

August 21, 2009

**Differences in Seasonality between the CES and QCEW Programs:
Results from the 2008 Response Analysis Survey**

Sally Anderson, LAUS

Margaret Applebaum, CES

Michele Eickman, CES

Greg Erkens, SMS

Kristin Fairman, QCEW

Jeffrey Groen, ERPDS

Steve Kroll, CES

Chris Manning, CES

Polly Phipps, OSMR

The team thanks other important contributors to this project: Victoria Battista (CES), Brian Dahlin (CES), Jennifer Harris (CES), Pat Jones (L-3 Communications), Justin McIllece (SMS), Paresch Patel (L-3 Communications), Orest Stuparek (BAE), and the data-collection staff in Niceville, Florida.

Contents

Executive Summary5

1. Introduction.....11

2. Background.....11

3. Description of Seasonality RAS17

4. Seasonality RAS Results and Analysis.....28

5. Summary57

6. Recommendations.....60

7. Figures and Tables65

Appendix A: RAS Questionnaire.....91

Appendix B: Regression Trees119

Differences in Seasonality between the CES and QCEW Programs:

Results from the 2008 Response Analysis Survey

EXECUTIVE SUMMARY

Background

- The QCEW and CES programs are linked in two fundamental ways. First, the QCEW serves as the sample frame for the CES. Second, the CES annually benchmarks its estimates of employment to universe employment counts derived mainly from the QCEW.
- At the aggregate level, QCEW and CES have different seasonal patterns, and this difference is consistent over time from year to year.
 - The seasonal differences between the two series are present in most industries.
 - The differences between the two series seem to be getting smaller over time.
- Both programs collect monthly employment data from an establishment using the same reference period, so the monthly employment figures reported by an establishment to each program should generally be identical. However, there are some differences between the programs that could contribute to differences in monthly employment figures.
- These differences include: treatment of workers not covered by UI, timing of data collection, methods used to compile and report the figures, the handling of non-response, and procedures used by payroll-processing firms and software.

Response Analysis Survey (RAS)

- The RAS focused on reasons behind the different seasonal patterns in the CES and QCEW as well as reasons for establishment-level differences in the reported CES and QCEW employment figures.
- The RAS sample consisted of 3,002 actively reporting establishments of various sizes and industries, most of which were identified as exhibiting different reporting patterns between the CES and QCEW from January 2006 to March 2007.

- The establishments in the RAS sample with reporting discrepancies fell into at least one pre-defined error group. The error groups were developed to target specific types of reporting differences that have been identified through past research and analysis. About 3% of the sample was allocated to establishments with no reporting differences.
- The RAS questionnaire was divided into two sections with identical questions: one section focused on the monthly CES report, the other on the Quarterly Contribution Report (QCR), which is the source of QCEW data.
- The questionnaire gathered information on the following topics: payroll, data sources, reporting procedures, record keeping, reference period, whether checks were counted to compute employment, the types of employees included or excluded in employment counts, and the respondent's opinion of the reason for employment differences between CES and QCEW.
- The RAS was conducted by phone from January to June 2008. The calls were made from a call center in Niceville, Florida, using a CATI instrument specifically designed for this survey.
- Out of the sample of 3,002 establishments, 2,117 responded – for an overall response rate of 71%. Of establishments that completed one or both parts of the questionnaire, 56% completed only the CES section, 44% completed both sections, and less than 1% completed only the QCEW section.
- Item non-response was a problem for the QCR section. For 34% of the responding establishments, an outside organization (such as a payroll provider firm -- PPF, or an accountant) was responsible for preparing the QCR figures, and the CES respondent wasn't familiar enough with the report to complete the QCR portion of the questionnaire or wasn't willing to allow the interviewers to contact these outside organizations. This resulted in a larger number of completed questions for the CES section and higher item non-response for the QCR questions, which made comparisons across the two programs difficult for some cases.

Findings

Reference Period

- Establishments used the correct reference period (pay period that includes the 12th of month) for the CES counts far more often than for the QCR.
- Establishments using an incorrect reference period for the QCR have greater seasonal differences between the CES and QCR employment counts (greater build up in the QCEW).
- Establishments using an incorrect reference period for the QCR are more likely to display constant employment within or across quarters or a stair-step pattern for the QCEW.
- Establishments using an incorrect reference period for the CES are more likely to display constant employment across months for the CES.

Payroll

- Establishments with more complex payroll situations have greater seasonal differences between CES and QCR employment counts.
- Having multiple payrolls is associated with differences in seasonal patterns between CES and QCR. Among establishments with single payrolls, those that pay on a monthly basis have smaller seasonal differences than those with weekly payrolls.

Report Preparation

- Establishments that obtain their CES or QCR employment from a source other than payroll tend to report different employment values to the CES and QCR.
- When the CES and QCR are prepared by the same person, the reports are less likely to have employment differences.
- Preparation of the CES or QCR employment report by an outside organization is associated with differences in employment.
- Changes to software, reports, or other data sources used to compile the employment figures are a reason for employment differences for a small percentage of respondents.

Check Counting

- A small percentage of respondents reported counting the checks issued rather than the number of persons receiving pay, but check counting did not appear to be a major contributor to employment differences.

Employee Type Inclusion/Exclusion

- Overall, respondents are reporting most employee types correctly. There are a couple of employee types where there is a higher incidence of incorrect reporting: erroneously including out-of-state employees and excluding corporate officials and executives.
- The incorrect reporting of employees is primarily associated with CES reporters.

Respondent-Provided Reasons for Differences

- Including or excluding employee types and use of a reference period other than the pay period that includes the 12th of the month are the most common reasons for the discrepancy cited by respondents.
- The incorrect inclusion or exclusion of employee types is largely related to the CES, along with worksite differences, data source or timing differences, and the counting of checks.
- Reference-period problems are largely associated with the QCR; responses indicate it is more likely for the QCR to be a monthly count of employees. In addition, automated reporting issues with payroll software or a payroll processing company are one of the reasons for differences primarily associated with the QCR.
- Establishments that reported they were not using the correct reference period were more likely to exhibit higher over-the-year growth in the QCEW.
- Approximately 25% of all reasons for employment differences included a “don’t know” answer; some of these respondents were not the respondent during the 2006-07 time frame.

December-to-January Seasonal Differences: Tree Regression Analysis

- There are a number of groups that account for a large proportion of the December-to-January seasonal difference, measured by the influence that each group has on CES and QCEW difference (see Appendix B for technical details).
- Six mutually exclusive groups were identified that account for large portions of the seasonal error.
 - Three groups in which the QCR is not filled out by the CES respondent account for nearly 50% of the seasonal error. In particular, groups in which a PPF fills out the QCR account for 31% of the seasonal error.

- One group includes establishments using multiple payrolls and/or pay periods, accounting for 16% of the seasonal difference. Nearly all of the establishments in this group say that they are reporting correctly to the CES.
- Another group includes a small subset of establishments with the same person reporting for the CES and the QCR, and these respondents typically use the same source for the CES and QCR. These establishments account for 42% of the seasonal difference. Most of these respondents said that they use the correct reference period for both programs. These results are counterintuitive, as one would expect this group to be reporting correctly; we have not been able to identify any specific problems with this group using the RAS data.
- A final group includes establishments using the incorrect reference period for the QCEW, accounting for 10% of the seasonal difference.

Recommendations

- Some reporting errors are likely to be corrected through respondent education and re-education. This could take place within the normal framework of respondent contact in the two programs. In particular, it may be helpful for the CES program to reference the quarterly report during the initiation process. This would likely have the largest impact in establishments where the same respondent completes both reports (41% of the RAS respondents).
- Additionally, we recommend developing procedures to identify, on a more routine basis, establishments that are reporting differently to the two programs and contacting them immediately after collection of the QCR to reconcile any differences.
- Reporting errors can also be addressed by redesigning the forms used to collect CES and QCR data, especially with regard to the reference period, multiple payrolls, and particular types of employees. BLS should also recommend that state QCR forms be redesigned in a manner that makes them more standard across states.
- We recommend cognitive research to explore and better understand respondent difficulties with the BLS definition of the reference period (pay period including the 12th of the month).

- We recommend conducting research on respondents who report their CES and QCEW data via EDI. These respondents were excluded from the scope of the seasonality RAS but nevertheless comprise 44% of the CES sample and therefore merit future investigation regarding their role in differences between CES and QCEW.
- Likewise, we recommend that BLS undertake a review of current EDI edit and screening parameters and explore the possibilities of incorporating more formal comparisons of CES and QCR data at the establishment level.
- We recommend further investigation into the role of payroll processing firms (PPFs), including follow-up with the PPFs that were interviewed in 2007 about their procedures for reporting CES and QCR data.
- We also recommend an analysis of the establishment characteristics of the two PPF groups accounting for a large proportion of the December-to-January seasonal difference, as identified by the tree regression analysis.
- Research on PPFs should also be done using QCEW data for California, which maintains a set of agent codes for payroll provider firms on their QCEW files.
- We recommend that BLS require all states maintain an agent code (with consistent coding) on their QCEW files. If this isn't feasible because of resources, BLS should consider expanding the practice to several more large states.
- Further analysis of data from the seasonality RAS could prove fruitful in understanding employment and seasonal differences. In particular, analysis using multivariate methods should be supported, although the missing data for particular RAS variables poses problems for such analyses.
- The method of calculating the influence that each establishment has on CES and QCEW differences provides possibilities for future CES-QCEW data quality research. Research could be conducted to pinpoint respondents for data reconciliation who repeatedly have a large absolute influence in a particular month. Also, establishments could be stratified by influence in future RAS sample designs to place emphasis on establishments with large seasonal differences.

Differences in Seasonality between the CES and QCEW Programs: Results from the 2008 Response Analysis Survey

1. Introduction

The Bureau of Labor Statistics collects employment figures through unemployment insurance (UI) tax filings under the Quarterly Census of Employment and Wages (QCEW) and through the Current Employment Statistics (CES) survey. These two programs collect monthly employment figures from an establishment for the same reference period, so the figures should generally be identical. However, differences exist between the two programs at the micro and aggregate levels, both at a point in time and in seasonal patterns. This report discusses the employment differences between the two programs and potential reasons behind the differences. The report presents findings from a 2008 response analysis survey (RAS) in which 3,000 establishments with large seasonal differences in between January 2006 and March 2007 were asked about reasons for differences in employment reported on the unemployment insurance (UI) tax and CES survey forms.

2. Background

2.1. Program Descriptions

The QCEW is a quarterly census of all U.S. business establishments subject to UI taxes, covering approximately nine million establishments nationwide. The CES is a monthly survey of approximately 390,000 business establishments in the U.S. These programs are linked in two fundamental ways. First, the QCEW serves as the sample frame for the CES. Second, the CES annually benchmarks its estimates of employment to universe employment counts derived

mainly from the QCEW. Differences in over-the-year employment growth between the two programs result in benchmark revisions to the CES.

Both programs collect monthly employment data from an establishment using the same reference period: the pay period including the 12th day of the month. For each program, establishments are instructed to report the number of employees who worked or received pay during this pay period. This definition includes employees who worked part time or full time during the period; it also includes employees who did not work but who received paid leave during the period.

