016	24	412-413	24	404-405- 406	35	078-079	22	050-051
107	243-244	54	119-120	100	226-227	57	128-129	63	143-144
26	423-424	98	222-223	4	008-009	132	305-306	5	010-011- 012
3	006-007	19	044-045	27	358-359	13	030-031	27	438-439

Group 3

21	048-049	115	263-264	12	028-029	58	130-131	29	360-361
30	345-346	9	021-022	30	431-432	30	330-331- 332	108	245-246- 247
31	409-410- 411	31	395-396	31	335-336	53	117-118	131	302-303- 304
85	193-194	116	265-266	50	111-112	44	097-098	8	017-020
74	169-170	49	108-110	33	369-370	95	216-217	79	179-180
34	356-357	92	208-209	37	083-084	34	367-368	51	113-114
35	347-348- 349	32	071-072	81	185-186	35	415-416	28	062-063
36	324-325	36	321-322- 323	36	440-441	91	206-207	56	126-127
37	337-338	94	214-215	69	157-158	84	191-192	37	340-341
128	292-293	1	001-002	47	104-105	101	228-229	38	085-086
125	286-287	39	328-329	73	167-168	24	054-055	124	284-285
118	269-270- 271	40	319-320	40	375-381	76	173-174	40	429-430
52	115-116	45	099-100	126	288-289	78	177-178		

Calculation of δ_{hi}^{α} Factors (Step 3c)

#	Unit	δ_{h1}^1	δ_{h1}^2	δ_{h1}^3	Unit(s)	δ_{h2}^1	δ_{h2}^2	δ_{h2}^3
Group 1								
14	032	1	1	1	033	0	0	0
67	153	1	0	0	154	0	1	1
111	253	1	1	0	254	0	0	1
4	350	1	0	1	351	0	1	0

9	224	1	0	0	225	0	1	1
11					026-			
	025	1	1	0	027	0	0	.5
113					258-			
	257	1	0	1	259	0	.5	0
60	134	1	1	0	135	0	0	1
9	446	1	0	1	447	0	1	0
27	060	1	0	0	061	0	1	1
Group 2								
2	003	1	1	1	005	0	0	0
17	040	1	0	0	041	0	1	1
89					202-			
	201	1	1	0	203	0	0	.5
25	056	1	0	1	057	0	1	0
70	159	1	0	0	161	0	1	1
106	241	1	1	0	242	0	0	1
7	389	1	0	1	390	0	1	0
8	352	1	1	0	353	0	0	1
34	076	1	0	1	077	0	1	0
7	015	1	0	0	016	0	1	1
Group 3								
21	048	1	1	1	049	0	0	0
2	345	1	0	0	346	0	1	1
3					410-			
	409	1	1	0	411	0	0	.5
85	193	1	0	1	194	0	1	0
74	169	1	0	0	170	0	1	1
6	356	1	1	0	357	0	0	1
7					348-			
	347	1	0	1	349	0	.5	0
8	324	1	1	0	325	0	0	1
9	337	1	0	1	338	0	1	0
128	292	1	0	0	293	0	1	1

Step 4. Generate replicate estimates and estimate sampling variance

Once the replicates have been created, the replicate estimates are generated in the same fashion as the survey estimates, except that the weights applied are the product of the δ_{hi}^α factors and either $EstFw_i$ or WFw_i . For example, consider the estimator for the percent of all establishments offering medical insurance coverage for workers (# 8) shown below:

$$\frac{\sum_i^I (Omed_i \times EstFw_i)}{\sum_i^I EstFw_i} \times 100.$$

The replicate estimates of this survey estimate are calculated as follows:

$$\frac{\sum_i^I (Omed_i \times EstFw_i \times \delta_{hi}^\alpha)}{\sum_i^I (EstFw_i \times \delta_{hi}^\alpha)} \times 100.$$

Once the replicate estimates are generated, the sampling variance is estimated as described above.

Evaluation of Sampling Variance

Rather than use the variance estimates directly, it may be more useful to transform them into standard errors for evaluation and reporting. The standard error is simply the square root of the sampling variance and be thought of as the standard deviation of the sampling distribution. Like the sampling variance, the standard error reflects the variability of the estimate or, in other words, its precision. They are also used to construct confidence intervals for estimates, which are direct statements about the estimate precision.

Confidence intervals relate the survey estimates to the population values and are generally of the form:

$$\bar{Y} = \bar{y} \pm Z_\alpha SE$$

where

\bar{Y}	=	population value
\bar{y}	=	survey estimate
Z_α	=	Z-score associated with α error level
SE	=	standard error.

The term α error relates to the probability that the population value is outside the confidence interval; its inverse $(1-\alpha)$ is the confidence level. Choice of α error level is up to the analyst, but the most commonly used α error level is 0.05, meaning that the confidence interval is constructed to show the range of values where the probability that the population value is within the range is 95%. Z scores for several levels of α error are shown in the table below.

α	Z_α
.1	1.645
.05	1.960
.01	2.576
.001	3.291

Estimates which have large standard errors are confidence intervals have lower levels of precision. Prior to the release of data, as part of the "macro" editing process, it is advisable to review the data for estimates with large variances/standard errors, especially for estimates which appear to have higher levels of variability compared to the total set of estimates. In addition, the Consortium recommends that States publish some measure of estimate precision, which can be the sampling variance, standard error, or confidence intervals. The choice of these depends on the audience for the survey results, as well as the method(s) the state is using the disseminate results. In addition, while states are urged to provide a measure of estimate precision for every estimate published, at a minimum states should provide such a measure for the "full-sample" estimates.

Sampling Variance: A Numerical Example

Suppose there was a population consisting of 8 units ($N=8$) from which a sample of 4 units ($n=4$) is to be drawn. The population members are indexed by i , which runs from 1 to 8. The characteristic of interest for each unit is designated as Y_i .

Unit (i)	1	2	3	4	5	6	7	8
Value (Y_i)	5	7	9	11	13	15	17	19

Two important properties of the distribution of the population are its mean (central tendency),

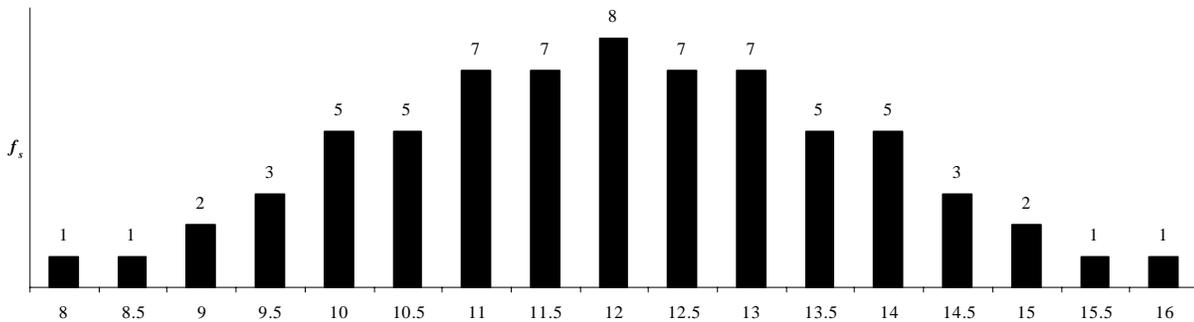
$$\bar{Y} = \sum_i Y_i / N = (5 + 7 + 9 + 11 + 13 + 15 + 17 + 19) / 8 = 12,$$

and population variance (variability among the Y_i values)

$$\sigma^2 = \text{Var}(Y_i) = \sum_i (Y_i - \bar{Y})^2 / N = 21.$$

For this population, there are 70 possible samples of size 4, each with the same probability of occurrence ($p_s = 1/70$, where $s =$ any possible sample)³⁴. For any of the possible samples, the estimate of the population parameter \bar{Y} can be calculated as $\bar{y}_s = \frac{1}{n} \sum_{i \in s} y_i$.

The frequency distribution of \bar{y}_s across the 70 possible samples is shown below. The distribution consists of all the possible values of \bar{y}_s and the number of samples (f_s) in which the given values occur. For example, the result of $\bar{y}_s = 9$ is found in two samples. Note that in 8 of the samples, the result is $\bar{y}_s = 12 = \bar{Y}$.



DISTRIBUTION OF SAMPLE MEANS

The mean of \bar{y}_s across the 70 samples, referred to as the expected value of the sampling distribution, is calculated as:

³⁴ The number of possible samples of size n from a population of size N is calculated as $\frac{N!}{(N-n)!n!}$ where the symbol refers to the factorial operation ($N! = N*(N-1)*(N-2)* \dots * 1$).

$$E(\bar{y}) = \frac{\sum_s f_s \bar{y}_s}{\sum_s f_s} = \frac{(1*8) + (1*8.5) + \dots + (1*16)}{70} = 12 = \bar{Y}$$

As $E(\bar{y}) = \bar{Y}$, the sample mean can be said to be an unbiased estimator of the population parameter (\bar{Y}) for simple random samples..

The variability of the results, \bar{y}_s , or the sampling variance, is defined as:

$$Var(\bar{y}) = \frac{\sum [\bar{y}_s - E(\bar{y})]^2}{S} = \frac{\sum [f_s (\bar{y}_s - E(\bar{y}))^2]}{\sum f_s}$$

That is, the sampling variance of $E(\bar{y})$ is equal to the squared deviations of the sample means from their expected value; see Table A1 for calculation details for the example population.

Table A1. Calculation of $E(\bar{y})$ and $Var(\bar{y})$

\bar{y}_s	f_s	$f_s \bar{y}_s$	$\bar{y}_s - E(\bar{y})$	$[\bar{y}_s - E(\bar{y})]^2$	$f_s [\bar{y}_s - E(\bar{y})]^2$
8	1	8	-4	16	16
8.5	1	8.5	-3.5	12.25	12.25
9	2	18	-3	9	18
9.5	3	28.5	-2.5	6.25	18.75
10	5	50	-2	4	20
10.5	5	52.5	-1.5	2.25	11.25
11	7	77	-1	1	7
11.5	7	80.5	-0.5	0.25	1.75
12	8	96	0	0	0
12.5	7	87.5	0.5	0.25	1.75
13	7	91	1	1	7
13.5	5	67.5	1.5	2.25	11.25
14	5	70	2	4	20
14.5	3	43.5	2.5	6.25	18.75
15	2	30	3	9	18
15.5	1	15.5	3.5	12.25	12.25
16	1	16	4	16	16
Σ	70	840	0		210

$E(\bar{y}) = 840/70 = 12$
 $Var(\bar{y}) = 210/70 = 3$

In a simple random sample, $Var(\bar{y})$ is related to population variance and sample size as follows:

$$Var(\bar{y}) = \left(\frac{N-n}{N-1} \right) \cdot \frac{\sigma^2}{n} = (1-f) \cdot \frac{S^2}{n}$$

where f is the sampling rate (n/N) and S^2 is the sampling variance of the population:

$$S^2 = \sum_i (Y_i - \bar{Y})^2 / (N-1) = \frac{N}{N-1} \cdot \sigma^2 = 8/7 \cdot 21 = 24.$$

In the example given here, f equals 0.5 (4/8) and S^2 equals 24, giving:

$$Var(\bar{y}) = (1 - 0.5) \cdot \frac{24}{4} = 3$$

which is the same as computed above from the full sampling distribution.

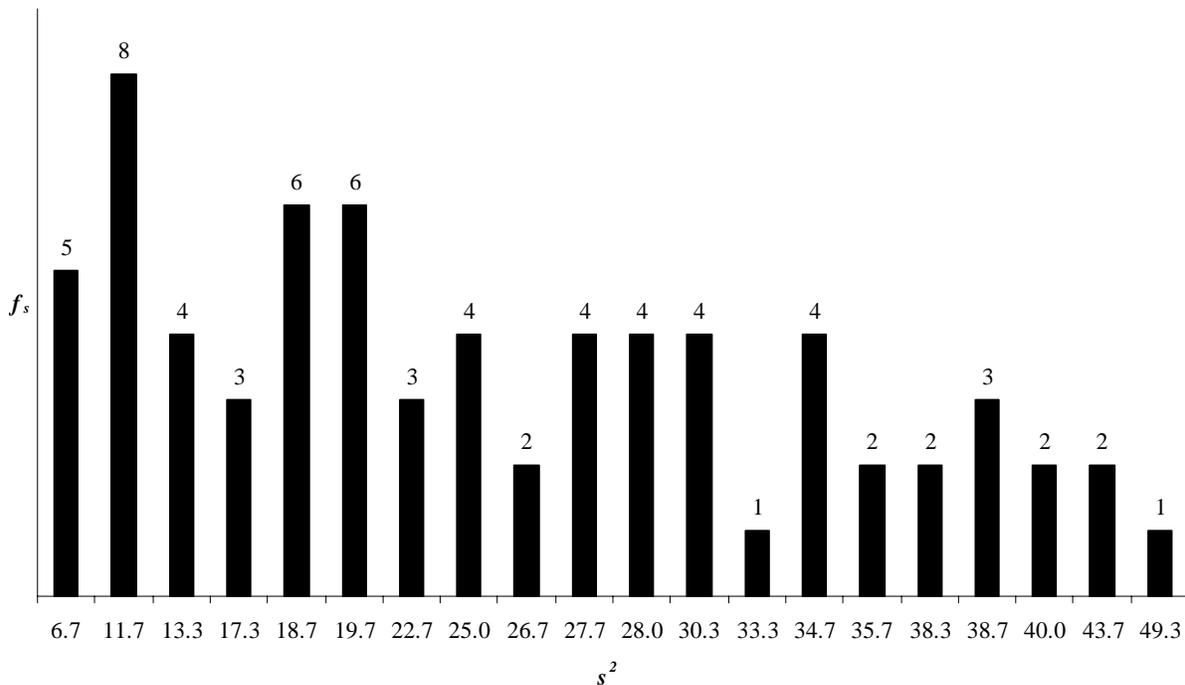
The sample variance statistic, s^2 is calculated as:

$$s^2 = \sum_i (y_i - \bar{y})^2 / (n - 1).$$

The distribution of s^2 across the 70 possible samples is shown below. The mean of s^2 , its expected value $E(s^2)$, equals S^2 , just as the expected value of \bar{y} equals \bar{Y} . Consequently, an unbiased estimator of the simple random sampling variance, $Var(\bar{y})$ is provided by:

$$Var(\bar{y}) = (1 - f) \cdot \frac{s^2}{n}.$$

DISTRIBUTION OF SAMPLE VARIANCE STATISTIC (s^2)



In simple random sampling, sampling variance has a direct, inverse relationship with sample size (i.e., as the size of the sample increases, sampling variance decreases). The relationship will be non-direct in the case of more complex sample designs, but the generally direction will remain the same. Note that statements about the precision of the estimate are measured in terms of the standard error (i.e., square root of variance). Hence, to double the precision of a sample, the standard error must be halved, and so the sample size would need to increase four-fold.

Content and Format of Output Files

All states that participate in the benefits survey program will use the same core survey instrument. The data capture system should be designed to produce a standard set of core tables with specified file layouts for field name, type, length, and so forth. Each core table should have a column for employer ID (or UI number) so that a respondent's data can be matched from table to table within the system. This standard method of storing data will provide states greater efficiency in the generation of output files.

The standardized benefits survey instrument will permit states to produce reports that display the same combinations and aggregations of their benefits survey data in similar formats. Participating states should report information about the incidence, provision, participation, and cost of benefits for part-time employees and full-time employees.

The standardized benefits survey will permit states to compare their findings to other states', and to share non-confidential data elements with other states and with the Bureau of Labor Statistics. The format of reporting tables can be seen in Appendix J.

Marketing and Customer Feedback

The Employee Benefits Survey is a new product, and as with any new product, marketing is important to building a customer base. Here are keys to marketing employee benefits survey information:

- Identify the potential audiences in your state and around the nation.
- Create user friendly paper and web publications oriented toward these audiences and work to make sure they receive them.
- Incorporate findings from the employee benefits survey into the range of information disseminated through your LMI office (publications, articles, interviews, presentations, training and website).
- Press release new data and findings to the media and provide interviews to help the media interpret the information.
- Collect and use customer feedback to continuously improve publications and web presence.

Audience

The Employee Benefits Consortium suggests that states take action to market their survey results with key users that have been identified. While marketing strategies may vary from state to state, the first step each state should take is to identify the potential audiences in their state.

Key user groups of employee benefits survey information include the following:

- Employers use employee benefits survey information to determine hiring competition and prioritize human resource needs. Some ways to reach this audience include the following: Mail complementary copies of the report to employers who respond to the survey and request a copy (check box on survey). Work with the media to get the information out so that employers will hear about its availability. A secondary benefit is that employers who are familiar with the survey information are more likely to respond to the survey, increasing response rates.
- Job seekers benefit by understanding the value of benefits so that they can identify employment that offers benefits. They may also use the report to better evaluate offers. To reach job seekers, be sure that the workforce development community is using and disseminating this information (see below). Also make sure it is available on public job seeker oriented websites, books and other materials. A number of job seekers will also hear about this information through the media if a media campaign is successful.
- Job counselors and the workforce development community as a whole benefit by understanding the value of benefits so that they can import this information to job seekers. Mail information directly to these groups and follow up with training and presentations where possible. LMI staff should also disseminate this information to Workforce Investment Boards, at conferences and through other means.
- Policy makers include the legislature, governors' offices, Governors' workforce development councils, state and local employment, training and welfare policy offices and local elected officials. These groups use employee benefits information to identify the level of coverage, changes in coverage and changes in cost of coverage for employers and employees. Where direct mailing is possible these are important groups to reach. If direct mailing is not possible (e.g. to elected representatives) a good media campaign should reach many members of this group.

States conducting a benefits survey for the first time should consider contacting those states that have conducted benefits surveys in the past. These states, as well as the Consortium, have materials that can be shared to assist with marketing efforts.

Funding Sources

The following is a list of possible key users or funding sources identified by the Consortium. Making contact with these potential users would effectively advertise employee benefit data and might provide valuable contacts to develop partnerships to produce future benefit studies. Some entries on the list are actual agencies to be contacted and others represent potential funding sources. Other entries refer to general user groups, which would benefit from having employee benefit information

- State & Local Workforce Investment Board (WIBS)
- Health & Human Services
- Health Resources & Services Administration (HRSA) - State Planning Grant
- State Health Access Data Assistance Center (SHADAC)
- WIA - Governor's 15% set aside monies
- Employment and Training Administration (ETA) - one stop funds
- Human Resource Groups
- Society for Human Resource Management (SHRM)
- National Association State Workforce Boards (NASWB)
- National Association State Workforce Agencies (NASWA)
- Workforce Investment Council (WIC)
- International Association Workforce Professionals (IAWP)
- America's Labor Market Information Services (ALMIS)
- LMI Institute
- Chambers of Commerce (state and local)
- Insurance Agencies
- Utility Groups
- State Legislature
- Economic Development Groups
- Employers
- Jobseekers
- News media

Publishing Benefits Information

Employee benefits survey data are for the most part, stand alone data. Moreover, since benefit coverage levels do not change much over time, these data do not go stale as quickly as other LMI data. For these reasons, putting the time and resources into publishing a good looking, easy to use booklet makes sense. Employers and others will be able to retain this booklet and use it for several years. As with everything else, it is also important to publish this information electronically. Another way to publicize employee benefits information is to incorporate findings into other publications, products and trainings of the LMI shop

Other Resources

States interested in more information or assistance with a benefits survey program are encouraged to contact National Employee Benefits Consortium members. Additionally, a web site has been developed that contains materials developed by the consortium and includes a discussion forum to which questions can be posted. This site is hosted by Nebraska and can be accessed at <http://benefits.dol.state.ne.us>.

Appendices

Appendix A

Consortium Survey Version 1.1

Instructions:

- For accurate and complete results, it is important that you fill out and return this survey even if your organization offers no benefits.
- If possible, please provide information only for the establishment and location listed on the address label of this survey. If this is not possible, please answer questions for the employees in <STATE NAME> only.
- Please provide the most current information available.
- Please respond by <RESPONSE DATE>.
- Several questions on this survey refer to the benefit offered to the "majority of employees." If more than two plans are offered and no one plan covers more than 50% of employees, please report benefits offered to the largest group of employees, i.e. the most typical or common plan offered.
- If you have any questions about the survey, please call <CONTACT PERSON> at <PHONE NUMBER> or email <EMAIL ADDRESS>.
- Please mail the completed survey in the postage-paid envelope or fax it to <FAX NUMBER>.
- **All information provided will remain strictly confidential.** Results will be presented in aggregate so that no individual response will be identifiable in any published results.
- Go to <WEB SITE> for more detailed instructions on filling out the survey. You will find a list of frequently asked questions and answers.

Contact Information

Contact Person: _____ Title: _____ Phone: (____) _____

(Contact information is requested in case clarification is needed about the responses to the survey.)

Check here if you would like a complimentary copy of the survey results.

Employment

1. How many workers are currently employed at the establishment and location listed on the address label of this survey? _____ employees

If zero employees, please

check here and return the survey form.

Based on your organization's definition of full-time and part-time, of the employees reported in question #1:

2. How many are full-time? _____ employees

3. How many are part-time? _____ employees

Please answer the remainder of the questions on the survey for the employees reported in this section.

Insurance: Medical, Dental, Vision, Disability, Life

	Full-time Employees	Part-time Employees
<p>4. Does your organization offer medical insurance? <i>(If no, please check "no" and skip to question #7.)</i></p> <p>a. Of the employees reported in questions #2 and #3, how many are offered medical insurance coverage?</p> <p>b. For the majority of employees, is there a waiting period for medical insurance coverage?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ employees</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ employees</p> <p><input type="checkbox"/> Yes <input type="checkbox"/> No</p>
<p>5. Of the employees reported in question #4a, how many are enrolled in medical insurance coverage?</p> <p>a. Of the employees reported in question #5, how many are enrolled in single medical insurance coverage?</p> <p>b. For the majority of employees, what percentage of single medical insurance premiums is employer paid?</p>	<p>_____ employees</p> <p>_____ employees</p> <p>_____ %</p>	<p>_____ employees</p> <p>_____ employees</p> <p>_____ %</p>
<p>6. Does your organization offer family* medical insurance coverage? <i>(If no, please check "no" and skip to question #7.)</i></p> <p>a. Of the employees reported in question #5, how many are enrolled in family medical insurance coverage?</p> <p>b. For the majority of employees, what percentage of family medical insurance premiums is employer paid?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ employees</p> <p>_____ %</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ employees</p> <p>_____ %</p>
<p>7. Does your organization offer dental insurance? <i>(If included as part of a medical insurance plan, please check "yes" and skip to question #9. If no, check "no" and skip to question #10.)</i></p> <p>a. Of the employees reported in questions #2 and #3, how many are offered dental insurance coverage?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ employees</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ employees</p>
<p>8. Of the employees reported in question #7a, how many are enrolled in dental insurance coverage?</p> <p>a. Of the employees reported in question #8, how many are enrolled in single dental insurance coverage?</p> <p>b. For the majority of employees, are single dental insurance premiums:</p>	<p>_____ employees</p> <p>_____ employees</p> <p><input type="checkbox"/> 100% employer paid <input type="checkbox"/> 100% employee paid <input type="checkbox"/> Jointly paid</p>	<p>_____ employees</p> <p>_____ employees</p> <p><input type="checkbox"/> 100% employer paid <input type="checkbox"/> 100% employee paid <input type="checkbox"/> Jointly paid</p>
<p>9. Does your organization offer family* dental insurance coverage? <i>(If no, please check "no" and skip to question #10.)</i></p> <p>a. Of the employees reported in question #8, how many are enrolled in family dental insurance coverage?</p> <p>b. For the majority of employees, are family dental insurance premiums:</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ employees</p> <p><input type="checkbox"/> 100% employer paid <input type="checkbox"/> 100% employee paid <input type="checkbox"/> Jointly paid</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ employees</p> <p><input type="checkbox"/> 100% employer paid <input type="checkbox"/> 100% employee paid <input type="checkbox"/> Jointly paid</p>
<p>10. Does your organization offer vision insurance? <i>(If included as part of a medical insurance plan, check "yes" and skip to question #11. If no, please check "no" and skip to question #11.)</i></p> <p>a. Of the employees reported in questions #2 and #3, how many are offered vision insurance?</p> <p>b. Of the employees reported in question #10a, how many are enrolled in vision insurance coverage?</p> <p>c. For the majority of employees, are vision insurance premiums:</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ employees</p> <p>_____ employees</p> <p><input type="checkbox"/> 100% employer paid <input type="checkbox"/> 100% employee paid <input type="checkbox"/> Jointly paid</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ employees</p> <p>_____ employees</p> <p><input type="checkbox"/> 100% employer paid <input type="checkbox"/> 100% employee paid <input type="checkbox"/> Jointly paid</p>
<p>* Family coverage is defined as employee plus other(s) such as spouse, children, dependents, etc.</p>		

	Full-time Employees	Part-time Employees
<p>11. Does your organization offer life insurance? (If no, please check "no" and skip to question #12.)</p> <p>a. Of the employees reported in questions #2 and #3, how many are offered life insurance?</p> <p>b. Of the employees reported in question #11a, how many are enrolled in life insurance?</p> <p>c. For the majority of employees, is life insurance:</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ employees</p> <p>_____ employees</p> <p><input type="checkbox"/> 100% employer paid <input type="checkbox"/> 100% employee paid <input type="checkbox"/> Jointly paid</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ employees</p> <p>_____ employees</p> <p><input type="checkbox"/> 100% employer paid <input type="checkbox"/> 100% employee paid <input type="checkbox"/> Jointly paid</p>
<p>12. Does your organization offer short-term disability insurance (separate from workers' compensation)? (If no, please check "no" and skip to question #13.)</p> <p>a. Of the employees reported in questions #2 and #3, how many are offered short-term disability insurance?</p> <p>b. Of the employees reported in question #12a, how many are enrolled in short-term disability insurance?</p> <p>c. For the majority of employees, is short-term disability insurance:</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ employees</p> <p>_____ employees</p> <p><input type="checkbox"/> 100% employer paid <input type="checkbox"/> 100% employee paid <input type="checkbox"/> Jointly paid</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ employees</p> <p>_____ employees</p> <p><input type="checkbox"/> 100% employer paid <input type="checkbox"/> 100% employee paid <input type="checkbox"/> Jointly paid</p>
<p>13. Does your organization offer long-term disability insurance (separate from workers' compensation)? (If no, please check "no" and skip to question #14.)</p> <p>a. Of the employees reported in questions #2 and #3, how many are offered long-term disability insurance?</p> <p>b. Of the employees reported in question #13a, how many are enrolled in long-term disability insurance?</p> <p>c. For the majority of employees, is long-term disability insurance:</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ employees</p> <p>_____ employees</p> <p><input type="checkbox"/> 100% employer paid <input type="checkbox"/> 100% employee paid <input type="checkbox"/> Jointly paid</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ employees</p> <p>_____ employees</p> <p><input type="checkbox"/> 100% employer paid <input type="checkbox"/> 100% employee paid <input type="checkbox"/> Jointly paid</p>
Paid Leave: Vacation, Sick, Holiday, Consolidated		
<p>14. Does your organization offer paid vacation leave?</p> <p>If paid vacation is offered as a separate benefit, how many days of paid vacation are offered to the majority of employees:</p> <p>a. After 1 year of employment?</p> <p>b. After 3 years of employment?</p> <p>c. After 5 years of employment?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ days</p> <p>_____ days</p> <p>_____ days</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ days</p> <p>_____ days</p> <p>_____ days</p>
<p>15. Does your organization offer paid sick leave?</p> <p>a. If paid sick leave is offered as a separate benefit, how many days of paid sick leave are offered per year to the majority of employees?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ days</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ days</p>
<p>16. Does your organization offer paid holiday leave?</p> <p>a. If paid holidays are offered as a separate benefit, how many days are provided each year to the majority of employees?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ days</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ days</p>
<p>17. Does your organization offer consolidated leave? (Consolidated leave may be referred to as a "Time Bank," "PTO (Paid Time Off)" etc. This leave may be offered in addition to other types of paid leave or may be offered in place of separate paid leave.)</p> <p>a. If yes, how many days are provided per year to the majority of employees?</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ days</p>	<p><input type="checkbox"/> Yes <input type="checkbox"/> No</p> <p>_____ days</p>

Retirement				
	Full-time Employees		Part-time Employees	
18. Does your organization offer a retirement plan? <i>(If no, please check "no" and skip to question #21.)</i>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
19. Does your organization offer a defined contribution retirement plan? <i>(401k, savings & thrift, deferred profit sharing, etc.)</i> <i>(If no, please check "no" and skip to question #20.)</i>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
a. Of the employees reported in questions #2 and #3, how many are offered a defined contribution retirement plan?	_____ employees		_____ employees	
b. Of the employees reported in question #19a, how many are enrolled in the defined contribution retirement plan?	_____ employees		_____ employees	
c. Is the defined contribution retirement plan:	<input type="checkbox"/> 100% employer paid	<input type="checkbox"/> 100% employee paid	<input type="checkbox"/> 100% employer paid	<input type="checkbox"/> 100% employee paid
	<input type="checkbox"/> Jointly paid		<input type="checkbox"/> Jointly paid	
20. Does your organization offer a defined benefit pension retirement plan? <i>(uses a specific, pre-determined formula to calculate an employees' future benefit)</i> <i>(If no, please check "no" and skip to question #21.)</i>	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
a. Of the employees reported in questions #2 and #3, how many are offered a defined benefit pension plan?	_____ employees		_____ employees	
b. Of the employees reported in question #20a, how many are enrolled in the defined benefit pension plan?	_____ employees		_____ employees	
c. Is the defined benefit pension plan:	<input type="checkbox"/> 100% employer paid	<input type="checkbox"/> 100% employee paid	<input type="checkbox"/> 100% employer paid	<input type="checkbox"/> 100% employee paid
	<input type="checkbox"/> Jointly paid		<input type="checkbox"/> Jointly paid	
Other Benefits				
21. Does your organization offer child care benefits (including on-site or off-site child care, reimbursements, vouchers)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
22. Does your organization offer tuition/educational assistance or reimbursement?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
23. Does your organization offer non-production bonuses (e.g. hiring, signing, year-end, attendance, holiday)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
24. Does your organization offer flexible spending accounts (accounts allowing employees to set aside money out of their paycheck pre-tax to pay qualified expenses)?	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No
25. _____	<input type="checkbox"/> Yes	<input type="checkbox"/> No	<input type="checkbox"/> Yes	<input type="checkbox"/> No

Appendix B

Detailed Survey Question Explanations

Key:

Italics = approximate wording of question in survey.

Normal font = explanation of question.

Instructions:

- *For accurate results, it is important that you fill out and return this survey even if your organization offers no benefits...*No explanation needed
- *If possible, please provide information only for the establishment and location listed on the address label of this survey. If this is not possible, please answer questions for the employees in <STATE> only....*Establishment level data is important because this is the way the sample is constructed and particularly if the sample is stratified by region. However, where this isn't possible, what is essential is that all answers be based on the same set of employees – i.e. the employees described in Q 1, 2 and 3.
- *Please provide the most current information available...*We are looking for point-in-time data. The reference period is the period in which the survey is in the field.
- *Please respond by <RESPONSE DATE>...*This should be the date by which the next mailing round will need to be prepared, or, if final mailing, the surveys will need to be in-house.
- *Several questions on this survey refer to the benefit offered to the "majority of employees." If more than two plans are offered, and no one plan covers more than 50% of employees, please report benefits offered to the largest group of employees, i.e. the most typical or common plan offered...* Majority of employees = mode, plurality, largest group, most typical.
- *If you have any questions about the survey, please call...*No explanation needed
- *Please mail the completed survey in the postage paid envelope or fax it to...*In case survey is faxed, each page should have the ID#.
- *Your response to this survey is crucial to ensure that the results obtained are reliable...*No explanation needed
- *All information provided will remain strictly confidential. The results will be presented in aggregate so that no individual response will be identifiable in any published results...*Confidentiality should be reinforced on the phone if follow-up call is necessary.

Contact Info

No explanation needed

Employment

1. *How many workers are currently employed at the establishment and location listed on the address label of this survey?...*The sample frame is establishment level firms so the responses should, ideally, provide establishment level data. This will not be possible in all cases. What is essential is that all answers be based on the same set of employees – i.e. the employees described in Q 1, 2 and 3.

1a. The checkbox is extraneous in terms of data collection but may help to alert the responder who has zero employees that it is not necessary to fill out the survey.

2 and 3. *How many are full/part-time?...*It is necessary to collect full and part-time employment because this information is not available in the EQUI file. Sum of 2 and 3 should total to number in #1.

Insurance: Medical, dental, vision, disability and life

4. *Does your organization offer medical insurance?...Offer medical insurance to current employees (could also include families etc.) regardless of who pays.*
 - a. *Of the employees reported in questions #2 and #3, how many are offered medical insurance?...No explanation needed.*
 - b. *For the majority of employees, is there a waiting period for medical insurance?...No explanation needed.*

5. *Of the employees reported in questions #2 and #3, how many are enrolled in single coverage medical insurance?...The total number of employees enrolled in medical insurance.*
 - a. *Of the employees reported in question #5, how many are enrolled in single medical insurance?...Count of those enrolled in single coverage insurance.*
 - b. *For the majority of employees, what percentage of single coverage medical insurance premiums are employer paid?...Majority of employees = mode as in instruction bullet 4.*

6. *Does your organization offer medical insurance for employees' spouses or dependents?...Offer family coverage to current employees?*
 - a. *Of the employees reported in questions #2 and #3, how many enroll their spouses or dependents in medical insurance coverage?...It is important to note that this asks for the number of current employees, not family members.*
 - b. *For the majority of employees, what percentage of medical insurance premiums for employees' spouses or dependents are employer paid?...Majority of employees = mode as in instruction bullet 4.*

7. *Does your organization offer dental insurance?... Offer dental insurance to current employees (could also include families etc.) regardless of who pays.*
 - a. *Of employees reported in questions #2 and #3, how many are offered dental insurance?...No explanation needed.*

8. *Of the employees reported in questions #7a, how many are enrolled in dental insurance coverage?...No explanation needed*
 - a. *For the majority of employees, are dental insurance premiums... Majority of employees = mode as in instruction bullet 4*

9. *Does your organization offer dental insurance to employee's spouses or dependents?... Offer family coverage to current employees?*
 - a. *Of the employees reported in questions #7a how many are enrolled in dental insurance coverage for spouses or dependents?...No explanation needed.*
 - b. *For the majority of employees, are dental insurance premiums for employees' spouses or dependents... Majority of employees = mode as in instruction bullet 4*

10. *Does your organization offer vision insurance?... Offer vision insurance to current employees (could also include families etc.) regardless of who pays.*
 - a. *Of the employees reported in questions #2 and #3, how many are offered vision insurance?...No explanation needed.*
 - b. *Of the employees reported in questions #10a, how many are enrolled in vision insurance coverage?...No explanation needed*
 - c. *For the majority of employees, are vision insurance premiums... Majority of employees = mode as in instruction bullet 4*

11. *Does your organization offer life insurance?...*
 - a. *Of the employees reported in questions #2 and #3, how many are offered life insurance?...No explanation needed*
 - b. *Of the employees reported in question #11a, how many are enrolled in life insurance?...No explanation needed.*
 - c. *For the majority of employees, is life insurance... Majority of employees = mode as in instruction bullet 4*
12. *Does your organization offer short-term disability insurance?. Short-term disability insurance covers employees for non-work related injuries or illness and is paid out for a fixed amount of time, typically 26 weeks.*
 - a. *Of the employees reported in questions #2 and #3, how many are offered short-term disability?...No explanation needed*
 - b. *Of the employees reported in question #12a, how many are enrolled in short-term disability?...No explanation needed.*
 - c. *For the majority of employees, is short-term disability... Majority of employees = mode as in instruction bullet 4*
13. *Does your organization offer long-term disability insurance?. Long-term disability provides a monthly payment to employees who are unable to work due to injury or illness for an extended period of time. Generally payments start after a period of disability and continue through retirement age, depending on employee's age at the time of injury.*
 - a. *Of the employees reported in questions #2 and #3, how many are offered long-term disability?...No explanation needed*
 - b. *Of the employees reported in question #13a, how many are enrolled in long-term disability?...No explanation needed.*
 - c. *For the majority of employees, is long-term disability... Majority of employees = mode as in instruction bullet 4*

Paid Time Off: Vacation, sick, holiday, consolidated leave

14. *Does your organization offer paid vacation leave?. This question is attempting to distinguish between consolidated paid time off (PTO) and paid vacation leave. Responders should answer yes only if paid vacation leave is offered separately from PTO.*
 - a. *b and c...If paid vacation is offered, how many days are offered to the majority of employees?... Majority of employees = mode as in instruction bullet 4*
15. *Does your organization offer paid sick leave?. This question is attempting to distinguish between PTO and paid sick leave. Responders should fill answer yes only if paid sick leave is offered separately from PTO.*
 - a. *If yes, how many days of paid sick leave are offered per year to the majority of employees?... Majority of employees = mode as in instruction bullet 4*
16. *Does your organization offer paid holidays?. This question is attempting to distinguish between PTO and paid holidays. Responders should fill answer yes only if holiday leave is offered separately from PTO.*
 - a. *If yes, how many days of paid holidays are offered per year to the majority of employees?... Majority of employees = mode as in instruction bullet 4*
17. *Does your organization offer consolidated "Paid Time Off" (PTO)?. This question is attempting to distinguish between PTO and other forms of leave.*
 - a. *If yes, how many days are provided per year to the majority of employees? Majority of employees = mode as in instruction bullet 4*

Retirement

18. *Does your organization offer a retirement plan?*

19. *Does your organization offer a defined contribution retirement plan?*
 - a. *Of the employees reported in questions #2 and #3, how many are offered a defined contribution retirement plan?...No explanation needed*
 - b. *Of the employees reported in questions #2 and #3, how many are enrolled in a defined contribution retirement plan?...No explanation needed.*
 - c. *Is the defined contribution retirement plan... Majority of employees = mode as in instruction bullet 4*
20. *Does your organization offer a defined benefit pension retirement plan?*
 - a. *Of the employees reported in questions #2 and #3, how many are offered a defined benefit pension retirement plan?...No explanation needed*
 - b. *Of the employees reported in questions #2 and #3, how many are enrolled in a defined benefit pension retirement plan?...No explanation needed.*
 - c. *FOR THE MAJORITY OF EMPLOYEES OFFERED THIS PLAN, is the defined benefit pension retirement plan... Majority of employees = mode as in instruction bullet 4*

Other Benefits

21. *Does your organization offer child care benefits?...We're not picky about interpretation here. Basically is any tangible thing offered?*
22. *Does your organization offer tuition /educational assistance or reimbursement?...We're not picky, any tangible benefit will count as a yes.*
23. *Does your organization offer non-production bonuses?...A cash payment that is not directly related to the output of an employee or group of employees. Granted there is a fine line between production and non-production bonuses so employers will have to decide for themselves in some cases.*
24. *Does your org offer flexible spending accounts?...Usually pretax medical spending or child care spending accounts IS THIS WHAT WE MEAN? THERE IS NO DEFINITION IN THE BLS GLOSSARY OF TERMS.*
25. *Does your org operate on shifts?...*
 - a. *If yes, does your org offer shift differentials?*

Cost of Benefits

For the cost questions below, please provide the most recent 12-month figures available. Include employer contributions only for insurance and retirement costs. Please exclude costs for retirees and COBRA participants... Again, we are trying to capture the most recent data that the employer has easily available. The date may be 6 months to a year old – that is OK. Also, we are trying to capture costs only for current employees, as described in Q 1, 2 and 3. If the employer can only provide this cost data on a statewide basis, that is ok.

26. *How much did your org spend on each of the following components of compensation?...*
 - a. *Wages and salaries*
 - b. *Insurance*
 - c. *Retirement plans*
 - d. *What was the average employment for the same 12 months period of the costs reported in Q above?...we need to ask this again so that we know what employment number to use for the estimate of per employee cost and so that we know that the employer is responding for the correct unit.*

Appendix C **Mailout Examples**

Pre-/Post-Survey Postcard Example

IT'S COMING. ..

In an effort to stay economically competitive with other areas, Chambers of Commerce, Economic Developers, and other employers request information from us describing benefit packages offered to employees.

Your company has been randomly selected to receive a questionnaire that asks about the incidence and participation rates of employee benefits packages in your area. Employers are our only source of data and the information you provide will be held in complete confidence. No data will be reported that can identify your company.

You will also have an opportunity to indicate if you wish to receive a complimentary copy of the final report.

If the address information on our mailing label will not get the forms to the person who can complete the survey, please fax the necessary corrections to <fax number> or call us at <telephone number>.

2004

<state>

Employee

Benefits

Survey

Cover Letter Example 1

Dear [contact name or To Whom it May Concern]:

Your organization has been randomly selected to participate in the collection of information regarding fringe benefits offered to employees and the costs associated with offering a benefits package. Please direct this survey to the appropriate manager or human resource personnel for completion. The survey should be completed and returned even if you do not offer a benefits package to current employees. In order to maintain validity and accuracy, please return the survey no later than [date]. Enclosed you will find a Benefits Survey form for:

[Company Name]

[Survey Location Address1]

[Survey Location Address2]

[Survey Location City], [Survey Location State] [Survey Location ZIP Code]

The last benefits survey conducted in 1999 was well received by businesses, policy makers, students, job seekers, and others interested in knowing the benefits offered by Iowa businesses. As a result of many inquiries and the concern over the rising cost of benefits, a Consortium of states gathered to revive and reconstruct the survey to meet the needs of all those interested in obtaining information on benefits offered and costs associated. The information that is gathered will be used in the development of a nationally standardized benefits survey, which will allow for the comparison of information at a national level. This will in turn assist local leaders, businesses, developers, state officials, legislators and many others with developing appropriate legislation in regards to the rising costs of benefits as well as providing a picture of what benefits are offered.

The last section of the survey deals with costs associated with benefit packages. Any information provided will **remain strictly confidential** and will serve as a focal point in addressing rising cost issues. The results will be published in aggregate so that no individual response will be identifiable.

We have provided a web site that has a list of frequently asked questions (FAQs), that can be found at {website}. However, you may contact {staff person assigned to project} if you do not have Internet access or you have a question that is not easily answered by the FAQ.

If you would like to receive a copy of the results, please select the appropriate check box under the *Contact Information* section of the survey or you can obtain the results by accessing the {State agency } website, {website}, upon the completion of the survey [approximate date].

We, here at {State agency}, look forward to providing valuable information and an insightful look at the benefits offered in the {State or region}.

{State Agency Closing}

Cover Letter Example 2

<State Agency Address>

Dear Employer:

As an employer, you know the importance of accurate information about the labor market. Providing this information to business and government decision makers is a high priority for the State of **<state name>** and a special responsibility of the **<agency name>**.

In an effort to stay economically competitive with other areas, chambers of commerce, economic developers, and other employers often request information from the **<agency name>** regarding **benefits packages** offered to employees. Individual employers are our only source of accurate information on this issue. Therefore, we are conducting a large statewide survey to gather data that will provide this information.

Your firm has been scientifically selected to participate in the **<state name>** Employee Benefits Survey. **Your participation is important** for maintaining the representativeness of the selected sample across industry types and sizes. Even if you offer no benefits, your response is important.

We will use the information you provide for statistical purposes only, and no data will be reported that can identify your company. Your responses will be held in complete confidence, and no information about your individual company will be disclosed without written consent. On the survey there is a place for you to indicate if you wish to receive a complimentary copy of the final results.

The survey is not long, and it is straightforward. Please read the directions carefully and return the completed survey in the enclosed postage-paid envelope. Your timely response will help cut project costs by reducing the need for additional mailings and telephone calls.

If you have any questions about the survey, please contact **<contact's name>** at **<phone number>** or **<alternate phone number>**, or by email at **<email address>**.

Thank you very much for your time. We appreciate your help.

Sincerely,

Name
Title
Agency or Office

Name
Title
Agency or Office

Follow-up Letter Example

<State Agency Address>

Dear Employer:

Recently our office mailed you a survey form and asked you to participate in the Employee Benefits Survey. So far, we have not received your reply.

The Employee Benefits Survey provides current information about compensatory data our labor market. It is used to help employers engaged in retraining and reorganizing their work forces, as they deal with the challenges of new technology, changes in our demographic composition, and competition for domestic and global markets. We ask for this information from employers because there is simply no other way to get it. Your firm was scientifically selected for this survey and you represent many employers in your industry.

We realize that you are busy and we would like to make your participation in this survey as easy as possible. Because it is important that we hear from your firm, we are enclosing another copy of the form. If you are unable to complete the survey form and you can send us the necessary information in a different format, we will be happy to do it for you. Please complete the first page and attach a listing or computer disk that allows us to determine the number of workers in each of your job classifications, along with their individual wages, and we will complete the form in our office. We will also be happy to take your responses over the telephone if you prefer. Please call us at (XXX) XXX-XXXX.

We will use the information you provide for statistical purposes only. To the full extent permitted by law, we will hold the information in confidence and will not disclose it without the written consent of your establishment.

If you have any questions, or if we can help you to complete the form or otherwise provide your data for the survey, you can reach us at (XXX) XXX-XXXX.

If you have already returned your survey form, please accept our thanks. We really appreciate your cooperation.

Sincerely,

Name

Title

Enclosure

Appendix D

Frequently Asked Questions (FAQs)

The following list of Frequently asked questions may be used a variety of ways. A subset of questions from this list may be sent to businesses along with the survey form to provide additional information about the survey. These questions can also be added to a web site to provide more detailed instructions to survey participants. Prior to conducting phone call follow-up, these questions should be reviewed by staff so the answers can be provided if asked.

Why is this survey being conducted?

Employee benefits information is valuable to a variety of audiences. For example, businesses can use benefits information to compare their benefits offered to like companies. Job seekers may use this information to assess the types of benefits offered by different types of employers.

Who is conducting the Employee Benefits Survey?

The survey is being conducted by the <STATE INSERT>, the statistical branch of the <STATE INSERT>. The study is a cooperative effort between <STATE INSERT> and <STATE INSERT>.

How will this information be used?

Information provided by individual businesses will be compiled to create a report showing the types of benefits offered to employees. This report will present information by business size and industry. All data is confidential and will be presented in aggregate so that no individual response will be identifiable. The study is a cooperative effort between <STATE INSERT>.

How can I receive a copy of the survey results?

<STATE INSERT> will publish some of the results on our Web site – <STATE INSERT>. These results should be available in <STATE INSERT>.

Who should complete this survey?

Anyone with knowledge of the company's benefits package can complete the survey. Some questions asking about enrollment in retirement and insurance plans will need to be answered by someone with access to this information. The questions regarding the cost of the benefits may need to be answered by a different person than the one who answered the enrollment questions. The survey asks for a contact person in case we have questions about information included in the survey.

Is this survey mandatory?

Participation in the survey is voluntary, however it is highly appreciated. Studies such as this are beneficial to gathering information about employee benefit packages. If your organization does not wish to participate in the survey, we ask that you please let us know by returning the survey form with a note saying you do not wish to participate. This will help us save time and money contacting businesses that we haven't heard from.

Can this survey be answered online?

Due to cost and complexity of creating a Web based version of the survey document, we are only able to receive completed surveys by mail or fax. Our fax number is <STATE INSERT>.

We received multiple copies of the survey form. Do we need to fill them all out?

The survey was mailed to individual business locations. In some cases, multiple copies may be forwarded from different locations or divisions to a central division office. If your company received more

than one copy and the benefits offered at all locations are the same, it is only necessary to complete one of the forms. We would ask, however, that you return all of the forms together so we know that the benefits are the same at those locations. This will help us to avoid following up from locations that have not responded by the due date. If possible, it would be helpful if the employment questions (questions #1, #2, and #3) could be completed for each location that received a survey.

What location is this survey intended for?

The study is for <STATE INSERT>, therefore the establishment we are surveying should be in that <STATE INSERT>. The mailing label should indicate the business name, location address or an identification number for the establishment. If you are unable to identify which location it is intended for, please indicate on the survey form which location you provided the information for.

Information is not available for the establishment shown on the mailing label. Should I respond for a different location?

For the purposes of this survey, we are only interested in the establishment located in <STATE INSERT>. If you are responding for a location different than shown on the mailing label, please provide the address for the location for which you're reporting. To obtain accurate results it is important that you answer all questions throughout the survey about the same establishment so that survey results will be accurate.

We only have a small number of employees. Do I still need to complete the survey?

It is important that we collect information from businesses of all sizes. Information will be compiled not only by business size, but also by industry.

Some of our employees are paid different benefits. How should I respond?

Please respond for the majority of your employees. If more than two plans are offered and one plan covers more than 50 percent of employees, please report the benefits offered to the largest group of employees.

I don't have information available for some of the questions. What should I do?

Any information you can provide is helpful. For instance, you may be able to report whether or not insurance is offered, but not a count of how many employees are offered the benefit.

The organization that received the survey is closed/has been sold/does not have any <STATE INSERT> employees/etc. What should I do?

Please return the survey form with a note explaining the situation so we can remove that business from the survey mailing list.

Some of our employees are salaried. How do I report the number of full-time and part-time employees in questions #2 and #3?

If possible, classify salaried employees based on the number of hours they typically work. If salaried employees cannot be classified as full-time or part-time, attach a note explaining your classification of employees.

I don't have information available for some of the questions. What should I do?

Any information you can provide is helpful. For instance, you may be able to report whether or not insurance is offered, but not a count of how many employees are offered the benefit.

Our benefits offered don't fit the way the survey questions are asked. How do I answer these questions?

Answer the questions to the best of your ability. If necessary, include a note explaining your answer to particular questions.

We offer unpaid leave. How do I report that?

If your organization offers benefits that you'd like to report that aren't referenced on the survey, please attach a separate sheet of paper with an explanation.

We offer benefits that are not included on the survey form. How can we report these benefits?

If you would like to provide any additional information not addressed on the survey, please attach a separate sheet of paper.

My company has been in business less than a year. How should I answer question #26 – Cost of Benefits?

Make a note on the survey form stating that your company hasn't been open long enough to answer this question.

What should be included in question #26 – Cost of Benefits?

Please just include the amount paid for straight-time wages. Do not include overtime pay or bonus pay.

Where can I get definitions for terms used on the survey?

The U.S. Bureau of Labor Statistics (BLS) produces a "Glossary of Compensation Terms" that can be accessed at: <http://www.bls.gov/ocs/sp/ncbl0062.pdf>.

How do I get off your mailing list?

A sample of all businesses in <STATE INSERT> was selected to participate in this survey. If you do not want to participate, please return the survey with a note so we can remove you from follow-up mailings related to the survey and results.

I misplaced the postage-paid envelope that came with the survey. What's the mailing address for the survey?

<STATE INSERT>

What is the Fax number?

Our fax number is <STATE INSERT>. Please fax it to the attention of <STATE INSERT>.

Who do I contact if I have more questions about this survey?

If you have any questions, contact <STATE INSERT> by e-mail at <STATE INSERT> or call toll-free, <STATE INSERT>.

Appendix E

Survey Edit Check Criteria

The edit checks listed below are the edits recommended by the National Employee Benefits Consortium. These checks verify that data is consistent within each survey.

The edits can be conducted in a variety of ways. Some may be done by taking a visual scan of completed surveys as they are checked in. Other edits are more appropriate after the data has been entered into the data capture system.

These logic statements are necessary to ensure that the Employee Benefits Survey is completed without error. The survey question number is provided with an explanation of the error check. Any pertaining mathematical logic statements are provided.

Unless otherwise stated, the edit check criteria will be the same for the full-time and part-time data sets. The checks should be run on both columns of data. In cases where full-time and part-time responses are compared, the questions are referenced with a FT or PT.

The Consortium recommends flagging any record identified as a potential error. These flagged records can then be reviewed by a staff member working on the survey and the necessary corrective action can be taken. Changes and corrections to the survey data should not be made until someone has evaluated the error check flag.

General Reminders

It should be noted that correcting one flagged record may lead to another edit check flag to be raised. For this reason, the survey edit checks should be repeated until no further errors are found within the data. Additionally, it is recommended that all errors within a survey are identified before respondents are contacted. Because a survey may contain multiple errors, this will ensure that each employer only needs to be contacted once.

The edit checks should be conducted in order. Many of the edits refer to data that should have been previously checked. For instance, the number of employees enrolled in medical insurance (5) references the number of employees offered medical insurance (4a) which references the number of employees (questions 2 & 3). Questions (2) and (3) should be cleaned prior to running the check on (4a) which should be cleaned prior to running the check on (5).

Many of the checks are dependent on how the data capture system is built. For instance, no text should be allowed in any numeric field. Also, no negative numbers should be allowed. If the data capture system is built to not allow text or negative numbers, a check will not need to be run. For questions such as (8b) that offer three options, only one should be checked.

Throughout the edit checks, the term "blank" is used to denote questions not answered by the respondent. Depending on the software used to create a data capture system, "blank" responses will be defined in different ways (such as "Null" in Microsoft Access).

It is important to understand when certain types of responses should be allowed and when they should be corrected. Some respondents may not distinguish between "no" and "not applicable" when answering the survey. For example, instead of following the skip patterns, some follow-up questions may be checked as "no" because those questions are not applicable to the respondent. The same kinds of issues

may occur with respondents writing "0" to mean "not applicable." For instance, question (15) is checked "No" for paid sick leave, but "0" is provided as the response for (15a). In some cases, "0" may be a valid response. Medical insurance (4) may be offered, but zero employees are offered the benefit because they do not meet a certain criteria (such as employee classification, number of hours worked, time with the company, etc). If the edit checks identify a potential issue, it is imperative that analysts know how to correct the problem.

For all questions throughout the survey, checks should be conducted to compare benefits offered to full-time employees to those offered to part-time workers. In any instance when the benefits offered to part-time employees appear to be "better" than those offered to full-time employees, the survey should be flagged for follow-up. Although it is possible that some benefits are offered to part-time employees but not full-time employees, this is unlikely. Assuming data entry was done correctly, follow-up with the employer may be necessary to validate the responses.

The only questions that the Consortium has defined as "required" are (1), (2), and (3). For the survey to be counted as a valid response, those questions and one other need to be answered. Many questions require that the initial question is answered to allow the follow-up questions to be answered. Unless there is a specific reason to do so, no edit check should be written in a way that requires certain questions to be answered.

The edit checks are intended to correct consistency errors within the benefits survey. Any potential errors or questionable data (such as 200 days vacation leave) can be corrected by contacting the employer or can be identified as outliers when conducting the data analysis.

Edit Check Criteria

1. Comparison of reported employment to expected employment from the EQUI file. The percentage difference of reported employment and employment from the EQUI file should be calculated. This can be used to determine if the establishment providing data is the one that was expected.

The Consortium does not have recommended thresholds for flagging records based on employment differences. However, it is recommended that a larger employment percentage difference threshold is allowed for smaller businesses. For instance, an employer may have an expected employment of 2 workers from the EQUI, but reports 4 on the benefits survey. This would be an increase of 100%, but an increase of 2 employees is probably not unreasonable. For larger employers a much smaller percentage change may need to be flagged because of the number of employees represented.

When calculating the percentage difference for expected and reported employment, it is important to consider the age of the EQUI file, as well as the survey being conducted in a different season than the reference EQUI file. A survey being conducting in a different quarter than the EQUI file used for sampling may mean some employers have different seasonal employment than expected. An older EQUI file may also lead to larger employment differences.

1. If the "zero employees" box is checked and/or the total employment reported is 0 then the survey should be coded as out of scope. If either of those cases exist, and survey questions are answered, follow-up may be necessary.

1, 2, 3. Total employment (question 1) needs to sum to full-time employment (question 2) and part-time employment (question 3). If $(2) + (3) \neq (1)$ then the record should be flagged.

4. Medical insurance skip pattern not followed. If (4a), (4b), (5), or (5a), (5b), (6), (6a), or (6b) are not blank (there is a response) and (4) is blank or "0" then there is an error and the record should be flagged.

4a. The number offered medical insurance needs to be less than or equal to the total number of employees (the response in the full-time column is compared to question #2, the part-time column compared to question #3).

$(4a) \leq (2)$ (for full-time column), $(4a) \leq (3)$ (for part-time column)

5. The number enrolled in medical insurance needs to be less than or equal to the number of employees offered medical insurance (4a).

$(5) \leq (4a)$

5a. The number enrolled in single medical insurance needs to be less than or equal to the total number of employees enrolled in medical insurance.

$(5a) \leq (5)$

5b. The percentage of single medical insurance premiums that are employer paid must be less than or equal to 100%.

$(5b) \leq 100(\%)$

6. Family medical insurance skip pattern is not followed. If (6a) or (6b) is not blank and (6) is blank or "0" then the record needs to be flagged for follow-up.

6a. The number offered family medical insurance needs to be less than or equal to the total number of employees enrolled in medical insurance. $(6a) \leq (5)$

The number of employees enrolled in family coverage and the number enrolled in single coverage insurance should sum to the total number of employees enrolled in medical insurance. $(5a) + (6a) = (5)$. There may be some employers who misinterpret this question, however, so this flag may need further review.

6b. The percentage of family medical insurance premiums that are employer paid must be less than or equal to 100%.

$(6b) \leq 100\%$

The percentage of family medical insurance premiums that are employer paid should be less than or equal to the percentage paid for single coverage.

$(6b) \leq (5b)$

7. Dental insurance skip patterns not followed. If (7a), (8), (8a), (8b), (9), (9a), or (9b) is not blank and (7) is blank or "0" then the record needs to be flagged for follow-up.

7a. The number offered dental insurance must be less than or equal to the total number of employees (the response in the full-time column is compared to question #2, the part-time column compared to question #3).

$(7a) \leq (2)$ (for full-time column), $(7a) \leq (3)$ (for part-time column)

8. The number enrolled in dental insurance must be less than or equal to the number offered dental insurance.

(8) ≤ (7a)

8a. The number enrolled in single dental insurance coverage must be less than or equal to the total number enrolled in dental insurance.

(8a) ≤ (8)

9. Family dental insurance skip patterns not followed. If (9a) or (9b) is not blank and (9) is blank or "0" then the record needs to be flagged for follow-up.

9a. The number enrolled in family dental insurance coverage must be less than or equal to the total number offered dental insurance.

(9a) ≤ (8)

The number of employees enrolled in single dental insurance and family dental insurance should sum to the total number of employees enrolled in dental insurance. (8a) + (9a) = (8). There may be some misinterpretation on this question, however, and the flag should be reviewed.

9b. The percentage paid by the employer for family dental insurance should be less than or equal to the percentage for single dental insurance. If (8b) is "100% employer paid" then all response options are available for (9b). If (8b) is "100% employee paid" then (9b) must be "100% employee paid." If (8b) is "Jointly paid" then (9b) must be "100% employee paid" or "Jointly paid."

10. Vision insurance skip pattern not followed. If (10a), (10b), or (10c), are not blank (there is a response) and (10) is blank or "0" then there is an error and the record should be flagged.

10a. The number offered vision insurance must be less than or equal to the total number of employees (the response in the full-time column is compared to question #2, the part-time column compared to question #3).

(10a) ≤ (2) (for full-time column), (10a) ≤ (3) (for part-time column)

10b. The number enrolled in vision insurance coverage must be less than or equal to the total number offered vision insurance.

(10b) ≤ (10a)

11. Life insurance skip pattern not followed. If (11a), (11b), or (11c), are not blank (there is a response) and (11) is blank or "0" then there is an error and the record should be flagged.

11a. The number offered life insurance must be less than or equal to the total number of employees (the response in the full-time column is compared to question #2, the part-time column compared to question #3).

(11a) ≤ (2) (for full-time column), (11a) ≤ (3) (for part-time column)

11b. The number enrolled in life insurance coverage must be less than or equal to the total number offered life insurance.

(11b) ≤ (11a)

12. Short-term disability insurance skip pattern not followed. If (12a), (12b), or (12c), are not blank (there is a response) and (12) is blank or "0" then there is an error and the record should be flagged.

12a. The number offered short-term disability insurance must be less than or equal to the total number of employees (the response in the full-time column is compared to question #2, the part-time column compared to question #3).

(12a) ≤ (2) (for full-time column), (12a) ≤ (3) (for part-time column)

12b. The number enrolled in short-term disability insurance must be less than or equal to the total number offered short-term disability insurance.

(12b) ≤ (12a)

13. Long-term disability insurance skip pattern not followed. If (13a), (13b), or (13c) are not blank (there is a response) and (13) is blank or "0" then there is an error and the record should be flagged.

13a. The number offered long-term disability insurance must be less than or equal to the total number of employees (the response in the full-time column is compared to question #2, the part-time column compared to question #3).

(13a) ≤ (2) (for full-time column), (13a) ≤ (3) (for part-time column)

13b. The number enrolled in long-term disability insurance must be less than or equal to the total number offered long-term disability insurance.

(13b) ≤ (13a)

14. Vacation leave skip pattern not followed. If (14a), (14b), or (14c) are not blank (there is a response) and (14) is blank or "0" then there is an error and the record should be flagged.

14b. The number of vacation leave days offered after 3 years of employment should be greater than or equal to the number of vacation leave days offered after 1 year.

(14b) ≥ (14a)

14c. The number of vacation leave days offered after 5 years of employment should be greater than or equal to the number of vacation leave days offered after 3 years.

(14c) ≥ (14b)

15. Sick leave skip pattern not followed. If (15a) is not blank and (15) is blank or "0" then there is an error and the record should be flagged.

16. Holiday leave skip pattern not followed. If (16a) is not blank and (16) is blank or "0" then there is an error and the record should be flagged.

17. Consolidated leave skip pattern not followed. If (17a) is not blank and (17) is blank or "0" then there is an error and the record should be flagged.

14, 15, 16, 17. Number of days paid leave possibly double counted. Although this is not necessarily an error, it should be checked to ensure that the days of paid time off are not counted in multiple categories. If (17) is "Yes" and (14), (15), or (16) are "Yes" then the record should be flagged for review.

18. Retirement skip pattern not followed. If (19), (19a), (19b), (19c), (20), (20a), (20b), or (20c) are not blank (there is a response) and (18) is blank or "0" then there is an error and the record should be flagged.

19. Defined contribution retirement skip pattern not followed. If (19a), (19b) or (19c) are not blank (there is a response) and (19) is blank or "0" then there is an error and the record should be flagged.

19a. The number offered defined contribution retirement must be less than or equal to the total number of employees (the response in the full-time column is compared to question #2, the part-time column compared to question #3).

$(19a) \leq (2)$ (for full-time column), $(19a) \leq (3)$ (for part-time column)

19b. The number enrolled in defined contribution retirement must be less than or equal to the total number offered defined contribution retirement.

$(19b) \leq (19a)$

20. Defined benefit pension retirement skip pattern not followed. If (20a), (20b) or (20c) are not blank (there is a response) and (20) is blank or "0" then there is an error and the record should be flagged.

20a. The number offered defined benefit pension retirement must be less than or equal to the total number of employees (the response in the full-time column is compared to question #2, the part-time column compared to question #3).

$(20a) \leq (2)$ (for full-time column), $(20a) \leq (3)$ (for part-time column)

20b. The number enrolled in defined benefit pension retirement must be less than or equal to the total number offered defined benefit pension retirement.

$(20b) \leq (20a)$

25. Shift differential skip pattern not followed. If (25a) is not blank (there is a response) and (25) is blank or "0" then there is an error and the record should be flagged.

26a. Wages and salaries reported as "\$0." Zero may be a way of the respondent refusing to answer the question. If the company is in business, and the wages and salaries reported are zero, the record should be flagged for follow-up.

26b. Insurance costs reported as "\$0." Zero may be a legitimate response for the employer cost for insurance. If (26b) is "0" and (4), (8), or (10) are "Yes" then there is potentially an error and the record should be flagged.

A follow-up check to determine if "0" should be allowed as a response for (26b):

If (4) is "Yes" and $(5b) > 0$, then there is likely a problem.

If (8) is "Yes" and (8b) is not "100% employee paid" then there is likely a problem.

If (10) is "Yes" and (10b) is not "100% employee paid" then there is likely a problem.

26c. Retirement costs reported as "\$0." Zero may be a legitimate response for the employer cost for retirement. If (26c) is "0" and (18) is "Yes" then there is a potential error and the record should be flagged.

A follow-up check to determine if "0" should be allowed as a response for (26c):

If (19) is "Yes" and (19c) is not "100% employee paid" then there is likely a problem.

If (20) is "Yes" and (20c) is not "100% employee paid" then there is likely a problem.

Appendix F **National Compensation Survey Information**

Benefit	Does the NCS publish the info?	Areas Covered National, 9 Regions, Metro/non metro	Industries Goods vs. Service, All combined	Firm Size: All Firms <, ≥ 100	Time Base Part Time, Full Time, All employees
4: % firms offering Employee Medical Insurance	No				
a: % Employees offered Medical Insurance	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT/FT, A
b: Employee waiting period?	(1)				
5 a: % Employees enrolled in Medical Insurance	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT/FT, A
5 b: % of premium paid by employer	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT/FT, A
6: % firms offering dependant Medical coverage	No				
a: % enrolled in dependent coverage	Yes				
b: % of dependent premium paid by employer	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT/FT, A
7: % firms offering dental insurance	No				
a: % employees offered dental insurance	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT/FT, A
8 a: % employees enrolled in dental insurance	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT/FT
8 b: paid by employer/employee/jointly	No				
9: % firms offering dependent dental coverage	No				
b: % enrolled in dependent dental coverage	No				
c: paid by employer/employee/jointly	No				
10: % firms offering employee Vision Insurance	No				
a: % employees offered vision insurance	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT, FT, A
b: % of employees enrolled vision insurance	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT, FT, A
c: paid by employer/employee/jointly	No				
11: % firms offering life insurance	No				
a: % employees offered life insurance	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT/FT
b: % employees enrolled in life insurance	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT, FT, A
c: paid by employer/employee/jointly	Yes	R, R, M	G/S, A	A, <, ≥ 100	PT, FT, A

Benefit	Does the NCS publish the info?	Areas Covered National, 9 Regions, Metro/non metro	Industries Goods vs. Service, All combined	Firm Size: All Firms <, ≥ 100	Time Base Part Time, Full Time, All employees
12: % firms offering short-term disability insurance	No				
a: % employees offered short-term disability	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT, FT, A
b: % employees enrolled in short-term disability	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT, FT, A
c: paid by employer/employee/jointly	(1)				
13: % firms offering long-term disability insurance	No				
a: % employees offered long-term disability ins.	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT, FT, A
b: % employees enrolled long-term disability	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT, FT, A
c: paid by employer/employee/jointly	(1)				
14: % firms offering paid vacation leave	No				
a: Days offered after 1 year	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT, FT, A
b: Days offered after 3 years	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT, FT, A
c: Days offered after 5 years	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT, FT, A
% of workers in firms offering paid vacation leave	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT, FT, A
15: % firms offering paid sick leave	No				
a: Sick leave days offered per year	(1)				
% of workers in firms offering paid sick leave					
16: % firms offering paid holidays	No				
a: Holidays offered per year	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT, FT, A
% of workers in firms offering paid holidays	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT, FT, A
17: % firms offering paid time bank	No				
a: Paid time bank days offered per year	No				
% Percent of workers in firms offering time bank	No				
18: % of firms offering retirement plan	Yes	N, R, M	G/S, A	A, <, ≥ 100	

Benefit	Does the NCS publish the info?	Areas Covered National, 9 Regions, Metro/non metro	Industries Goods vs. Service, All combined	Firm Size: All Firms <, ≥ 100	Time Base Part Time, Full Time, All employees
19: % of firms offering defined contribution plan	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT, FT, A
a: % employees offered defined contrib. plan	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT, FT, A
b: % employees enrolled defined contrib. plan	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT, FT, A
c: paid by employer/employee/jointly	No				
20: % of firms offering defined benefit pension	Yes	N, R, M	G/S, A	A, <, ≥ 100	
a: % employees offered defined benefit plan	Yes	N, R, M	G/S, A	A, <, ≥ 100	PT, FT, A
b: % employees enrolled defined benefit plan	Yes	N	G/S, A	A, <, ≥ 100	PT/FT
c: paid by employer/employee/jointly	(1)				
21: % firms offering child care	No				
22: % firms offering tuition/educational assist.	No				
23: % firms offering non-production bonuses	Yes	N	A	A	PT, FT, A
24: % firms offering flexible spending accounts	No				
25: % firms offering shifts	No				
a: % firms offering shift differentials?	No				

Information available in NCS: Employee Benefits in Private Industry in the United States, March 2003: Summary 04-02 at <http://www.bls.gov/ncs/ebs/sp/ebsm0001.pdf>

Information available in NCS: Employee Benefits in Private Industry in the United States, 2002 (Bulletin 2555) at <http://www.bls.gov/ncs/ebs/sp/ebbl0019.pdf>

Information available in NCS tables on the Internet, at: <http://www.bls.gov/news.release/ebs2.toc.htm>

(1) The NCS does publish this information when adequate data are available. No recent estimates are available.