Given these overall similarities, the monthly employment figures reported by an establishment to the QCEW and CES should generally be identical. However, there are some differences between the programs that could contribute to differences in the monthly employment figures. First, the QCEW definition of employment refers to workers covered by UI, whereas the CES definition does not require workers be covered by UI to be counted. This distinction matters only for certain industries; railroads, religious organizations, education, and hospitals are four examples of industries that have employees not covered by UI.¹ Second, the QCEW includes agricultural workers and private household workers, whereas these workers are outside the scope of the CES. Third, there are differences in the timing of data collection. For the CES, establishments are contacted monthly and asked about employment for the current month. For the QCEW, by contrast, establishments complete UI tax forms quarterly and report on these forms their employment counts for each of the three months in the quarter.

2.2. Seasonal Patterns at the Aggregate Level

At the aggregate level, QCEW and CES have different seasonal patterns, and this difference is consistent over time from year to year. Figure 1 plots the QCEW and CES

¹ See Table A.1 for a complete list of workers and industries that are not covered by UI.

estimates of total U.S. private nonfarm employment from March 2003 to March 2007. Figure 2 plots the difference between the QCEW and CES estimates for each month during this time period. This difference is zero in March of each year (left side of the figure) because the annual benchmark forces the CES estimate to align with the QCEW employment counts for March.

Several patterns are evident from Figures 1 and 2. From July to August, the difference (QCEW – CES) increases, as QCEW increases more than CES. From September to October, the difference decreases. From October to December, the difference increases, as QCEW increases while CES typically decreases. From December to January, the difference decreases, as both QCEW and CES decrease but QCEW decreases by more. From January to March, the difference increases, as QCEW and CES both increase but QCEW increases by more.

The differences between the two series seem to be getting smaller over time. Table 1 examines employment changes from October to December and from December to January. For each of five years, the table presents the percentage change in QCEW employment, the percentage change in CES employment, and the difference in these percentages. This difference in the October-to-December changes has decreased steadily over time, from 0.75% in 2003 to 0.50% in 2007. A similar result is found in the December-to-January changes. The difference between QCEW and CES percentage changes from December to January was -0.68% and -0.74% in 2003-04 and 2004-05, respectively, before decreasing to -0.26% in 2007-08.

The seasonal differences between QCEW and CES in the aggregate data are present in most industries. Figure A.1 shows the difference between QCEW and CES over time for 13 industry groups. The pattern most consistent across industries is the December-to-January pattern, followed by the July-to-August pattern. Retail trade shows the most dramatic differences in seasonal patterns between QCEW and CES from October to December and from

December to January. The industry group “education and health services” shows a different pattern of seasonal differences than the other industry groups. From April through August, the difference (QCEW – CES) in this industry grows a lot and then falls by a similar amount from August through October.

2.3. Why There Might Be Different Seasonal Patterns Despite Overall Similarities

Despite the similarities in the definition of employment (taking into account the scope differences mentioned above), there are several reasons why the QCEW and CES might have different seasonal patterns. One class of reasons relates to how the figures are compiled and reported by establishments. Since the QCEW and CES data are derived from separate forms that establishments complete at different times, different methods could be followed for compiling employment figures for the two programs. For instance, differences may occur in the source records, reference period, the particular types of workers an establishment includes or excludes in the counts, and the person who completes the forms. An example of the latter is when an accountant completes the Quarterly Contribution Report (QCR; the UI tax form from which QCEW data are derived) and a personnel officer completes the CES questionnaire.

Another potential reason behind the seasonal differences is how non-response is handled. The CES does not make any direct adjustment for non-response and essentially uses data from respondents to estimate the percentage growth rate of employment. The QCEW program, by contrast, imputes data for establishments that do not report for a given quarter.² QCEW and CES also have a different way of handling business births (openings) and deaths (closings). The QCEW captures these events in real time because it is tied to quarterly tax filings. By contrast, the CES fails to observe them in real time because its sample is drawn only once a year. As a

² Typically about 10% of the worksites and 5% of the total employment in the QCEW is imputed in a given quarter.

result, the CES uses a model-based approach (using data from the QCEW) to impute the net employment change in its estimates arising from births and deaths.

Other factors that have been offered as potential reasons for employment differences between the CES and QCEW include sampling error (in the CES) and payroll-processing firm and software procedures. Research on the 2006 CES benchmark revision concluded that QCEW imputation, CES non-response, and the use of payroll-processing firm procedures did not contribute substantially to employment differences. The research did find that establishment-level reporting differences in some industries, modified estimation procedures used in the aftermath of Hurricane Katrina due to imputation procedures, and birth/death modeling all contributed, to varying degrees, to these differences.³

Research by the OEUS Statistical Methods Staff using CES sample units (both respondents and non-respondents) matched to data from the QCEW suggests that reporting differences between the QCEW and CES at the establishment level are driving the differences in seasonal patterns between the two employment series. This research decomposes the overall difference between CES and QCEW into reporting differences and CES non-response. The seasonal pattern in reporting differences (QCEW–CES, for CES respondents) matches the overall pattern of QCEW–CES differences relatively closely (shown in Figure 2). The pattern of CES non-response (CES respondents vs. the entire CES sample, using QCEW data) also follows the overall pattern of QCEW–CES differences, but the magnitude of the difference is smaller than the magnitude found in the reporting differences.

³ Eickman, Michele. 2007. “BLS National Establishment Estimates Revised to Incorporate March 2006 Benchmarks.” Bureau of Labor Statistics. <http://www.bls.gov/ces/cesbmart06.pdf>.

2.4. Response Analysis Surveys

Since the early 1980s, BLS has used the RAS method to investigate establishment survey data quality.⁴ During a RAS, a respondent is contacted soon after survey completion, usually by telephone, and is asked a short series of standardized questions on record-keeping practices, records availability and use, understanding of survey instructions and definitions, discrepancies between survey definitions and answers, and other data-quality issues.

There are several advantages of using a RAS to assess data quality. One advantage is that it allows for direct questions to the respondent on the quality of the data provided, such as reasons for potential discrepancies, and also allows for indirect questions on survey instructions and definitions, data sources, record-keeping practices, and records availability and use, both of which are useful in assessing data quality. Another advantage of the RAS is the ability to use a larger sample size than other data-quality evaluation methods, such as cognitive interviews and respondent debriefings; the sample size of BLS RAS studies has ranged from 100 to several thousand respondents. The major difference between this RAS and others conducted by BLS is a longer recall period for respondents. Respondents had to be asked questions about prior-year data because there is a 6–7 month lag between the reporting of QCEW data and its release.

Earlier RAS efforts, similar in purpose to the 2008 seasonality RAS discussed in this paper, were aimed at identifying reasons behind the differences between QCEW and CES. The earlier RAS studies, conducted in 1994⁵, 2001, and 2007⁶, identified a variety of reasons for the

⁴ Karen Goldenberg, Shail Butani, and Polly Phipps. 1993. “Response Analysis Surveys for Assessing Response Errors in Establishment Surveys.” <http://www.bls.gov/ore/abstract/st/st930240.htm>.

⁵ George Werking, Richard Clayton, and Richard Rosen. 1995. “Studying the Causes of Employment Count Differences Reported in Two BLS Programs.” Pp. 793-798 in *JSM Proceedings*, Survey Methods Research Section (Alexandria, VA: American Statistical Association) http://www.amstat.org/sections/srms/proceedings/papers/1995_137.pdf.

⁶ Margaret Applebaum, Kristin Fairman, Jeffrey Groen, and Polly Phipps. 2008. “Reconciling Differences Between Administrative and Survey Data.” Pp. 913-920 in *JSM Proceedings*, Survey Methods Research Section (Alexandria, VA: American Statistical Association). <http://www.bls.gov/osmr/pdf/st080140.pdf>.

employment differences between QCEW and CES. Among those reasons were different respondents reporting data to QCEW and CES for the same establishment, different payroll records being used as the source of the establishment's employment data, the use of payroll providers, using different reference periods, and different categories of workers being included or excluded in the QCEW or CES figures.

The goal of the 2008 seasonality RAS was to study the prevalence, magnitude, and causes of seasonal differences between the two programs and to understand why establishments report different employment numbers to QCEW and CES. A sample of CES respondents with known differences between the QCEW and CES employment counts was contacted – along with a small control group without such differences – to gather information about the methods and sources used to compile employment data for the two reports. BLS studied whether different procedures for reporting data to QCEW and CES caused seasonal differences as well as whether the reasons for the differences varied by establishment characteristics (size class, industry, multi-unit establishments, survey administrative variables).

3. Description of Seasonality RAS

The seasonality RAS sample consisted of 3,002 actively reporting establishments of various sizes and industries, most of which were identified as exhibiting different reporting patterns between the CES and QCEW from January 2006 to March 2007.

3.1. Error Groups

The establishments in the RAS sample with reporting discrepancies fell into at least one pre-defined error group. The error groups were developed to target specific types of reporting differences that have been identified through past research and analysis. The error groups were defined as:

- Establishments exhibiting a different over-the-month change from December 2006 to January 2007 in the CES and QCEW (Group A).⁷
- Establishments exhibiting a larger over-the-year buildup in QCEW (between the 2nd and 4th quarters), then a larger drop in QCEW in the 1st quarter of the following year, all relative to CES (Group B).
- Establishments exhibiting a higher over-the-year growth in QCEW relative to CES (Group C).
- Establishments exhibiting a different over-the-quarter change for 4th quarter in QCEW, relative to CES (Group D).
- Establishments exhibiting constant employment within or across quarters, in only one of the QCEW and CES, or establishments with the stair-step phenomenon witnessed in the QCEW (Groups F and H).⁸ A stair-step pattern is a gradual increase (or decrease) in employment over a quarter followed by a decrease (or increase) in the first month of the following quarter.

For most of the error groups (all but F and H), the definition involves computing a change in the CES (call it ΔC), the corresponding change in the QCEW (call it ΔQ), and then computing the absolute value of the difference in these changes ($\text{Difference} = |\Delta Q - \Delta C|$). An establishment was then considered to be in the error group if the difference exceeded a threshold that depended on employment-size class (using the average of QCEW and CES employment in the base period). These thresholds were: 3 employees for size class 1–9, 7 employees for size

⁷ In using letters to refer to the error groups, we skip some letters. Group E was defined when the sample frame was being developed, but this group was subsumed into another group before the sample was drawn. Groups F, G, and I were defined separately, but since each had few establishments we combined them for analysis purposes into what is called Group F.

⁸ We also looked for a stair-step pattern in the CES, but since very few establishments had this pattern we did not include it in the error groups.

class 10–49, 10 employees for size class 50–99, 15 for size class 100–249, and 20 for size class 250+.

Prior to selecting the sample, we decided to allocate a fixed proportion of the sample to each of the error groups. Given the perceived importance of December-to-January changes to the overall QCEW-CES differences, this group comprised 40% of the sample, the largest percentage of any error group. The remaining distribution for the error groups is listed in the table below.⁹

Group	Definition	Percentage
A	Establishments exhibiting a different over-the-month change from December 2006 to January 2007 in the CES and QCEW	40%
B	Establishments exhibiting a larger over-the-year buildup in QCEW (between the 2nd and 4th quarters), then a larger drop in QCEW in the 1st quarter of the following year, all relative to CES	4%
C	Establishments exhibiting a higher over-the-year growth in QCEW relative to CES	23%
D	Establishments exhibiting a different over-the-quarter change for 4th quarter in QCEW, relative to CES	20%
F	Establishments exhibiting constant employment within or across quarters in the QCEW (but not the CES), or with the stair-step phenomenon in the QCEW	4.84%
H	Establishments exhibiting constant employment within or across quarters in the CES (but not the QCEW)	4.84%
J	Control group	3.33%

The remainder of the sample (3.33%, or 100 units) was allocated to establishments whose reported employment data to the QCEW and CES were identical (or nearly identical) for all months in which the establishment participated in the CES. These establishments were treated as a control group for comparison purposes.