Appendix G

Initial Enumeration/Definition of Possible Estimators

Types of estimators for Question 4

Estimate 1: Number of establishments offering medical insurance (Question 4) – estimates include the number that offer, do not offer, and not determinable.

Estimate 2: Percent of establishments offering medical insurance (Question 4) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all establishments.

Estimate 3: Number of workers offered medical insurance coverage (Question 4a) – estimates include the number offered, not offered, and not determinable.

Estimate 4: Percent of workers offered medical insurance coverage (Question 4a) – estimates include the percent offered, not offered, and not determinable. The base or denominator of this estimate is all workers.

Estimate 5: Number of establishments offering to a majority of workers medical insurance benefits with a waiting period (Question 4b – estimates include the number with a waiting period, without a waiting period, and not determinable.

Estimate 6: Number of workers in establishments offering to a majority of workers medical insurance benefits with a waiting period (Question 4b – estimates include the number with a waiting period, without a waiting period, and not determinable.

Estimate 7 Percent of establishments offering to a majority of employees medical insurance benefits with a waiting period (Question 4 and 4b – estimates include the percent with a waiting period, without a waiting period, and percent not determinable. The base or denominator of this estimate is establishments that offer medical insurance.

Estimator 8 Percent of workers in establishments offering medical insurance benefits with a waiting period requirement to the majority of workers (Question 4 and 4b) – estimates include the percent with a waiting period, without a waiting period, and percent not determinable. The base or denominator of this estimate is all workers in establishments that offer medical insurance.

Estimator 9: Percent of workers in establishments offering medical insurance benefits with a waiting period requirement to the majority of workers (Question 4a and 4b) – estimates include the percent with a waiting period, without a waiting period, and percent not determinable. The base or denominator of this estimate is workers offered medical insurance.

Types of estimators for Question 5

Estimate 10: Number of workers enrolled in medical insurance coverage (Question 5) – estimates include the number enrolled, not enrolled, and not determinable.

Estimate 11: Percent of workers enrolled in medical insurance coverage (Question 5) – estimates include the percent enrolled, not enrolled, and not determinable. The base or denominator of this estimate is all workers.

Estimate 12: Number of workers enrolled in single medical insurance coverage (Question 5a) – estimates include the number enrolled, not enrolled, and not determinable.

Estimate 13: Percent of workers enrolled in single medical insurance coverage (Question 5b) – estimates include the percent enrolled, not enrolled, and not determinable. The base or denominator of this estimate is all workers.

Estimate 14: Percent of workers offered medical insurance that are enrolled in medical insurance—similar to a take-up rate (Questions 4a, and 5) – estimates include the percent and not determinable. The base or denominator of this estimate is all workers offered medical insurance (Question 4a). The numerator of this estimate is the number of workers enrolled in single and family medical insurance coverage (Question 5).

Estimate 15: Percent of workers offered medical insurance that are enrolled in single coverage—similar to a take-up rate (Questions 4a and 5a) – estimates include the percent and not determinable. The base or denominator of this estimator is all workers that are offered medical insurance.

Estimate 16: Average percentage of the single medical insurance premiums paid by the employer for the majority of workers for establishments and workers offered single medical insurance coverage. (Question 5b) – estimates include the average percentage paid by the employer and the percentage of not determinable. The average percentage is computed using data from establishments and for workers offering/offered medical insurance benefits.

Estimate 17: Distribution of the percentage of the single medical insurance premiums paid by the employer for the majority of workers by percent of establishments and percent of workers (Question 5b) – estimate presents the percent of establishment and percent of workers by the distribution of the percentage of the premium paid. The distribution reflects ranges of the percentage paid by the employer. The base of this estimate is the number of establishments or number of workers in establishments offering medical insurance benefits.

Types of estimators for Question 6

Estimate 18: Number of establishments offering family medical insurance coverage (Question 6) – estimates include the number that offer, do not offer, and not determinable.

Estimate 19: Percent of establishments offering family medical insurance coverage (Question 6) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all establishments.

Estimate 20: Number of workers offered family medical insurance coverage (Question 6a) – estimates include the number offered, not offered, and not determinable.

Estimate 21: Percent of workers offered family medical insurance coverage (Question 6a) – estimates include the percent offered, not offered, and not determinable. The base or

denominator of this estimate is all workers.

Estimate 22: Number of workers enrolled in family medical insurance coverage (Question 6a) – estimates include the number enrolled, not enrolled, and not determinable.

Estimate 23: Percent of workers enrolled in family medical insurance coverage (Question 6a) – estimates include the percent enrolled, not enrolled, and not determinable. The base or denominator of this estimate is all workers.

Estimate 24: Percent of workers offered medical insurance that enrolled in family medical insurance coverage—similar to a take-up rate (Questions 4a and 6a) – estimates include the percent and not determinable. The base or denominator of this estimator is all workers offered medical insurance.

Estimate 25: Average percentage of the family medical insurance premiums paid by the employer for the majority of workers for establishments and workers offered family medical insurance (Question 6b) – estimates include the average percentage paid by the employer and the percentage of not determinable. The average percentage is computed using data from establishments and for workers offering/offered medical insurance benefits.

Estimate 26: Distribution of the percentage of the medical insurance premiums for employees' spouses or dependents paid by the employer for the majority of workers by percent of establishments and percent of workers (Question 6b) – estimate presents the percent of establishment and percent of workers by the distribution of percentage of the premium paid. The distribution reflects ranges of the percentage paid by the employer. This estimate includes all establishments and all workers offered family medical insurance coverage.

Types of estimators for Question 7

Estimate 27: Number of establishments offering single dental insurance benefits to employees (Question 7) – estimates include the number that offer, do not offer, and not determinable.

Estimate 28: Percent of establishments offering dental insurance benefits (Question 7) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all establishments.

Estimate 29: Number of workers offered dental insurance benefits (Question 7a) – estimates include the number offered, not offered, and not determinable.

Issue: If question 7 is checked "yes" and the number of workers offered is NOT completed, how do you know whether these data were omitted because of non-response verses included in medical? If dental is included in medical, the number of workers coded in question 4a will need to be added question 7a.

Estimate 30: Percent of workers offered dental insurance benefits (Question 7a) – estimates include the percent offered, not offered, and not determinable. The base or denominator of this estimate is all workers.

Issue: If question 7 is checked "yes" and the number of workers offered is NOT completed, how do you know whether these data were omitted because of non-response verses included in medical? If dental is included in medical, the number of workers coded in question 4a will need to be added question 7a.

Types of estimators for Question 8

Estimate 31: Number of workers enrolled in dental insurance (Question 8) – estimates include the number enrolled, not enrolled, and not determinable.

Issue: If question 7 is checked "yes" and questions 7a, 8, 8a, and 8b are blank, how is non-response differentiated from skipped because dental is included in medical? In these cases, information from 4a, 5, 5a, and 5b will be used to compute dental insurance estimates.

Estimate 32: Percent of workers enrolled in dental insurance (Question 8) – estimates include the percent enrolled, not enrolled, and not determinable. The base or denominator of this estimate is all workers.

Issue: See the issue under estimate 31.

Estimate 33: Number of workers enrolled in single coverage dental insurance (Question 8a) – estimates include the number enrolled, not enrolled, and not determinable.

Estimate 34: Percent of workers enrolled in single coverage dental insurance (Question 8a) – estimates include the percent enrolled, not enrolled, and not determinable. The base or denominator of this estimate is all workers.

Estimate 35: Percent of workers offered dental insurance that are enrolled in dental insurance—similar to a take-up rate (Questions 7a and 8) – estimates include the percent and not determinable. The base or denominator of this estimate is all workers offered dental insurance. The numerator of this estimate is the number of workers enrolled in single and family dental insurance benefits.

Estimate 36: Percent of workers offered dental insurance that are enrolled in single coverage dental insurance coverage—similar to a take-up rate (Questions 7a and 8a) – estimates include the percent and not determinable. The base or denominator of this estimator is all workers that are offered dental insurance benefits. The numerator of this estimate is all workers enrolled in single coverage dental coverage.

Estimate 37: Number of establishments offering single dental insurance to a majority of workers by contributory status (Question 8b) – estimates include the number that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate includes all establishments that offer dental insurance benefits.

Estimate 38: Percent of establishments offering single dental insurance to a majority of workers by contributory status (Question 8b) – estimates include the percent that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using all establishments offering dental insurance benefits.

Estimate 39: Number of workers in establishments offering single dental insurance to a majority of workers by contributory status (Question 8b) – estimates include the number that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using workers in establishments that offer dental insurance benefits.

Estimate 40: Percent of workers in establishments offering single dental insurance to a majority of workers by contributory status (Question 8b) – estimates include the percent that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using workers in establishments offering dental insurance benefits.

Estimate 41: Percent of workers in establishments offering single dental insurance to a majority of workers by contributory status (Question 8b) – estimates include the percent that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using workers offered dental insurance benefits.

Types of estimators for Question 9

Estimate 42: Number of establishments offering family dental insurance (Question 9) – estimates include the number that offer, do not offer, and not determinable.

Estimate 43: Percent of establishments offering family dental insurance (Question 9) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all establishments.

Estimate 44: Percent of establishments offering dental insurance that offer family coverage (Question 9) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator is all establishments that offer dental insurance.

Estimate 45: Number of workers offered family dental insurance coverage (Question 9) – estimates include the number offered, not offered, and not determinable.

Estimate 46: Percent of workers offered family dental insurance coverage (Question 9) – estimates include the percent offered, not offered, and not determinable. The base or denominator of this estimate is all workers.

Estimate 47: Percent of workers offered dental insurance that are offered family coverage (Question 9 and 7a) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator is all workers offered dental insurance.

Estimate 48: Number of workers enrolled in family dental insurance coverage (Question 9a) – estimates include the number enrolled, not enrolled, and not determinable.

Estimate 49: Percent of workers enrolled in family dental insurance coverage (Question 9a) – estimates include the percent enrolled, not enrolled, and not determinable. The base or denominator of this estimate is all workers.

Estimate 50: Percent of workers offered dental insurance that are enrolled in family dental coverage—similar to a take-up rate (Questions 9a and 7a) – estimates include the percent and not determinable. The base or denominator of this estimator is all workers that are offered

dental insurance benefits.

Estimate 51: Percent of workers offered family dental insurance coverage that are enrolled in family dental coverage---similar to a take-up rate (Questions 9 and 9a) – estimates include the percent and not determinable. The base or denominator of this estimate is all workers that are offered family dental insurance coverage.

Estimate 52: Number of establishments offering family dental insurance coverage by contributory status for the majority of workers (Question 9b) – estimates include the number that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using all establishments offering family dental insurance coverage.

Estimate 53: Percent of establishments offering family dental insurance coverage by contributory status for the majority of workers (Question 9b and 9) – estimates include the percent that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. The base or denominator of this estimate is establishments that offer family dental insurance benefits.

Estimate 54: Number of workers in establishments offering dental insurance coverage to employees' spouses or dependents, by contributory status (Question 9b) – estimates include the number that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using workers in establishments that offer family dental insurance benefits.

Estimate 55: Percent of workers in establishments offering family dental insurance coverage by contributory status for a majority of workers (Question 9b and 9) – estimates include the percent that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This base or denominator is workers in establishments offering family dental insurance benefits.

Estimate 56: Percent of workers in establishments offering family dental insurance coverage by contributory status for a majority of workers (Question 9b and 7a) – estimates include the percent that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This base or denominator is workers offered family dental insurance benefits.

Types of estimators for Question 10

Estimate 57: Number of establishments offering vision insurance benefits to employees (Question 10) – estimates include the number that offer, do not offer, and not determinable.

Estimate 58: Percent of establishments offering vision insurance benefits (Question 10) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all establishments.

Estimate 59: Number of workers offered vision insurance benefits (Question 10a) – estimates include the number offered, not offered, and not determinable.

Issue: If question 10 is checked "yes" and the number of workers offered is NOT completed, how do you know whether these data were omitted by accident or as a non-response verses omitted

because vision is included in medical? If vision is included in medical, information from 4a, 5, 5a, and 5b will need to be used to compute vision insurance estimates.

Estimate 60: Percent of workers offered vision insurance benefits (Question 10a) – estimates include the percent offered, not offered, and not determinable. The base or denominator of this estimate is all workers.

Estimate 61: Number of workers enrolled in vision insurance (Question 10b) – estimates include the number enrolled, not enrolled, and not determinable.

Estimate 62: Percent of workers enrolled in vision insurance (Question 10b) – estimates include the percent enrolled, not enrolled, and not determinable. The base or denominator of this estimate is all workers.

Estimate 63: Percent of workers offered vision insurance that are enrolled in vision insurance—similar to a take-up rate (Questions 10a and 10b) – estimates include the percent and not determinable. The base or denominator of this estimate is all workers offered vision insurance. The numerator of this estimate is the number of workers enrolled in vision insurance.

Estimate 64: Number of establishments offering vision insurance to a majority of workers by contributory status (Question 10c) – estimates include the number that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate includes all establishments that offer vision insurance.

Estimate 65: Percent of establishments offering vision insurance to a majority of workers by contributory status (Question 10c) – estimates include the percent that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using all establishments offering vision insurance.

Estimate 66: Number of workers in establishments offering vision insurance to a majority of workers by contributory status (Question 10c) – estimates include the number that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using workers in establishments that offer vision insurance.

Estimate 67: Percent of workers in establishments offering vision insurance to a majority of workers by contributory status (Question 10c) – estimates include the percent that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using workers in establishments offering vision insurance.

Estimate 67a: Percent of workers in establishments offering vision insurance to a majority of workers by contributory status (Question 10c) – estimates include the percent that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using workers offered vision insurance.

Types of estimators for Question 11

Estimate 68: Number of establishments offering life insurance benefits (Question 11) – estimates include the number that offer, do not offer, and not determinable.

Estimate 69: Percent of establishments offering life insurance benefits (Question 11) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all establishments.

Estimate 70: Number of workers offered life insurance benefits (Question 11a) – estimates include the number offered, not offered, and not determinable.

Estimate 71: Percent of workers offered life insurance benefits (Question 11a) – estimates include the percent offered, not offered, and not determinable. The base or denominator of this estimate is all workers.

Estimate 72: Number of workers enrolled in life insurance (Question 11b) – estimates include the number enrolled, not enrolled, and not determinable.

Estimate 73: Percent of workers enrolled in life insurance (Question 11b) – estimates include the percent enrolled, not enrolled, and not determinable. The base or denominator of this estimate is all workers.

Estimate 74: Percent of workers offered life insurance that are enrolled in life insurance—similar to a take-up rate (Questions 11a and 11b) – estimates include the percent and not determinable. The base or denominator of this estimate is all workers in establishments that offer life insurance. The numerator of this estimate is the number of workers enrolled in life insurance.

Estimate 75: Number of establishments offering life insurance to a majority of workers by contributory status (Question 11c) – estimates include the number that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate includes all establishments that offer life insurance.

Estimate 76: Percent of establishments offering life insurance to a majority of workers by contributory status (Question 11c) – estimates include the percent that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using all establishments offering life insurance.

Estimate 77: Number of workers in establishments offering life insurance to a majority of workers by contributory status (Question 11c) – estimates include the number that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using workers in establishments that offer life insurance.

Estimate 78: Percent of workers in establishments offering life insurance to a majority of workers by contributory status (Question 11c) – estimates include the percent that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using workers offered life insurance.

Types of estimators for Question 12

Estimate 79: Number of establishments offering short-term disability insurance to (Question 12) – estimates include the number that offer, do not offer, and not determinable.

Estimate 80: Percent of establishments offering short-term disability (Question 12) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of

this estimate is all establishments.

Estimate 81: Number of workers offered short-term disability insurance (Question 12a) – estimates include the number offered, not offered, and not determinable.

Estimate 82: Percent of workers offered short-term disability insurance (Question 12a) – estimates include the percent offered, not offered, and not determinable. The base or denominator of this estimate is all workers.

Estimate 83: Number of workers enrolled in short-term disability insurance (Question 12b) – estimates include the number enrolled, not enrolled, and not determinable.

Estimate 84: Percent of workers enrolled in short-term disability insurance (Question 12b) – estimates include the percent enrolled, not enrolled, and not determinable. The base or denominator of this estimate is all workers.

Estimate 85: Percent of workers offered short-term disability insurance that are enrolled in short-term insurance—similar to a take-up rate (Questions 12a and 12b) – estimates include the percent and not determinable. The base or denominator of this estimate is all workers offered short-term disability insurance. The numerator of this estimate is the number of workers enrolled in short-term disability insurance.

Estimate 86: Number of establishments offering short-term disability insurance to a majority of workers by contributory status (Question 12c) – estimates include the number that are 100% employer paid, 100% employee paid, jointly paid. This estimate includes all establishments that offer short-term disability insurance.

Estimate 87: Percent of establishments offering short-term disability insurance to a majority of workers by contributory status (Question 12c) – estimates include the percent that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using all establishments offering short-term disability insurance.

Estimate 88: Number of workers in establishments offering short-term disability insurance to a majority of workers by contributory status (Question 12c) – estimates include the number that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using workers in establishments that offer short-term disability insurance.

Estimate 89: Percent of workers in establishments offering short-term disability insurance to a majority of workers by contributory status (Question 12c) – estimates include the percent that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using workers offered short-term disability insurance.

Types of estimators for Question 13

Estimate 90: Number of establishments offering long-term disability insurance to (Question 13) – estimates include the number that offer, do not offer, and not determinable.

Estimate 91: Percent of establishments offering long-term disability (Question 13) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of

this estimate is all establishments.

Estimate 92: Number of workers offered long-term disability insurance (Question 13a) – estimates include the number offered, not offered, and not determinable.

Estimate 93: Percent of workers offered long-term disability insurance (Question 13a) – estimates include the percent offered, not offered, and not determinable. The base or denominator of this estimate is all workers.

Estimate 94: Number of workers enrolled in long-term disability insurance (Question 13b) – estimates include the number enrolled, not enrolled, and not determinable.

Estimate 95: Percent of workers enrolled in long-term disability insurance (Question 13b) – estimates include the percent enrolled, not enrolled, and not determinable. The base or denominator of this estimate is all workers.

Estimate 96: Percent of workers offered long-term disability insurance that are enrolled in long-term insurance—similar to a take-up rate (Questions 13a and 13b) – estimates include the percent and not determinable. The base or denominator of this estimate is all workers offered long-term disability insurance. The numerator of this estimate is the number of workers enrolled in long-term disability insurance.

Estimate 97: Number of establishments offering long-term disability insurance to a majority of workers by contributory status (Question 13c) – estimates include the number that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate includes all establishments that offer long-term disability insurance.

Estimate 98: Percent of establishments offering long-term disability insurance to a majority of workers by contributory status (Question 13c) – estimates include the percent that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using all establishments offering long-term disability insurance.

Estimate 99: Number of workers in establishments offering long-term disability insurance to a majority of workers by contributory status (Question 13c) – estimates include the number that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using workers in establishments that offer long-term disability insurance.

Estimate 100: Percent of workers in establishments offering long-term disability insurance to a majority of workers by contributory status (Question 13c) – estimates include the percent that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using workers offered long-term disability insurance.

Types of estimators for Question 14

Estimate 101: Number of establishments offering paid vacation benefits (Question 14) – estimates include the number that offer, do not offer, and not determinable.

Estimate 102: Percent of establishments offering paid vacation benefits (Question 14) – estimates include the percent that offer, do not offer, and not determinable. The base or

denominator of this estimate is all establishments.

Estimate 103: Number of workers offered paid vacation benefits (Question 14) – estimates include the number offered, not offered, and not determinable.

Estimate 104: Percent of workers offered paid vacation benefits (Question 14) – estimates include the percent offered, not offered, and not determinable. The base or denominator of this estimate is all workers.

Estimate 105: Average number of paid vacation days after 1 year of employment (Question 14a) – estimate include the average number of paid days and not determinable. This estimate is computed using all establishments coded as offering paid vacation benefits.

Estimate 106: Average number of paid vacation days after 3 years of employment (Question 14b) – estimate include the average number of paid days and not determinable. This estimate is computed using all establishments coded as offering paid vacation benefits.

Estimate 107: Average number of paid vacation days after 5 years of employment (Question 14c) – estimate include the average number of paid days and not determinable. This estimate is computed using all establishments coded as offering paid vacation benefits.

Estimate 108: Percent of establishment by number of paid vacation days provided for selected periods of service (Questions 14 and 14a – 14c) – estimate include the number of paid vacation days and not determinable for the selected periods of service—1, 3, and 5 years of service. The base or denominator of this estimate in the number of establishments that offer paid vacations.

Estimate 109: Percent of workers by number of paid vacation days provided for selected periods of service (Questions 14 and 14a – 14c) – estimate include the number of paid vacation days and not determinable for the selected periods of service—1, 3, and 5 years of service. The base or denominator of this estimate in the number of workers offered paid vacations.

Types of estimators for Question 15

Estimate 110: Number of establishments offering paid sick leave benefits (Question 15) – estimates include the number that offer, do not offer, and not determinable.

Estimate 111: Percent of establishments offering paid sick leave benefits (Question 15) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all establishments.

Estimate 112: Number of workers offered paid sick leave benefits (Question 15) – estimates include the number offered, not offered, and not determinable.

Estimate 113: Percent of workers offered paid sick leave benefits (Question 15) – estimates include the percent offered, not offered, and not determinable. The base or denominator of this estimate is all workers.

Estimate 114: Average number of paid sick leave days offered per year (Question 15a) – estimates include the average number of paid days and not determinable. This estimate is computed using all establishments coded as offering paid sick leave benefits.

Estimate 115: Percent of establishment by number of paid sick leave days per year (Questions 15 and 15a) – estimates include the percent of establishments by the number of paid sick leave days and not determinable. The base or denominator of this estimate is the number of establishments that offer paid sick leave benefits.

Estimate 116: Percent of workers by number of paid sick leave days per year (Questions 15 and 15a) – estimates include the percent of workers by the number of paid sick leave days and not determinable. The base or denominator of this estimate is the number of workers offered paid sick leave benefits.

Types of estimators for Question 16

Estimate 117: Number of establishments offering paid holidays (Question 16) – estimates include the number that offer, do not offer, and not determinable.

Estimate 118: Percent of establishments offering paid holidays (Question 16) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all establishments.

Estimate 119: Number of workers offered paid holidays (Question 16) – estimates include the number offered, not offered, and not determinable.

Estimate 120: Percent of workers offered paid holidays (Question 16) – estimates include the percent offered, not offered, and not determinable. The base or denominator of this estimate is all workers.

Estimate 121: Average number of paid holidays offered per year (Question 16a) – estimates include the average number of paid days and not determinable. This estimate is computed using all establishments coded as offering paid holidays.

Estimate 122: Percent of establishment by number of paid holidays per year (Questions 16 and 16a) – estimates include the percent of establishments by the number of paid holidays and the percent not determinable. The base or denominator of this estimate is the number of establishments that offer paid holidays.

Estimate 123: Percent of workers by number of paid holidays per year (Questions 16 and 16a) – estimates include the percent of workers by the number of paid holidays and the percent not determinable. The base or denominator of this estimate is the number of workers offered paid holidays.

Types of estimators for Question 17

Estimate 124: Number of establishments offering consolidated paid time off (PTO) (Question 17) – estimates include the number that offer, do not offer, and not determinable.

Estimate 125: Percent of establishments offering consolidated paid time off (PTO) (Question 17) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all establishments.

Estimate 126: Number of workers offered consolidated paid time off (PTO) (Question 17) – estimates include the number offered, not offered, and not determinable.

Estimate 127: Percent of workers offered consolidated paid time off (PTO) (Question 17) – estimates include the percent offered, not offered, and not determinable. The base or denominator of this estimate is all workers.

Estimate 128: Average number of paid days per year offered under the consolidated paid time off (PTO) plan (Question 17a) – estimates include the average number of paid days and not determinable. This estimate is computed using all establishments coded as offering consolidated paid time off (PTO).

Estimate 129: Percent of establishment by number of consolidated paid time off days (PTO) per year (Questions 17 and 17a) – estimates include the percent of establishments by the number of paid days per year and the percent not determinable. The base or denominator of this estimate is the number of establishments that offer consolidated paid time off.

Estimate 130: Percent of workers by number of consolidated paid time off days (PTO) per year (Questions 17 and 17a) – estimates include the percent of workers by the number of paid days per year and the percent not determinable. The base or denominator of this estimate is the number of workers offered consolidated paid time off.

Types of estimators for Question 18

Estimate 131: Number of establishments offering a retirement plan (Question 18) – estimates include the number that offer, do not offer, and not determinable.

Estimate 132: Percent of establishments offering a retirement plan (Question 18) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all establishments.

Estimate 133: Number of workers offered a retirement plan (Question 18) – estimates include the number offered, not offered, and not determinable.

Estimate 134: Percent of workers offered a retirement plan (Question 18) – estimates include the percent offered, not offered, and not determinable. The base or denominator of this estimate is all workers.

Types of estimators for Question 19

Estimate 135: Number of establishments offering a defined contribution retirement plan (Question 19) – estimates include the number that offer, do not offer, and not determinable.

Estimate 136: Percent of establishments offering a defined contribution retirement plan (Question 19) – estimates include the percent that offer, do not offer, and not determinable. The

base or denominator of this estimate is all establishments.

Estimate 137: Percent of establishments offering a retirement plan that is a defined contribution retirement plan (Question 18 and 19) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all establishments that offer a retirement benefit.

Estimate 138: Number of workers offered a defined contribution retirement plan (Question 19a) – estimates include the number offered, not offered, and not determinable.

Estimate 139: Percent of workers offered a defined contribution retirement plan (Question 19a) – estimates include the percent offered, not offered, and not determinable. The base or denominator of this estimate is all workers.

Estimate 140: Percent of workers offered a retirement plan that is a defined contribution retirement plan (Question 18 and 19) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all workers offered a retirement benefit.

Estimate 141: Number of workers enrolled in defined contribution retirement plans (Question 19b) – estimates include the number enrolled, not enrolled, and not determinable.

Estimate 142: Percent of workers enrolled in defined contribution retirement plans (Question 19b) – estimates include the percent enrolled, not enrolled, and not determinable. The base or denominator of this estimate is all workers.

Estimate 143: Percent of workers offered a defined contribution retirement plan that are enrolled in defined contribution retirement plan—similar to a take-up rate (Questions 19a and 19b) – estimates include the percent and not determinable. The base or denominator of this estimate is all workers offered a defined contribution retirement plan. The numerator of this estimate is the number of workers enrolled in a defined contribution retirement plan.

Estimate 144: Number of establishments offering defined contribution retirement plans to a majority of workers by contributory status (Question 19c) – estimates include the number that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate includes all establishments that offer defined contribution retirement plans.

Estimate 145: Percent of establishments offering defined contribution retirement plans to a majority of workers by contributory status (Question 19c) – estimates include the percent that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using all establishments offering defined contribution retirement plans.

Estimate 146: Number of workers in establishments offering defined contribution retirement plans to a majority of workers by contributory status (Question 19c) – estimates include the number that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using workers in establishments that defined contribution retirement plans.

Estimate 147: Percent of workers in establishments offering defined contribution retirement plans to a majority of workers by contributory status (Question 19c) – estimates include

the percent that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using workers offered defined contribution retirement plans.

Types of estimators for Question 20

Estimate 148: Number of establishments offering a defined benefit retirement plan (Question 20) – estimates include the number that offer, do not offer, and not determinable.

Estimate 149: Percent of establishments offering a defined benefit retirement plan (Question 20) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all establishments.

Estimate 150: Percent of establishments offering a retirement plan that is a defined benefit retirement plan (Question 18 and 20) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all establishments that offer a retirement benefit.

Estimate 151: Number of workers offered a defined benefit retirement plan (Question 20a) – estimates include the number offered, not offered, and not determinable.

Estimate 152: Percent of workers offered a defined benefit retirement plan (Question 20a) – estimates include the percent offered, not offered, and not determinable. The base or denominator of this estimate is all workers.

Estimate 153: Percent of workers offered a retirement plan that is a defined benefit retirement plan (Question 18 and 20) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all workers offered a retirement benefit.

Estimate 154: Number of workers enrolled in defined benefit retirement plans (Question 20b) – estimates include the number enrolled, not enrolled, and not determinable.

Estimate 155: Percent of workers enrolled in defined benefit retirement plans (Question 20b) – estimates include the percent enrolled, not enrolled, and not determinable. The base or denominator of this estimate is all workers.

Estimate 156: Percent of workers offered a defined benefit retirement plan that are enrolled in defined benefit retirement plan—similar to a take-up rate (Questions 20a and 20b) – estimates include the percent and not determinable. The base or denominator of this estimate is all workers offered a defined benefit retirement plan. The numerator of this estimate is the number of workers enrolled in defined benefit retirement plan.

Estimate 157: Number of establishments offering defined benefit retirement plans to a majority of workers by contributory status (Question 20c) – estimates include the number that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate includes all establishments that offer defined benefit retirement plans.

Estimate 158: Percent of establishments offering defined benefit retirement plans to a majority of workers by contributory status (Question 20c) – estimates include the percent that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using all establishments offering defined benefit retirement plans.

Estimate 159: Number of workers in establishments offering defined benefit retirement plans to a majority of workers by contributory status (Question 20c) – estimates include the number that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using workers in establishments that defined benefit retirement plans.

Estimate 160: Percent of workers in establishments offering defined benefit retirement plans to a majority of workers by contributory status (Question 20c) – estimates include the percent that are 100% employer paid, 100% employee paid, jointly paid, and not determinable. This estimate is computed using workers offered defined benefit retirement plans.

Types of estimators for Question 21

Estimate 161: Number of establishments offering child care benefits (Question 21) – estimates include the number that offer, do not offer, and not determinable.

Estimate 162: Percent of establishments offering child care benefit (Question 21) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all establishments.

Estimate 163: Number of workers offered child care benefit (Question 21) – estimates include the number offered, not offered, and not determinable

Estimate 164: Percent of workers offered child care benefits (Question 21) – estimates include the percent offered, not offered, and not determinable. The base or denominator of this estimate is all workers.

Types of estimators for Question 22

Estimate 165: Number of establishments offering tuition/educational assistance or reimbursement benefits (Question 22) – estimates include the number that offer, do not offer, and not determinable.

Estimate 166: Percent of establishments offering tuition/educational assistance or reimbursement benefits (Question 22) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all establishments.

Estimate 167: Number of workers offered tuition/educational assistance or reimbursement benefit (Question 22) – estimates include the number offered, not offered, and not determinable

Estimate 168: Percent of workers offered tuition/educational assistance or reimbursement benefits (Question 22) – estimates include the percent offered, not offered, and not determinable. The base or denominator of this estimate is all workers.

Types of estimators for Question 23

Estimate 169: Number of establishments offering bonuses (Question 23) – estimates include the number that offer, do not offer, and not determinable.

Estimate 170: Percent of establishments bonuses (Question 23) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all establishments.

Estimate 171: Number of workers offered bonuses (Question 23) – estimates include the number offered, not offered, and not determinable

Estimate 172: Percent of workers offered bonuses (Question 23) – estimates include the percent offered, not offered, and not determinable. The base or denominator of this estimate is all workers.

Types of estimators for Question 24

Estimate 173: Number of establishments offering flexible spending accounts (Question 24) – estimates include the number that offer, do not offer, and not determinable.

Estimate 174: Percent of establishments flexible spending accounts (Question 24) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all establishments.

Estimate 175: Number of workers offered flexible spending accounts (Question 24) – estimates include the number offered, not offered, and not determinable

Estimate 176: Percent of workers offered flexible spending accounts (Question 24) – estimates include the percent offered, not offered, and not determinable. The base or denominator of this estimate is all workers.