⁹ Although establishments often fell into more than one error group, for sample selection each establishment was assigned to only one error group.

3.2. Sample Selection

We constructed the sample frame for the RAS by merging CES and QCEW data by unique state UI account number. Establishments known to be submitting an aggregate report (comprised of multiple locations) to either program were excluded from the frame; we felt that it would be extremely difficult to query respondents about employment differences involving aggregated reports. In defining the frame, we used several conditions to ensure that the sample would be as useful as possible in studying reporting differences between CES and QCEW. We required that QCEW data be reported (not imputed) for every month from January 2006 to March 2007. We also required that the establishment reported CES data for every month from October 2006 to March 2007. We excluded a handful of industries because of scope differences between QCEW and CES or potential complications with collection of the RAS data: Professional Employer Organizations (NAICS 561330), educational services (NAICS 61), and hospitals (NAICS 622), and all government units. Also excluded were establishments that reported their data via Electronic Data Interchange (EDI), as they are promised exclusive contact through the EDI Center.¹⁰

These restrictions produced a sample frame of 49,746 establishments. Among these establishments, 9,474 met the conditions for at least one error group and 6,031 qualified for the control group.¹¹ Among the combined group of 15,505, we eliminated duplicate observations with the same CES phone number to avoid contacting the same person more than once, leaving

¹⁰ The CES uses a variety of collection techniques, tailored to preferences of individual firms, to encourage participation in this voluntary survey. Computer Assisted Telephone Interviewing (CATI) is used for initial enrollment and collection of sample. Sample units are often transferred later to an automated method of self-reporting, such as through fax, Internet, or Touchtone Data Entry (TDE). Many large, multi-establishment firms report through Electronic Data Interchange (EDI); these firms provide electronic files to BLS that include all of their worksites. A small percentage of sample units still report by mail. Currently, about 44% of CES respondents report by EDI, 28% by fax, Internet, or mail, 16% by CATI, and 12% by TDE.

¹¹ Among the 9,474 establishments that met the conditions for at least one error group, 69% fell into only one group, 22% fell into two groups, and 9% fell into three or more groups.

10,228 establishments available for sampling. These establishments were sampled randomly, while respecting the targeted proportions in each error group, to achieve a sample of 3,002, including 100 in the control group. Figure 3 shows that the seasonal differences between CES and QCEW observed in the national data are replicated in the RAS frame (without the duplicate observations) and in the subset of the frame available for selection. The seasonal differences among the subset available for selection are more pronounced than among the entire frame; this is expected given how the error groups are defined.

Table 2 shows the distribution of the frame (including the duplicate observations) and the sample by industry, size, and several other establishment characteristics. For comparison purposes, the table also includes these statistics for the national CES sample (units that could be matched with the QCEW) over this time period. The frame is fairly representative of the entire CES sample, given the conditions used to select the frame. Most of the industry groups covered by the frame have higher proportions in the frame than in the entire CES sample; this is expected given the excluded industries. Two industry groups – trade/transportation/utilities and information/financial activities – have lower proportions in the frame than in the entire CES sample. In terms of establishment size, the frame has a smaller proportion of units in the 1–9 size class than does the entire CES sample and larger proportions in the other size classes.¹² Establishments that are part of multi-unit enterprises represent a smaller proportion of the frame (25%) than the entire CES sample (58%). This is due to the exclusion of EDI reporters and establishments known to submit aggregate reports, both of which tend to be large, multi-establishment businesses.

¹² For Tables 2 and 3, size is defined using only the months in January 2006–March 2007 for which an establishment reports both QCEW and CES employment data. First, averages are calculated separately for the QCEW and CES over these months. Second, the average of the QCEW average and CES average is computed. The resulting number is used to classify establishments into size groups.

Compared to the entire frame, the set of units that fall into at least one error group have a similar distribution by industry but are larger on average, having a larger proportion of units with 100 or more employees and a smaller proportion of units with less than 20 employees. A smaller proportion of these units are part of multi-establishment enterprises than among the entire frame. The control group comes disproportionately from the middle of the size distribution (20–99 employees) of the frame.

Table 3 breaks down the frame by error group. There are distinct differences between the composition of Groups F and H and the composition of the other groups. (See page 19 for definitions of these groups.) Most of the establishments in Groups F and H (about 75%) are in the 10–49 size class, compared to only about 30% for the other groups. Groups F and H also have a different industry composition than the other groups, with the differences occurring mainly for trade/transportation/utilities, professional and business services, and health and other services.

3.3. Seasonality RAS Questionnaire

BLS developed the 2008 seasonality RAS questionnaire based on results and interviewer experiences during a shorter, “pilot” RAS conducted in early 2007. The seasonality RAS was also pre-tested by BLS employees both over the phone and in person. Overall, more than 200 respondents were contacted during either the pilot RAS or the pre-testing. The results were used to inform the sample design, the questionnaire, the computer assisted telephone interview (CATI) instrument, and the data collection procedures.

The RAS instrument was revised extensively from the version used for the pilot RAS and during the pre-testing to provide more of the detailed data needed to understand the differences. For example, in order to pinpoint exact differences in employee-reporting problems, the

seasonality RAS contained a battery of questions asked of both the CES and Quarterly Contribution Report (QCR) respondents on exact employee types that they include and exclude.

Data collection is difficult for this type of study due to the long recall period and multiple-establishment respondents. In order to improve data collection, we centralized data collection in one center, provided on-site training, monitored interviews, and interacted with supervisors and interviewers to answer questions and ensure they were following BLS-prescribed protocol.

The questionnaire was divided into two sections with identical questions: one section focused on the monthly CES report, the other on the QCEW.¹³ Once contacted, the CES respondent of record was first asked whether he or she was responsible for filling out the CES survey and whether the respondent, another employee at the establishment, or an outside organization such as a payroll processor was responsible for compiling and filing the Quarterly Contributions Report, the source of the QCEW data.

In order to ease the burden on respondents and ensure that only questions relevant to each respondent's record-keeping and reporting practices were asked, skip patterns were introduced into the RAS questionnaire and the CATI instrument. A skip pattern takes the interviewer from one question to another based on the respondent's answer and each different answer can lead to a different path through the survey. For example, one respondent might be asked questions 1 through 5 while another might be asked questions 1, 2, and 3, and then skip directly to 5. Although all respondents did not answer the same questions, each respondent was asked relevant questions pertaining to each topic in the RAS instrument.

The set of introductory questions about the QCR was designed to gauge the familiarity of the CES respondent with the QCR and whether he or she would be able to answer questions

¹³ The questionnaire is contained in Appendix A.

specific to the QCR. If the CES respondent was familiar with the QCR, both the CES and QCR sections were completed. If the CES respondent was not familiar with the QCR, or if an outside organization completed the QCR, only the CES section was completed. If another person at the establishment completed the QCR, the interviewer contacted that individual and attempted to complete the QCEW section. If an outside organization completed the QCEW, in most cases the interviewer did not contact that organization (see Section 4.2).

The seasonality RAS questionnaire was designed to gather information on the following topics: payroll, data sources, reporting procedures, record keeping, reference period, whether checks were counted to compute employment, the types of employees included or excluded in employment counts, and the respondent's opinion of the reason for employment differences between CES and the QCR. Each of these topics is discussed in detail below.

Payroll

Once the introductory questions were complete, the interviewer asked the respondent whether the establishment had one or multiple payrolls and the frequency of each payroll (for example, weekly or monthly). If there was more than one payroll, the interviewers asked whether or not all payrolls were included in the employment counts.

Data Sources

The respondent was taken through a series of questions on the how the establishment compiles its payroll and if the payroll was used to complete the CES and QCR forms. The questions focused on whether the payroll data source used to compile the employment figures was an in-house software program (either developed internally or a commercial product) or an outside organization such as a payroll provider or an accountant. The name of the software or outside organization used by the respondent was also requested. Respondents who did not use

payroll records for the reported employment figures were asked what data source they used (for example, human resources or personnel records).

Reporting Procedures

Interviewers asked respondents who prepared their own CES or QCR reports, regardless of payroll source, if they used an existing report or program to generate the employment counts.

Record Keeping

Respondents were questioned on their record-keeping and maintenance procedures. The questions in this section focused on software changes, changes in payroll source, and any other changes the respondent made to record-keeping procedures or reports that may have impacted the reported employment figures. Additionally, the interviewer asked the respondent about record clean-up procedures such as purging of employee records, the timing of any clean-up or purging, if it was done manually or automatically by the system, and if it might affect the employment counts.

Reference Period

Both the CES and QCR reports request an employment count each month for a specific reference period – the pay period that includes the 12th of the month. Previous RAS studies have shown that not all respondents adhere to this definition, and this results in differences in measured employment between CES and QCEW. In this RAS, interviewers asked respondents if they used a cumulative monthly count, a count of employees who worked during the pay period of the 12th, a count of employees who worked during a pay period other than the 12th, or some other time frame when constructing the employment figures for the QCR or CES (or both). A follow-up question, intended to verify the answer to the initial question about the reference

period, asked if it was possible that the respondent's employment figures included employees working anytime during the month and not just the requested time frame.

Count of Checks

Respondents were asked if their employment counts included a count of checks issued rather than the number of persons receiving pay. If an employer counts checks for either the CES or QCR, an employee receiving both a paycheck and a bonus check at that establishment would be included twice in the employment counts.

Types of Employees Included or Excluded in Counts

As with reference-period problems, the inclusion or exclusion of certain employee types from employment counts has been cited as a reason behind employment differences between CES and QCEW. The CES and QCEW definition of employment does not include all types of workers a firm might potentially employ; however, some establishments or respondents may not adhere to this definition and therefore include every worker in the counts. Interviewers presented respondents with a fairly extensive list of types of employees, of which some types are and some types are not part of the CES and QCEW definition of employment, asking if the respondent had that employee type and, if so, whether that employee type was included in the CES or QCR employment figures. The RAS asked about the following types of employees:

- Employees working in locations outside the state
- Employees working in locations outside the U.S.
- Trainees
- Seasonal or temporary employees
- Retired employees receiving pensions
- Part-time employees
- Executives or corporate officials
- Employees on paid vacation, sick leave, or other paid leave
- Employees who received bonus pay but were not working
- Employees who received pay advances but were not working
- Self-employed persons
- Outside service providers (such as contractors and their employees)

- Real estate, insurance, or sales personnel working solely for commissions
- Employees on family leave not receiving pay
- Employees on other leave without pay
- Employees on workers compensation or disability
- Employees available for work or on-call but not working
- Employees on layoff or strike
- Employees not at work who resigned, were terminated or were fired
- Employees not at work who received travel or other non-wage payments

Respondent-Identified Reasons for Employment Differences

At the end of the interview, respondents were asked why they thought the reported CES and QCR employment figures differed for their particular establishment. This was an open-ended question and the respondent's answer was recorded verbatim by the interviewer. A final question asked respondents which employment count they believed was more accurate – the CES or the QCR count. If possible, the interviewer attempted to get corrected data from the respondent. About 12% of respondents (N=251) provided corrected CES data, but only 1% of respondents (N=21) provided corrected QCR data.