Types of estimators for Question 25

Estimate 177: Number of establishments operating on shifts (Question 25) – estimates include the number that operate on shifts, do not operate on shifts, and not determinable.

Estimate 178: Percent of establishments operating on shifts (Question 25) – estimates include the percent that operate on shifts, do not operate on shifts, and not determinable. The base or denominator of this estimate is all establishments.

Estimate 179: Number of workers in establishments that operate on shifts (Question 25) – estimates include the number in establishments that operate on shifts, do not operate on shifts, and not determinable.

Estimate 180: Percent of workers in establishments that operate on shifts (Question 25) – estimates include the percent that operate on shifts, do not operate on shifts, and not determinable. The base or denominator of this estimate is all workers.

Estimate 181: Number of establishments that offer a shift differential (Question 25a) – estimates include the number that offer, do not offer, and not determinable

Estimate 182: Percent of establishments that offer a shift differential (Question 25a) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all establishments.

Estimate 183: Percent of establishments that operate on shifts that offer a shift differential (Question 25a) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is all establishments that operate on shifts.

Estimate 184: Number of workers in establishments that offer a shift differential (Question 25a) – estimates include the number that offer, do not offer, and not determinable

Estimate 185: Percent of workers in establishments that offer a shift differential (Question 25a) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is workers in all establishments.

Estimate 186: Percent of workers in establishments that operate on shifts that offer a shift differential (Question 25a) – estimates include the percent that offer, do not offer, and not determinable. The base or denominator of this estimate is workers in establishments that operate on shifts.

Types of estimators for Question 26

Estimate 187: Average aggregate wage and salary expenditure per year (Question 26a) – estimates include the average aggregate wage and salary expenditure per year and not determinable. This estimate is computed using data from all establishments.

Estimate 188: Average employer cost for wages and salaries per year per employee (Question 26a and 26d) – estimates include the average cost of wages and salaries per year per employee and not determinable. This estimate is computed using data from all establishments.

Estimate 189: Average aggregate employer health care expenditure per year, including medical, dental, and vision insurance benefits (Question 26b) – estimates include the average aggregate expenditure per year and not determinable. This estimate is computed using data from all establishments.

Estimate 190: Average aggregate employer health care expenditure per year including medical, dental, and vision benefits in establishments that offer medical benefits (Questions 26b and 4) – estimates include the average aggregate expenditure per year and not determinable. This estimate is computed using data from establishments offering medical insurance benefits.

Estimate 191: Average employer cost for health care benefits (medical, dental, and vision) per year per employee (Question 26b and 26d) – estimates include the average employer cost per employee per year and not determinable. This estimate is computed using data from all establishments.

Estimate 192: Average employer cost for health care benefits (medical, dental, and vision) per year per employee in establishments that offer medical insurance benefits (Questions 26b, 26d, and 4) – estimates include the average employer cost per employee per year and not determinable. This estimate is computed using data from establishments offering medical insurance benefits.

Estimate 193: Employer annual health care expenditures (medical, dental, and vision benefits) as a percentage of payroll (wages and salaries) (Question 26a and 26b) – estimates include the average percent and not determinable. This estimate is computed using data from all establishments.

Estimate 194: Employer annual health care expenditures (medical, dental, and vision benefits) as a percentage of payroll (wages and salaries) in establishments offering medical insurance benefits. (Questions 26a, 26b, and 4) – estimates include the average percent and not determinable. This estimate is computed using data from establishments offering medical insurance benefits.

Estimate 195: Average aggregate employer retirement expenditure per year (Question 26c) – estimates include the average aggregate expenditure per year and not determinable. This estimate is computed using data from all establishments.

Estimate 196: Average aggregate employer retirement benefit expenditure per year in establishments offering retirement benefits (Questions 26c and 18) – estimates include the average aggregate expenditure per year and not determinable. This estimate is computed using data from establishments offering retirement benefits.

Estimate 197: Average employer cost for retirement benefits per year per employee (Question 26c and 26d) – estimates include the average employer cost per employee per year and not determinable. This estimate is computed using data from all establishments.

Estimate 198: Average employer cost for retirement benefits per year per employee in establishments that offer retirement benefits (Questions 26c, 26d, and 18) – estimates include the average employer cost per employee per year and not determinable. This estimate is computed using data from establishments offering retirement benefits.

Estimate 199: Employer retirement benefit expenditure as a percentage of payroll (wages and salaries) (Question 26c and 26b) – estimates include the average percent and not determinable. This estimate is computed using data from all establishments.

Estimate 200: Employer retirement benefit expenditures as a percentage of payroll (wages and salaries) in establishments offering retirement benefits. (Questions 26c, 26b, and 18) – estimates include the average percent and not determinable. This estimate is computed using data from establishments offering retirement benefits.

Estimate 201: Average 12-month employment covering reported expenditures (Question 26d) – estimate includes the average employment and not determinable. This estimate is computed using data from all establishments.

Estimate 202: Average 12-month employment covering reported expenditures of establishments offering medical insurance benefits (Questions 26d and 4) – estimate

includes the average employment and not determinable. This estimate is computed using data from all establishments offering medical benefits.

Estimate 203: Average 12-month employment covering reported expenditures of establishments offering retirement benefits (Questions 26d and 18) – estimate includes the average employment and not determinable. This estimate is computed using data from all establishments offering retirement benefits.

Types of estimators of survey scope

Estimate 204: Number of workers in the survey (Question 1) – estimate includes the number of workers, zero employees, and not determinable. This estimate is computed using data from all establishments.

Estimate 205: Number of full-time workers in the survey (Question 2) – estimate includes the number of workers and not determinable. This estimate is computed using data from all establishments.

Estimate 205a: Number of full-time workers in the survey (Question 2) – weighted version of Estimate 205

Estimate 206: Number of part-time workers in the survey (Question 3) – estimate includes the number of workers and not determinable. This estimate is computed using data from all establishments.

Estimate 206a: Number of part-time workers represented in the survey (Question 3) – weighted version of Estimate 206

Estimate 207: Number of workers represented in the survey – estimate provides perspective on the survey scope. It is computed by summing the final weights of all establishments in the survey. This estimate will be produced for a variety of establishment characteristics.

Estimate 208: Number of establishments studied – estimate provides perspective on the survey scope. It is computed by computing the total number of “usable” establishments in the data set. This estimate will be produced for a variety of establishment characteristics. An establishment is usable if the minimum required data are reported. This includes three employment figures—total employment, full-time employment, and part-time employment.

Appendix H

List of Survey Estimators

All formulas are written to produce estimates encompassing the entire survey (all workers and/or all establishments). Estimates for other variants, such as NAICS sector, establishment size, population density, full/part-time worker class, can be produced by filtering the sample to include the specific variant. For example, the estimation equation – percent of all establishments offering dental insurance to workers (E28) – can be used to produce similar estimates for full-time workers by limiting the domain to include only observations for full-time workers. Additionally, the percent (or other indicator, such as count) of *not-determinable* cases (observations where a response was not available or determinable) should be computed for each estimate.

ESTIMATION FORMULAS AND VARIABLE DEFINITIONS

A. Estimation Formulas

1. Number of establishment studied (E208)

The number of establishments studied is calculated by counting the number of usable schedules (units) in the survey.

2. Number of workers in the study (E204)

The number of workers in the study is calculated by summing the current employment of all usable schedules (units) in the survey.

$$\sum_i^I CEmp_i$$

3. Number of workers represented in the study (E207)

The number of workers represented is calculated by summing the product of the final employment weight and the current establishment employment across each establishment in the data set.

$$\sum_i^I (WFw_i \times CEmp_i)$$

4. Number of full-time workers in the study (E205)

The number of full-time workers in the study is calculated by summing the current full-time establishment employment of all usable schedules (units) in the survey.

$$\sum_i^I CEmpFT_i$$

5. Number of full-time workers represented in the study (E205a)

The number of full-time workers represented is calculated by summing the product of the final employment weight and the current full-time establishment employment across each establishment in the data set.

$$\sum_i^I (WFw_i \times CEmpFT_i)$$

6. Number of part-time workers in the study (E206)

The number of part-time workers in the study is calculated by summing the current part-time establishment employment of all usable schedules (units) in the survey.

$$\sum_i^I CEmpPT_i$$

7. Number of part-time workers represented in the study (E206a)

The number of part-time workers represented is calculated by summing the product of the final employment weight and the current part-time establishment employment across each establishment in the data set.

$$\sum_i^I (WFw_i \times CEmpPT_i)$$

8. Percent of all establishments offering medical insurance coverage for workers (E2)

The percent of establishments offering medical insurance coverage is calculated by first summing the establishment weights over only those establishments that offer the medical insurance coverage. Then, divide that number by the sum of the final establishment weights for all establishments and multiply by 100.

$$\frac{\sum_i^I (Omed_i \times EstFw_i)}{\sum_i^I EstFw_i} \times 100$$

9. Percent of all workers offered medical insurance (E4)

The percent of workers offered medical insurance coverage is calculated by first summing the products of the final employment weight and the number of full and part-time workers offered medical insurance in the establishment. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Omed_i \times WFw_i \times (OmedEmpFT_i + OmedEmpPT_i)]}{\sum_i [WFw_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

10. Percent of establishment offering to a majority of workers medical insurance coverage with a waiting period (E7)

The percent of establishments offering medical insurance coverage is calculated by first summing the establishment weights over only those establishments that offer to a majority of workers medical insurance coverage with a waiting period. Then, divide that number by the sum of the final establishment weights for all establishments that offer medical insurance and multiply by 100.

$$\frac{\sum_i (Omed_i \times Waitpd_i \times EstFw_i)}{\sum_i (Omed_i \times EstFw_i)} \times 100$$

11. Percent of workers in establishments that offer to a majority of workers medical insurance coverage with waiting period (E9)

The percent of workers offered medical insurance coverage is calculated by first summing the products of the final employment weight and the number of full-time and part-time workers offered medical insurance coverage in establishments with a waiting period for the majority of workers. Then, divide that number by the sum of the products of the final employment weights and number sum of full and part-time workers offered medical insurance. This figure is then multiplied by 100.

$$\frac{\sum_i [Omed_i \times Waitpd_i \times WFw_i \times (OmedEmpFT_i + OmedEmpPT_i)]}{\sum_i [Omed_i \times WFw_i \times (OmedEmpFT_i + OmedEmpPT_i)]} \times 100$$

12. Percent of all workers enrolled in medical insurance (E11)

The percent of workers enrolled in medical insurance is calculated by first summing the products of the final employment weight and the number of full and part-time workers enrolled in medical insurance coverage in establishments offering medical insurance. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Omed_i \times WFW_i \times (EmedEmpFT_i + EmedEmpPT_i)]}{\sum_i [WFW_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

13. Percent of all workers offered medical insurance coverage who are enrolled (E14)

The percent of all workers offered medical insurance that are enrolled is calculated by summing the product of the final employment weight and the number of full and part-time workers enrolled in medical insurance coverage in establishments offering medical insurance. Then, divide that number by the sum of the products of the final employment weights and number of full and part-time workers offered medical insurance in the establishment.

$$\frac{\sum_i [Omed_i \times WFW_i \times (EmedEmpFT_i + EmedEmpPT_i)]}{\sum_i [Omed_i \times WFW_i \times (OmedEmpFT_i + OmedEmpPT_i)]} \times 100$$

14. Percent of all workers enrolled in single medical insurance coverage (E13)

The percent of workers enrolled in single medical insurance is calculated by first summing the products of the final employment weight and the number of full and part-time workers enrolled in single medical insurance coverage in establishments offering medical insurance. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Omed_i \times WFW_i \times (EsmmedEmpFT_i + EsmmedEmpPT_i)]}{\sum_i [WFW_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

15. Percent of all workers offered single medical insurance coverage who are enrolled (E15)

The percent of all workers offered single medical insurance that are enrolled is calculated by summing the product of the final employment weight and the number of full and part-time workers enrolled in single medical insurance coverage in establishments offering medical insurance. Then, divide that number by the sum of the products of the final employment weights and number of full and part-time workers offered medical insurance in the establishment.

$$\frac{\sum_i [Omed_i \times WFW_i \times (EsmmedEmpFT_i + EsmmedEmpPT_i)]}{\sum_i [Omed_i \times WFW_i \times (OmedEmpFT_i + OmedEmpPT_i)]} \times 100$$

16. Average percentage (mean) of the single medical insurance premiums paid by the employer for the majority of workers in establishments offering single medical insurance (E16)

The mean percentage of the single medical premium paid by the employer is derived by computing the mean percentage and then summing the product of the mean times the establishment final weight over all establishments offering medical insurance. This figure is then divided by the sum of the final establishment weights of establishments offering medical insurance.

The mean percentage is calculated by summing the product of the percentage of single medical premiums paid by the employer for full-time workers times the number of full-time workers enrolled in single coverage and the percentage of single medical premiums paid by the employer for part-time workers times the number of part-time workers enrolled in single coverage. This figure is then divided by the number of full and part-time workers enrolled in single medical insurance coverage.

$$\frac{\sum_i^I (Omed_i \times EstFw_i \times PsingleM_i)}{\sum_i^I (Omed_i \times EstFw_i)} \quad \text{where}$$

$$PsingleM_i = \frac{[(PsingleFT_i \times EsmmedEmpFT_i) + (PsinglePT_i \times EsmmedEmpPT_i)]}{(EsmmedEmpFT_i + EsmmedEmpPT_i)}$$

17. Average (Mean) percentage of the single medical insurance premiums paid by the employer for the majority of workers offered single medical insurance (E16)

The mean percentage of the single medical premium paid by the employer is derived by computing the mean percentage and then summing the product of the mean times the final employment weight over establishments offering medical insurance. This figure is then divided by the sum of the product of the final employment weights and the number of full and part-time workers offered medical insurance.

The mean percentage is calculated by summing the product of the percentage of single medical premiums paid by the employer for full-time workers times the number of full-time workers enrolled in single coverage and the percentage of single medical premiums paid by the employer for part-time workers times the number of part-time workers enrolled in single coverage. This figure is then divided by the number of full and part-time workers enrolled in single medical insurance coverage.

$$\frac{\sum_i^I (Omed_i \times WFw_i \times PsingleM_i)}{\sum_i^I [Omed_i \times WFw_i \times (OmedEmpFT_i + OmedEmpPT_i)]} \quad \text{where}$$

$$PsingleM_i = \frac{[(PsingleFT_i \times EsmmedEmpFT_i) + (PsinglePT_i \times EsmmedEmpPT_i)]}{(EsmmedEmpFT_i + EsmmedEmpPT_i)}$$

18. Percent of all establishments offering family medical insurance coverage (E19)

The percent of establishments offering family medical insurance coverage is calculated by first summing the establishment weights over only those establishments that offer family coverage in establishments that offer medical insurance. Then, divide that number by the sum of the final establishment weights for all establishments and multiply by 100.

$$\frac{\sum_i^I (Omed_i \times Ofmed_i \times EstFw_i)}{\sum_i^I EstFw_i} \times 100$$

19. Percent of all workers offered family medical insurance coverage (E21)

The percent of workers offered family medical insurance coverage is calculated by first summing the products of the final employment weight and the current establishment employment of only those establishments that offer family medical insurance coverage. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i^I [Omed_i \times Ofmed_i \times WFw_i \times (OmedEmpFT_i + OmedEmpPT_i)]}{\sum_i^I [WFw_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

20. Percent of all workers enrolled in family medical insurance coverage (E23)

The percent of workers enrolled in family medical insurance is calculated by first summing the products of the final employment weight and the number of full and part-time workers enrolled in family medical insurance coverage in establishments offering medical insurance. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i^I [Omed_i \times Ofmed_i \times WFw_i \times (EfmedEmpFT_i + EfmedEmpPT_i)]}{\sum_i^I [WFw_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

21. Percent of all workers offered family medical insurance coverage who have enrolled (E24)

The percent of all workers offered family medical insurance that are enrolled is calculated by summing the product of the final employment weight and the number of full and part-time workers enrolled in family medical insurance coverage in establishments offering medical insurance. Then, divide that number by the sum of the products of the final employment weights and number of full and part-time workers offered medical insurance in the establishment.

$$\frac{\sum_i [Omed_i \times Ofmed_i \times WFw_i \times (EfmedEmpFT_i + EfmedEmpPT_i)]}{\sum_i [Omed_i \times Ofmed_i \times WFw_i \times (OmedEmpFT_i + OmedEmpPT_i)]} \times 100$$

22. Average percentage (mean) of the family medical insurance premiums paid by the employer for the majority of workers in establishments offering family medical insurance (E25)

The mean percentage of the family medical premium paid by the employer is derived by computing the mean percentage and then summing the product of the mean times the final establishment weight over all establishments offering medical insurance. This figure is then divided by the sum of the final establishment weights of establishments offering medical insurance.

The mean percentage is calculated by summing the product of the percentage of family medical premiums paid by the employer for full-time workers times the number of full-time workers enrolled in family coverage and the percentage of family medical premiums paid by the employer for part-time workers times the number of part-time workers enrolled in family coverage. This figure is then divided by the number of full and part-time workers enrolled in family medical insurance coverage.

$$\frac{\sum_i (Omed_i \times Ofmed_i \times EstFw_i \times PfamM_i)}{\sum_i (Omed_i \times Ofmed_i \times EstFw_i)} \quad \text{where}$$

$$PfamM_i = \frac{[(PfamFT_i \times EfmedEmpFT_i) + (PfamPT_i \times EfmedEmpPT_i)]}{(EfmedEmpFT_i + EfmedEmpPT_i)}$$

23. Average (Mean) percentage of the family medical insurance premiums paid by the employer for the majority of workers offered family medical insurance (E25)

The mean percentage of the family medical premium paid by the employer is derived by computing the mean percentage and then summing the product of the mean times the final employment weight over establishments offering medical insurance. This figure is then divided by the sum of the product of the final employment weights and the number of full and part-time workers offered medical insurance coverage.

The mean percentage is calculated by summing the product of the percentage of family medical premiums paid by the employer for full-time workers times the number of full-time workers enrolled in family coverage and the percentage of family medical premiums paid by the employer for part-time workers times the number of part-time workers enrolled in family coverage. This figure is then divided by the number of full and part-time workers enrolled in family medical insurance coverage.

$$\frac{\sum_i (Omed_i \times Ofmed_i \times WFW_i \times PfamM_i)}{\sum_i [Omed_i \times Ofmed_i \times WFW_i \times (OmedEmpFT_i + OmedEmpPT_i)]} \quad \text{where}$$

$$PfamM_i = \frac{[(PfamFT_i \times EfmedEmpFT_i) + (PfamPT_i \times EfmedEmpPT_i)]}{(EfmedEmpFT_i + EfmedEmpPT_i)}$$

24. Percent of all establishments offering dental insurance for workers (E28)

The percent of establishments offering dental insurance coverage is calculated by first summing the establishment weights over only those establishments that offer the dental insurance coverage. Then, divide that number by the sum of the final establishment weights for all establishments and multiply by 100.

$$\frac{\sum_i (Odent_i \times EstFW_i)}{\sum_i EstFW_i} \times 100$$

25. Percent of all workers offered dental insurance (E30)

The percent of workers offered dental insurance coverage is calculated by first summing the products of the final employment weight and the number of full and part-time workers offered dental insurance coverage in the establishment. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Odent_i \times WFW_i \times (OdentEmpFT_i + OdentEmpPT_i)]}{\sum_i [WFW_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

26. Percent of all workers enrolled in dental insurance (E32)

The percent of workers enrolled in dental insurance is calculated by first summing the products of the final employment weight and the number of full and part-time workers enrolled in dental insurance coverage in establishments offering dental insurance. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Odent_i \times WFW_i \times (EdentEmpFT_i + EdentEmpPT_i)]}{\sum_i [WFW_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

27. Percent of all workers offered dental insurance coverage that are enrolled (E35)

The percent of all workers offered dental insurance that are enrolled is calculated by summing the product of the final employment weight and the number of full and part-time workers enrolled in dental insurance coverage in establishments offering dental insurance. Then, divide that number by the sum of the products of the final employment weights and number of full and part-time workers offered dental insurance in the establishment.

$$\frac{\sum_i [Odent_i \times WFw_i \times (EdentEmpFT_i + EdentEmpPT_i)]}{\sum_i [Odent_i \times WFw_i \times (OdentEmpFT_i + OdentEmpPT_i)]} \times 100$$

28. Percent of all workers enrolled in single dental insurance coverage (E34)

The percent of workers enrolled in single dental insurance is calculated by first summing the products of the final employment weight and the number of full and part-time workers enrolled in single dental insurance coverage in establishments offering dental insurance. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Odent_i \times WFw_i \times (EsdentEmpFT_i + EsdentEmpPT_i)]}{\sum_i [WFw_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

29. Percent of all workers offered single dental insurance coverage who are enrolled (E36)

The percent of all workers offered single dental insurance that are enrolled is calculated by summing the product of the final employment weight and the number of full and part-time workers enrolled in single dental insurance coverage in establishments offering dental insurance. Then, divide that number by the sum of the products of the final employment weights and number of full and part-time workers offered dental insurance in the establishment.

$$\frac{\sum_i [Odent_i \times WFw_i \times (EsdentEmpFT_i + EsdentEmpPT_i)]}{\sum_i [Odent_i \times WFw_i \times (OdentEmpFT_i + OdentEmpPT_i)]} \times 100$$

30. Distribution (percent) of majority plan contributory status (percent paid by employer) among establishments offering single dental insurance coverage (E38)

The percent of establishments with each contributory status for single dental insurance benefits is calculated by summing the final establishment weights of those establishments with the contributory

status to the majority of workers. Next, divide that number by the sum of the final establishment weights of all establishments that offer single dental insurance coverage and multiply by 100.

100% Paid by the Employer:

$$\frac{\sum_i (Odent_i \times EstFw_i \times CsdentER_i)}{\sum_i (Odent_i \times EstFw_i)} \times 100$$

100% Paid by the Employee:

$$\frac{\sum_i (Odent_i \times EstFw_i \times CsdentEE_i)}{\sum_i (Odent_i \times EstFw_i)} \times 100$$

Jointly Paid by the Employee and Employer

$$\frac{\sum_i (Odent_i \times EstFw_i \times CsdentJ_i)}{\sum_i (Odent_i \times EstFw_i)} \times 100$$

31. Distribution (percent) of majority plan contributory status (percent paid by employer) among workers offered single dental insurance coverage (E41)

The percent of workers offered single dental insurance benefits in each contributory status is calculated by summing the final employment weights over all workers in establishments with the contributory status for the majority of workers. Next divide that number by the sum of the product of the final employment weights of all establishments offering single dental insurance coverage and the number of workers offered coverage and multiply by 100.

100% Paid by the Employer:

$$\frac{\sum_i \{ Odent_i \times WFw_i \times [(CsdentERFT_i \times OdentEmpFT_i) + (CsdentERPT_i \times OdentEmpPT_i)] \}}{\sum_i [Odent_i \times WFw_i \times (OdentEmpFT_i + OdentEmpPT_i)]} \times 100$$

100% Paid by the Employee:

$$\frac{\sum_i \{ Odent_i \times WFw_i \times [(CsdentEEFT_i \times OdentEmpFT_i) + (CsdentEEPT_i \times OdentEmpPT_i)] \}}{\sum_i [Odent_i \times WFw_i \times (OdentEmpFT_i + OdentEmpPT_i)]} \times 100$$

Jointly Paid by the Employee and Employer

$$\frac{\sum_i \{Odent_i \times WFw_i \times [(CsdentJFT_i \times OdentEmpFT_i) + (CsdentJPT_i \times OdentEmpPT_i)]\}}{\sum_i [Odent_i \times WFw_i \times (OdentEmpFT_i + OdentEmpPT_i)]} \times 100$$

32. Percent of all establishments offering family dental insurance coverage (E43)

The percent of establishments offering family dental insurance coverage is calculated by first summing the establishment weights over only those establishments that offer family coverage in establishments that offer dental insurance. Then, divide that number by the sum of the final establishment weights for all establishments and multiply by 100.

$$\frac{\sum_i (Odent_i \times Ofdent_i \times EstFw_i)}{\sum_i (EstFw_i)} \times 100$$

33. Percent of all workers offered family dental insurance coverage (E46)

The percent of workers offered family dental insurance coverage is calculated by first summing the products of the final employment weight and the current establishment employment of only those establishments that offer family dental insurance coverage. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Odent_i \times Ofdent_i \times WFw_i \times (OdentEmpFT_i + OdentEmpPT_i)]}{\sum_i [WFw_i \times (CEmpFT_i + CEmpPT_i)]}$$

34. Percent of all workers enrolled in family dental insurance coverage (E49)

The percent of workers enrolled in family dental insurance is calculated by first summing the products of the final employment weight and the number of full and part-time workers enrolled in family dental insurance coverage in establishments offering medical insurance. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Odent_i \times Ofdent_i \times WFw_i \times (EfdentEmpFT_i + EfdentEempPT_i)]}{\sum_i [WFw_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

35. Percent of all workers offered family dental insurance coverage who have enrolled (E50)

The percent of all workers offered family dental insurance that are enrolled is calculated by summing the product of the final employment weight and the number of full and part-time workers enrolled in family dental insurance coverage in establishments offering medical insurance. Then, divide that number by the sum of the products of the final employment weights and number of full and part-time workers offered dental insurance in the establishment.

$$\frac{\sum_i [Odent_i \times Ofdent_i \times WFw_i \times (EfdentEmpFT_i + EfdentEmpPT_i)]}{\sum_i [Odent_i \times Ofdent_i \times WFw_i \times (OdentEmpFT_i + OdentEmpPT_i)]} \times 100$$

36. Distribution (percent) of majority plan contributory status (percent paid by employer) among establishments offering family dental insurance coverage (E53)

The percent of establishments with each contributory status for family dental insurance benefits is calculated by summing the final establishment weights of those establishments with the contributory status to the majority of workers. Next, divide that number by the sum of the final establishment weights of all establishments that offer family dental insurance coverage and multiply by 100.

100% Paid by the Employer:

$$\frac{\sum_i (Odent_i \times Ofdent_i \times EstFw_i \times CfdentER_i)}{\sum_i (Odent_i \times Ofdent_i \times EstFw_i)} \times 100$$

100% Paid by the Employee:

$$\frac{\sum_i (Odent_i \times Ofdent_i \times EstFw_i \times CfdentEE_i)}{\sum_i (Odent_i \times Ofdent_i \times EstFw_i)} \times 100$$

Jointly Paid by the Employee and Employer

$$\frac{\sum_i (Odent_i \times Ofdent_i \times EstFw_i \times CfdentJ_i)}{\sum_i (Odent_i \times Ofdent_i \times EstFw_i)} \times 100$$

37. Distribution (percent) of majority plan contributory status (percent paid by employer) among workers offered family dental insurance coverage (E56)

The percent of workers offered family dental insurance benefits in each contributory status is calculated by summing the final employment weights over all workers in establishments with the contributory status for the majority of workers. Next divide that number by the sum of the product of the final employment weights of all establishments offering family dental insurance coverage and the number of workers offered coverage and multiply by 100.

100% Paid by the Employer:

$$\frac{\sum_i \{Odent_i \times Ofdent_i \times WFW_i \times [(CfdentERFT_i \times OdentEmpFT_i) + (CfdentERPT_i \times OdentEmpPT_i)]\}}{\sum_i [Odent_i \times Ofdent_i \times WFW_i \times (OdentEmpFT_i + OdentEmpPT_i)]} \times 100$$

100% Paid by the Employee:

$$\frac{\sum_i \{Odent_i \times Ofdent_i \times WFW_i \times [(CfdentEEFT_i \times OdentEmpFT_i) + (CfdentEEPT_i \times OdentEmpPT_i)]\}}{\sum_i [Odent_i \times Ofdent_i \times WFW_i \times (OdentEmpFT_i + OdentEmpPT_i)]} \times 100$$

Jointly Paid by the Employee and Employer

$$\frac{\sum_i \{Odent_i \times Ofdent_i \times WFW_i \times [(CfdentJFT_i \times OdentEmpFT_i) + (CfdentJPT_i \times OdentEmpPT_i)]\}}{\sum_i [Odent_i \times Ofdent_i \times WFW_i \times (OdentEmpFT_i + OdentEmpPT_i)]} \times 100$$

38. Percent of all establishments offering vision insurance (E58)

The percent of establishments offering vision insurance is calculated by first summing the establishment weights over only those establishments that offer the vision insurance. Then, divide that number by the sum of the final establishment weights for all establishments and multiply by 100.

$$\frac{\sum_i (Ovis_i \times EstFW_i)}{\sum_i (EstFW_i)} \times 100$$

39. Percent of all workers offered vision insurance (E60)

The percent of workers offered vision insurance is calculated by first summing the products of the final employment weight and the number of full and part-time workers offered vision insurance in the establishment. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Ovis_i \times WFW_i \times (OvisEmpFT_i + OvisEmpPT_i)]}{\sum_i [WFW_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

40. Percent of all workers enrolled in vision insurance (E62)

The percent of workers enrolled in vision insurance is calculated by first summing the products of the final employment weight and the number of full and part-time workers enrolled in vision insurance coverage in establishments offering vision insurance. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Ovis_i \times WFW_i \times (EvisEmpFT_i + EvisEmpPT_i)]}{\sum_i [Ovis_i \times WFW_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

41. Percent of all workers offered vision insurance coverage that are enrolled (E63)

The percent of all workers offered vision insurance that are enrolled is calculated by summing the product of the final employment weight and the number of full and part-time workers enrolled in vision insurance coverage in establishments offering vision insurance. Then, divide that number by the sum of the products of the final employment weights and number of full and part-time workers offered vision insurance in the establishment.

$$\frac{\sum_i [Ovis_i \times WFW_i \times (EvisEmpFT_i + EvisEmpPT_i)]}{\sum_i [Ovis_i \times WFW_i \times (OvisEmpFT_i + OvisEmpPT_i)]} \times 100$$

42. Distribution (percent) of majority plan contributory status (percent paid by employer) among establishments offering vision insurance coverage (E65)

The percent of establishments with each contributory status for vision insurance benefits is calculated by summing the final establishment weights of those establishments with the contributory status to the majority of workers. Next, divide that number by the sum of the final establishment weights of all establishments that offer vision insurance coverage and multiply by 100.

100% Paid by the Employer:

$$\frac{\sum_i (Ovis_i \times EstFw_i \times CvisER_i)}{\sum_i (Ovis_i \times EstFw_i)} \times 100$$

100% Paid by the Employee:

$$\frac{\sum_i (Ovis_i \times EstFw_i \times CvisEE_i)}{\sum_i (Ovis_i \times EstFw_i)} \times 100$$

Jointly Paid by the Employee and Employer

$$\frac{\sum_i (Ovis_i \times EstFw_i \times CvisJ_i)}{\sum_i (Ovis_i \times EstFw_i)} \times 100$$

43. Distribution (percent) of majority plan contributory status (percent paid by employer) among workers offered vision insurance coverage (E67a)

The percent of workers offered vision insurance benefits in each contributory status is calculated by summing the final employment weights over all workers in establishments with the contributory status for the majority of workers. Next divide that number by the sum of the product of the final employment weights of all establishments offering vision insurance coverage and the number of workers offered coverage and multiply by 100.

100% Paid by the Employer:

$$\frac{\sum_i \{Ovis_i \times WFW_i \times [(CvisERFT_i \times OvisEmpFT_i) + (CvisERPT_i \times OvisEmpPT_i)]\}}{\sum_i [Ovis_i \times WFW_i \times (OvisEmpFT_i + OvisEmpPT_i)]} \times 100$$

100% Paid by the Employee:

$$\frac{\sum_i \{Ovis_i \times WFW_i \times [(CvisEEFT_i \times OvisEmpFT_i) + (CvisEEPT_i \times OvisEmpPT_i)]\}}{\sum_i [Ovis_i \times WFW_i \times (OvisEmpFT_i + OvisEmpPT_i)]} \times 100$$

Jointly Paid by the Employee and Employer

$$\frac{\sum_i \{Ovis_i \times WFW_i \times [(CvisJFT_i \times OvisEmpFT_i) + (CvisJPT_i \times OvisEmpPT_i)]\}}{\sum_i [Ovis_i \times WFW_i \times (OvisEmpFT_i + OvisEmpPT_i)]} \times 100$$

44. Percent of all establishments offering life insurance (E69)

The percent of establishments offering life insurance is calculated by first summing the establishment weights over only those establishments that offer the life insurance. Then, divide that number by the sum of the final establishment weights for all establishments and multiply by 100.

$$\frac{\sum_i^I (Olife_i \times EstFw_i)}{\sum_i^I (EstFw_i)} \times 100$$

45. Percent of all workers offered life insurance (E71)

The percent of workers offered life insurance is calculated by first summing the products of the final employment weight and the number of full and part-time workers offered life insurance in the establishment. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i^I [Olife_i \times WFw_i \times (OlifeEmpFT_i + OlifeEmpPT_i)]}{\sum_i^I [Olife_i \times WFw_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

46. Percent of all workers enrolled in life insurance (E73)

The percent of workers enrolled in life insurance is calculated by first summing the products of the final employment weight and the number of full and part-time workers enrolled in life insurance coverage in establishments offering life insurance. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i^I [Olife_i \times WFw_i \times (ElifeEmpFT_i + ElifeEmpPT_i)]}{\sum_i^I [Olife_i \times WFw_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

47. Percent of all workers offered life insurance coverage that are enrolled (E74)

The percent of all workers offered life insurance that are enrolled is calculated by summing the product of the final employment weight and the number of full and part-time workers enrolled in life insurance coverage in establishments offering life insurance. Then, divide that number by the sum of the products of the final employment weights and number of full and part-time workers offered vision insurance in the establishment.

$$\frac{\sum_i [Olife_i \times WFW_i \times (ElifeEmpFT_i + ElifeEmpPT_i)]}{\sum_i [Olife_i \times WFW_i \times (OffEmpFT_i + OffEmpPT_i)]} \times 100$$

48. Distribution (percent) of majority plan contributory status (percent paid by employer) among establishments offering life insurance coverage (E76)

The percent of establishments with each contributory status for life insurance benefits is calculated by summing the final establishment weights of those establishments with the contributory status to the majority of workers. Next, divide that number by the sum of the final establishment weights of all establishments that offer life insurance coverage and multiply by 100.