3.4. Data Collection

The RAS was conducted by phone from January to June 2008. The calls were made from a call center in Niceville, Florida, using a CATI instrument specifically designed for this survey. This call center collects CES data on employment, hours, and earnings on a monthly basis, and the RAS interviewers were experienced in collecting data for CES. Before receiving a call, respondents were mailed a letter that explained the issue, alerted them to the pending call and interview, and described the types of questions on the survey instrument. The letter also included a table containing the firm's reported employment figures for QCEW and CES from April 2006 to March 2007. The interviewers received on-site training from BLS on the CES and QCEW programs, the focus of the survey, and the CATI instrument. In addition, with BLS team

members supervising and monitoring, each interviewer conducted mock interviews and approximately 2 to 3 live test calls using the CATI instrument.

4. Seasonality RAS Results and Analysis

4.1. Overall Survey Response

The survey was fielded over a span of six months, and out of the sample of 3,002 establishments, 2,117 responded – for an overall response rate of 71 percent. Approximately 63% of the establishments contacted answered one or both parts of the questionnaire, while 8% declined to participate in the formal questionnaire but did agree to answer the open-ended question on the reason for the differences. About 19% refused to answer any questions; this group includes outright refusals and implicit refusals. Implicit refusals are those where an accountant prepares the payroll and government reports, but the respondent would not provide the contact information for the accountant. Interviewers were unable to reach the remaining 10% of the sample. Of establishments that completed one or both parts of the questionnaire, 56% completed only the CES section, 44% completed both sections, and less than 1% completed only the QCEW section.

Response rates do not vary a great deal by groups defined by establishment characteristics (Table 4). For instance, response rates by industry group vary from 64% in leisure and hospitality to 76% in construction. There generally does not appear to be a group that is represented in the RAS sample but not represented among respondents. Response rates for the four data-collection panels are similar. Response rates do not vary a great deal by whether an establishment is in a particular error group. Of the 100 establishments in the control group, 80

responded to the RAS. The RAS included establishments across the nation, and response rates do not vary a great deal by state. Most states had a response rate between 64% and 78%.¹⁴

4.2. Data Quality

There were three main issues thought to impact the quality of the RAS data: non-response, item non-response, and questionnaire administration. Non-response is always a concern because of the possibility that the entire sample isn't properly represented in the results. However, as mentioned above, response rates for the seasonality RAS were at an acceptable level, without much difference across industry, state, or error group, and the responding establishments appear to be representative of the entire RAS sample.

Item non-response occurred for several reasons. Some respondents felt the survey was too burdensome and opted to answer only the open-ended question on why the CES and QCEW employment figures differed (8%). Other respondents (N=23) opted out of the survey after answering only a few of the questions. Answers from respondents who answered only the open-ended question were treated as a subset when calculating the response rate and were used in the analysis only when looking at this question. Respondents who halted the interview partway through were included in the analysis of the questions they answered.

Item non-response was a problem for the QCEW section. For 34% of the responding establishments, an outside organization (such as a PPF or an accountant) was responsible for preparing the QCR figures, and the CES respondent was not familiar enough with the report to complete the QCR portion of the questionnaire or was not willing to allow the interviewers to

¹⁴ QCEW data for California provide more detail than data for other states on establishments' use of payroll providers. Among the 361 establishments from California contacted in the RAS, 38% have an agent code (used to identify particular payroll providers) on file with the QCEW program. However, only two of the agent codes have more than a handful of establishments that were contacted in the RAS. Thus, there is probably not enough information here to be useful in the analysis of RAS responses.

contact these outside organizations.¹⁵ This resulted in a larger number of completed questions for the CES section and higher item non-response for the QCR questions, which made comparisons across the two programs difficult for some cases.

Skip patterns inherent in the questionnaire also contributed to the item non-response. As described earlier, skip patterns were built into the CATI instrument in order to customize each interview as much as possible. As a result, not every respondent was asked every question. However, in most cases, all respondents answered similar questions on each topic, regardless of the skip patterns they encountered. The one exception was for establishments in the control group, which were skipped out of the open-ended question at the end asking about the employment differences, since they did not actually have any differences.

Lastly, the administration of the seasonality RAS questionnaire itself could impact the data quality, especially if it is not administered consistently across interviewers. The complex nature of the questionnaire, a result of the intricate skip patterns and question structure, made some questions difficult to administer. During the first month of collection, data were reviewed for logic and skip pattern consistency by a data-quality team at BLS. Based on the initial review, which involved team members working through the completed interviews question by question, it was determined that a few of the questions were not being administered consistently.

For example, one set of questions asked respondents about the inclusion or exclusion of certain types of employees, and there were some concerns about how this battery of questions was being presented to the respondents. From the data it appeared that in some cases, interviewers were creating hypothetical scenarios, asking the respondents “What would you do if

¹⁵ BLS did not seek to follow-up with payroll provider firms. However, if the outside organization was an accountant or corporate office, BLS asked the respondent for permission to contact them and ask about the preparation of the QCR. Most respondents who used accountants declined permission because of the prospects of being charged by the accountant.

you had these types of employees?” rather than asking them “Do you currently have or have you in the past had these types of workers?” The RAS team conducted an on-site visit to emphasize accurate question administering, address any issues confronted by the interviewers, monitor calls, and conduct re-training where necessary. Data received after the visit indicated that, in most cases, the visit had been successful. BLS also established regular conference calls with supervisors at the call center to receive status updates on the interviews and to address any issues with questions, respondents, or the CATI system as quickly as possible.

Despite these efforts, a few inconsistencies appeared in the final database. In particular, for some establishments, responses to some questions contradicted responses to other questions. Most of these issues are confined to a handful of establishments and do not significantly affect the results. For example, we found some inconsistencies between responses to two questions on reference period – one question on whether the establishment used the pay period including the 12th and another question on whether the establishment could have included employees who worked anytime during the month (rather than just those who worked during the pay period including the 12th).

Moreover, despite the re-training, we found that the skip patterns were not followed as intended in a limited number of cases, which resulted in a small number of respondents providing contradictory information about where their payroll was prepared (internally or externally). BLS analysts attempted to determine the actual answers using responses to some of the related questions on payroll. In most cases a determination could be made as to the correct responses and the records were coded accordingly. In a small number of instances, no determination could be made, and the record was excluded from tabulations and results.

Another minor complication was encountered with regards to questions about changes to software, reports, or other data sources used to compile the reports. In particular, there were 14 records that indicated no change took place but then in a subsequent answer the respondent described what kind of change took place. These questions were excluded from analysis of changes to respondent software.

4.3. Results

Reference Period

As shown in earlier RAS studies, the use of inconsistent reference periods is one possible reason for the differences between the CES and QCEW. Specific problems with the reference period involve a number of different issues. For example, respondents may misunderstand how to report for a certain week, or payroll system reports might have a lag time that limits availability for the requested reference period. The QCR requests employment figures for each month in a quarter and the report is submitted quarterly, which may make the reference period more difficult for respondents to comprehend. The 2007 pilot RAS found that some QCR respondents reported employees who worked anytime during the entire month rather than the pay period of the 12th.

We assume the use of a monthly count would lead respondents to overstate the employment as everyone who was paid at any point during the month would be counted rather than just those who worked and were paid for the pay period of the 12th. Based on this assumption, we suggest that establishments that fall into error group B, where the QCR exhibits a larger over-the-year build-up than CES, or error group C, where QCR exhibits greater over-the-year growth than CES, are more likely to use an incorrect reference period for the QCR.

Reporting of constant employment may be associated with establishments reporting employment based on a list of all employees or taking a quarterly employment total and distributing it across the three months of the quarter as opposed to reporting who worked and was paid for the pay period that includes the 12th of each month. These assumptions may be the reasons why establishments fall into error group F, where QCR exhibits constant employment within or across quarters or exhibits a stair-step pattern, or into error group H, where CES exhibits a constant employment figure across the months.

For the reference period analyses, we compare the CES and QCR responses to the reference period responses from the control group, which had minimal to no differences in employment. We also analyze the responses of establishments for which we had complete data – establishments that answered both the CES and QCR reference period questions (approximately 44% of all responding establishments). We define an incorrect reference period as when an establishment uses a pay period other than the pay period that includes the 12th of the month to report employment counts for CES and QCR; this includes a monthly count, a cumulative count, a count for a different pay period, or any other counting method described by respondents.¹⁶

Findings from the 2008 seasonality RAS suggest that reference period adherence does contribute to the difference in the employment series. Overall, respondents used the pay period of the 12th for the CES counts far more often than the QCR. About 79% of all establishments report CES employment counts for the pay period that includes the 12th of the month, compared to only 45% for the QCR. The control group is more likely to report employment counts for the correct pay period for CES and QCR, 90% and 76%, respectively.

¹⁶ We have excluded a small number of establishments with monthly payrolls from these analyses, as some reported they used a monthly count and others reported they used the pay period of the 12th. Both answers could be considered correct, and we do not have a way to know if those reporting a monthly count were reporting for the pay period of the 12th.

Looking only at establishments that responded to reference period questions for both the CES and QCR, we find that 43% of this group indicated they were using the correct pay period of the 12th for both reports. Another 46% indicated they were using one reference period for the CES and a different reference period for the QCR. Nearly all of this group (88%) reported using the correct period for CES and an incorrect period for QCR. For the remaining 11%, establishments indicated they reported incorrectly for both programs.

As discussed, if the QCR is more likely to be a monthly count instead of the pay period of the 12th we expected this would lead to an overstatement of the QCR (the monthly count accounted for about 79% of all incorrect reporting for the QCR, compared to other incorrect reporting types). This would mean those who use a monthly count instead of the pay period of the 12th for the QCR would be more likely to fall into error groups B and C, which indicate greater employment buildup in the QCR. The numbers bear this out, as we find that establishments using an incorrect reference period for the QCR are more likely to be in groups B and C (see Table 5; conversely, those reporting correctly are less likely to be in group B and C).

We also found that the data supported our assumptions on constant reporting for groups F and H. Establishments that report incorrectly for the QCR are more likely to be in group F, where QCR exhibits constant employment within or across quarters or exhibits a stair-step pattern. Establishments that report incorrectly for CES are more likely to be in error group H, where CES exhibits a constant employment figure across the months. The data also show that establishments reporting incorrectly for QCR are more likely to report constant employment for the CES.

In addition to the error group findings, we found establishments with certain characteristics are more likely to use an incorrect reference period (Table 6). For example, when

compared to other size classes, establishments with less than 20 employees are more likely to use an incorrect reference period when reporting employment counts to both CES and QCR.

Looking at industry classifications, establishments reporting to CES from the health care and other services industries and establishments reporting to QCR from the information and financial activities industries are more likely to use an incorrect reference period for their employment counts. A respondent's knowledge of his or her company payroll software or changes to the payroll also indicates how likely he or she is to adhere to the correct reference period. The less knowledgeable the respondent is about these topics the more likely he or she is to use the incorrect reference period when reporting to CES and QCR. Finally, CES establishments reporting by CATI are less likely to use the pay period that includes the 12th than are establishments that report using other methods (Touchtone Data Entry [TDE], fax, Internet, or mail).