100% Paid by the Employer:

$$\frac{\sum_i (Olife_i \times EstFw_i \times ClifeER_i)}{\sum_i (Olife_i \times EstFw_i)} \times 100$$

100% Paid by the Employee:

$$\frac{\sum_i (Olife_i \times EstFw_i \times ClifeEE_i)}{\sum_i (Olife_i \times EstFw_i)} \times 100$$

Jointly Paid by the Employee and Employer

$$\frac{\sum_i (Olife_i \times EstFw_i \times ClifeJ_i)}{\sum_i (Olife_i \times EstFw_i)} \times 100$$

49. Distribution (percent) of majority plan contributory status (percent paid by employer) among workers offered life insurance coverage (E78)

The percent of workers offered life insurance benefits in each contributory status is calculated by summing the final employment weights over all workers in establishments with the contributory status for the majority of workers. Next divide that number by the sum of the product of the final employment weights of all establishments offering life insurance coverage and the number of workers offered coverage and multiply by 100.

100% Paid by the Employer:

$$\frac{\sum_i \{Olife_i \times WFw_i \times [(ClifeERFT_i \times OlifeEmpFT_i) + (ClifeERPT_i \times OlifeEmpPT_i)]\}}{\sum_i \{Olife_i \times WFw_i \times (OlifeEmpFT_i + OlifeEmpPT_i)\}} \times 100$$

100% Paid by the Employee:

$$\frac{\sum_i \{Olife_i \times WFw_i \times [(ClifeEEFT_i \times OlifeEmpFT_i) + (ClifeEEPT_i \times OlifeEmpPT_i)]\}}{\sum_i \{Olife_i \times WFw_i \times (OlifeEmpFT_i + OlifeEmpPT_i)\}} \times 100$$

Jointly Paid by the Employee and Employer

$$\frac{\sum_i \{Olife_i \times WFw_i \times [(ClifeJFT_i \times OlifeEmpFT_i) + (ClifeJPT_i \times OlifeEmpPT_i)]\}}{\sum_i \{Olife_i \times WFw_i \times (OlifeEmpFT_i + OlifeEmpPT_i)\}} \times 100$$

50. Percent of all establishments offering short-term disability insurance (E80)

The percent of establishments offering short-term disability insurance is calculated by first summing the establishment weights over only those establishments that offer the short-term disability insurance. Then, divide that number by the sum of the final establishment weights for all establishments and multiply by 100.

$$\frac{\sum_i (Ostd_i \times EstFw_i)}{\sum_i (EstFw_i)} \times 100$$

51. Percent of all workers offered short-term disability insurance (E82)

The percent of workers offered short-term insurance is calculated by first summing the products of the final employment weight and the number of full and part-time workers offered short-term disability insurance in the establishment. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Ostd_i \times WFw_i \times (OstdEmpFT_i + OstdEmpPT_i)]}{\sum_i [WFw_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

52. Percent of all workers enrolled in short-term disability insurance (E84)

The percent of workers enrolled in short-term disability insurance is calculated by first summing the products of the final employment weight and the number of full and part-time workers enrolled in short-term disability insurance coverage in establishments offering short-term disability insurance. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Ostd_i \times WFW_i \times (EstdEmpFT_i + EstdEmpPT_i)]}{\sum_i [Ostd_i \times WFW_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

53. Percent of all workers offered short-term disability insurance coverage that are enrolled (E85)

The percent of all workers offered short-term disability insurance that are enrolled is calculated by summing the product of the final employment weight and the number of full and part-time workers enrolled in short-term disability insurance coverage in establishments offering short-term insurance. Then, divide that number by the sum of the products of the final employment weights and number of full and part-time workers offered short-term disability insurance in the establishment.

$$\frac{\sum_i [Ostd_i \times WFW_i \times (EstdEmpFT_i + EstdEmpPT_i)]}{\sum_i [Ostd_i \times WFW_i \times (OstdEmpFT_i + OstdEmpPT_i)]} \times 100$$

54. Distribution (percent) of majority plan contributory status (percent paid by employer) among establishments offering short-term disability insurance coverage (E87)

The percent of establishments with each contributory status for short-term disability insurance benefits is calculated by summing the final establishment weights of those establishments with the contributory status to the majority of workers. Next, divide that number by the sum of the final establishment weights of all establishments that offer short-term disability insurance coverage and multiply by 100.

100% Paid by the Employer:

$$\frac{\sum_i (Ostd_i \times EstFw_i \times CstdER_i)}{\sum_i (Ostd_i \times EstFw_i)} \times 100$$

100% Paid by the Employee:

$$\frac{\sum_i (Ostd_i \times EstFw_i \times CstdEE_i)}{\sum_i (Ostd_i \times EstFw_i)} \times 100$$

Jointly Paid by the Employee and Employer

$$\frac{\sum_i (Ostd_i \times EstFw_i \times CstdJstd_i)}{\sum_i (Ostd_i \times EstFw_i)} \times 100$$

55. Distribution (percent) of majority plan contributory status (percent paid by employer) among workers offered short-term disability coverage (E89)

The percent of workers offered short-term disability insurance benefits in each contributory status is calculated by summing the final employment weights over all workers in establishments with the contributory status for the majority of workers. Next divide that number by the sum of the product of the final employment weights of all establishments offering short-term disability insurance coverage and the number of workers offered coverage and multiply by 100.

100% Paid by the Employer:

$$\frac{\sum_i \{Ostd_i \times WFW_i \times [(CstdERFT_i \times OstdEmpFT_i) + (CstdERPT_i \times OstdEmpPT_i)]\}}{\sum_i [Ostd_i \times WFW_i \times (OstdEmpFT_i + OstdEmpPT_i)]} \times 100$$

100% Paid by the Employee:

$$\frac{\sum_i \{Ostd_i \times WFW_i \times [(CstdEEFT_i \times OstdEmpFT_i) + (CstdEEPT_i \times OstdEmpPT_i)]\}}{\sum_i [Ostd_i \times WFW_i \times (OstdEmpFT_i + OstdEmpPT_i)]} \times 100$$

Jointly Paid by the Employee and Employer

$$\frac{\sum_i \{Ostd_i \times WFW_i \times [(CstdJFT_i \times OstdEmpFT_i) + (CstdJPT_i \times OstdEmpPT_i)]\}}{\sum_i [Ostd_i \times WFW_i \times (OstdEmpFT_i + OstdEmpPT_i)]} \times 100$$

56. Percent of all establishments offering long-term disability insurance (E91)

The percent of establishments offering long-term disability insurance is calculated by first summing the establishment weights over only those establishments that offer the long-term disability insurance. Then, divide that number by the sum of the final establishment weights for all establishments and multiply by 100.

$$\frac{\sum_i^I (Olt d_i \times Est F w_i)}{\sum_i^I (Est F w_i)} \times 100$$

57. Percent of all workers offered long-term disability insurance (E93)

The percent of workers offered short-term insurance is calculated by first summing the products of the final employment weight and the number of full and part-time workers offered long-term disability insurance in the establishment. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i^I [Olt d_i \times W F w_i \times (Olt d Emp F T_i + Olt d Emp P T_i)]}{\sum_i^I [W F w_i \times (C Emp F T_i + C Emp P T_i)]} \times 100$$

58. Percent of all workers enrolled in long-term disability insurance (E95)

The percent of workers enrolled in long-term disability insurance is calculated by first summing the products of the final employment weight and the number of full and part-time workers enrolled in long-term disability insurance coverage in establishments offering long-term disability insurance. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i^I [Olt d_i \times W F w_i \times (E l t d Emp F T_i + E l t d Emp P T_i)]}{\sum_i^I [Olt d_i \times W F w_i \times (C Emp F T_i + C Emp P T_i)]} \times 100$$

59. Percent of all workers offered long-term disability insurance coverage that are enrolled (E96)

The percent of all workers offered long-term disability insurance that are enrolled is calculated by summing the product of the final employment weight and the number of full and part-time workers enrolled in long-term disability insurance coverage in establishments offering long-term insurance. Then, divide that number by the sum of the products of the final employment weights and number of full and part-time workers offered long-term disability insurance in the establishment.

$$\frac{\sum_i [Olt d_i \times WFw_i \times (Elt dEmpFT_i + Elt dEmpPT_i)]}{\sum_i [Olt d_i \times WFw_i \times (Olt dEmpFT_i + Olt dEmpPT_i)]} \times 100$$

60. Distribution (percent) of majority plan contributory status (percent paid by employer) among establishments offering long-term disability insurance coverage (E98)

The percent of establishments with each contributory status for long-term disability insurance benefits is calculated by summing the final establishment weights of those establishments with the contributory status to the majority of workers. Next, divide that number by the sum of the final establishment weights of all establishments that offer long-term disability insurance coverage and multiply by 100.

100% Paid by the Employer:

$$\frac{\sum_i (Olt d_i \times EstFw_i \times ContERltd_i)}{\sum_i (Olt d_i \times EstFw_i)} \times 100$$

100% Paid by the Employee:

$$\frac{\sum_i (Olt d_i \times EstFw_i \times ContEEltd_i)}{\sum_i (Olt d_i \times EstFw_i)} \times 100$$

Jointly Paid by the Employee and Employer

$$\frac{\sum_i (Olt d_i \times EstFw_i \times CltdJ_i)}{\sum_i (Olt d_i \times EstFw_i)} \times 100$$

61. Distribution (percent) of majority plan contributory status (percent paid by employer) among workers offered long-term disability insurance coverage (E100)

The percent of workers offered long-term disability insurance benefits in each contributory status is calculated by summing the final employment weights over all workers in establishments with the contributory status for the majority of workers. Next divide that number by the sum of the product of the final employment weights of all establishments offering long-term disability insurance coverage and the number of workers offered coverage and multiply by 100.

100% Paid by the Employer:

$$\frac{\sum_i \{Olt d_i \times WFw_i \times [(CltdEEFT_i \times Olt dEmpFT_i) + (CltdEEPT_i \times Olt dEmpPT_i)]\}}{\sum_i [Olt d_i \times WFw_i \times (Olt dEmpFT_i + Olt dEmpPT_i)]} \times 100$$

100% Paid by the Employee:

$$\frac{\sum_i \{Olt d_i \times WFw_i \times [(CltdERFT_i \times Olt dEmpFT_i) + (CltdERPT_i \times Olt dEmpPT_i)]\}}{\sum_i [Olt d_i \times WFw_i \times (Olt dEmpFT_i + Olt dEmpPT_i)]} \times 100$$

Jointly Paid by the Employee and Employer

$$\frac{\sum_i \{Olt d_i \times WFw_i \times [(CltdJFT_i \times Olt dEmpFT_i) + (CltdJPT_i \times Olt dEmpPT_i)]\}}{\sum_i [Olt d_i \times WFw_i \times (Olt dEmpFT_i + Olt dEmpPT_i)]} \times 100$$

62. Percent of all establishments offering vacation leave (E102)

The percent of establishments offering vacation leave is calculated by first summing the establishment weights over only those establishments that offer vacation leave. Then, divide that number by the sum of the final establishment weights for all establishments and multiply by 100.

$$\frac{\sum_i (Ovac_i \times EstFw_i)}{\sum_i (EstFw_i)} \times 100$$

63. Percent of all workers offered vacation leave (E102)

The percent of workers offered life insurance is calculated by first summing the products of the final employment weight and the number of full and part-time workers offered life insurance in the establishment. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Ovac_i \times WFw_i \times (CEmpFT_i + CEmpPT_i)]}{\sum_i [WFw_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

64. Average (mean) number of paid vacation days after 1 year (E105)

The average (mean) number of paid vacation days after 1 year offered to a majority of workers is derived by computing the mean days and then summing the product of the mean times the final establishment weight over all establishments offering paid vacation leave. Then, divide that number by the sum of the final establishment weights of establishments offering vacation leave

The mean number of days is calculated by summing the product of the number of paid days offered to the majority of full-time workers times the number of full-time workers in establishments offering paid vacation leave to full-time workers and the number of paid days offered to the majority of part-time workers times the number of part-time workers in establishments offering paid vacation to part-time workers. This figure is then divided by the number of full and part-time workers offered vacation leave.

$$\frac{\sum_i^I (Ovac_i \times EstFw_i \times 1VdaysM_i)}{\sum_i^I [Ovac_i \times EstFw_i \times (CEmpFT_i + CEmpPT_i)]} \quad \textit{where}$$

$$1VdaysM_i = \frac{[(1VdaysFT_i \times CEmpFT_i) + (1VdaysPT_i \times CEmpPT_i)]}{(CEmpFT_i + CEmpPT_i)}$$

65. Average (mean) number of paid vacation days after 3 years (E106)

The average (mean) number of paid vacation day after 3 years offered to a majority of workers is derived by computing the mean days and then summing the product of the mean times the final establishment weight over all establishments offering paid vacation leave. Then, divide that number by the sum of the final establishment weights of establishments offering vacation leave

The mean number of days is calculated by summing the product of the number of paid days offered to the majority of full-time workers times the number of full-time workers in establishments offering paid vacation leave to full-time workers and the number of paid days offered to the majority of part-time workers times the number of part-time workers in establishments offering paid vacation to part-time workers. This figure is then divided by the number of full and part-time workers offered vacation leave.

$$\frac{\sum_i^I (Ovac_i \times EstFw_i \times 3VdaysM_i)}{\sum_i^I [Ovac_i \times EstFw_i \times (CEmpFT_i + CEmpPT_i)]} \quad \textit{where}$$

$$3VdaysM_i = \frac{[(3VdaysFT_i \times CEmpFT_i) + (3VdaysPT_i \times CEmpPT_i)]}{(CEmpFT_i + CEmpPT_i)}$$

66. Average (mean) number of paid vacation days after 5 years (E107)

The average (mean) number of paid vacation days offered to a majority of workers after 5 years is derived by computing the mean days and then summing the product of the mean times the final establishment weight over all establishments offering paid vacation leave. Then, divide that number by the sum of the final establishment weights of establishments offering vacation leave

The mean number of days is calculated by summing the product of the number of paid days offered to the majority of full-time workers times the number of full-time workers in establishments offering paid vacation leave to full-time workers and the number of paid days offered to the majority of part-time workers times the number of part-time workers in establishments offering paid vacation to part-time workers. This figure is then divided by the number of full and part-time workers offered vacation leave.

$$\frac{\sum_i^I (Ovac_i \times EstFw_i \times 5VdaysM_i)}{\sum_i^I [Ovac_i \times EstFw_i \times (CEmpFT_i + CEmpPT_i)]} \quad \textit{where}$$

$$5VdaysM_i = \frac{[(5VdaysFT_i \times CEmpFT_i) + (5VdaysPT_i \times CEmpPT_i)]}{(CEmpFT_i + CEmpPT_i)}$$

67. Percent of all establishments offering sick leave (E111)

The percent of establishments offering sick leave is calculated by first summing the establishment weights over only those establishments that offer sick leave to a majority of workers. Then, divide that number by the sum of the final establishment weights for all establishments and multiply by 100.

$$\frac{\sum_i^I (Osic_i \times EstFw_i)}{\sum_i^I (EstFw_i)} \times 100$$

68. Percent of all workers offered sick leave (E113)

The percent of workers offered sick leave is calculated by first summing the products of the final employment weight and the number of full and part-time workers in establishments offering sick leave to a majority of workers. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i^I [Osic_i \times WFW_i \times (CEmpFT_i + CEmpPT_i)]}{\sum_i^I [WFW_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

69. Average (mean) number of paid sick leave days offered by establishments (E105)

The average (mean) number of paid sick leave days offered to a majority of workers in establishments offering sick leave is derived by computing the average days and then summing the product of the mean times the final establishment weight over all establishments offering paid sick leave. Then, divide that number by the sum of the final establishment weights of establishments offering sick leave.

The mean number of days is calculated by summing the product of the number of paid days offered to the majority of full-time workers times the number of full-time workers in establishments offering paid vacation leave to full-time workers and the number of paid days offered to the majority of part-time workers times the number of part-time workers in establishments offering paid sick leave to part-time workers. This figure is then divided by the number of full and part-time workers offered sick leave.

$$\frac{\sum_i^I (Osic_i \times EstFw_i \times SicDaysM_i)}{\sum_i^I [Osic_i \times EstFw_i \times (CEmpFT_i + CEmpPT_i)]} \quad \text{where}$$

$$SicDaysM_i = \frac{[(SicDaysFT_i \times CEmpFT_i) + (SicDaysPT_i \times CEmpPT_i)]}{(CEmpFT_i + CEmpPT_i)}$$

70. Percent of all establishments offering paid holidays (E118)

The percent of establishments offering paid holidays is calculated by first summing the establishment weights over only those establishments that offer paid holidays to a majority of workers. Then, divide that number by the sum of the final establishment weights for all establishments and multiply by 100.

$$\frac{\sum_i^I (Ohol_i \times EstFw_i)}{\sum_i^I (EstFw_i)} \times 100$$

71. Percent of all workers offered paid holiday (E120)

The percent of workers offered paid holidays is calculated by first summing the products of the final employment weight and the number of full and part-time workers in establishments offering paid holidays to a majority of workers. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i^I [Ohol_i \times WFW_i \times (CEmpFT_i + CEmpPT_i)]}{\sum_i^I [WFW_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

72. Average (mean) number of paid holidays offered by establishments (E121)

The average (mean) number of paid holidays offered to a majority of workers in establishments offering holidays is derived by computing the average days and then summing the product of the mean times the final establishment weight over all establishments offering paid holidays. Then, divide that number by the sum of the final establishment weights of establishments offering paid holidays.

The mean number of days is calculated by summing the product of the number of paid days offered to the majority of full-time workers times the number of full-time workers in establishments offering paid holidays to full-time workers and the number of paid days offered to the majority of part-time workers times the number of part-time workers in establishments offering paid holidays to part-time workers. This figure is then divided by the number of full and part-time workers offered paid holidays.

$$\frac{\sum_i^I (Ohol_i \times EstFw_i \times HolDaysM_i)}{\sum_i^I [Ohol_i \times EstFw_i \times (CEmpFT_i + CEmpPT_i)]} \quad \textit{where}$$

$$HolDaysM_i = \frac{[(HolDaysFT_i \times CEmpFT_i) + (HolDaysPT_i \times CEmpPT_i)]}{(CEmpFT_i + CEmpPT_i)}$$

73. Percent of all establishments offering paid consolidated leave (E125)

The percent of establishments offering paid holidays is calculated by first summing the establishment weights over only those establishments that offer paid consolidated leave to a majority of workers. Then, divide that number by the sum of the final establishment weights for all establishments and multiply by 100.

$$\frac{\sum_i^I (Oconsol_i \times EstFw_i)}{\sum_i^I (EstFw_i)} \times 100$$

74. Percent of all workers offered paid holiday (E127)

The percent of workers offered paid consolidated leave is calculated by first summing the products of the final employment weight and the number of full and part-time workers in establishments offering paid consolidated leave to a majority of workers. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i^I [Oconsol_i \times WFW_i \times (CEmpFT_i + CEmpPT_i)]}{\sum_i^I [WFW_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

75. Average (mean) number of paid consolidated leave offered by establishments (E128)

The average (mean) number of paid consolidated leave offered to a majority of workers in establishments offering holidays is derived by computing the average days and then summing the product of the mean times the final establishment weight over all establishments offering paid consolidated leave. Then, divide that number by the sum of the final establishment weights of establishments offering paid consolidated leave.

The mean number of days is calculated by summing the product of the number of paid days offered to the majority of full-time workers times the number of full-time workers in establishments offering paid consolidated leave to full-time workers and the number of paid days offered to the majority of part-time workers times the number of part-time workers in establishments offering paid consolidated leave to part-time workers. This figure is then divided by the number of full and part-time workers offered paid consolidated leave.

$$\frac{\sum_i (Oconsol_i \times EstFw_i \times ConsolDaysM_i)}{\sum_i [Oconsol_i \times EstFw_i \times (CEmpFT_i + CEmpPT_i)]} \quad \text{where}$$

$$ConsolDaysM_i = \frac{[(ConsolDaysFT_i \times CEmpFT_i) + (ConsolDaysPT_i \times CEmpPT_i)]}{(CEmpFT_i + CEmpPT_i)}$$

76. Percent of all establishments offering retirement benefits (E132)

The percent of establishments offering retirement benefits is calculated by first summing the establishment weights over only those establishments that offer retirement benefits to a majority of workers. Then, divide that number by the sum of the final establishment weights for all establishments and multiply by 100.

$$\frac{\sum_i (Oret_i \times EstFw_i)}{\sum_i (EstFw_i)} \times 100$$

77. Percent of all workers offered retirement benefits (E134)

The percent of workers offered retirement benefits is calculated by first summing the products of the final employment weight and the number of full and part-time workers in establishments offering retirement benefits to a majority of workers. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Oret_i \times WFw_i \times (CEmpFT_i + CEmpPT_i)]}{\sum_i [WFw_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

78. Percent of all establishments offering defined contribution retirement benefits (E136)

The percent of establishments offering defined contribution retirement benefits is calculated by first summing the establishment weights over only those establishments that offer defined contribution retirement benefits to a majority of workers. Then, divide that number by the sum of the final

establishment weights for all establishments and multiply by 100.

$$\frac{\sum_i (Odc_i \times EstFw_i)}{\sum_i (EstFw_i)} \times 100$$

79. Percent of establishments offering retirement benefits that offer defined contribution retirement plans (E137)

The percent of establishments offering retirement benefits who offer defined contribution retirement plans is calculated by first summing the establishment weights over only those establishments that offer defined contribution retirement benefits to a majority of workers. Then, divide that number by the sum of the final establishment weights for establishments that offer retirement benefits and multiply by 100.

$$\frac{\sum_i (Odc_i \times EstFw_i)}{\sum_i (EstFw_i \times Oret_i)} \times 100$$

80. Percent of all workers offered defined contribution retirement benefits (E139)

The percent of workers offered defined contribution retirement benefits is calculated by first summing the products of the final employment weight and the number of full and part-time workers offered defined contribution retirement benefits in the establishment. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Odc_i \times WFW_i \times (OdcEmpFT_i + OdcEmpPT_i)]}{\sum_i [WFW_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

81. Percent of workers offered retirement benefits who are offered defined contribution retirement benefits (E140)

The percent of workers offered defined contribution retirement benefits is calculated by first summing the products of the final employment weight and the number of full and part-time workers offered defined contribution retirement benefits in the establishment. Then, divide that number by the sum of the products of the final employment weights and current establishment employment of establishments that offer retirement benefits. This figure is then multiplied by 100.

$$\frac{\sum_i [Odc_i \times WFW_i \times (OdcEmpFT_i + OdcEmpPT_i)]}{\sum_i [Oret_i \times WFW_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

82. Percent of workers enrolled in defined contribution retirement plans (E142)

The percent of workers enrolled in defined contribution retirement plans is calculated by first summing the products of the final employment weight and the number of full and part-time workers enrolled in defined contribution retirement plans in establishments offering retirement benefits. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Odc_i \times WFw_i \times (EdcEmpFT_i + EdcEmpPT_i)]}{\sum_i [WFw_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

83. Percent of workers offered defined contribution retirement plans who are enrolled (E143)

The percent of workers offered defined contribution retirement plans that are enrolled is calculated by first summing the products of the final employment weight and the number of full and part-time workers enrolled in defined contribution retirement plans in establishments offering retirement benefits. Then, divide that number by the sum of the products of the final employment weights and number of full and part-time workers offered defined contribution retirement benefits in the establishment. This figure is then multiplied by 100.

$$\frac{\sum_i [Odc_i \times WFw_i \times (EdcEmpFT_i + EdcEmpPT_i)]}{\sum_i [Odc_i \times WFw_i \times (OdcEmpFT_i + OdcEmpPT_i)]} \times 100$$

84. Distribution (percent) of majority plan contributory status (percent paid by employer) among establishments offering defined contribution retirement benefits (E145)

The percent of establishments with each contributory status for defined contribution retirement benefits is calculated by summing the final establishment weights of those establishments with the contributory status to the majority of workers. Next, divide that number by the sum of the final establishment weights of all establishments that offer defined contribution retirement and multiply by 100.

100% Paid by the Employer:

$$\frac{\sum_i (Odc_i \times EstFw_i \times CdcER_i)}{\sum_i (Odc_i \times EstFw_i)} \times 100$$

100% Paid by the Employee:

$$\frac{\sum_i (Odc_i \times EstFw_i \times CdcEE_i)}{\sum_i (Odc_i \times EstFw_i)} \times 100$$

Jointly Paid by the Employee and Employer

$$\frac{\sum_i (Odc_i \times EstFw_i \times CdcJ_i)}{\sum_i (Odc_i \times EstFw_i)} \times 100$$

85. Distribution (percent) of majority plan contributory status (percent paid by employer) among workers offered defined contribution retirement benefits (E147)

The percent of workers offered defined contribution retirement benefits in each contributory status is calculated by summing the final employment weights over all workers in establishments with the contributory status for the majority of workers. Next divide that number by the sum of the product of the final employment weights of all establishments offering defined contribution retirement and the number of workers offered coverage and multiply by 100.

100% Paid by the Employer:

$$\frac{\sum_i \{Odc_i \times WFw_i \times [(CdcERFT_i \times OdcEmpFT_i) + (CdcERPT_i \times OdcEmpPT_i)]\}}{\sum_i [Odc_i \times WFw_i \times (OdcEmpFT_i + OdcEmpPT_i)]} \times 100$$

100% Paid by the Employee:

$$\frac{\sum_i \{Odc_i \times WFw_i \times [(CdcEEFT_i \times OdcEmpFT_i) + (CdcEEPT_i \times OdcEmpPT_i)]\}}{\sum_i [Odc_i \times WFw_i \times (OdcEmpFT_i + OdcEmpPT_i)]} \times 100$$

Jointly Paid by the Employee and Employer

$$\frac{\sum_i \{Odc_i \times WFw_i \times [(CdcJFT_i \times OdcEmpFT_i) + (CdcJPT_i \times OdcEmpPT_i)]\}}{\sum_i [Odc_i \times WFw_i \times (OdcEmpFT_i + OdcEmpPT_i)]} \times 100$$

86. Percent of all establishments offering defined benefit retirement plans (E149)

The percent of establishments offering defined benefit retirement plans is calculated by first summing the establishment weights over only those establishments that offer defined benefit retirement plans to a majority of workers. Then, divide that number by the sum of the final establishment weights for all establishments and multiply by 100.

$$\frac{\sum_i^I (Odb_i \times EstFw_i)}{\sum_i^I (EstFw_i)} \times 100$$

87. Percent of establishments offering retirement benefits that offer defined benefit retirement plans (E150)

The percent of establishments offering retirement benefits who offer defined benefit retirement plans is calculated by first summing the establishment weights over only those establishments that offer defined benefit retirement plans to a majority of workers. Then, divide that number by the sum of the final establishment weights for establishments that offer retirement benefits and multiply by 100.

$$\frac{\sum_i^I (Odb_i \times EstFw_i)}{\sum_i^I (Oret_i \times EstFw_i)} \times 100$$

88. Percent of all workers offered defined benefit retirement plans (E152)

The percent of workers offered defined benefit retirement plans is calculated by first summing the products of the final employment weight and the number of full and part-time workers offered defined benefit retirement plans in the establishment. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i^I [Odb_i \times WFw_i \times (OdbEmpFT_i + OdbEmpPT_i)]}{\sum_i^I [WFw_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

89. Percent of workers offered retirement benefits who are offered defined benefit retirement plans (E153)

The percent of workers offered defined benefit retirement plan is calculated by first summing the products of the final employment weight and the number of full and part-time workers offered defined benefit retirement plans in the establishment. Then, divide that number by the sum of the products of the final employment weights and current establishment employment of establishments that offer retirement benefits. This figure is then multiplied by 100.

$$\frac{\sum_i [Odb_i \times WFW_i \times (OdbEmpFT_i + OdbEmpPT_i)]}{\sum_i [Oret_i \times WFW_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

90. Percent of workers enrolled in defined benefit retirement plans (E155)

The percent of workers enrolled in defined benefit retirement plans is calculated by first summing the products of the final employment weight and the number of full and part-time workers enrolled in defined benefit retirement plans in establishments offering retirement benefits. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100

$$\frac{\sum_i [Odb_i \times WFW_i \times (EdbEmpFT_i + EdbEmpPT_i)]}{\sum_i [WFW_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

91. Percent of workers offered defined benefit retirement plans who are enrolled (E156)

The percent of workers offered defined benefit retirement plans that are enrolled is calculated by first summing the products of the final employment weight and the number of full and part-time workers enrolled in defined benefit retirement plans in establishments offering retirement benefits. Then, divide that number by the sum of the products of the final employment weights and number of full and part-time workers offered defined benefit retirement plans in the establishment. This figure is then multiplied by 100

$$\frac{\sum_i [Odb_i \times WFW_i \times (EdbEmpFT_i + EdbEmpPT_i)]}{\sum_i [Odb_i \times WFW_i \times (OdbEmpFT_i + OdbEmpPT_i)]} \times 100$$

92. Distribution (percent) of majority plan contributory status (percent paid by employer) among establishments offering defined benefit retirement plans (E158)

The percent of establishments with each contributory status for defined benefit retirement benefits is calculated by summing the final establishment weights of those establishments with the contributory status to the majority of workers. Next, divide that number by the sum of the final establishment weights of all establishments that offer defined benefit retirement and multiply by 100.

100% Paid by the Employer:

$$\frac{\sum_i (Odb_i \times EstFw_i \times CdbER_i)}{\sum_i (Odb_i \times EstFw_i)} \times 100$$

100% Paid by the Employee:

$$\frac{\sum_i (Odb_i \times EstFw_i \times CdbEE_i)}{\sum_i (Odb_i \times EstFw_i)} \times 100$$

Jointly Paid by the Employee and Employer

$$\frac{\sum_i (Odb_i \times EstFw_i \times CdbJ_i)}{\sum_i (Odb_i \times EstFw_i)} \times 100$$

93. Distribution (percent) of majority plan contributory status (percent paid by employer) among workers offered defined benefit retirement plans (E160)

The percent of workers offered defined benefit retirement benefits in each contributory status is calculated by summing the final employment weights over all workers in establishments with the contributory status for the majority of workers. Next divide that number by the sum of the product of the final employment weights of all establishments offering defined benefit retirement and the number of workers offered coverage and multiply by 100.