Payrolls

We expect firms with complicated payrolls to be more likely than other firms to exhibit seasonal differences between CES and QCEW. A more complex payroll system, such as multiple payrolls or paying different employees at different intervals, requires respondents not only to be knowledgeable about employment definitions and reference periods, but also requires them to be comfortable with and understand the complex nature of their payroll and payroll systems. Results from the 1994 RAS are consistent with this expectation: establishments with multiple payrolls were more likely than those with single payrolls to have differences between CES and QCR.

Firms in seasonal industries might have more complex payrolls to help differentiate the seasonal (temporary) workers from permanent employees in the company's records. Having a

payroll that is centralized across multiple locations may make it difficult for respondents to identify the worksite of each employee. Therefore, we expect that firms in seasonal industries and firms with centralized payroll systems to report different figures to CES than to QCEW; this difference in reporting might translate into differences in seasonal patterns.

First we cover payroll type and its potential impact on differences between CES and QCEW. Firms with multiple payrolls have some workers that are paid on one frequency and at least one other set of workers paid on another frequency. For example, senior managers might be paid monthly while other employees are paid weekly. With multiple payrolls, it is possible for an establishment to use one set of payrolls for the CES report and another set for the QCR report; as a result, we expect that multiple payrolls to be associated with greater differences between CES and QCR – both at a point in time and in seasonal patterns.

One of the RAS questions asked, “Do all of your employees appear on the same payroll or do you have more than one payroll? (For example, sometimes hourly workers are on a different payroll than salaried workers or executives.)”. Most RAS respondents have a single payroll (84%); 14% have multiple payrolls, and 2% did not provide this information. The percentage of establishments with multiple payrolls increases with the size of the establishment. Among establishments with 1 to 9 employees, only 6% have multiple payrolls; by contrast, 30% of establishments with 250 or more employees have multiple payrolls (Table 7). The percentage of establishments with multiple payrolls is greater in manufacturing (28%) than in other industry groups (8% to 14%).

Having multiple payrolls is associated with differences in seasonal patterns between the QCEW and CES: establishments with multiple payrolls are more likely than establishments with single payrolls to be in error groups A, B, C, and D. (See table on page 16 for group definitions.)

For example, among establishments with multiple payrolls, 58% are in error group C; in contrast, only 44% of establishments with single payrolls are in this error group. In addition, the absolute value of the difference in the over-the-month changes (or over-the-year changes, depending on the error group) between the CES and QCEW for error groups A, C, and D is greater for establishments with multiple payrolls than for those with single payrolls (Table 8).

The RAS also inquired about the frequency of pay: “How often do you pay your employees?” The most common pay frequencies are weekly (40%) and bi-weekly (39%, see Table 9). Approximately 12% answered semi-monthly, 2% answered monthly, less than 1% answered “other”, and 7% did not answer this question. The distribution of establishments by pay frequency varies by industry. There is a sharp contrast between construction (81% paid weekly) and information/financial activities (only 10% paid weekly).

There is some evidence that pay frequency is associated with seasonal differences between QCR and CES: establishments with monthly payrolls are less likely than establishments with weekly payrolls to be in an error group (Table 10). This pattern holds qualitatively across the error groups; those with monthly payrolls are 10 percentage points more likely to be in the control group than those with weekly payrolls (15% vs. 5%). However, this evidence is only suggestive because the number of RAS respondents with monthly payrolls is small. A possible reason for lower seasonal differences among those with monthly payrolls is that these establishments have less discretion over which pay period to use when computing employment counts, and thus there is less possibility of using different periods for the QCR and CES.

As a follow up to the payroll questions, respondents were asked if they were able to include all pay groups into their employment counts. Of the 1,863 responding establishments, 2% cited that they do not include all pay groups/periods in their monthly employment total.

Construction firms are more likely to exclude a pay group from their employee count. Salaried employees are more likely to be excluded from the payroll counts. No other trends were discovered, mainly due to the small sample size of these respondents who indicated that they exclude a pay group from their employee counts.

CES and QCR Report Preparation

In this section, we focus on payroll location and type, and whether the payroll or another data source is used in compiling the CES and QCR reports. We investigate whether payroll, data source, and respondent practices are associated with differences in reported employment by comparing establishments with and without differences (i.e., inclusion in any error group compared to the control group) and by analyzing patterns in specific error groups.

Past RAS studies have identified issues surrounding report preparation procedures as a problem for correctly reporting employment counts. This includes differences in payroll or other sources used to provide employment data for the programs, and in practices employed by different establishment respondents. It also includes the use of payroll providers, including procedural changes made by payroll processing companies that have been associated with changes in employment.

Previous research has suggested that respondents who do not obtain their reported employment values directly from the payroll, or who use different sources to compile the CES and QCR report, are more likely to have reported employment differences between the two programs. Indeed, results from the 1994 RAS suggested that differences occur because of the different sources used to complete the reports. In particular, some respondents completed one of the reports using their memory as their source instead of using the payroll records, which can lead to differences. The 1994 RAS concluded that establishments that have their payroll

prepared in-house are less likely to have differences between the CES and QCEW than those that have their payroll prepared by an outside organization, such as an accountant or payroll provider. Likewise, the 2007 pilot RAS found employment differences associated with the use of different data sources to complete the reports. How the report is prepared and who prepares and submits each report may also contribute to employment differences. If two different people fill out the reports at different times, using different sources, errors and differences in employment are likely to occur.

Because the CES and QCR reports are compiled and submitted at different times, specific changes to the data sources – such as new versions of payroll software programs – and the timing of these changes could impact the reporting for the two reports. Likewise, the purging of employee records – and the timing of the purge – might be associated with a build up of employment in a program and also a drop at the time of purging. For example, if an establishment purges employee records at year end in the data source used for the QCR, we might see establishments reporting a different over-the-month change from December to January (error group A) than they do in their CES counts.

Location of Payroll Processing

Overall, payrolls are processed in-house more often than not. About 58% of respondents answering the CES portion of the questionnaire indicated that their payroll is processed in-house, while 39% have their payroll processed by an outside person or organization. For respondents answering the QCR portion only, a slightly larger percentage indicated that the payroll is done in-house (67% vs. 27% reporting their payroll processed by an outside person). The location of the payroll processing does not appear to contribute to differences in reported employment. The distribution of where the payroll is processed is essentially the same for the control group as it is

for those establishments in the error groups. Prior research suggested that establishments that do not have their payroll processed in-house are more likely to have reported employment differences between the two programs. However, our results indicate that the establishments with reported employment differences are just as likely to have their payroll processed in-house as are establishments with no reported employment differences.

Payroll Used to Obtain CES and QCR Employment Figure

Most respondents (89%) indicated that the CES employment figure is obtained from their payroll. The remaining 11% was split among other methods, such as a count of time cards (3%), memory or personal knowledge (3%), human resource records (1%), and “other” methods (3%). Other methods mentioned include the counting of heads, the use of a sign-in sheet, and an estimate by the respondent. The source of the CES employment figure does appear to contribute to differences in reported employment. In particular, establishments in the control group are more likely to obtain the CES employment figure from the payroll (97% vs. 89% for establishments in the error groups). In addition, essentially all of the 204 respondents who indicated that the CES employment figure came from a source other than payroll exhibited employment differences between the two programs.

As mentioned earlier, item non-response was an issue because not every respondent answered questions about the QCR employment. However, of those (approximately 900) respondents answering the QCR questions, a slightly larger percentage (93%) indicated that the QCR employment value is obtained from their payroll, while 6% indicated that it came from another source (with memory/personal knowledge and timecards being two of the most frequently cited non-payroll sources). Just as with the CES reports, essentially all of the

respondents who indicated that the QCR employment value was not obtained from payroll exhibited employment differences between the two programs.

Small firms (less than 20 employees) are less likely to obtain their CES figure from their payroll (85% vs. 90% for all other size groups). Small firms that do not obtain their CES figure from their payroll are more likely to use memory or personal knowledge to obtain the CES figure, whereas firms of other sizes that do not obtain their CES figure from their payroll are more likely to use personnel records or timecards to obtain the CES figure.

There are no similar size patterns when examining the source of the QCR employment value. However, the results do suggest that establishments that exhibit constant QCR employment within the quarter or across quarters, and those that exhibit a stair-step pattern in the QCR, are less likely to use payroll to obtain the QCR employment value when compared to the other groups.

Who Prepares the CES and QCR Reports?

Results presented earlier indicate that approximately 58% of all RAS respondents have their payroll processed in-house, while 39% have an outside organization prepare their payroll. We first focus on the establishments that have their payroll processed by an outside organization. Regardless of who prepares the payroll, the establishments themselves usually prepare the CES report. Approximately 69% of the establishments that have an outside organization prepare their payroll prepare the CES report themselves, while 31% have the outside organization prepare the CES report. The percentages essentially flip when the focus is the QCR report. While fewer respondents answered the QCR questions, results indicate that only 27% of establishments that have an outside organization prepare their payroll prepare the QCR themselves, while 73% have the outside organization also prepare the QCR report. Because the percentage of respondents

who answered these questions is small, the tests of statistical significance are inconclusive. However, the results suggest that who prepares the CES and QCR reports may contribute to differences in reported employment. In both cases, the error groups are more likely than the control group to have their respective employment reports prepared by an outside organization.

In addition to looking at whether the CES and QCR reports are prepared internally or externally, it is important to look at the number of different persons involved in preparing the reports. The underlying assumption for establishments that have their payroll and at least one of their employment reports prepared by an outside organization is that different people prepare the CES and QCR. However, the reports can be prepared by more than one person in establishments where the payroll is processed in-house, so we examine who prepares the CES and QCR reports without regard for where the payroll is processed. Overall, a majority of responding establishments (59%) indicated that two different respondents prepared the two reports, while 41% indicated that the same respondent prepared both. When the CES and QCR reports are prepared by the same person, they are less likely to have employment differences. In particular, 61% of the establishments in the control group had the same respondent for the CES and QCR, while only 40% of establishments in the error groups had the same respondent for the two surveys.

Changes to Software, Payroll Reports, or Other Data Sources Used to Compile the Employment Reports

Only a small percentage of both CES and QCR respondents (4%) indicated that some sort of change took place with regards to the software, reports, or other data sources used to compile the monthly CES report or the QCR forms that might have affected their employment counts during 2006/07. Despite the small percentages, the results suggest that the presence of changes

to the data sources used to compile the reports can contribute to differences in reported employment. In particular, establishments in the control group are less likely to have changes to their software, reports, or other data sources used to compile the monthly CES report (1% vs. 4% for establishments in the error groups). Likewise, establishments in the control group are less likely to have changes to the data sources used to compile the QCR report (2% vs. 4% for establishments in the error groups). In both cases, these differences are small, and only the QCR comparison is statistically significant. Nevertheless, it does appear to have a small impact.

When changes occurred, one of the most frequently cited reasons for both programs was switching to a new payroll provider or payroll software (37% for CES respondents who indicated a change vs. 33% for QCR respondents), followed by a change or update to existing payroll software or reports (27% for CES respondents vs. 45% for QCR respondents). The changing or addition of pay periods was also cited by a few respondents as a reason for change (7% for CES respondents vs. 12% for QCR respondents). In regards to timing, approximately 93% of CES and QCR respondents indicated the change took place in 2006 or 2007. The changes were implemented at year's end (December or January) about 32% of the time for both the programs. The remainder of establishments instituted changes relatively evenly throughout the rest of the year.

Purging of Employee Records

Slightly over half of the CES respondents (52%) indicated that they do not purge their payroll records. Approximately 27% cited a purging of employee records over the survey period – and over half of these establishments purged records at the end of the year. The next most frequently cited time of record purging was after taxes and/or W2 forms were completed. When the QCR respondent was a different person, they were asked the same questions about the

purging of payroll records, and the results were very similar: approximately 25% indicated that they purge records at some point during the year, while 56% indicated that no purging took place.

The purging of records does appear to contribute to differences in reported employment. In particular, establishments in the control group are much less likely to purge their payroll records. Approximately 74% of the control group reported that they do not purge, compared to 51% of establishments in the error groups. Examined another way, establishments in the error groups are more likely to report that they do purge their payroll records (28% vs. 22% for establishments in the control group). A relatively large proportion of establishments in the error groups (19% vs. 4% for establishments in the control group) did not know if purging was done. Nevertheless, it does appear that the purging of payroll records does have some impact on the differences in reported employment between the CES and QCR.

As mentioned earlier, over half of the establishments that reported purging payroll records indicated that they purge at the end of the year. And most establishments reported purging inactive and terminated employees from the payroll. Given this timing and type of purging done, we would expect to see more of these establishments in the group exhibiting a different over-the-month change from December 2006 to January 2007 (group A). However, these establishments are distributed relatively evenly across the different error groups. One interesting trend is that larger firms (50 or more employees) are more likely to purge their payroll records than are the small-to-medium sized firms (33% vs. 22% for establishments with employment less than 50 employees). Results also suggest that establishments with multiple payrolls are more likely to purge payroll records (34% vs. 27% for establishments with single

payrolls). These results are logical since it is typically the larger firms that have multiple payrolls.

CES and QCR Report Preparation Summary

Results from the questions on report preparation, including payroll practices and origins of the employment values suggest that we cannot point to one major issue regarding report preparation that causes the discrepancies between the CES and QCR. Our analysis casts doubt on one issue that was thought to potentially contribute to the differences in reported employment between the two programs: the location of the payroll processing. However, our analysis did identify several issues that appear to contribute to the reported employment differences.

Establishments that obtain their CES or QCR employment value from a source other than the payroll tend to report different employment values to the CES and QCR. While only a small percentage of respondents actually reported using a source other than payroll for one or both of the reports, practically all of them had reported employment differences between the two programs. Respondents that don't obtain their CES employment values from their payroll tend to be from smaller establishments (9 or fewer employees) and use memory or personal knowledge to obtain the CES employment value. In contrast, respondents that don't obtain their QCR employment values from their payroll tend to be from medium-sized to larger establishments (20+ employees).

While the location of the payroll processing does not appear to contribute to reported employment differences, the location of the monthly and quarterly report preparation does. Our results suggest that the preparation of the CES or QCR employment report by an outside organization such as a payroll processor, accountant, or corporate headquarters is associated with differences in reported employment between the two programs. This is because it likely means

the two reports are not completed by the same person. Indeed, additional tabulations suggest that establishments with one respondent preparing both reports are less likely to have employment differences than are establishments with multiple respondents.

Making changes to software, reports, or other data sources used to compile the employment figures also appears to be associated with reported employment differences between the two programs. A small percentage of respondents (4%) indicated that some sort of change took place that might have affected their CES employment counts during 2006-07; the percentage was identical for the QCR. While these percentages are small, nearly all of these establishments had reported employment differences between the two programs.

Also, the purging of employee records appears to be associated with different employment values. With regards to the CES, establishments in the control group (no differences in reported employment between the CES and QCR) were more likely to say that they did not clean up or purge records, by a wide margin (73% vs. 51% when compared to establishments that exhibited differences in reported employment). Likewise, with regards to the QCR report, the same general percentages apply. Overall, the data suggest that the purging of employee records contributes to reported employment differences between the two programs.

Check Counting

In this section, we focus on the possibility that a respondent's employment count is a count of checks issued rather than a count of persons receiving pay. A respondent whose employment counts are a count of the number of checks issued for the reference period may overstate employment. For example, if a respondent pays a bonus to each employee in addition to the usual paycheck and reports his employment to BLS using a count of checks, they will report having twice as many employees as they actually employed.

In this RAS, we asked respondents whether it was likely their monthly employment figure was a count of checks issued rather than the number of persons receiving pay. Most of the CES respondents answered the check counting question (88%). However, the QCR had a large percentage of non-response for the check-counting question (58%). Many of the missing responses for QCR are due to an outside organization preparing the QCR reports and therefore, because no outside organizations were surveyed as part of the RAS no QCR interview was conducted.

Overall, most RAS respondents correctly counted paid employees rather than checks for both CES and QCR. Only about 11% of all CES establishments and 10% of QCR establishments that fell into at least one error group reported a count of checks rather than a count of persons receiving pay for both CES and QCR. The use of a count of checks increases in the larger size classes for both CES and QCR (however, this is not true for the largest size class in QCR). The control group was slightly less likely to report a count of checks rather than a count of persons receiving pay, 7% for CES and 0% for QCR.

Previous research and findings suggested that establishments that count checks instead of persons would fall into error group A (establishments exhibiting a different over-the-month change from December 2006 to January 2007) as most bonus checks are issued at the end of the calendar year. Our analysis does not support this theory, as there was not a strong tendency for those who indicated they reported checks to fall into group A. As a whole, the majority of respondents do not use a count of checks for the employment count reported to CES and QCR. For the small percentage of respondents who do report using a count of checks, the check count does not appear to contribute to the differences between the CES and QCR programs.

Including/Excluding Employee Types

In general, CES and QCR respondents should be using the same definition of employment for both reports. However, since the CES and QCEW employment definitions do not include every type of worker a firm might have on its payroll, this may lead to respondent confusion and inconsistent reporting between the two programs. In addition, respondents may not read the definitions and/or different respondents may submit the QCR and the monthly CES report, again contributing to reporting differences.

The 1994 RAS suggested that when respondents make this error there were two employee groups that are most often reported incorrectly. The RAS found that sometimes CES reporters excluded corporate executives and/or included employees located outside the State, both of which are counter to the CES employment definition. In the recent 2007 pilot RAS, 37% of 165 establishments cited the inclusion or exclusion of certain groups of employees as the reason for differences in their CES and QCEW employment counts; employee type inclusion or exclusion was more of a problem for CES than QCR respondents. These studies suggest that it may be unclear to CES respondents who they should include or exclude in employment counts so in some cases they err on the side of caution and include all employee types leading to overcounts.

RAS respondents were asked if they had certain employee types and whether or not they included or excluded those employees in their monthly employment counts. The questions were asked for both programs in an attempt to identify differences in how employee types are reported between the two programs. The question battery included 20 employee types¹⁷ (see pages 26-27). The number of establishments that had different employee types varied, thus, in some cases

¹⁷ One question related to the inclusion or exclusion of resigned, terminated, or fired employees. This question was particularly problematic, as it would be appropriate to include these types of workers if they worked or received pay during the pay period. Therefore, we have excluded it from our analysis.

the numbers we report are small. Our first step in analyzing these questions was to determine what constituted “incorrect reporting”. In some cases, the employee groups should be included in the CES and the QCR (part-time, employees on paid leave, corporate officials, etc.) and in other cases they should be excluded from both (self-employed, family leave without pay, employees on layoff or strike, etc).

In these analyses, our primary interest is whether or not respondents are correctly including or excluding certain types of employees and if there is consistency or not across the programs. We also attempt to identify which employee groups are most often reported incorrectly and what types of establishment characteristics are associated with incorrect reporting. Most respondents indicate they report employees correctly; therefore we focus only on the small number of employee types with reporting problems.

For both the CES and QCR, respondents should only report employees that are within the state they are located. For example, if they receive a UI form from Minnesota and have employees in both Minnesota and Idaho they should only report the employees in Minnesota. The RAS results indicate that incorrect reporting of out-of-state employees is a larger problem for the CES respondents (15.5 percent) compared to the QCR respondents (7.8 percent). Since the QCR has tax implications, it may have greater oversight than the CES, and as a result more accurate reporting of out-of-state employees. Adding support to this supposition is the finding that the percentages of incorrect reporting of out-of-state employees do not change very much when you consider a set of matched respondents where the same person completed the monthly CES and the QCR reports. Several establishment characteristics – in particular industry and size – are associated with the incorrect reporting of out-of-state employees in the CES:

manufacturing and construction establishments, and larger establishments in excess of 99 employees, are more likely to have this type of error.

Incorrect reporting of corporate officials and executives is also more prevalent among the CES respondents. Nearly 9% of CES respondents failed to include these employees in their monthly counts, compared to less than 4% of QCR respondents. It may be that this is proprietary information not readily available to the person who fills out the CES monthly report.

Characteristics associated with incorrect reporting for the CES and QCR are as follows:

- The size of the establishment is inversely related to incorrect reporting, as incorrect reporting of corporate officers and executives decreased as establishments increased in size (50 or more employees).
- The industries most likely to exclude corporate executives are trade, transportation, and utilities; professional and business services; and leisure and hospitality.
 - In transportation and utilities as well as professional business services, QCR respondents less often include officials and executives, compared to CES.
 - In leisure and hospitality, CES respondents are more likely to fail to include officials and executives.
- Establishments that report CES data via computer-assisted telephone interviewing (CATI) are more likely to incorrectly exclude executive officers from the CES report.

About 6% of CES respondents were incorrectly reporting employees who receive bonus pay but who were not working. This was slightly less of an issue for QCR.

CES respondents were slightly more likely to report temporary or seasonal employees incorrectly (4%) than their QCR counterparts at (1%). Respondents in the manufacturing industry were most likely to exclude temporary and seasonal employees from their CES reports.

Employees on family leave without pay (6.9 percent), other leave without pay (5.3 percent), workers compensation or disability (8.9 percent), and employees on-call but not working (4.2 percent) had higher percentages of incorrect reporting among the CES respondents, with manufacturing and professional and business services more likely to report incorrectly. None of these employee groups should be included in either the CES or QCR because they are not being paid. The percentages were smaller for the QCR respondents. When the same person completed the CES and QCR, the percentages reporting incorrectly declined overall for both programs and became more similar.

There are definite inconsistencies between how respondents report certain employee groups to the two programs. Most of the inconsistencies, with the exception of corporate executives and officials, are likely to produce a slight over-count in CES reporting compared to QCR reporting.

Open-Ended Respondent-Provided Reasons for Differences

Near the end of the RAS interview the respondents were asked what they thought caused the reporting discrepancy between the two reports. Their text responses were captured by the interviewer and keyed into the CATI system. If an interviewer spoke with both the CES respondent and QCR respondent for a given establishment, both of their responses were captured.¹⁸ Control group members were skipped out of this question since they were selected based on a lack of difference in employment values between the programs.