100% Paid by the Employer:

$$\frac{\sum_i \{Odb_i \times WFw_i \times [(CdbERFT_i \times OdbEmpFT_i) + (CdbERPT_i \times OdbEmpPT_i)]\}}{\sum_i [Odb_i \times WFw_i \times (OdbEmpFT_i + OdbEmpPT_i)]} \times 100$$

100% Paid by the Employee:

$$\frac{\sum_i \{Odb_i \times WFw_i \times [(CdbEEFT_i \times OdbEmpFT_i) + (CdbEEPT_i \times OdbEmpPT_i)]\}}{\sum_i [Odb_i \times WFw_i \times (OdbEmpFT_i + OdbEmpPT_i)]} \times 100$$

Jointly Paid by the Employee and Employer

$$\frac{\sum_i \{Odb_i \times WFw_i \times [(CdbJFT_i \times OdbEmpFT_i) + (CdbJPT_i \times OdbEmpPT_i)]\}}{\sum_i [Odb_i \times WFw_i \times (OdbEmpFT_i + OdbEmpPT_i)]} \times 100$$

94. Percent of all establishments offering child care benefits (E161)

The percent of establishments offering child care benefits is calculated by first summing the establishment weights over only those establishments that offer child care benefits to a majority of workers. Then, divide that number by the sum of the final establishment weights for all establishments and multiply by 100.

$$\frac{\sum_i^I (Ochild_i \times EstFw_i)}{\sum_i^I (EstFw_i)} \times 100$$

95. Percent of all workers in establishments offering child care benefits (E164)

The percent of workers in establishments offering child care benefits is calculated by first summing the products of the final employment weight and the number of full and part-time workers in establishments offering childcare benefits to a majority of workers. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i^I [Ochild_i \times Wfw_i \times (CEmpFT_i + CEmpPT_i)]}{\sum_i^I [Wfw_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

96. Percent of all establishments offering educational assistance benefits (E166)

The percent of establishments offering educational assistance benefits is calculated by first summing the establishment weights over only those establishments that offer educational assistance benefits to a majority of workers. Then, divide that number by the sum of the final establishment weights for all establishments and multiply by 100.

$$\frac{\sum_i^I (Oeduc_i \times EstFw_i)}{\sum_i^I (EstFw_i)} \times 100$$

97. Percent of all workers in establishments offering educational assistance benefits (E168)

The percent of workers in establishments offering educational assistance benefits is calculated by first summing the products of the final employment weight and the number of full and part-time workers in establishments offering educational assistance benefits to a majority of workers. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Oeduc_i \times WFW_i \times (CEmpFT_i + CEmpPT_i)]}{\sum_i [WFW_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

98. Percent of all establishments offering bonuses (E170)

The percent of establishments offering bonuses is calculated by first summing the establishment weights over only those establishments that offer bonuses to a majority of workers. Then, divide that number by the sum of the final establishment weights for all establishments and multiply by 100.

$$\frac{\sum_i (Obonus_i \times EstFW_i)}{\sum_i (EstFW_i)} \times 100$$

99. Percent of all workers in establishments offering bonuses (E172)

The percent of workers in establishments offering bonuses is calculated by first summing the products of the final employment weight and the number of full and part-time workers in establishments offering bonuses to a majority of workers. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Obonus_i \times WFW_i \times (CEmpFT_i + CEmpPT_i)]}{\sum_i [WFW_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

100. Percent of all establishments offering flexible spending accounts (E174)

The percent of establishments offering flexible spending accounts is calculated by first summing the establishment weights over only those establishments that offer flexible spending accounts to a majority of workers. Then, divide that number by the sum of the final establishment weights for all establishments and multiply by 100.

$$\frac{\sum_i (Oflex_i \times EstFW_i)}{\sum_i (EstFW_i)} \times 100$$

101. Percent of all workers in establishments offering flexible spending accounts (E175)

The percent of workers in establishments offering flexible spending accounts is calculated by first summing the products of the final employment weight and the number of full and part-time workers in establishments offering flexible spending accounts to a majority of workers. Then, divide that number by

the sum of the products of the final employment weights and current establishment employment over all establishments in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Oflexs_i \times WFW_i \times (CEmpFT_i + CEmpPT_i)]}{\sum_i [WFW_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

102. Percent of all establishments offering shift differentials (E183)

The percent of establishments offering shift differentials is calculated by first summing the establishment weights over only those establishments that operate on shifts that offers a shift differential to a majority of workers. Then, divide that number by the sum of the final establishment weights for all establishments that operate on shifts and multiply by 100.

$$\frac{\sum_i (Oshift_i \times Osdiff_i \times EstFW_i)}{\sum_i (Oshift_i \times EstFW_i)} \times 100$$

103. Percent of all workers in establishments operating on shifts offering shift differentials (E186)

The percent of workers in establishments operating on shifts offering shift differentials is calculated by first summing the products of the final employment weight and the number of full and part-time workers in establishments operating on shifts that offer a shift differential to a majority of workers. Then, divide that number by the sum of the products of the final employment weights and current establishment employment over all establishments that operate on shifts in the survey. This figure is then multiplied by 100.

$$\frac{\sum_i [Oshift_i \times Osdiff_i \times WFW_i \times (CEmpFT_i + CEmpPT_i)]}{\sum_i [Oshift_i \times WFW_i \times (CEmpFT_i + CEmpPT_i)]} \times 100$$

104. Average annual employer cost per employee for medical, dental, and/or vision insurance among establishments offering medical, dental, and vision insurance (E192)

The average (mean) annual employer cost per employee for medical, dental, and/or vision insurance (health care benefits) is derived by computing the mean cost per employee and then summing the product of the mean times the final establishment weight over establishments offering medical, dental, and/or vision insurance. Then, divide that number by the sum of the final establishment weights of establishments offering medical, dental, and/or vision insurance.

The mean annual employer cost per employee is calculated by dividing the annual insurance---medical, dental, and/or vision---expenditure by the average annual employment.

$$\frac{\sum_i [Oins_i \times EstFw_i \times (AnnInsExp_i / AnnEmp_i)]}{\sum_i (Oins_i \times EstFw_i)}$$

105. Average annual employer cost per employee for medical, dental, and/or vision insurance among all establishments (E191)

The average (mean) annual employer cost per employee for medical, dental, and/or vision insurance (health care benefits) is derived by computing the mean cost per employee and then summing the product of the mean times the final establishment weight over establishments offering medical, dental, and/or vision insurance. Then, divide that number by the sum of the final establishment weights of all establishments in the survey. The mean annual employer cost per employee is calculated by dividing the annual insurance---medical, dental, and/or vision---expenditure by the average annual employment.

$$\frac{\sum_i [Oins_i \times EstFw_i \times (AnnInsExp_i / AnnEmp_i)]}{\sum_i EstFw_i}$$

106. Annual employer expenditure for medical, dental, and/or vision as a percentage of annual wages and salaries among establishments offering medical, dental, and/or vision insurance (E194)

The annual employer expenditures for medical, dental, and/or vision insurance (health care benefits) as a percentage of annual expenditures for wages and salaries is derived by computing the mean cost as a percent of wages and then summing the product of the mean times the final establishment weight over establishments offering medical, dental, and/or vision insurance. Then, divide that number by the sum of the final establishment weights of all establishments offering medical, dental, and/or vision insurance.

The mean annual employer cost per employee is calculated by dividing the annual insurance---medical, dental, and/or vision---expenditure by the average annual employment.

$$\frac{\sum_i \{Oins_i \times EstFw_i \times [(AnnInsExp_i / AnnWages_i) \times 100]\}}{\sum_i (Oins_i \times EstFw_i)}$$

107. Annual employer expenditure for medical, dental, and/or vision as a percentage of annual wages and salaries among all establishments (E193)

The annual employer expenditures for medical, dental, and/or vision insurance (health care benefits) as a percentage of annual expenditures for wages and salaries is derived by computing the mean cost as a percent of wages and then summing the product of the mean times the final establishment weight over establishments offering medical, dental, and/or vision insurance. Then, divide that number by the sum of the final establishment weights of all establishments.

The mean annual employer cost per employee is calculated by dividing the annual insurance---medical, dental, and/or vision---expenditure by the average annual employment.

$$\frac{\sum_i \{Oins_i \times EstFw_i \times [(AnnInsExp_i / AnnWages_i) \times 100]\}}{\sum_i EstFw_i}$$

108. Average annual employer cost per employee for retirement plans among establishments offering retirement benefits (E198)

The average (mean) annual employer cost per employee for retirement plans is derived by computing the mean cost per employee and then summing the product of the mean times the final establishment weight over establishments offering retirement benefit plans. Then, divide that number by the sum of the final establishment weights of establishments offering retirement benefit plans.

The mean annual employer cost per employee is calculated by dividing the annual retirement expenditure by the average annual employment.

$$\frac{\sum_i [Oret_i \times EstFw_i \times (AnnRetExp_i / AnnEmp_i)]}{\sum_i (Oret_i \times EstFw_i)}$$

109. Average annual employer cost per employee for retirement benefits among all establishments (E197)

The average (mean) annual employer cost per employee for retirement benefits is derived by computing the mean cost per employee and then summing the product of the mean times the final establishment weight over establishments offering retirement benefits. Then, divide that number by the sum of the final establishment weights of all establishments in the survey.

The mean annual employer cost per employee is calculated by dividing the annual retirement expenditure by the average annual employment.

$$\frac{\sum_i [Oret_i \times EstFw_i \times (AnnRetExp_i / AnnEmp_i)]}{\sum_i EstFw_i}$$

110. Annual employer expenditure for retirement plans as a percentage of annual wages and salaries among establishments offering retirement plans (E200)

The annual employer expenditures for retirement plans as a percentage of annual expenditures for wages and salaries is derived by computing the mean cost as a percent of wages and then summing the product of the mean times the final establishment weight over establishments offering retirement

benefits. Then, divide that number by the sum of the final establishment weights of all establishments offering retirement plans.

The mean annual employer cost per employee is calculated by dividing the annual retirement expenditure by the annual expenditure for wages and salaries.

$$\frac{\sum_i^I \{Oret_i \times EstFw_i \times [(AnnRetExp_i / AnnWages_i) \times 100]\}}{\sum_i^I (Oret_i \times EstFw_i)}$$

111. Annual employer expenditure for retirement plans as a percentage of annual wages and salaries among all establishments (E199)

The annual employer expenditures for retirement plans as a percentage of annual expenditures for wages and salaries is derived by computing the mean cost as a percent of wages and then summing the product of the mean times the final establishment weight over establishments offering retirement benefits. Then, divide that number by the sum of the final establishment weights of all establishments.

The mean annual employer cost per employee is calculated by dividing the annual retirement expenditure by the annual expenditure for wages and salaries.

$$\frac{\sum_i^I \{Oret_i \times EstFw_i \times [(AnnRetExp_i / AnnWages_i) \times 100]\}}{\sum_i^I EstFw_i}$$

Appendix I

Variable Definitions

Variable	Definition	Source ¹
I	Total number of establishments in the survey	-
<i>i</i>	Establishment	-
EstFw_{<i>i</i>}	Final establishment weight for establishment <i>i</i>. The final establishment weight is defined as the product of the establishment's non-response adjustment factor (Nraf_{<i>i</i>}) and its sample weight (Wt_{<i>i</i>}). See weighting guidelines for more information.	-
WFW_{<i>i</i>}	Final employment weight for establishment <i>i</i>. The final employment weight is defined as the product of the weight EstFw_{<i>i</i>} and the establishment's documentation collection adjustment factor (Dcaf_{<i>i</i>}). See weighting guidelines for more information.	-
CEmp_{<i>i</i>}	Current total establishment employment for establishment_{<i>i</i>}	Q1
CEmpFT_{<i>i</i>}	Current full-time establishment employment for establishment_{<i>i</i>}	Q2
CEmpPT_{<i>i</i>}	Current part-time establishment employment for establishment_{<i>i</i>}	Q3
Omed_{<i>i</i>}	Offering of medical insurance coverage in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time workers and 0 if the establishment does not offer the benefit to either full-time or part-time workers.	Q4FT & Q4PT
OmedEmpFT_{<i>i</i>}	Number of full-time workers offered medical insurance coverage in establishment <i>i</i>.	Q4aFT
OmedEmpPT_{<i>i</i>}	Number of part-time workers offered medical insurance coverage in establishment <i>i</i>.	Q4aPT
Waitpd_{<i>i</i>}	Waiting period for medical insurance coverage in establishment <i>i</i>. Equals 1 if the plan for the majority of full-time and/or part-time workers has a waiting period and 0 if the plan for the majority of full-time and part-time workers does not have a waiting period.	Q4bFT & Q4bPT
EmedEmpFT_{<i>i</i>}	Number of full-time workers enrolled in medical coverage in establishment <i>i</i>	Q5FT
EmedEmpPT_{<i>i</i>}	Number of part-time workers enrolled medical coverage in establishment <i>i</i>	Q5PT
EsmmedEmpFT_{<i>i</i>}	Number of full-time workers enrolled in single medical coverage in establishment <i>i</i>	Q5aFT
EsmmedEmpPT_{<i>i</i>}	Number of part-time workers enrolled in single medical coverage in establishment <i>i</i>	Q5aPT
PsingleFT_{<i>i</i>}	Percentage of premiums paid by the employer for full-time workers enrolled in single medical coverage in establishment <i>i</i>	Q5bFT

¹ Refers to the item number on the survey instrument whose response is used to construct the variable; "FT" refers to the full-time column and "PT" refers to the part-time column.

Variable	Definition	Source ¹
PsinglePT_i	Percentage of premiums paid by the employer for part-time workers enrolled in single medical coverage in establishment <i>i</i>	Q5bPT
Ofmed_i	Offering of family medical coverage in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time workers and 0 if the establishment does not offer the benefit to either full-time or part-time workers.	Q6FT & Q6PT
EfmedEmpFT_i	Number of full-time workers enrolled in family coverage in establishment <i>i</i>	Q6aFT
EfmedEmpPT_i	Number of part-time workers enrolled in family coverage in establishment <i>i</i>	Q6aPT
PfamFT_i	Percentage of premiums paid by the employer for full-time workers enrolled in family coverage in establishment <i>i</i>	Q6bFT
PfamPT_i	Percentage of premiums paid by the employer for part-time workers enrolled in family coverage in establishment <i>i</i>	Q6bPT
Odent_i	Offering of dental insurance in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time workers and 0 if the establishment does not offer the benefit to either full-time or part-time workers.	Q7FT & Q7PT
OdentFT_i	Offering of dental insurance to full-time workers in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time workers and 0 if the establishment does not offer the benefit to full-time workers.	Q7FT
OdentPT_i	Offering of dental insurance to part-time workers in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to part-time workers and 0 if the establishment does not offer the benefit to part-time workers.	Q7PT
OdentEmpFT_i	Number of full-time workers offered dental insurance coverage in establishment <i>i</i>.	Q7FT & Q4aFT
OdentEmpPT_i	Number of part-time workers offered dental insurance coverage in establishment <i>i</i>.	Q7PT & Q4aPT
EdentEmpFT_i	Number of full-time workers enrolled in dental coverage in establishment <i>i</i>	Q8FT & Q5FT
EdentEmpPT_i	Number of part-time workers enrolled in dental coverage in establishment <i>i</i>	Q8PT & Q5PT
EsdentEmpFT_i	Number of full-time workers enrolled in single dental coverage in establishment <i>i</i>	Q8aFT & Q5aFT
EsdentEmpPT_i	Number of part-time workers enrolled in single dental coverage in establishment <i>i</i>	Q8aPT & Q5aPT
CsdentEE_i *	Contributory status of single dental coverage in establishment <i>i</i> is 100 percent employer paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is 100 percent employer paid and 0 if the plan for the majority of workers is not 100 percent employer paid.	Q8bFT, Q8bPT, Q5bFT, & Q5bPT

* Note that if the contributory status for full-time and part-time workers is not the same, this variable is defined based on the status for the worker type that constitutes the majority of the establishment's current employment.

Variable	Definition	Source ¹
CsdentEEFT_i	Contributory status of single dental coverage in establishment <i>i</i> is 100 percent employer paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is 100 percent employer paid and 0 if the plan for the majority of full-time workers is not 100 percent employer paid.	Q8bFT & Q5bFT
CsdentEEPT_i	Contributory status of single dental coverage in establishment <i>i</i> is 100 percent employer paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is 100 percent employer paid and 0 if the plan for the majority of part-time workers is not 100 percent employer paid.	Q8bPT & Q5bPT
CsdentER_i*	Contributory status of single dental coverage in establishment <i>i</i> is 100 percent employee paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is 100 percent employee paid and 0 if the plan for the majority of workers is not 100 percent employee paid.	Q8bFT, Q8bPT, Q5bFT, & Q5bPT
CsdentERFT_i	Contributory status of single dental coverage in establishment <i>i</i> is 100 percent employee paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is 100 percent employee paid and 0 if the plan for the majority of full-time workers is not 100 percent employee paid.	Q8bFT & Q5bFT
CsdentERPT_i	Contributory status of single dental coverage in establishment <i>i</i> is 100 percent employee paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is 100 percent employee paid and 0 if the plan for the majority of part-time workers is not 100 percent employee paid.	Q8bPT & Q5bPT
CsdentJ_i*	Contributory status of single dental coverage in establishment <i>i</i> is jointly paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is jointly paid and 0 if the plan for the majority of workers is not jointly paid.	Q8bFT, Q8bPT, Q5bFT, & Q5bPT
CsdentJFT_i	Contributory status of single dental coverage in establishment <i>i</i> is jointly paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is jointly paid and 0 if the plan for the majority of full-time workers is not jointly paid.	Q8bFT & Q5bFT
CsdentJPT_i	Contributory status of single dental coverage in establishment <i>i</i> is jointly paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is jointly paid and 0 if the plan for the majority of part-time workers is not jointly paid.	Q8bPT & Q5bPT

Variable	Definition	Source ¹
Odent_i	Offering of family dental insurance in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time workers and 0 if the establishment does not offer the benefit to either full-time or part-time workers.	Q9FT & Q9PT
OdentFT_i	Offering of family dental insurance to full-time workers in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time workers and 0 if the establishment does not offer the benefit to full-time workers.	Q9FT
OdentPT_i	Offering of family dental insurance to part-time workers in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to part-time workers and 0 if the establishment does not offer the benefit to part-time workers.	Q9PT
EfdentEmpFT_i	Number of full-time workers enrolled in family dental coverage in establishment <i>i</i>	Q9aFT
EfdentEmpPT_i	Number of part-time workers enrolled in family dental coverage in establishment <i>i</i>	Q9aPT
CfdentEE_i*	Contributory status of family dental coverage in establishment <i>i</i> is 100 percent employer paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is 100 percent employer paid and 0 if the plan for the majority of workers is not 100 percent employer paid.	Q9bFT & Q9bPT
CfdentEEFT_i	Contributory status of family dental coverage in establishment <i>i</i> is 100 percent employer paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is 100 percent employer paid and 0 if the plan for the majority of full-time workers is not 100 percent employer paid.	Q9bFT
CfdentEEPT_i	Contributory status of family dental coverage in establishment <i>i</i> is 100 percent employer paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is 100 percent employer paid and 0 if the plan for the majority of part-time workers is not 100 percent employer paid.	Q9bPT
CfdentER_i*	Contributory status of family dental coverage in establishment <i>i</i> is 100 percent employee paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is 100 percent employee paid and 0 if the plan for the majority of workers is not 100 percent employee paid.	Q9bFT & Q9bPT

* Note that if the contributory status for full-time and part-time workers is not the same, this variable is defined based on the status for the worker type that constitutes the majority of the establishment's current employment.

Variable	Definition	Source ¹
CfdentERFT_i	Contributory status of family dental coverage in establishment <i>i</i> is 100 percent employee paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is 100 percent employee paid and 0 if the plan for the majority of full-time workers is not 100 percent employee paid.	Q9bFT
CfdentERPT_i	Contributory status of family dental coverage in establishment <i>i</i> is 100 percent employee paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is 100 percent employee paid and 0 if the plan for the majority of part-time workers is not 100 percent employee paid.	Q9bPT
CfdentJ_i *	Contributory status of family dental coverage in establishment <i>i</i> is jointly paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is jointly paid and 0 if the plan for the majority of workers is not jointly paid.	Q9bFT & Q9bPT
CfdentJFT_i	Contributory status of family dental coverage in establishment <i>i</i> is jointly paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is jointly paid and 0 if the plan for the majority of full-time workers is not jointly paid.	Q9bFT
CfdentJPT_i	Contributory status of family dental coverage in establishment <i>i</i> is jointly paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is jointly paid and 0 if the plan for the majority of part-time workers is not jointly paid.	Q9bPT
Ovis_i	Offering of vision insurance in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time workers and 0 if the establishment does not offer the benefit to either full-time or part-time workers.	Q10FT & Q10PT
OvisFT_i	Offering of vision insurance to full-time workers in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time workers and 0 if the establishment does not offer the benefit to full-time workers.	Q10FT
OvisPT_i	Offering of vision insurance to part-time workers in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to part-time workers and 0 if the establishment does not offer the benefit to part-time workers.	Q10PT
OvisEmpFT_i	Number of full-time workers offered vision insurance coverage in establishment <i>i</i>.	Q10aFT & Q4aFT
OvisEmpPT_i	Number of part-time workers offered vision insurance coverage in establishment <i>i</i>.	Q10aPT & Q4aPT
EvisEmpFT_i	Number of full-time workers enrolled in vision coverage in establishment <i>i</i>	Q10bFT & Q5FT
EvisEmpPT_i	Number of part-time workers enrolled in vision coverage in establishment <i>i</i>	Q10bPT & Q5PT

Variable	Definition	Source ¹
CvisEE_i*	Contributory status of vision coverage in establishment /is 100 percent employer paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is 100 percent employer paid and 0 if the plan for the majority of workers is not 100 percent employer paid.	Q10cFT, Q10cPT, Q5bFT, & Q5bPT
CvisEEFT_i	Contributory status of vision coverage in establishment /is 100 percent employer paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is 100 percent employer paid and 0 if the plan for the majority of full-time workers is not 100 percent employer paid.	Q10cFT & Q5bFT
CvisEEPT_i	Contributory status of vision coverage in establishment /is 100 percent employer paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is 100 percent employer paid and 0 if the plan for the majority of part-time workers is not 100 percent employer paid.	Q10cPT & Q5bPT
CvisER_i*	Contributory status of vision coverage in establishment /is 100 percent employee paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is 100 percent employee paid and 0 if the plan for the majority of workers is not 100 percent employee paid.	Q10cFT, Q10cPT, Q5bFT, & Q5bPT
CvisERFT_i	Contributory status of vision coverage in establishment /is 100 percent employee paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is 100 percent employee paid and 0 if the plan for the majority of full-time workers is not 100 percent employee paid.	Q10cFT & Q5bFT
CvisERPT_i	Contributory status of vision coverage in establishment /is 100 percent employee paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is 100 percent employee paid and 0 if the plan for the majority of part-time workers is not 100 percent employee paid.	Q10cPT & Q5bPT
CvisJ_i*	Contributory status of vision coverage in establishment /is jointly paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is jointly paid and 0 if the plan for the majority of workers is not jointly paid.	Q10cFT, Q10cPT, Q5bFT, & Q5bPT
CvisJFT_i	Contributory status of vision coverage in establishment /is jointly paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is jointly paid and 0 if the plan for the majority of full-time workers is not jointly paid.	Q10cFT & Q5bFT

* Note that if the contributory status for full-time and part-time workers is not the same, this variable is defined based on the status for the worker type that constitutes the majority of the establishment's current employment.

Variable	Definition	Source ¹
CvisJPT_i	Contributory status of vision coverage in establishment <i>i</i> is jointly paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is jointly paid and 0 if the plan for the majority of part-time workers is not jointly paid.	Q10cPT & Q5bPT
Olife_i	Offering of life insurance in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time workers and 0 if the establishment does not offer the benefit to either full-time or part-time workers.	Q11FT & Q11PT
OlifeFT_i	Offering of life insurance to full-time workers in establishment <i>i</i>. Offering equals 1 if the establishment offers the benefit to full-time workers and 0 if the establishment does not offer the benefit to full-time workers.	Q11FT
OlifePT_i	Offering of life insurance to part-time workers in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to part-time workers and 0 if the establishment does not offer the benefit to part-time workers.	Q11PT
OlifeEmpFT_i	Number of full-time workers offered life insurance coverage in establishment <i>i</i>.	Q11aFT
OlifeEmpPT_i	Number of part-time workers offered life insurance coverage in establishment <i>i</i>.	Q11aPT
ElifeEmpFT_i	Number of full-time workers enrolled in life coverage in establishment <i>i</i>.	Q11bFT
ElifeEmpPT_i	Number of part-time workers enrolled in life coverage in establishment <i>i</i>.	Q11bPT
ClifeEE_i* 	Contributory status of life coverage in establishment <i>i</i> is 100 percent employer paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is 100 percent employer paid and 0 if the plan for the majority of workers is not 100 percent employer paid.	Q11cFT & Q11cPT
ClifeEEFT_i	Contributory status of life coverage in establishment <i>i</i> is 100 percent employer paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is 100 percent employer paid and 0 if the plan for the majority of full-time workers is not 100 percent employer paid.	Q11cFT
ClifeEEPT_i	Contributory status of life coverage in establishment <i>i</i> is 100 percent employer paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is 100 percent employer paid and 0 if the plan for the majority of part-time workers is not 100 percent employer paid.	Q11cPT

* Note that if the contributory status for full-time and part-time workers is not the same, this variable is defined based on the status for the worker type that constitutes the majority of the establishment's current employment.

Variable	Definition	Source ¹
ClifeER_i*	Contributory status of life coverage in establishment <i>i</i> is 100 percent employee paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is 100 percent employee paid and 0 if the plan for the majority of workers is not 100 percent employee paid.	Q11cFT & Q11cPT
ClifeERFT_i	Contributory status of life coverage in establishment <i>i</i> is 100 percent employee paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is 100 percent employee paid and 0 if the plan for the majority of full-time workers is not 100 percent employee paid.	Q11cFT
ClifeERPT_i	Contributory status of life coverage in establishment <i>i</i> is 100 percent employee paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is 100 percent employee paid and 0 if the plan for the majority of part-time workers is not 100 percent employee paid.	Q11cPT
ClifeJ_i*	Contributory status of life coverage in establishment <i>i</i> is jointly paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is jointly paid and 0 if the plan for the majority of workers is not jointly paid.	Q11cFT & Q11cPT
ClifeJFT_i	Contributory status of life coverage in establishment <i>i</i> is jointly paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is jointly paid and 0 if the plan for the majority of full-time workers is not jointly paid.	Q11cFT
ClifeJPT_i	Contributory status of life coverage in establishment <i>i</i> is jointly paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is jointly paid and 0 if the plan for the majority of part-time workers is not jointly paid.	Q11cPT
Ostd_i	Offering of short-term disability insurance in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time and 0 if the establishment does not offer the benefit to either full-time or part-time workers.	Q12FT & Q12PT
OstdFT_i	Offering of short-term disability insurance to full-time workers in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time workers and 0 if the establishment does not offer the benefit to full-time workers.	Q12FT
OstdPT_i	Offering of short-term disability insurance to part-time workers in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to part-time workers and 0 if the establishment does not offer the benefit to part-time workers	Q12PT
OstdEmpFT_i	Number of full-time workers offered short-term disability insurance coverage in establishment <i>i</i>.	Q12aFT
OstdEmpPT_i	Number of part-time workers offered short-term disability insurance coverage in establishment <i>i</i>.	Q12aPT

Variable	Definition	Source ¹
EstdEmpFT_i	Number of full-time workers enrolled in short-term disability coverage in establishment <i>i</i>	Q12bFT
EstdEmpPT_i	Number of part-time workers enrolled in short-term disability coverage in establishment <i>i</i>	Q12bPT
CstdEE_i *	Contributory status of short-term disability coverage in establishment <i>i</i> is 100 percent employer paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is 100 percent employer paid and 0 if the plan for the majority of workers is not 100 percent employer paid.	Q12cFT & Q12cPT
CstdEEFT_i	Contributory status of short-term disability coverage in establishment <i>i</i> is 100 percent employer paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is 100 percent employer paid and 0 if the plan for the majority of full-time workers is not 100 percent employer paid.	Q12cFT
CstdEEPT_i	Contributory status of short-term disability coverage in establishment <i>i</i> is 100 percent employer paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is 100 percent employer paid and 0 if the plan for the majority of part-time workers is not 100 percent employer paid.	Q12cPT
CstdER_i *	Contributory status of short-term disability coverage in establishment <i>i</i> is 100 percent employee paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is 100 percent employee paid and 0 if the plan for the majority of workers is not 100 percent employee paid.	Q12cFT & Q12cPT
CstdERFT_i	Contributory status of short-term disability coverage in establishment <i>i</i> is 100 percent employee paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is 100 percent employee paid and 0 if the plan for the majority of full-time workers is not 100 percent employee paid.	Q12cFT
CstdERPT_i	Contributory status of short-term disability coverage in establishment <i>i</i> is 100 percent employee paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is 100 percent employee paid and 0 if the plan for the majority of part-time workers is not 100 percent employee paid.	Q12cPT
CstdJ_i *	Contributory status of short-term disability coverage in establishment <i>i</i> is jointly paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is jointly paid and 0 if the plan for the majority of workers is not jointly paid.	Q12cFT & Q12cPT

* Note that if the contributory status for full-time and part-time workers is not the same, this variable is defined based on the status for the worker type that constitutes the majority of the establishment's current employment.

Variable	Definition	Source ¹
CstdJFT_i	Contributory status of short-term disability coverage in establishment <i>i</i> is jointly paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is jointly paid and 0 if the plan for the majority of full-time workers is not jointly paid.	Q12cFT
CstdJPT_i	Contributory status of short-term disability coverage in establishment <i>i</i> is jointly paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is jointly paid and 0 if the plan for the majority of part-time workers is not jointly paid.	Q12cPT
OltD_i	Offering of long-term disability insurance in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time workers and 0 if the establishment does not offer the benefit to either full-time or part-time workers.	Q13FT & Q13PT
OltDEmpFT_i	Number of full-time workers offered long-term disability insurance coverage in establishment <i>i</i>.	Q13aFT
OltDEmpPT_i	Number of part-time workers offered long-term disability insurance coverage in establishment <i>i</i>.	Q13aPT
EltdEmpFT_i	Number of full-time workers enrolled in long-term disability coverage in establishment <i>i</i>	Q13bFT
EltdEmpPT_i	Number of part-time workers enrolled in long-term disability coverage in establishment <i>i</i>	Q13bPT
CltdEE_i *	Contributory status of long-term disability coverage in establishment <i>i</i> is 100 percent employer paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is 100 percent employer paid and 0 if the plan for the majority of workers is not 100 percent employer paid.	Q13cFT & Q13cPT
CltdEEFT_i	Contributory status of long -term disability coverage in establishment <i>i</i> is 100 percent employer paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is 100 percent employer paid and 0 if the plan for the majority of full-time workers is not 100 percent employer paid.	Q13cFT
CltdEEPT_i	Contributory status of long -term disability coverage in establishment <i>i</i> is 100 percent employer paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is 100 percent employer paid and 0 if the plan for the majority of part-time workers is not 100 percent employer paid.	Q13cPT

* Note that if the contributory status for full-time and part-time workers is not the same, this variable is defined based on the status for the worker type that constitutes the majority of the establishment's current employment.

Variable	Definition	Source ¹
CltdER_i*	Contributory status of long -term disability coverage in establishment <i>i</i> is 100 percent employee paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is 100 percent employee paid and 0 if the plan for the majority of workers is not 100 percent employee paid.	Q13cFT & Q13cPT
CltdERFT_i	Contributory status of long -term disability coverage in establishment <i>i</i> is 100 percent employee paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is 100 percent employee paid and 0 if the plan for the majority of full-time workers is not 100 percent employee paid.	Q13cFT
CltdERPT_i	Contributory status of long -term disability coverage in establishment <i>i</i> is 100 percent employee paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is 100 percent employee paid and 0 if the plan for the majority of part-time workers is not 100 percent employee paid.	Q13cPT
CltdJ_i*	Contributory status of long -term disability coverage in establishment <i>i</i> is jointly paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is jointly paid and 0 if the plan for the majority of workers is not jointly paid.	Q13cFT & Q13cPT
CltdJFT_i	Contributory status of long -term disability coverage in establishment <i>i</i> is jointly paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is jointly paid and 0 if the plan for the majority of full-time workers is not jointly paid.	Q13cFT
CltdJPT_i	Contributory status of long -term disability coverage in establishment <i>i</i> is jointly paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is jointly paid and 0 if the plan for the majority of part-time workers is not jointly paid.	Q13cPT
Ovac_i	Offering of paid vacation in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time workers and 0 if the establishment does not offer the benefit to either full-time or part-time workers.	Q14FT & Q14PT
1VDaysFT_i	Number of paid vacation days offered to a majority of full-time workers after 1 year of service in establishment <i>i</i>.	Q14aFT
1VDaysPT_i	Number of paid vacation days offered to a majority of part-time workers after 1 year of service in establishment <i>i</i>.	Q14aPT
3VDaysFT_i	Number of paid vacation days offered to a majority of full-time workers after 3 years of service in establishment <i>i</i>.	Q14bFT
3VDaysPT_i	Number of paid vacation days offered to a majority of part-time workers after 3 years of service in establishment <i>i</i>.	Q14bPT
5VDaysFT_i	Number of paid vacation days offered to a majority of full-time workers after 5 years of service in establishment <i>i</i>.	Q14cFT
5VDaysPT_i	Number of paid vacation days offered to a majority of part-time workers after 5 years of service in establishment <i>i</i>.	Q14cPT

Variable	Definition	Source ¹
Osic_i	Offering of paid sick leave in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time workers and 0 if the establishment does not offer the benefit to either full-time or part-time workers.	Q15FT & Q15PT
SicDaysFT_i	Number of paid sick leave days offered to a majority of full-time workers in establishment <i>i</i>	Q15aFT
SicDaysPT_i	Number of paid sick leave days offered to a majority of part-time workers in establishment <i>i</i>	Q15aPT
Ohol_i	Offering of paid holidays in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time workers and 0 if the establishment does not offer the benefit to either full-time or part-time workers.	Q16FT & Q16PT
HoldDaysFT_i	Number of paid holidays offered to a majority of full-time workers in establishment <i>i</i>	Q16aFT
HoldDaysPT_i	Number of paid holidays offered to a majority of part-time workers in establishment <i>i</i>	Q16bPT
Oconsol_i	Offering of paid consolidated leave in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time workers and 0 if the establishment does not offer the benefit to either full-time or part-time workers.	Q17FT & Q17PT
ConsolDaysFT_i	Number of paid consolidated days offered to a majority of full-time workers in establishment <i>i</i>	Q17aFT
ConsolDaysPT_i	Number of paid consolidated days offered to a majority of part-time workers in establishment <i>i</i>	Q17aPT
Oret_i	Offering of retirement benefits in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time workers and 0 if the establishment does not offer the benefit to either full-time or part-time workers.	Q18FT & Q18PT
Odc_i	Offering of defined contribution retirement plans in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time workers and 0 if the establishment does not offer the benefit to either full-time or part-time workers.	Q19FT & Q19PT
OdcEmpFT_i	Number of full-time workers offered defined contribution retirement plans in establishment <i>i</i>.	Q19aFT
OdcEmpPT_i	Number of part-time workers offered defined contribution retirement plans in establishment <i>i</i>.	Q19aPT
EdcEmpFT_i	Number of full-time workers enrolled in defined contribution retirement plans in establishment <i>i</i>	Q19bFT
EdcEmpPT_i	Number of part-time workers enrolled in defined contribution retirement plans in establishment <i>i</i>	Q19bPT

Variable	Definition	Source ¹
CdcEE_i *	Contributory status of defined contribution retirement plans in establishment /is 100 percent employer paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is 100 percent employer paid and 0 if the plan for the majority of workers is not 100 percent employer paid.	Q19cFT & Q19cPT
CdcEEFT_i	Contributory status of defined contribution retirement plans in establishment /is 100 percent employer paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is 100 percent employer paid and 0 if the plan for the majority of full-time workers is not 100 percent employer paid.	Q19cFT
CdcEEPT_i	Contributory status of defined contribution retirement plans in establishment /is 100 percent employer paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is 100 percent employer paid and 0 if the plan for the majority of part-time workers is not 100 percent employer paid.	Q19cPT
CdcER_i *	Contributory status of defined contribution retirement plans in establishment /is 100 percent employee paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is 100 percent employee paid and 0 if the plan for the majority of workers is not 100 percent employee paid.	Q19cFT & Q19cPT
CdcERFT_i	Contributory status of defined contribution retirement plans in establishment /is 100 percent employee paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is 100 percent employee paid and 0 if the plan for the majority of full-time workers is not 100 percent employee paid.	Q19cFT
CdcERPT_i	Contributory status of defined contribution retirement plans in establishment /is 100 percent employee paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is 100 percent employee paid and 0 if the plan for the majority of part-time workers is not 100 percent employee paid.	Q19cPT
CdcJ_i *	Contributory status of defined contribution retirement plans in establishment /is jointly paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is jointly paid and 0 if the plan for the majority of workers is not jointly paid.	Q19cFT & Q19cPT
CdcJFT_i	Contributory status of defined contribution retirement plans in establishment /is jointly paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is jointly paid and 0 if the plan for the majority of full-time workers is not jointly paid.	Q19cFT

* Note that if the contributory status for full-time and part-time workers is not the same, this variable is defined based on the status for the worker type that constitutes the majority of the establishment's current employment.