The data quality of this question was very good; only five respondents did not answer this question. Approximately 14% of all respondents indicated that they did not know the reason for the differences in employment. The majority of those who answered “don’t know” were from

¹⁸ This question was also asked during the 2007 pilot RAS but it was placed at the beginning of the questionnaire. This resulted in a tendency for the respondent to want to end the interview after they answered why there are differences question. To avoid this problem, we placed it at the end of the questionnaire.

establishments where information was only gathered about one program. As with all of the RAS findings, there were more CES than QCR responses.

A total of 28 codes were created by CES and QCEW staff to reflect the respondent provided reasons. In order to increase the sample size of the groups for analysis we grouped similar codes together into major subject categories. Table 11 displays the categories along with the individual codes in each group ranked by the highest frequency of assignment. Depending on what the respondent said, it was possible for an establishment to be assigned more than one code, so the results are compiled by total number of codes rather than total number of establishments.

Table 12 displays the overall distribution of respondent provided reasons by the major categories. Overall, employee type reporting issues (28%) and reference period issues (26%) were most frequently noted as reasons for the discrepancies. There were also a substantial percentage of responses in which the respondent indicated they did not know the difference or were not the respondent at the time (25%). Other reasons provided for employment differences included: worksite differences, human error, data sources or timing differences, the counting of checks, and automated report problems, in that order. A small percentage of respondents (8%) refused to participate in the RAS but did agree to answer the open-ended question on reasons for differences, and we include their distribution in Table 12 for comparison purposes.

In addition to coding the reason the respondent provided for the differences, either the CES or QCR program was designated if the respondent indicated that the reason was associated with a certain program (see Figure 4). Employee type reporting issues appear to be largely related to the CES, which corresponds with earlier findings on the inclusion and exclusion of employee groups. Leisure and hospitality industries were more likely to have a problem with

reporting employee types correctly; in earlier findings on the inclusion and exclusion of employee types, this industry group was more likely to incorrectly exclude officials and corporate executives.

Reference period problems are largely associated with the QCR. This supports earlier findings that QCR respondents are more likely to report a monthly employee count, which may indicate an over count of employees in the QCR. Establishments with 20-49 employees and establishments in the construction industry are slightly more likely to report reference period issues.

Worksite differences account for approximately 11% of all the responses for employment differences. The most common problem in this group is that the data include more than one location, which is more commonly associated with the CES. Establishments that range from 20 – 99 employees are more likely to report worksite differences.

Human error (9% of all the reasons for employment differences) is more closely associated with the CES program, which supports previous findings that the CES is more likely to have data entry error in reporting methods such as TDE and CATI. Check counting problems are more commonly associated with the CES, and are more likely to be reported by larger establishments (50 or more employees).

Results also indicated that the QCR was more likely to be produced using an automated source, either with payroll software or by a payroll-processing firm. Automated reporting issues, although a small percentage of all reasons for differences, are more prevalent in the QCR than the CES.

Overall, trends between the respondent's reasons for why differences exist and the error groups to which they belong were mixed. Respondents indicating differences were a result of

reference period problems were more likely to occur in group C, where establishments exhibit higher over-the-year growth in the QCR. Reference period problems were reported more often in the QCR with the most frequent reason being a monthly count, which would result in the overstatement of QCR counts and a higher over-the-year growth in the QCR. Respondents suggesting that the differences were a result of check counting were slightly more prevalent in error group A (establishments exhibiting a different over-the-month change from December 2006 to January 2007) possibly a result of counting holiday bonus checks. More often than not, check counting was more prevalent in the CES than the QCR.

There were no strong trends with respect to the error groups in establishments that reported an error with their automated reporting. Only 4% of the reasons were due to automated error and most of these cases were attributed to the QCR. Worksite issues also did not have a strong tendency to fall into one of the error groups; however, interviews where both program sections were completed were more likely to report worksite differences. There are no strong trends in error group type for those few respondents who reported data timing and source problems.

We are able to generalize about factors that influence the employment differences from respondent provided reasons; in fact, some of the earlier findings are supported by these data. First, responses indicate it is more likely for the QCR to be a monthly count instead of including only the pay period of the 12th. Second, the inclusion and exclusion of certain employee groups appears to lead to respondent confusion and improper reporting. Although there is not a strong tie between respondent provided reasons and the error groups, there are trends between the reported reasons and the likelihood of falling into a certain error group. For example, those who

report a monthly QCR count are more likely to be in error group C, which is higher over the year growth in the QCEW relative to the CES.

December-to-January Seasonal Differences: Further Analysis using Tree Regression

When the RAS sample was drawn particular interest was placed on error group A, which is defined as establishments that exhibit a different over-the-month (OTM) change in the two series from December 2006 to January 2007. Past research and analysis identified this seasonal difference as one of the more pronounced differences, and the group comprised 40% of the RAS sample. Given its importance, we undertook additional multivariate analysis using tree regression methodology, analyzing the influence of each responding establishment on CES and QCEW differences (Appendix B provides details on the methodology behind the tree regression analysis).

The tree regression analysis identified six mutually exclusive groups that account for most of the December to January seasonal error. Each group is detailed below, including the major distinguishing characteristics and the percentage of the seasonal difference that the group explained. We also include other important yet secondary characteristics of the given group. Note that the percentages will add up to more than 100%, as the analysis also uncovered groups that counteract the effect of these six groups. The groups are as follows:

1. The major distinguishing characteristic of the first group is that a Payroll Provider Firm submits the QCR. This group consists of 4.4% of the respondents (77), but accounts for 21% of the seasonal difference.
2. A second group also includes establishments for which a Payroll Provider Firm submits the QCR as the major distinguishing characteristic, but includes classification in the Construction, Professional & Business Services, or Leisure & Hospitality Services

industries as a secondary characteristic. This group consists of 3.5% of the respondents (62) and accounts for 10% of the seasonal difference.

3. The third group includes establishments for which the CES respondent does not fill out the QCR report (those completing the QCR would include payroll provider firms, accountants, or corporate headquarters). This group consists of 2.8% of the respondents (49) but accounts for 18.4% of the seasonal difference.
4. The fourth group includes establishments for which the CES respondent is the same person as the QCR respondent, consisting of 8% of the respondents (142) and accounting for 42% of the seasonal difference. It is important to note that these establishments represent a very small portion of the respondents while still accounting for almost half of the seasonal difference. Additional characteristics of this group are:
 - a. A slightly higher proportion of these respondents said they used the correct reference period for both programs.
 - b. Respondents typically indicated that they used the same source for both reports.
5. A fifth group includes establishments for which the wrong reference period was used for the QCR, consisting of 5% of the respondents (86) but accounting for 10% of the seasonal differences. Establishments in this group fell into the Construction, Professional & Business Services, or Leisure & Hospitality Services industries.
6. A sixth group includes establishments that use multiple payrolls but claim that all payrolls are included in the CES, consisting of 1.4% of the respondents (24), but accounting for 15.5% of the seasonal difference. Establishments in this group fell into the Construction, Professional & Business Services, Health Services, or Other Services industries.

The results from the tree regression analysis indicate that not one, but a number of different factors contribute to the December-to-January seasonal difference between the CES and QCEW. The first three groups in which the QCR is not filled out by the CES respondent account for nearly 50% of the seasonal error. This result supports the research from previous sections. In particular, groups in which a PPF fills out the QCR accounts for 31% of the seasonal error. A single group in which the same person fills out the CES and QCEW accounts for 42% of the seasonal error. This result is counterintuitive as we would expect the same respondent to provide the same information to both programs, as of yet, RAS analyses have not identified the problems associated with this group. Another group consists of establishments that are using an incorrect reference period for the QCR, again supporting findings from previous sections. A final group consists of a small group of establishments with multiple payrolls in the Construction and Professional & Business Services industries. Given that respondents in this group said they included all payrolls in the CES report, we would need to further look at its characteristics to understand why its establishments' responses had such a dramatic impact for such a small group.

5. Summary

The 2008 seasonality RAS results point to a number of different reasons behind the CES and QCEW differences, many of which have surfaced in earlier research. However, our analyses provide important detail on reporting problems and point to possible solutions to reduce measurement error. We have been able to identify characteristics of establishments, respondents, and records keeping sources and practices associated with CES and QCEW differences, and in some cases, link characteristics to specific employment and seasonal differences.

The reference period requested by BLS, the pay period that includes the 12th of the month, is a difficult concept to convey to respondents and causes reporting errors. Our analyses

show that establishments are less likely to adhere to the 12th of the month reference period when reporting QCR employment counts, a finding supported by respondents' explanations of reasons for differences. Establishments using an incorrect reference period when reporting the QCR display seasonal differences – that of a greater build up in the QCEW compared to the CES. In addition, establishments using an incorrect reference period for the QCR are more likely to display other employment reporting problems, that of constant employment and a stair-step pattern. Establishments using an incorrect reference period for the CES are more likely to display a pattern of constant reporting.

Our analyses show that establishments with more complex payroll situations display larger seasonal differences between the CES and QCEW. In addition to establishments with multiple payrolls, establishments with a single payroll that is weekly compared to monthly are more likely to display different seasonal patterns. Thus, the greater the payroll complexity, the greater the odds that CES and QCR employment data are reported differently.

Differences in data sources and the location of employment report preparation, along with changes to the data source and/or report software, factor into CES and QCR employment differences. Establishments that obtain their CES or QCR employment from sources other than payroll tend report different employment values. In addition, the preparation of CES or QCR reports by outside organizations is associated with seasonal differences, as reports are not completed by the same person. While changes to the software and associated reports used to compile the employment are not commonplace among establishments, they do occur and are associated with employment differences for a small percentage of respondents. Likewise, the purging of employee records appears to be associated with seasonal differences.

As with earlier RAS studies, we identified the exclusion or inclusion of certain employee groups as a reason for employment differences; this was also the most commonly reported reason by respondents for CES and QCR differences. The incorrect reporting was primarily associated with the CES and involved the inclusion of out-of-state workers and exclusion of corporate officials and executives. This reporting error was the most commonly stated reason RAS respondents provided for employment differences.

Additional reasons RAS respondents provided for employment differences included worksite differences, differences in data sources and timing, and the counting of checks, all primarily associated with the CES. As noted earlier, reference-period problems are commonly reported by respondents and are largely associated with the QCR, along with automated reporting issues with payroll software or a payroll processing company.

The use of a multivariate technique called tree regression identified a number of groups that account for a large proportion of the December-to-January seasonal difference, as measured by the influence each group has on the seasonal differences between the CES and the QCEW. The results show that three groups of establishments in which the QCR is not completed by CES respondents account for approximately 50% of the December-to-January error; in particular, two groups in which a payroll provider firm fills out the QCR account for 31% of the seasonal error. Characteristics of other groups include establishments with the same person reporting to the CES and the QCR, establishments reporting the incorrect reference period to the QCEW, and establishments using multiple payrolls and/or pay periods. We think continued exploration of these data with tree and other multivariate methods would be fruitful, although the item non-response may pose problems for such analyses.