Variable	Definition	Source ¹
CdcJPT_i	Contributory status of defined contribution retirement plans in establishment <i>i</i> is jointly paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is jointly paid and 0 if the plan for the majority of part-time workers is not jointly paid.	Q19cPT
Odb_i	Offering of defined benefit retirement plans in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time workers and 0 if the establishment does not offer the benefit to either full-time or part-time workers.	Q20FT & Q20PT
OdbEmpFT_i	Number of full-time workers offered defined benefit retirement plans in establishment <i>i</i>.	Q20aFT
OdbEmpPT_i	Number of part-time workers offered defined benefit retirement plans in establishment <i>i</i>.	Q20aPT
EdbEmpFT_i	Number of full-time workers enrolled in defined benefit retirement plans in establishment <i>i</i>.	Q20bFT
EdbEmpPT_i	Number of part-time workers enrolled in defined benefit retirement plans in establishment <i>i</i>.	Q20bPT
CdbEE_i *	Contributory status of defined benefit retirement plans in establishment <i>i</i> is 100 percent employer paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is 100 percent employer paid and 0 if the plan for the majority of workers is not 100 percent employer paid.	Q20cFT & Q20cPT
CdbEEFT_i	Contributory status of defined benefit retirement plans in establishment <i>i</i> is 100 percent employer paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is 100 percent employer paid and 0 if the plan for the majority of full-time workers is not 100 percent employer paid.	Q20cFT
CdbEEPT_i	Contributory status of defined benefit retirement plans in establishment <i>i</i> is 100 percent employer paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is 100 percent employer paid and 0 if the plan for the majority of part-time workers is not 100 percent employer paid.	Q20cPT
CdbER_i *	Contributory status of defined benefit retirement plans in establishment <i>i</i> is 100 percent employee paid. Equals 1 if the plan for the majority of employees (both full- and part-time if applicable) is 100 percent employee paid and 0 if the plan for the majority of workers is not 100 percent employee paid.	Q20cFT & Q20cPT

* Note that if the contributory status for full-time and part-time workers is not the same, this variable is defined based on the status for the worker type that constitutes the majority of the establishment's current employment.

Variable	Definition	Source ¹
CdbERFT_i	Contributory status of defined benefit retirement plans in establishment <i>i</i> is 100 percent employee paid for full-time workers. Equals 1 if the plan for the majority of full-time employees is 100 percent employee paid and 0 if the plan for the majority of full-time workers is not 100 percent employee paid.	Q20cFT
CdbERPT_i	Contributory status of defined benefit retirement plans in establishment <i>i</i> is 100 percent employee paid for part-time workers. Equals 1 if the plan for the majority of part-time employees is 100 percent employee paid and 0 if the plan for the majority of part-time workers is not 100 percent employee paid.	Q20cPT
Ochild_i	Offering of child care benefits in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time workers and 0 if the establishment does not offer the benefit to either full-time or part-time workers	Q21FT &Q21PT
Oeduc_i	Offering of educational assistance in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time workers and equals 0 if the establishment does not offer the benefit to either full-time or part-time workers.	Q22FT &Q22PT
Obonus_i	Offering of bonuses in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time workers and 0 if the establishment does not offer the benefit to either full-time or part-time workers.	Q23FT &Q23PT
Oflex_i	Offering of flexible spending accounts in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time workers and 0 if the establishment does not offer the benefit to either full-time or part-time workers	Q24FT &Q24PT
Oshift_i	Operates on shifts in establishment <i>i</i>. Equals 1 if the establishment operates on shifts for full-time and/or part-time workers and 0 if the establishment does not operate on shifts for either full-time or part-time workers	Q25FT &Q25PT
Osdiff_i	Offering of shift differentials in establishment <i>i</i>. Equals 1 if the establishment offers the benefit to full-time and/or part-time workers and 0 if the establishment does not offer the benefit to either full-time or part-time workers	Q25aFT &Q25aPT
Oins_i	Offering of medical, dental, or vision insurance coverage in establishment <i>i</i>. Equals 1 if the establishment offers any of the benefits to full-time and/or part-time workers and 0 if the establishment does not offer any of the benefits to either full-time or part-time workers	Q4FT, Q4PT, Q7FT, Q7PT, Q10FT, & Q10PT
AnnInsExp_i	Annual insurance expenditure for medical, dental, and/or vision in establishment <i>i</i>	Q27b
AnnRetExp_i	Annual retirement expenditure in establishment <i>i</i>	Q27c
AnnEmp_i	Annual employment in establishment <i>i</i>	Q27d
AnnWages_i	Annual wages and salaries in establishment <i>i</i>	Q27a

Appendix J

Reporting Tables

For analysis purposes the Consortium recommended that 3 sets of tables should be created for the estimators for those that answered offered or enrolled / not offered or not enrolled / not determinable.

In addition, the tables should also be populated with variances. Once this is completed the state should determine which fields are publishable.

Each of the worksheets fits onto a single page. The estimators are only indicated for the first row, the others would be the same, just a subset of the data responses.

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Table 1

Percent of Workers Offered Retirement Benefits			
Characteristics	Retirement benefits		
	All plans	Defined contribution	Defined benefit
Total	E134	E139	E152
Full-time			
Part-time			
Industries			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional, scientific, and technical services			
Management of companies and enterprises			
Administrative support and waste			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation and food services			
Other services, excluding public administration			
Size Classes			
Less than 10 employees			
10 to 49 employees			
50 to 99 employees			
100 to 249 employees			
250 or more employees			
Geographies			
Metropolitan			
Non-Metropolitan			
Note: X = estimator not available.			

Table 2

Percent of Workers Participating in Retirement Benefits			
Characteristics	Retirement benefits		
	All plans	Defined contribution	Defined benefit
Total	X	E143	E156
Full-time			
Part-time			
Industries			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional, scientific, and technical services			
Management of companies and enterprises			
Administrative support and waste			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation and food services			
Other services, excluding public administration			
Size Classes			
Less than 10 employees			
10 to 49 employees			
50 to 99 employees			
100 to 249 employees			
250 or more employees			
Geographies			
Metropolitan			
Non-Metropolitan			
Note: X = estimator not available.			

Table 3

Percent of Workers Enrolled in Retirement Benefits			
Characteristics	Retirement benefits		
	All plans	Defined contribution	Defined benefit
Total	X	E142	E155
Full-time			
Part-time			
Industries			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional, scientific, and technical services			
Management of companies and enterprises			
Administrative support and waste			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation and food services			
Other services, excluding public administration			
Size Classes			
Less than 10 employees			
10 to 49 employees			
50 to 99 employees			
100 to 249 employees			
250 or more employees			
Geographies			
Metropolitan			
Non-Metropolitan			
Note: X = estimator not available.			

Table 4

Percent of Establishments Offering Retirement Benefits			
Characteristics	Retirement benefits		
	All plans	Defined contribution	Defined benefit
Total	E132	E136	E149
Full-time			
Part-time			
Industries			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional, scientific, and technical services			
Management of companies and enterprises			
Administrative support and waste			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation and food services			
Other services, excluding public administration			
Size Classes			
Less than 10 employees			
10 to 49 employees			
50 to 99 employees			
100 to 249 employees			
250 or more employees			
Geographies			
Metropolitan			
Non-Metropolitan			
Note: X = estimator not available.			

Table 5

Percent of Workers Offered Insurance Benefits										
Characteristics	Insurance benefits									
	Medical care			Dental care			Vision care	Life insurance	Disability benefits	
	Total	Single	Family	Total	Single	Family			Short-term disability	Long-term disability
Total	E4	X	E21	E30	X	E46	E60	E71	E82	E93
Full-time										
Part-time										
Industries										
Mining										
Utilities										
Construction										
Manufacturing										
Wholesale trade										
Retail trade										
Transportation and warehousing										
Information										
Finance and insurance										
Real estate and rental and leasing										
Professional, scientific, and technical services										
Management of companies and enterprises										
Administrative support and waste										
Educational services										
Health care and social assistance										
Arts, entertainment, and recreation										
Accommodation and food services										
Other services, excluding public administration										
Size Classes										
Less than 10 employees										
10 to 49 employees										
50 to 99 employees										
100 to 249 employees										
250 or more employees										
Geographies										
Metropolitan										
Non-Metropolitan										
Note: X = estimator not available.										

Table 6

Percent of Workers Participating in Insurance Benefits										
Characteristics	Insurance benefits									
	Medical care			Dental care			Vision care	Life insurance	Disability benefits	
	Total	Single	Family	Total	Single	Family			Short-term disability	Long-term disability
Total	E14	E15	E24	E35	E36	E50	E63	E74	E85	E96
Full-time										
Part-time										
Industries										
Mining										
Utilities										
Construction										
Manufacturing										
Wholesale trade										
Retail trade										
Transportation and warehousing										
Information										
Finance and insurance										
Real estate and rental and leasing										
Professional, scientific, and technical services										
Management of companies and enterprises										
Administrative support and waste										
Educational services										
Health care and social assistance										
Arts, entertainment, and recreation										
Accommodation and food services										
Other services, excluding public administration										
Size Classes										
Less than 10 employees										
10 to 49 employees										
50 to 99 employees										
100 to 249 employees										
250 or more employees										
Geographies										
Metropolitan										
Non-Metropolitan										
Note: X = estimator not available.										

Table 7

Percent of Workers Enrolled in Insurance Benefits										
Characteristics	Insurance benefits									
	Medical care			Dental care			Vision care	Life insurance	Disability benefits	
	Total	Single	Family	Total	Single	Family			Short-term disability	Long-term disability
	E11	E13	E23	E32	E34	E49	E62	E73	E84	E95
Total										
Full-time										
Part-time										
Industries										
Mining										
Utilities										
Construction										
Manufacturing										
Wholesale trade										
Retail trade										
Transportation and warehousing										
Information										
Finance and insurance										
Real estate and rental and leasing										
Professional, scientific, and technical services										
Management of companies and enterprises										
Administrative support and waste										
Educational services										
Health care and social assistance										
Arts, entertainment, and recreation										
Accommodation and food services										
Other services, excluding public administration										
Size Classes										
Less than 10 employees										
10 to 49 employees										
50 to 99 employees										
100 to 249 employees										
250 or more employees										
Geographies										
Metropolitan										
Non-Metropolitan										
Note: X = estimator not available.										

Table 8

Percent of Establishments Offering Insurance Benefits										
Characteristics	Insurance benefits									
	Medical care			Dental care			Vision care	Life insurance	Disability benefits	
	Total	Single	Family	Total	Single	Family			Short-term disability	Long-term disability
	E2	X	E19	E28	X	E43	E58	E69	E80	E91
Total										
Full-time										
Part-time										
Industries										
Mining										
Utilities										
Construction										
Manufacturing										
Wholesale trade										
Retail trade										
Transportation and warehousing										
Information										
Finance and insurance										
Real estate and rental and leasing										
Professional, scientific, and technical services										
Management of companies and enterprises										
Administrative support and waste										
Educational services										
Health care and social assistance										
Arts, entertainment, and recreation										
Accommodation and food services										
Other services, excluding public administration										
Size Classes										
Less than 10 employees										
10 to 49 employees										
50 to 99 employees										
100 to 249 employees										
250 or more employees										
Geographies										
Metropolitan										
Non-Metropolitan										
Note: X = estimator not available.										

Table 9

Percent of Workers Offered Selected Leave Benefits				
Characteristics	Paid vacation	Paid sick	Paid holiday	Consolidated leave
Total	E104	E113	E120	E127
Full-time				
Part-time				
Industries				
Mining				
Utilities				
Construction				
Manufacturing				
Wholesale trade				
Retail trade				
Transportation and warehousing				
Information				
Finance and insurance				
Real estate and rental and leasing				
Professional, scientific, and technical services				
Management of companies and enterprises				
Administrative support and waste				
Educational services				
Health care and social assistance				
Arts, entertainment, and recreation				
Accommodation and food services				
Other services, excluding public administration				
Size Classes				
Less than 10 employees				
10 to 49 employees				
50 to 99 employees				
100 to 249 employees				
250 or more employees				
Geographies				
Metropolitan				
Non-Metropolitan				

Table 10

Percent of Establishments Offering Selected Leave Benefits				
Characteristics	Paid vacation	Paid sick	Paid holiday	Consolidated leave
Total	E102	E111	E118	E125
Full-time				
Part-time				
Industries				
Mining				
Utilities				
Construction				
Manufacturing				
Wholesale trade				
Retail trade				
Transportation and warehousing				
Information				
Finance and insurance				
Real estate and rental and leasing				
Professional, scientific, and technical services				
Management of companies and enterprises				
Administrative support and waste				
Educational services				
Health care and social assistance				
Arts, entertainment, and recreation				
Accommodation and food services				
Other services, excluding public administration				
Size Classes				
Less than 10 employees				
10 to 49 employees				
50 to 99 employees				
100 to 249 employees				
250 or more employees				
Geographies				
Metropolitan				
Non-Metropolitan				

Table 11

Percent of Workers Offered Other Benefits					
Characteristics	Child care	Tuition/Educational assistance	Bonuses	Flexible spending account	Shift pay differential
Total	E164	E168	E172	E176	E186
Full-time					
Part-time					
Industries					
Mining					
Utilities					
Construction					
Manufacturing					
Wholesale trade					
Retail trade					
Transportation and warehousing					
Information					
Finance and insurance					
Real estate and rental and leasing					
Professional, scientific, and technical services					
Management of companies and enterprises					
Administrative support and waste					
Educational services					
Health care and social assistance					
Arts, entertainment, and recreation					
Accommodation and food services					
Other services, excluding public administration					
Size Classes					
Less than 10 employees					
10 to 49 employees					
50 to 99 employees					
100 to 249 employees					
250 or more employees					
Geographies					
Metropolitan					
Non-Metropolitan					

Table 12

Percent of Establishments Offering Other Benefits					
Characteristics	Child care	Tuition/Educational assistance	Bonuses	Flexible spending account	Shift pay differential
Total	E162	E166	E170	E174	E183
Full-time					
Part-time					
Industries					
Mining					
Utilities					
Construction					
Manufacturing					
Wholesale trade					
Retail trade					
Transportation and warehousing					
Information					
Finance and insurance					
Real estate and rental and leasing					
Professional, scientific, and technical services					
Management of companies and enterprises					
Administrative support and waste					
Educational services					
Health care and social assistance					
Arts, entertainment, and recreation					
Accommodation and food services					
Other services, excluding public administration					
Size Classes					
Less than 10 employees					
10 to 49 employees					
50 to 99 employees					
100 to 249 employees					
250 or more employees					
Geographies					
Metropolitan					
Non-Metropolitan					

Table 13

Workers Offered All Retirement Plans & Defined Benefit Retirement Plans									
Characteristics	All plans	Defined benefit							
	Percent offered	Percent offered	Percent offered retirement that are offered	Percent enrolled	Percent offered that are enrolled	Percent paid			
						100% Employer paid	100% Employee paid	Jointly paid	Not determinable
Total	E134	E152	E153	E155	E156	E160a	E160b	E160c	E160d
Full-time									
Part-time									
Industries									
Mining									
Utilities									
Construction									
Manufacturing									
Wholesale trade									
Retail trade									
Transportation and warehousing									
Information									
Finance and insurance									
Real estate and rental and leasing									
Professional, scientific, and technical services									
Management of companies and enterprises									
Administrative support and waste									
Educational services									
Health care and social assistance									
Arts, entertainment, and recreation									
Accommodation and food services									
Other services, excluding public administration									
Size Classes									
Less than 10 employees									
10 to 49 employees									
50 to 99 employees									
100 to 249 employees									
250 or more employees									
Geographies									
Metropolitan									
Non-Metropolitan									

Table 14

Workers Offered Defined Contribution Retirement Plans								
Characteristics	Defined contribution							
	Percent offered	Percent offered retirement that are offered	Percent enrolled	Percent offered that are enrolled	Percent paid			
					100% Employer paid	100% Employee paid	Jointly paid	Not determinable
Total	E139	E140	E142	E143	E147a	E147b	E147c	E147d
Full-time								
Part-time								
Industries								
Mining								
Utilities								
Construction								
Manufacturing								
Wholesale trade								
Retail trade								
Transportation and warehousing								
Information								
Finance and insurance								
Real estate and rental and leasing								
Professional, scientific, and technical services								
Management of companies and enterprises								
Administrative support and waste								
Educational services								
Health care and social assistance								
Arts, entertainment, and recreation								
Accommodation and food services								
Other services, excluding public administration								
Size Classes								
Less than 10 employees								
10 to 49 employees								
50 to 99 employees								
100 to 249 employees								
250 or more employees								
Geographies								
Metropolitan								
Non-Metropolitan								

Table 15

Establishments Offering Retirement Benefits			
Characteristics	All plans		
	Percent offering	Percent offering retirement that offer defined contribution	Percent offering retirement that offer defined benefit
Total	E132	E137	E150
Full-time			
Part-time			
Industries			
Mining			
Utilities			
Construction			
Manufacturing			
Wholesale trade			
Retail trade			
Transportation and warehousing			
Information			
Finance and insurance			
Real estate and rental and leasing			
Professional, scientific, and technical services			
Management of companies and enterprises			
Administrative support and waste			
Educational services			
Health care and social assistance			
Arts, entertainment, and recreation			
Accommodation and food services			
Other services, excluding public administration			
Size Classes			
Less than 10 employees			
10 to 49 employees			
50 to 99 employees			
100 to 249 employees			
250 or more employees			
Geographies			
Metropolitan			
Non-Metropolitan			

Table 16

Establishments Offering Defined Benefit Retirement Plans					
Characteristics	Defined benefit				
	Percent offering	Percent paid			
		100% Employer paid	100% Employee paid	Jointly paid	Not determinable
Total	E149	E158a	E158b	E158c	E158d
Full-time					
Part-time					
Industries					
Mining					
Utilities					
Construction					
Manufacturing					
Wholesale trade					
Retail trade					
Transportation and warehousing					
Information					
Finance and insurance					
Real estate and rental and leasing					
Professional, scientific, and technical services					
Management of companies and enterprises					
Administrative support and waste					
Educational services					
Health care and social assistance					
Arts, entertainment, and recreation					
Accommodation and food services					
Other services, excluding public administration					
Size Classes					
Less than 10 employees					
10 to 49 employees					
50 to 99 employees					
100 to 249 employees					
250 or more employees					
Geographies					
Metropolitan					
Non-Metropolitan					

Table 17

Establishments Offering Defined Contribution Retirement Plans					
Characteristics	Defined contribution				
	Percent offering	Percent paid			
		100% Employer paid	100% Employee paid	Jointly paid	Not determinable
Total	E136	E145a	E145b	E145c	E145d
Full-time					
Part-time					
Industries					
Mining					
Utilities					
Construction					
Manufacturing					
Wholesale trade					
Retail trade					
Transportation and warehousing					
Information					
Finance and insurance					
Real estate and rental and leasing					
Professional, scientific, and technical services					
Management of companies and enterprises					
Administrative support and waste					
Educational services					
Health care and social assistance					
Arts, entertainment, and recreation					
Accommodation and food services					
Other services, excluding public administration					
Size Classes					
Less than 10 employees					
10 to 49 employees					
50 to 99 employees					
100 to 249 employees					
250 or more employees					
Geographies					
Metropolitan					
Non-Metropolitan					

Table 18

Workers Offered Selected Medical Insurance Benefits							
Characteristics	Medical care						
	Total	Single			Family		
	Percent offered with waiting period	Percent offered	Percent offered that are enrolled	Average percent paid by employer	Percent offered	Percent offered that are enrolled	Average percent paid by employer
Total	E9	X	E15	E16a	E21	E24	E25a
Full-time							
Part-time							
Industries							
Mining							
Utilities							
Construction							
Manufacturing							
Wholesale trade							
Retail trade							
Transportation and warehousing							
Information							
Finance and insurance							
Real estate and rental and leasing							
Professional, scientific, and technical services							
Management of companies and enterprises							
Administrative support and waste							
Educational services							
Health care and social assistance							
Arts, entertainment, and recreation							
Accommodation and food services							
Other services, excluding public administration							
Size Classes							
Less than 10 employees							
10 to 49 employees							
50 to 99 employees							
100 to 249 employees							
250 or more employees							
Geographies							
Metropolitan							
Non-Metropolitan							
Note: X = estimator not available.							

Table 19

Workers Offered Single Dental Insurance Benefits						
Characteristics	Dental care					
	Single					
	Percent offered	Percent offered that are enrolled	Percent paid			
100% Employer paid			100% Employee paid	Jointly paid	Not determinable	
Total	X	E36	E41a	E41b	E41c	E41d
Full-time						
Part-time						
Industries						
Mining						
Utilities						
Construction						
Manufacturing						
Wholesale trade						
Retail trade						
Transportation and warehousing						
Information						
Finance and insurance						
Real estate and rental and leasing						
Professional, scientific, and technical services						
Management of companies and enterprises						
Administrative support and waste						
Educational services						
Health care and social assistance						
Arts, entertainment, and recreation						
Accommodation and food services						
Other services, excluding public administration						
Size Classes						
Less than 10 employees						
10 to 49 employees						
50 to 99 employees						
100 to 249 employees						
250 or more employees						
Geographies						
Metropolitan						
Non-Metropolitan						
Note: X = estimator not available.						

Table 20

Workers Offered Family Dental Insurance Benefits						
Characteristics	Dental care					
	Family					
	Percent offered	Percent offered that are enrolled	Percent paid			
100% Employer paid			100% Employee paid	Jointly paid	Not determinable	
Total	E46	E50	E56a	E56b	E56c	E56d
Full-time						
Part-time						
Industries						
Mining						
Utilities						
Construction						
Manufacturing						
Wholesale trade						
Retail trade						
Transportation and warehousing						
Information						
Finance and insurance						
Real estate and rental and leasing						
Professional, scientific, and technical services						
Management of companies and enterprises						
Administrative support and waste						
Educational services						
Health care and social assistance						
Arts, entertainment, and recreation						
Accommodation and food services						
Other services, excluding public administration						
Size Classes						
Less than 10 employees						
10 to 49 employees						
50 to 99 employees						
100 to 249 employees						
250 or more employees						
Geographies						
Metropolitan						
Non-Metropolitan						
Note: X = estimator not available.						

Table 21

Workers Offered Vision Care Benefits						
Characteristics	Vision care					
	Percent offered	Percent offered that are enrolled	Percent paid			
			100% Employer paid	100% Employee paid	Jointly paid	Not determinable
Total	E60	E63	E67a	E67b	E67c	E67d
Full-time						
Part-time						
Industries						
Mining						
Utilities						
Construction						
Manufacturing						
Wholesale trade						
Retail trade						
Transportation and warehousing						
Information						
Finance and insurance						
Real estate and rental and leasing						
Professional, scientific, and technical services						
Management of companies and enterprises						
Administrative support and waste						
Educational services						
Health care and social assistance						
Arts, entertainment, and recreation						
Accommodation and food services						
Other services, excluding public administration						
Size Classes						
Less than 10 employees						
10 to 49 employees						
50 to 99 employees						
100 to 249 employees						
250 or more employees						
Geographies						
Metropolitan						
Non-Metropolitan						
Note: X = estimator not available.						

Table 22

Workers Offered Life Insurance Benefits						
Characteristics	Life insurance					
	Percent offered	Percent offered that are enrolled	Percent paid			
			100% Employer paid	100% Employee paid	Jointly paid	Not determinable
Total	E71	E74	E78a	E78b	E78c	E78d
Full-time						
Part-time						
Industries						
Mining						
Utilities						
Construction						
Manufacturing						
Wholesale trade						
Retail trade						
Transportation and warehousing						
Information						
Finance and insurance						
Real estate and rental and leasing						
Professional, scientific, and technical services						
Management of companies and enterprises						
Administrative support and waste						
Educational services						
Health care and social assistance						
Arts, entertainment, and recreation						
Accommodation and food services						
Other services, excluding public administration						
Size Classes						
Less than 10 employees						
10 to 49 employees						
50 to 99 employees						
100 to 249 employees						
250 or more employees						
Geographies						
Metropolitan						
Non-Metropolitan						

Table 23

Workers Offered Short-term Disability Insurance Benefits						
Characteristics	Disability benefits					
	Short-term disability					
	Percent offered	Percent offered that are enrolled	Percent paid			
			100% Employer paid	100% Employee paid	Jointly paid	Not determinable
E82	E85	E89a	E89b	E89c	E89d	
Total						
Full-time						
Part-time						
Industries						
Mining						
Utilities						
Construction						
Manufacturing						
Wholesale trade						
Retail trade						
Transportation and warehousing						
Information						
Finance and insurance						
Real estate and rental and leasing						
Professional, scientific, and technical services						
Management of companies and enterprises						
Administrative support and waste						
Educational services						
Health care and social assistance						
Arts, entertainment, and recreation						
Accommodation and food services						
Other services, excluding public administration						
Size Classes						
Less than 10 employees						
10 to 49 employees						
50 to 99 employees						
100 to 249 employees						
250 or more employees						
Geographies						
Metropolitan						
Non-Metropolitan						

Table 24

Workers Offered Long-term Disability Insurance Benefits						
Characteristics	Disability benefits					
	Long-term disability					
	Percent offered	Percent offered that are enrolled	Percent paid			
100% Employer paid			100% Employee paid	Jointly paid	Not determinable	
Total	E93	E96	E100a	E100b	E100c	E100d
Full-time						
Part-time						
Industries						
Mining						
Utilities						
Construction						
Manufacturing						
Wholesale trade						
Retail trade						
Transportation and warehousing						
Information						
Finance and insurance						
Real estate and rental and leasing						
Professional, scientific, and technical services						
Management of companies and enterprises						
Administrative support and waste						
Educational services						
Health care and social assistance						
Arts, entertainment, and recreation						
Accommodation and food services						
Other services, excluding public administration						
Size Classes						
Less than 10 employees						
10 to 49 employees						
50 to 99 employees						
100 to 249 employees						
250 or more employees						
Geographies						
Metropolitan						
Non-Metropolitan						

Table 25

Establishments Offering Medical Insurance Benefits					
Characteristics	Medical care				
	Total	Single		Family	
	Percent offering with waiting period	Percent offering	Average percent paid by employer	Percent offering	Average percent paid by employer
Total	E7	X	E16	E19	E25
Full-time					
Part-time					
Industries					
Mining					
Utilities					
Construction					
Manufacturing					
Wholesale trade					
Retail trade					
Transportation and warehousing					
Information					
Finance and insurance					
Real estate and rental and leasing					
Professional, scientific, and technical services					
Management of companies and enterprises					
Administrative support and waste					
Educational services					
Health care and social assistance					
Arts, entertainment, and recreation					
Accommodation and food services					
Other services, excluding public administration					
Size Classes					
Less than 10 employees					
10 to 49 employees					
50 to 99 employees					
100 to 249 employees					
250 or more employees					
Geographies					
Metropolitan					
Non-Metropolitan					
Note: X = estimator not available.					

Table 26

Establishments Offering Single Dental Insurance Benefits					
Characteristics	Dental care				
	Single				
	Percent offering	Percent paid			
100% Employer paid		100% Employee paid	Jointly paid	Not determinable	
Total	X	E38a	E38b	E38c	E38d
Full-time					
Part-time					
Industries					
Mining					
Utilities					
Construction					
Manufacturing					
Wholesale trade					
Retail trade					
Transportation and warehousing					
Information					
Finance and insurance					
Real estate and rental and leasing					
Professional, scientific, and technical services					
Management of companies and enterprises					
Administrative support and waste					
Educational services					
Health care and social assistance					
Arts, entertainment, and recreation					
Accommodation and food services					
Other services, excluding public administration					
Size Classes					
Less than 10 employees					
10 to 49 employees					
50 to 99 employees					
100 to 249 employees					
250 or more employees					
Geographies					
Metropolitan					
Non-Metropolitan					
Note: X = estimator not available.					

Table 27

Establishments Offering Family Dental Insurance Benefits					
Characteristics	Dental care				
	Family				
	Percent offering	Percent paid			
100% Employer paid		100% Employee paid	Jointly paid	Not determinable	
Total	E43	E53a	E53b	E53c	E53d
Full-time					
Part-time					
Industries					
Mining					
Utilities					
Construction					
Manufacturing					
Wholesale trade					
Retail trade					
Transportation and warehousing					
Information					
Finance and insurance					
Real estate and rental and leasing					
Professional, scientific, and technical services					
Management of companies and enterprises					
Administrative support and waste					
Educational services					
Health care and social assistance					
Arts, entertainment, and recreation					
Accommodation and food services					
Other services, excluding public administration					
Size Classes					
Less than 10 employees					
10 to 49 employees					
50 to 99 employees					
100 to 249 employees					
250 or more employees					
Geographies					
Metropolitan					
Non-Metropolitan					
Note: X = estimator not available.					

Table 28

Establishments Offering Vision Insurance Benefits					
Characteristics	Vision care				
	Percent offering	Percent paid			
		100% Employer paid	100% Employee paid	Jointly paid	Not determinable
Total	E58	E65a	E65b	E65c	E65d
Full-time					
Part-time					
Industries					
Mining					
Utilities					
Construction					
Manufacturing					
Wholesale trade					
Retail trade					
Transportation and warehousing					
Information					
Finance and insurance					
Real estate and rental and leasing					
Professional, scientific, and technical services					
Management of companies and enterprises					
Administrative support and waste					
Educational services					
Health care and social assistance					
Arts, entertainment, and recreation					
Accommodation and food services					
Other services, excluding public administration					
Size Classes					
Less than 10 employees					
10 to 49 employees					
50 to 99 employees					
100 to 249 employees					
250 or more employees					
Geographies					
Metropolitan					
Non-Metropolitan					

Table 29

Establishments Offering Life Insurance Benefits					
Characteristics	Life insurance				
	Percent offering	Percent paid			
		100% Employer paid	100% Employee paid	Jointly paid	Not determinable
Total	E69	E76a	E76b	E76c	E76d
Full-time					
Part-time					
Industries					
Mining					
Utilities					
Construction					
Manufacturing					
Wholesale trade					
Retail trade					
Transportation and warehousing					
Information					
Finance and insurance					
Real estate and rental and leasing					
Professional, scientific, and technical services					
Management of companies and enterprises					
Administrative support and waste					
Educational services					
Health care and social assistance					
Arts, entertainment, and recreation					
Accommodation and food services					
Other services, excluding public administration					
Size Classes					
Less than 10 employees					
10 to 49 employees					
50 to 99 employees					
100 to 249 employees					
250 or more employees					
Geographies					
Metropolitan					
Non-Metropolitan					

Table 30

Establishments Offering Short-term Disability Insurance Benefits					
Characteristics	Disability benefits				
	Short-term disability				
	Percent offering	Percent paid			
		100% Employer paid	100% Employee paid	Jointly paid	Not determinable
Total	E80	E87a	E87b	E87c	E87d
Full-time					
Part-time					
Industries					
Mining					
Utilities					
Construction					
Manufacturing					
Wholesale trade					
Retail trade					
Transportation and warehousing					
Information					
Finance and insurance					
Real estate and rental and leasing					
Professional, scientific, and technical services					
Management of companies and enterprises					
Administrative support and waste					
Educational services					
Health care and social assistance					
Arts, entertainment, and recreation					
Accommodation and food services					
Other services, excluding public administration					
Size Classes					
Less than 10 employees					
10 to 49 employees					
50 to 99 employees					
100 to 249 employees					
250 or more employees					
Geographies					
Metropolitan					
Non-Metropolitan					

Table 31

Establishments Offering Long-term Disability Insurance Benefits					
Characteristics	Disability benefits				
	Long-term disability				
	Percent offering	Percent paid			
100% Employer paid		100% Employee paid	Jointly paid	Not determinable	
Total	E91	E98a	E98b	E98c	E98d
Full-time					
Part-time					
Industries					
Mining					
Utilities					
Construction					
Manufacturing					
Wholesale trade					
Retail trade					
Transportation and warehousing					
Information					
Finance and insurance					
Real estate and rental and leasing					
Professional, scientific, and technical services					
Management of companies and enterprises					
Administrative support and waste					
Educational services					
Health care and social assistance					
Arts, entertainment, and recreation					
Accommodation and food services					
Other services, excluding public administration					
Size Classes					
Less than 10 employees					
10 to 49 employees					
50 to 99 employees					
100 to 249 employees					
250 or more employees					
Geographies					
Metropolitan					
Non-Metropolitan					

Table 32

Workers Offered Paid Vacation Leave Benefits				
Characteristics	Paid vacation			
	Percent offered	Average number of days after 1 year	Average number of days after 3 years	Average number of days after 5 years
Total	E104	E105	E106	E107
Full-time				
Part-time				
Industries				
Mining				
Utilities				
Construction				
Manufacturing				
Wholesale trade				
Retail trade				
Transportation and warehousing				
Information				
Finance and insurance				
Real estate and rental and leasing				
Professional, scientific, and technical services				
Management of companies and enterprises				
Administrative support and waste				
Educational services				
Health care and social assistance				
Arts, entertainment, and recreation				
Accommodation and food services				
Other services, excluding public administration				
Size Classes				
Less than 10 employees				
10 to 49 employees				
50 to 99 employees				
100 to 249 employees				
250 or more employees				
Geographies				
Metropolitan				
Non-Metropolitan				

Table 33

Workers Offered Paid Sick, Holiday, and Consolidated Leave Benefits						
Characteristics	Paid sick		Paid holiday		Consolidated leave	
	Percent offered	Average number of days	Percent offered	Average number of days	Percent offered	Average number of days
Total	E113	E114	E120	E121	E127	E128
Full-time						
Part-time						
Industries						
Mining						
Utilities						
Construction						
Manufacturing						
Wholesale trade						
Retail trade						
Transportation and warehousing						
Information						
Finance and insurance						
Real estate and rental and leasing						
Professional, scientific, and technical services						
Management of companies and enterprises						
Administrative support and waste						
Educational services						
Health care and social assistance						
Arts, entertainment, and recreation						
Accommodation and food services						
Other services, excluding public administration						
Size Classes						
Less than 10 employees						
10 to 49 employees						
50 to 99 employees						
100 to 249 employees						
250 or more employees						
Geographies						
Metropolitan						
Non-Metropolitan						

Table 34

Employer Cost of Retirement Benefits				
Characteristics	Retirement benefits			
	Average annual cost per employee		Expenditure as a percentage of wages and salaries	
	All establishments	Establishments offering	All establishments	Establishments offering
Total	E197	E198	E199	E200
Full-time				
Part-time				
Industries				
Mining				
Utilities				
Construction				
Manufacturing				
Wholesale trade				
Retail trade				
Transportation and warehousing				
Information				
Finance and insurance				
Real estate and rental and leasing				
Professional, scientific, and technical services				
Management of companies and enterprises				
Administrative support and waste				
Educational services				
Health care and social assistance				
Arts, entertainment, and recreation				
Accommodation and food services				
Other services, excluding public administration				
Size Classes				
Less than 10 employees				
10 to 49 employees				
50 to 99 employees				
100 to 249 employees				
250 or more employees				
Geographies				
Metropolitan				
Non-Metropolitan				

Table 35

Employer Cost of Insurance Benefits				
Characteristics	Insurance benefits (Medical, Dental, and Vision)			
	Average annual cost per employee		Expenditure as a percentage of wages and salaries	
	All establishments	Establishments offering	All establishments	Establishments offering
Total	E191	E192	E193	E194
Full-time				
Part-time				
Industries				
Mining				
Utilities				
Construction				
Manufacturing				
Wholesale trade				
Retail trade				
Transportation and warehousing				
Information				
Finance and insurance				
Real estate and rental and leasing				
Professional, scientific, and technical services				
Management of companies and enterprises				
Administrative support and waste				
Educational services				
Health care and social assistance				
Arts, entertainment, and recreation				
Accommodation and food services				
Other services, excluding public administration				
Size Classes				
Less than 10 employees				
10 to 49 employees				
50 to 99 employees				
100 to 249 employees				
250 or more employees				
Geographies				
Metropolitan				
Non-Metropolitan				

Appendix K

Determination of Base (SRS) Number of Responses

The basic formula for determination of the required number of responses under SRS for a dichotomous response is:

$$n = \frac{[P \times (1 - P)]}{(e/t_\alpha)^2}$$

- where n = Required number of responses
 P = Population proportion, or the rate of occurrence of the phenomena under study in the population of interest
 e = Acceptable error level of for the survey estimates
 t_α = t -value corresponding to the acceptable level of α error, or the acceptable level of risk that the difference between the population proportion and the sample estimate is greater than e (Type I error).

Common practice, in the absence of pre-existing information regarding the population distribution, is to set P equal to 0.5, meaning that it is expected that 50% of the population will fall into one response category and that 50% will fall into the other. This is the most conservative assumption; smaller or larger values of P , representing non-equal distributions of the population among the response categories, will require fewer sample units to detect as non-equal distributions are more easily discernable. For most purposes, an α level of 0.025, corresponding to a (two-tailed) confidence interval of 95%, is considered to be an acceptable risk of Type I error. Likewise, a SE of .05 (or plus or minus 5%), is considered an acceptable level of precision. However, if greater precision in survey estimates are required, these values may be modified to achieve this objective. The table below displays the value of n for different combinations of P , e , and α ; note that variation in e has the greatest effect on the n .

Effect on Number of Required Responses (n) by Variation in P , SE , and α

	$\alpha = 0.025; t_\alpha = 1.96$		$\alpha = 0.005; t_\alpha = 2.58$	
	$e = .05$	$e = .03$	$e = .05$	$e = .03$
$P = .5$	384	1,067	666	1,849
$P = .8$	246	683	426	1,183

The formula given above is based on the assumption of a (theoretically) infinite population, meaning that the population from which the SRS sample is to be drawn is of such size to be "practically" infinite. When this is not the case, a finite population correction to the value of n calculated using the basic formula is applied as follows:

$$n_1 = \frac{[P \times (1 - P)]}{(e/t_\alpha)^2 + \left[\frac{P \times (1 - P)}{N} \right]} = \frac{n}{1 + (n/N)}$$

- where n_1 = Required number of responses corrected for the finite population
 N = Population size.

One general rule of thumb is that the finite population correction should be employed when n exceeds five percent of N . In other cases, application of the finite population correction results in a negligible

difference between n and n_t . This is illustrated in the table below, which displays n and n_t for various population sizes and α levels.

Number of Response, Corrected for Finite Populations ($P = .5; e = .05$)

N	$\alpha = 0.025; t_\alpha =$ 1.96	$\alpha = 0.005; t_\alpha =$ 2.58
100	80	87
200	132	154
500	218	286
800	260	363
1,000	278	399
1,500	306	461
2,000	323	499
6,000	362	598
10,000	370	623
∞	384	666

Appendix L

Glossary of Terms

The National Employee Benefits Consortium adopted definitions used by the Bureau of Labor Statistics for the purposes of the National Compensation Survey (NCS). The full Glossary of Compensation Terms used by the Bureau of Labor Statistics can be accessed online at www.bls.gov/ncs/ocs/sp/ncbl0062.pdf. Terms and definitions that relate to the survey developed by the National Employee Benefits Consortium are shown below.

AGREEMENT (COLLECTIVE BARGAINING AGREEMENT, UNION CONTRACT): Written contract between an employer (or an association of employers) and a union (or unions), usually for a specified term, defining conditions of employment (wages, hours, vacations, holidays, overtime payments, working conditions, etc.); detailing rights of workers, the union, and management; and describing procedures to be followed in settling disputes or handling issues that arise during the life of the contract.

ANNIVERSARY YEAR VACATION PLAN: Time-based vacation plan offering additional vacation time to employees on certain "anniversary years." For example, employees receive an extra week of vacation at 10 or 20 years of service (but not during intervening years).

ANNUITY: A form of distribution from a retirement plan providing periodic payments. Straight-life annuities provide payments, usually monthly, for the lifetime of a retiree. Joint-and-survivor annuities provide payments to a retiree, and upon the retiree's death, payments to a surviving spouse.

ATTENDANCE BONUS: Payment or other type of reward (e.g., a day off) for employees whose work attendance record meets certain standards. (See Bonus - (Production and Nonproduction).)

BARGAINING UNIT: Group of employees in a craft, department, plant, firm, or industry recognized by the employer or group of employers, or designated by an authorized agency such as the National Labor Relations Board, as appropriate for representation by a union for purposes of collective bargaining.

BENEFICIARY: The person designated by an employee or retiree to receive benefit payments in the event of the employee's or retiree's death.

BENEFITS: Nonwage compensation provided to employees. The National Compensation Survey groups benefits into five categories: Paid leave (vacations, holidays, sick leave); supplementary pay (premium pay for overtime and work on holidays and weekends, shift differentials, nonproduction bonuses); retirement (defined benefit and defined contribution plans); insurance (life insurance, health benefits, short-term disability, and long-term disability insurance) and legally required benefits (Social Security and Medicare, Federal and State unemployment insurance taxes, and workers' compensation).

BONUS (PRODUCTION AND NONPRODUCTION): *Production Bonus.* Extra payment based on production in excess of a quota or on completion of a job in less than standard time. In the National Compensation Survey, production bonuses are included in wages and salaries measures.

Nonproduction Bonus. A cash payment that is not directly related to the output of either the employee or a group of employees. Examples include attendance, Christmas, profitsharing, safety, and year-end bonuses. In the National Compensation Survey, lump-sum payments, and all nonproduction bonuses, are excluded from wages and salaries measures but are included in the benefits component of total compensation.

CASH BALANCE PENSION PLAN: A defined benefit plan in which an account is maintained for each plan participant. Each participant's account is credited with employer contributions to fund retirement benefits.

CASH OR DEFERRED ARRANGEMENT (CODA) (see 401(k) Plans)

CASH PROFIT-SHARING: Cash payments made to workers, often determined by a formula based on company profits. Such payments are not intended for retirement and individual accounts are not established. (See Deferred Profit-Sharing Plan; Bonus.)

CHILD CARE BENEFIT: Employers' full or partial payment for the cost of caring for an employee's children in a nursery, day care center, or by a baby-sitter, on or off the employer's premises, while the employee is at work. (See Elder Care.)

CHRISTMAS BONUS (see Bonus (Production and Nonproduction))

COBRA RATE: The Consolidated Omnibus Budget Reconciliation Act (COBRA) of 1985 includes provisions that apply to group health plans of employers with 20 or more employees on a typical working day. COBRA gives participants and their beneficiaries the right to maintain, at their own expense, coverage under their health plan that would be lost due to a qualifying event at a cost that is comparable to what it would be if they were still members of the employer's group. Qualifying events include an employee's death, termination, reduced hours of employment, entitlement to Medicare, or bankruptcy. Former employees usually receive benefits under COBRA for up to 18 months following the qualifying event. The cost of the COBRA coverage is normally paid for by the former employee, although some employers may pay a portion of the benefit's cost. The COBRA rate, which is the rate charged to the former employee or employee's beneficiary, is the actuarially determined plan premium plus an additional 2 percent fee to cover administrative costs.

COINSURANCE: The amount of a health benefit's cost which will not be paid by a plan. For example, a health benefit plan may include a coinsurance rate of 10 percent for medical services. Plan participants are responsible for paying 10 percent of the cost for medical services with the health benefit plan paying 90 percent of the cost. Plans may have different coinsurance rates for different types of services, such as hospital room and board, outpatient surgery, etc. (See Deductible.)

COLLECTIVE BARGAINING: Method whereby representatives of employees (unions) and employers determine the conditions of employment through direct negotiation, normally resulting in a written contract setting forth the wages, hours, and other conditions to be observed for a stipulated period (e.g., 3 years). Term also applies to union-management dealings during the term of the agreement.

COMPENSATION (see Earnings)

CONSOLIDATED LEAVE PLANS (see Leave Banks)

CONSOLIDATED OMNIBUS BUDGET RECONCILIATION ACT (see Cobra Rate)

CONTRACT SIGNING BONUS: A nonproduction bonus given to unionized employees upon signing of a new labor-management agreement. (See Signing Bonus.)

CONTRIBUTORY PLAN: Employee benefit plan, which is not 100 percent, paid for by the employer. To receive plan benefits, an employee must contribute (pay) a specified amount towards the full cost of the plan. For example, employer pays 100 percent of the cost of health insurance for the employee but pays only 40 percent of the cost of health care services for employee's dependents.

COPAYMENT: Small payment made by a health benefits plan participant each time a service is required. For example, a plan may require a \$5 or \$10 copayment for each physician's office visit. (See Deductible and Coinsurance.)

DEDUCTIBLE: The amount of money a benefit plan participant must pay during a year before the plan begins to provide coverage and pay for all or a portion of the benefit. For example, a health benefits plan may include a \$50 deductible per year per individual to receive reimbursement for prescription drugs. (See Coinsurance and Copayment.)

DEFERRED EARNINGS: Earnings that an employee voluntarily places in a retirement account established as a 401(k) plan. Deferred earnings are not taxed as income at the time the money is earned—income taxes are deferred until benefits are distributed from the retirement account.

DEFERRED PROFIT SHARING PLAN: A defined contribution plan under which a company credits a portion of company profits to employees' accounts. Plans may set a fixed formula for sharing profits but this is not a requirement. Most plans hold money in employee accounts until their retirement, disability, or death.

DEFINED BENEFIT PENSION PLAN (see 401(k), 403 (b), 457 Plans): A retirement plan that uses a specific, predetermined formula to calculate the amount of an employee's future benefit. In the private sector, defined benefit plans are typically funded exclusively by employer contributions. In the public sector, defined benefit plans often require employee contributions.

DEFINED CONTRIBUTION PLAN: A retirement plan in which the employer makes specified contributions but the amount of the retirement benefit is not specified. Defined contribution plans may be wholly or partially funded by employers.

DENTAL PLAN: An insurance plan that provides services or payment (usually partial) for preventive and restorative dental care. Preventive care typically includes checkups, cleanings, and xrays. Restorative care may involve fillings, surgery, inlays, or crowns.

DEPENDENT CARE REIMBURSEMENT ACCOUNTS (see Reimbursement Accounts)

DISABILITY: Any injury or illness, temporary or permanent, that prevents a worker from carrying on his usual occupation. (See Permanent and Total Disability.)

EARLY RETIREMENT (EARLY OUT): A retirement plan provision that gives an immediate pension to retiring employees prior to normal retirement. The participant must meet certain age or service requirements or both or a combined total of age and service. The pension is generally reduced to reflect a longer payout. Some employers may offer special incentives (early retirement windows) under an early out program to encourage individuals to retire before the normal retirement age.

EARNINGS (HOURLY; DAILY; WEEKLY; ANNUAL; AVERAGE; GROSS; STRAIGHT-TIME; COMPENSATION): Remuneration (pay, wages) of a worker or group of workers for services performed during a specific period of time. The term invariably carries a defining word or a combination, e.g., straight-time average hourly earnings. Since a statistical concept is usually involved in the term and its variations, the producers and users of earnings data have an obligation to define them. In the absence of such definition, the following may serve as rough guides: *Hourly, daily, weekly, annual* – Period of time to which earnings figures, as stated or computed, relate. The context in which annual earnings (sometimes weekly earnings) are used may indicate whether the reference includes earnings from one employer only or from all employment plus other sources of income; *average* - usually the arithmetic mean; that is, total earnings (as defined) of a group of workers (as identified) divided by the number of workers in the group; *gross* - usually total earnings, including, where applicable, overtime payments, shift differentials, production bonuses, cost-of-living allowances, commissions, etc.; *straight-time* - usually gross earnings excluding overtime payments and (with variations at this point) shift differentials and other monetary payments. *Compensation* - a concept sometimes used to encompass the entire range of wages and benefits, both current and deferred, that workers receive out of their employment. The National Compensation Survey defines hourly earnings as the straight-time hourly wages or salaries paid to employees. They include incentive pay (commissions, piece rate payments, and production bonuses), cost-of-living adjustments, hazard pay, and payments for income deferred due to participation in a salary reduction plan. Excluded are premium pay for overtime, holidays, and weekends, shift differentials, draws, nonproduction bonuses, tips, and uniform and tool allowances.

EDUCATIONAL ASSISTANCE (TUITION AID; TUITION PAYMENT PLAN): A program that provides full or partial payment for tuition or books or both for training or educational courses.

EDUCATIONAL PAY DIFFERENTIAL: Usually for professional occupations such as teachers, educational pay differentials provide for progressively higher salary rates based upon the employee's completion of specified academic requirements. For example, a person having a Ph.D. would receive higher pay than another having a master's degree, or an employee with a master's degree would receive a higher salary than another having a bachelor's degree.

ELIGIBILITY REQUIREMENT: Requirement(s) that an employee must meet to be covered by a benefit plan. For example, employees must be scheduled to work a minimum of 32 hours per week to be covered under a company's health benefits plan.

EMPLOYEE: An employed wage earner or salaried worker. Used interchangeably with "worker" in the context of a work situation, but a "worker" is not an "employee" when he is no longer on the payroll.

EMPLOYEE ASSISTANCE PROGRAM (EAP): A structured, separate plan (independent from health insurance) that provides employee referral services, or referral and counseling services concerning substance abuse, marital difficulties, financial, emotional, and legal problems.

EMPLOYEE BENEFIT PLAN: A plan established or maintained by an employer, employee organization or both (through negotiated agreement or unilaterally) to provide employees with welfare or retirement benefits or both. (See Benefits.)

EMPLOYEE LEASING COMPANIES: Firms that provide other companies with personnel. The leasing company is the legal employer of the leased personnel and is therefore responsible for hiring, reviewing, and firing. The leasing companies pay wages, benefits, and payroll taxes.

EMPLOYEE RETIREMENT INCOME SECURITY ACT OF 1974 (ERISA): This act sets uniform minimum standards to assure that private sector employee benefit plans are established and maintained in a fair and financially sound manner. Employee benefit plans include pension plans and employee welfare plans, providing health benefits, disability benefits, death benefits, prepaid legal services, vacation benefits, day care centers, scholarship funds, apprenticeship and training benefits, or other similar benefits. ERISA sets standards for administering these plans, including a requirement that financial and other information be disclosed to plan participants and beneficiaries and other requirements for processing claims for benefits under the plans.

EMPLOYER: Any individual, corporation, or other operating group that hires workers (employees). The terms “employer” and “management” are often used interchangeably when there is no intent to draw a distinction between owners and managers.

ESTABLISHMENT: An economic unit that produces goods and services (e.g., factory, store, etc.) at a single location and is engaged in one type of economic activity. An establishment is not necessarily identical with a company, which may consist of one or more establishments. For example, a grocery store company may operate seven individual establishments.

EXEMPT/NONEXEMPT EMPLOYEES: *Exempt employees* are not subject to the provisions of the Fair Labor Standards Act (e.g., executive, administrative, and professional employees; employees of Federal, State and local governments, etc.). *Nonexempt employees* are covered by the provisions of the Fair Labor Standards Act (e.g., employees engaged in, or producing goods and services for, interstate commerce; employees of certain hotels, restaurants, or motels; etc.).

FIRST DOLLAR COVERAGE: A feature of a health benefits plan in which the plan does not require its participants to pay any deductibles or copayments before benefits are received. Basic benefits are usually referred to as this, because initial expenses are paid by the plan rather than by the patient.

FLEXIBLE BENEFIT PLAN (CAFETERIA PLAN): A plan that provides employees with options to choose among a number of plans covering several different benefits. They often consist of a “core” package of benefits (vacations, low option health insurance, etc.) that employees must take. In addition, an optional package may be offered from which employees can select specific benefits (high option health, life and long-term disability insurance, extra vacation days, child care expenses, etc.) that they desire.

FLOATING HOLIDAY: A holiday that can vary from year to year, the day on which the holiday is observed being selected by the employer or the employee.

401(k), 403(b), 457 PLANS: Defined contribution benefits plan established under Section 401(k) of the Internal Revenue Code (IRC) permit employees to make pre-tax contributions via salary reduction agreements. IRC Section 403(b) plans are deferred compensation plans for employees of certain not-for-profit organizations and public schools. IRC Section 457 plans are deferred compensation plans for employees of State and local governments and tax-exempt organizations.

FRINGE BENEFITS (see Benefits)

GRANDFATHERED BENEFIT: Benefit (or benefit provision) available only to employees meeting certain criteria, usually having been employed and participating in a benefit plan prior to it being eliminated or its provisions changed.

GRAVEYARD SHIFT (see Shift)

GROUP HEALTH PLAN: A plan that provides medical benefits for the employer's own employees and their dependents through insurance or otherwise (such as a trust, health maintenance organization, self-funded pay-as-you-go basis, etc.).

HEALTH CARE COST CONTAINMENT PROVISIONS: Provisions included in some health benefits plans in an attempt to address the rise in medical care costs. Examples include mandatory second surgical opinions and preadmission certification before being admitted to a hospital, incentives for employees to audit hospital and medical services bills, and incentives for child deliveries in lower cost birthing centers rather than in hospitals.

HOLIDAY (see Paid Holiday)

HOLIDAY PREMIUM PAY: Pay to workers at premium rates (e.g., double time) for work on holidays. (See Paid Holiday.)

INDIVIDUAL RETIREMENT ACCOUNT (IRA): A type of retirement plan that workers may establish and contribute to regardless of whether they are covered by an employer-sponsored pension plan. Usually, an employee may contribute up to \$2,000 per year. Provisions related to deductibility of contributions, taxation of earnings, and timing of withdrawals vary.

INDUSTRIAL CLASSIFICATION (see North American Industry Classification System Manual)

INSURANCE: A method of providing or purchasing protection against some or all of the economic consequence of a loss. For employee benefits purposes, it is full or partial coverage for the financial losses and expenses that can result from employee injury, illness, disability, or death. (See Insurance Carrier; Insurance Policy.)

INSURANCE CARRIER: A commercial insurer that underwrites or administers insurance policies or does both for such programs as life insurance, health care, short-term disability, and long-term disability benefits.

INSURANCE POLICY: The contract between an insurance carrier and an insured employer under which the carrier agrees to pay the policy benefits when specific losses occur, providing the carrier receives the required premiums. The policy presents in detail the benefit plan provisions.

IRA (see Individual Retirement Account)

LEAVE BANK (CONSOLIDATED LEAVE PLAN): Provides several different types of leave, such as vacations, holidays, sick leave, etc., under a single plan.

LEGALLY REQUIRED BENEFITS: The National Compensation Survey benefit grouping that includes railroad retirement, railroad supplemental retirement, railroad unemployment, workers' compensation, Social Security, Medicare, State unemployment insurance, State required disability insurance, and the Federal Unemployment Tax Act.

LIFE INSURANCE: Provides a lump-sum payment to a designated beneficiary or beneficiaries of deceased employees. Companies may provide a basic amount of life insurance benefits, which may vary

depending on an employee's age, income, or occupation, and allow employees to pay for additional amounts of coverage.

LONG TERM CARE BENEFITS: Long-term care benefits, normally provided through an insurance plan, cover expenses related to home care, nursing home care, or custodial care. Benefit payments normally last for more than 1 year. Employers may offer plans that are financed entirely by the employees at group insurance rates. Employees may purchase policies for themselves, a spouse, or other family members.

LONG TERM DISABILITY INSURANCE (LTD): Provides a monthly benefit to employees who, due to illness or injury, are unable to work for an extended period of time. Usually LTD benefit payments begin after 3 or 6 months of disability and continue until retirement age is reached, or for a specified number of months, depending on the employee's age at the time of the disability. Payments typically equal a fixed percent of predisability earnings.

MAJOR MEDICAL INSURANCE: This insurance is typically offered in two forms. Supplemental plans offer additional coverage, subject to deductibles and coinsurance requirements, to what is provided in a basic health plan by covering expenses that exceed the limits of the basic plan and expenses not covered by the basic plan. Comprehensive major medical plans are offered where there is no basic plan; they cover a wide range of medical services, with payment of benefits subject to a deductible and a coinsurance requirement.

MANAGED HEALTH CARE: These plans integrate the financing and delivery of appropriate health care services to covered individuals. Managed care usually involves some or all of the following elements: Arrangements with selected health care providers to furnish a comprehensive set of services; explicit standards for the selection of health care providers; formal programs for ongoing quality assurance and utilization review; and significant financial incentives for members of the plan to use providers and procedures covered by the plan. Health maintenance organizations and preferred provider organizations use managed health care concepts.

MEDICAL LEAVE (see Sick Leave)

NIGHT SHIFT (see Shift)

NONCONTRIBUTORY PLAN: An employee benefit plan that is completely paid for by the employer. (See Contributory Plan.)

NONPRODUCTION BONUS (see Bonus (Production and Nonproduction))

NORTH AMERICAN INDUSTRY CLASSIFICATION SYSTEM (NAICS): *The North American Industry Classification System (NAICS) Manual* replaces the *1987 Standard Industrial Classification (SIC) Manual*. The *NAICS Manual*, as was the *SIC Manual*, is used by Federal Government statistical agencies to define and classify industries in the economy in a consistent manner based on their primary economic activity. It will take several years for the *NAICS Manual* to be adopted by statistical programs. In the meantime statistics will be published using the classification scheme of the *1987 SIC Manual's*. The governments of Canada, Mexico, and the United States developed the *NAICS Manual*, which became effective January 1997.

OTHER LEAVE PLANS: A National Compensation Survey benefit grouping that includes personal leave, military leave, funeral leave, jury duty, and family leave.

PAID HOLIDAY LEAVE: Holidays are days of special religious, cultural, social, or patriotic significance on which work and business ordinarily ceases. Workers typically receive time-off from work, at full pay or partial pay, on a specified number of holidays each year. Some employers also include “personal holidays,” such as an employee’s birthday or “floating holidays” that vary from year-to-year as determined by the employer or employee or both.

PAID VACATIONS: Time-off from work normally taken in days or weeks that provide employees with a rest or break from work. The amount of time-off may vary based on an employee’s length-of-service with the employer or it may be a fixed number of days or weeks. The time-off is normally paid for at an employee’s normal hourly rate or salary.

PART-TIME EMPLOYEES: Workers employed on a temporary or regular basis for a workweek shorter than the scheduled workweek for full-time employees.

PENSION PLAN (RETIREMENT PLAN): Pension or retirement plans are designed to provide funds to retirees. (See Defined Contribution Plans; Defined Benefit Plans.)

PENSION PORTABILITY: Ability to maintain and transfer years of credited service or accumulated pension benefits from one employer to another.

PERSONAL LEAVE: Also known as general leave, personal leave provides employees with time-off from work for various purposes not covered by other types of leave plans.

POST-RETIREMENT PENSION INCREASES: Adjustments to pension benefits being received by already retired employees. Postretirement pension increases may be at the discretion of the former employer or pension fund or may be automatic, usually based on changes in the Consumer Price Index.

PREMIUM PAY: Compensation at greater than regular rate. May refer to overtime, shift differentials, or penalty rates.

PRODUCTION BONUS (see Bonus (Production and Nonproduction))

REFERRAL BONUS: Money payment made to an employee as a bonus for aiding in the recruitment of another person hired by the company.

REIMBURSEMENT ACCOUNTS: Accounts funded by employee pretax contributions to pay for health care deductibles, coinsurances, costs of services not covered by a health care plan, child care expenses, and the nonmedical expenses that allow a person to work while ensuring a qualified dependent’s well-being. Accounts may be partially funded by employers.

RETIREMENT: Withdrawal from working life because of age, disability, etc. Traditionally, retirement occurs at age 65, when full Social Security benefits are available. The age at which such full benefits are available will gradually rise to age 67 for those born after 1937. Privately sponsored retirement plans typically provide *normal retirement benefits* at age 65 or earlier. *Early retirement benefits* are reduced benefits available at an earlier age, with reductions designed to account for the longer receipt of benefits. Plans may also offer *disability retirement benefits* for those workers unable to continue working due to

poor health. Also, *special early retirement benefits* may be provided by companies to encourage workers to retire as a result of a firm's merger with another firm, downsizing, etc. (See Pension Plan; Social Security Act.)

RETIREMENT PLAN (see Pension Plan)

ROTATING SHIFT (see Shift)

SAFETY BONUS: A nonproduction bonus paid to employees for maintaining a high level of safety in the workplace. For example, all plant employees receive \$50 if the number of workplace accidents falls below a specified level. (See Bonus- (Production and Nonproduction Bonus.)

SALARY REDUCTION PLAN (SAVINGS PLAN; THRIFT PLAN): Plan authorized under Section 401(k) of the Internal Revenue Code that allows employees to divert a portion of their salary or wages to fund benefit plans. The money contributed to the benefit plan is not subject to Federal income tax.

SEASONAL EMPLOYMENT: Employment during part of the year only, arising out of the seasonal character of an industry or weather conditions at the location of an establishment. Agriculture, canning, construction, and logging are examples of industries that may have seasonal employment.

SELF-FUNDING (SELF-INSURANCE) PLANS: A fully non-insured (or minimally insured) plan in which no insurance company or service plan collects premiums and assumes risk for payment of benefits. The employer assumes the role of an insurance company and is responsible for paying all benefit claims by using money set aside for that purpose. The employer may also be self-funded (or self-insured) for only a set amount of claims with an insurance company assuming responsibility for claims in excess of a set amount per year. (See Stop Loss Insurance, Minimum Premium Plan.)

SEP (see Simplified Employee Pension)

SHIFT DIFFERENTIAL (SHIFT PREMIUM): Additional compensation (cents per hour or percentage of day rate) paid to workers employed at other than regular daytime hours.

SHORT-TERM DISABILITY PLAN: A benefit plan that provides full, partial, or a combination of full and partial pay, to employees who are unable to work because of a non-work related accident or illness. Short-term disability payments are normally paid for only a fixed number of weeks, typically 26 weeks. The benefit payment is either a percentage of an employee's earnings or a fixed dollar amount per week.

SICK LEAVE: Provides full or partial pay for time-off while an employee cannot work due to non-work related illness or injury. Workers may also be able to use sick leave for a doctor's appointment or to take care of a sick child. Employees typically receive a specified number of allowed sick leave days per year, although some employers may allow workers to carry over and accumulate sick leave from year to year up to a specified maximum number. Sick leave plans may also provide additional sick leave days based on the length of service of workers. For example, 10 days of sick leave are granted workers after 1 year of service, 14 days after 5 years, and 18 days after 10 years.

SICKNESS AND ACCIDENT BENEFITS (see Short-term Disability Plans)

SIGNING BONUS: A form of lump sum payment provided to employees upon ratification and signing of the agreement. May also refer to a bonus paid when an employee signs an employment contract. (See Bonus (Production and Nonproduction) and Contract Signing Bonus.)

SIMPLE PLAN (Savings Incentive Match Plan for Employees of Small Employers): These plans allow businesses with 100 or fewer employees a way to offer retirement benefits through employee salary reductions and matching contributions, similar to those found in 401(k) plans. Eligible employees can contribute up to \$6,000 each year through payroll deductions. Employers may offer matching contributions equal to employee contributions (up to 3 percent of employee wages) or fixed contributions equal to 2 percent of employee wages.

SIMPLIFIED EMPLOYEE PENSION (SEP): Specifically intended for small businesses, SEPs involve individual retirement accounts created by a firm for each of its eligible employees. In years that the employer makes contributions they must be made for all eligible employees. Employees have a vested right to the employer contributions made to their accounts and they have complete control over the investment and distribution of the employer contributions.

STOCK BONUS PLAN: A defined contribution plan financed solely by the employer, or jointly by the employer and employee. Contributions are placed in a separate trust fund that invests in securities, including those of the employing company. Upon retirement or separation from the company, proceeds from the trust fund are paid out to eligible employees in the form of company stock or cash.

SWING SHIFT (see Shift)

TARGET BENEFIT PLAN: A defined contribution plan where employer contributions are based upon an actuarial valuation designed to provide a "target benefit" to each plan participant upon their retirement. The plan does not guarantee that the "target benefit" amount will actually be paid. (This would be a requirement under a defined benefit plan.) A target benefit plan's only obligation is to pay whatever benefit can be provided by the amount in each participant's account. Target benefit plans are a hybrid of a money purchase plan and a defined benefit plan.

TAX DEFERRED DEFINED CONTRIBUTION PLANS (see Defined Contribution Plans)

TOTAL COMPENSATION: All types of employee compensation combined: Wages and salaries, non-wage cash payments, and the employer's cost of employee benefits. TRADE UNION (see Union)

TUITION PAY PLAN (see Educational Assistance)

VACATION PAY: Wages received by an employee for his vacation period. See also Paid Vacation. *Pay in lieu of vacation* - vacation pay to workers who do not take the actual time off, paid in addition to wages for time worked.

VESTING (VESTED RIGHTS): Amount of time an individual must work before earning a nonforfeitable right to a pension benefit. When a worker is fully vested, the accrued benefit will be retained even if the worker leaves the company before reaching retirement age. Usually employees are fully vested if they are employed by the company when they reach the pension plan's normal retirement age. Under ERISA rules, employees must also be able to earn a vested right to an accrued benefit through completing specific amounts of service.

VISION CARE PLAN: Benefits cover eyeglasses and with few exceptions, eye examinations. Plans may also include coverage for contact lenses.

WAITING PERIOD: Duration of time between beginning of a benefit qualifying event and the start of actual benefit receipt. For example, a short-term disability plan may have a 5-day waiting period before benefits will be paid. Other benefits, such as sick leave, may be available during this waiting period.

WELLNESS BENEFITS: Preventive insurance benefits such as payments for annual physical examinations, mammograms, and children's vaccinations.

YEAR END BONUS (see Bonus (Production and Nonproduction))