6. Recommendations

Some of the reporting errors made by respondents could be corrected through respondent education and reeducation. For CES, this could take place during the initiation calls, monthly data-collection calls, and edit-reconciliation calls. Respondents and CATI interviewers could benefit from focused introductory materials and training on specific problems. It may be helpful if the CES interviewers referenced the QCR during the initiation process. It is possible that respondents may simply not realize that the programs are usually asking for the same number when it comes to employment counts. This would likely have the largest impact in establishments where the same respondent completes both reports, which was 41% of the RAS respondents. The QCEW program has less direct contact with respondents. QCR respondents are generally contacted by the State offices only to clarify certain establishment classifications such as the industry code or to explain large changes to their data. But these contacts, however limited, could be used to reinforce the key concepts and definitions of items used by BLS on the quarterly report.

The recommendations above are actions that could be taken within the normal framework of respondent contacts in the two programs. A more effective approach would be to develop procedures to identify, on a more routine basis, establishments that are reporting differently to the two programs and contact them immediately to reconcile the differences. The timing of this process could be in tandem with the collection of the QCR data, as the CES data would have already been reported. A more “real-time” edit-reconciliation call would greatly reduce the respondent’s recall burden and potentially correct any errors for future reporting. As an ongoing project, this could potentially be a resource-intensive task, and BLS would have to allocate resources accordingly to cover all components of the work.

Reporting errors can also be addressed by redesigning the forms used to collect CES and QCR data. Indeed, research is underway on several aspects of the CES form, including emphasizing the reference period, dealing with multiple payrolls, and accounting for particular types of employees. Although BLS is not responsible for the design of the state QCR forms, BLS could still recommend that these forms be redesigned, making them more standard across states and emphasizing the correct concepts, especially the reference period – which is a proven source of respondent confusion. Anecdotal evidence from RAS interviewers suggested that the QCR form was one of the more frequently mentioned problems by the RAS respondents (in particular, they didn't think the reference period was listed on the form). Along these lines, BLS could also review the instructions and content of the Multiple Worksite Report, which is used by multi-establishment firms to disaggregate a firm-level report into a report for each establishment.

We also recommend cognitive research to explore and better understand respondent difficulties with the BLS definition of the reference period (pay period including the 12th of the month). Problems with the understanding of and adherence to this reference period have been found in many employer studies and involve several BLS programs, not just CES and QCEW.¹⁹

It might also be worthwhile to conduct research on respondents who report their CES and QCR data via EDI. These respondents were excluded from the scope of the seasonality RAS because they are promised exclusive contact through the EDI Center. However, EDI reporters comprise 44% of the CES sample and therefore merit future investigation regarding their role in differences between CES and QCEW. As part of the review of EDI reports, we recommend that BLS also undertake a review of current EDI edit and screen parameters, and explore the

¹⁹ See: Karen L. Goldenberg (1996), "Using Cognitive Testing in the Design of a Business Survey Questionnaire," <http://www.bls.gov/osmr/pdf/st960120.pdf>; Karen Goldenberg and Jay Stewart (1999), "Earnings Concepts and Data Availability for the Current Employment Statistics Survey: Findings from Cognitive Interviews," <http://www.bls.gov/osmr/pdf/st990040.pdf>; Karen L. Goldenberg and Mary Anne Phillips (2000), "Now that the Study is Over, What Did You Really Tell Us? Identifying and Correcting Measurement Error in the Job Openings and Labor Turnover Survey Pilot," <http://www.bls.gov/osmr/pdf/st000150.pdf>.

possibilities of incorporating more formal comparisons of CES and QCR data at the establishment level.²⁰

The analysis using regression trees indicates that establishments that use a payroll processing firm (PPF) to complete the QCR account for a large share of the differences in trends between QCEW and CES from December to January. This finding suggests that further investigation into the role of PPFs could be fruitful. Before the seasonality RAS was fielded, members of the RAS team participated in interviews with PPFs to ask about their procedures for reporting CES and QCR data. Although personal interviews were conducted with the major payroll provider firms, more work remains to be done, including following up with PPFs that did not appear to be reporting employment correctly. In addition, an analysis of the establishment characteristics of the two PPF groups accounting for a large proportion of the seasonal difference, as identified by the tree regression analysis, should be carried out as it could provide insight into seasonal difference issues in certain PPFs and establishments.

Investigation into the role of PPFs should also be done using QCEW data for California,²¹ which is the only state to maintain a set of agent codes for payroll provider firms on its QCEW files. Some research has already been done with these data by QCEW staff, but more could be learned if similar data were available for other states. As a result, BLS should consider allocating resources for all states to maintain PPF agent codes -- with consistent coding -- on their QCEW files. If doing so for all states isn't feasible, BLS should consider expanding the practice to several more large states.

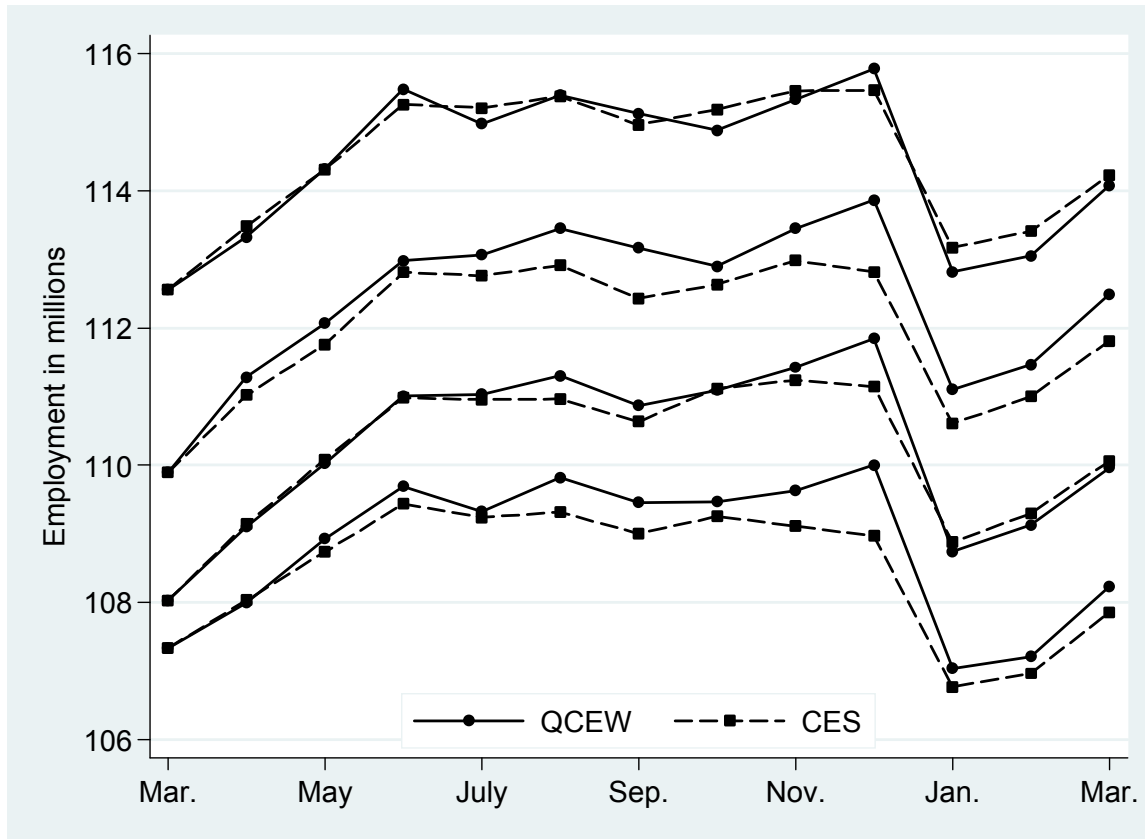
Finally, further analysis of data and use of the methods from the seasonality RAS could prove fruitful in understanding employment and seasonal differences. Analysis using

²⁰ EDI report level comparisons are not typically carried out.

²¹ The maintenance of PPF agent codes is not covered under the standard labor contract that the BLS has with the states. Maintenance of the PPF codes increases workload for the California state office and is funded separately.

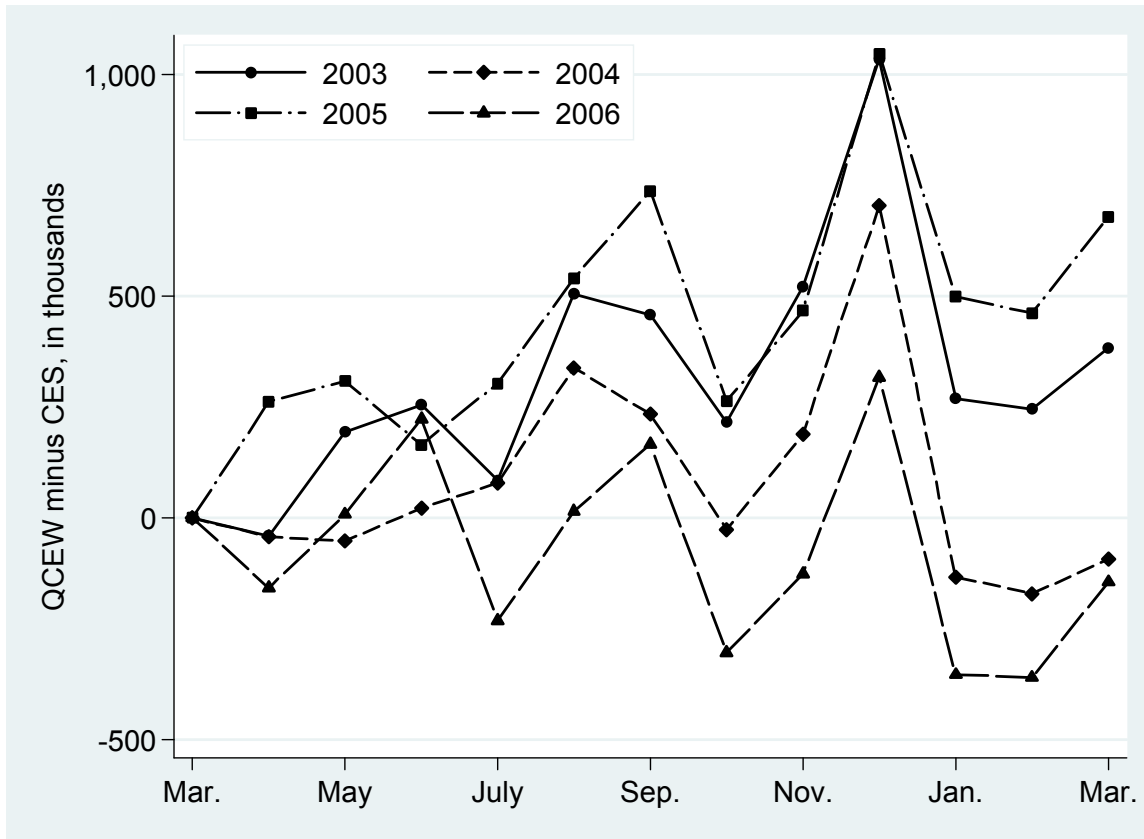
multivariate methods should be supported, although the missing data for particular RAS variables poses problems for such analyses. In addition, the method of calculating the influence that each establishment has on CES and QCEW differences provides possibilities for future CES-QCEW data quality research. Research could be conducted to pinpoint respondents for data reconciliation who repeatedly have a large absolute influence in a particular month. Also, establishments could be stratified by influence in future RAS sample designs to place emphasis on establishments with large seasonal differences.

Figure 1. QCEW and CES Estimates of Employment, March 2003–March 2007



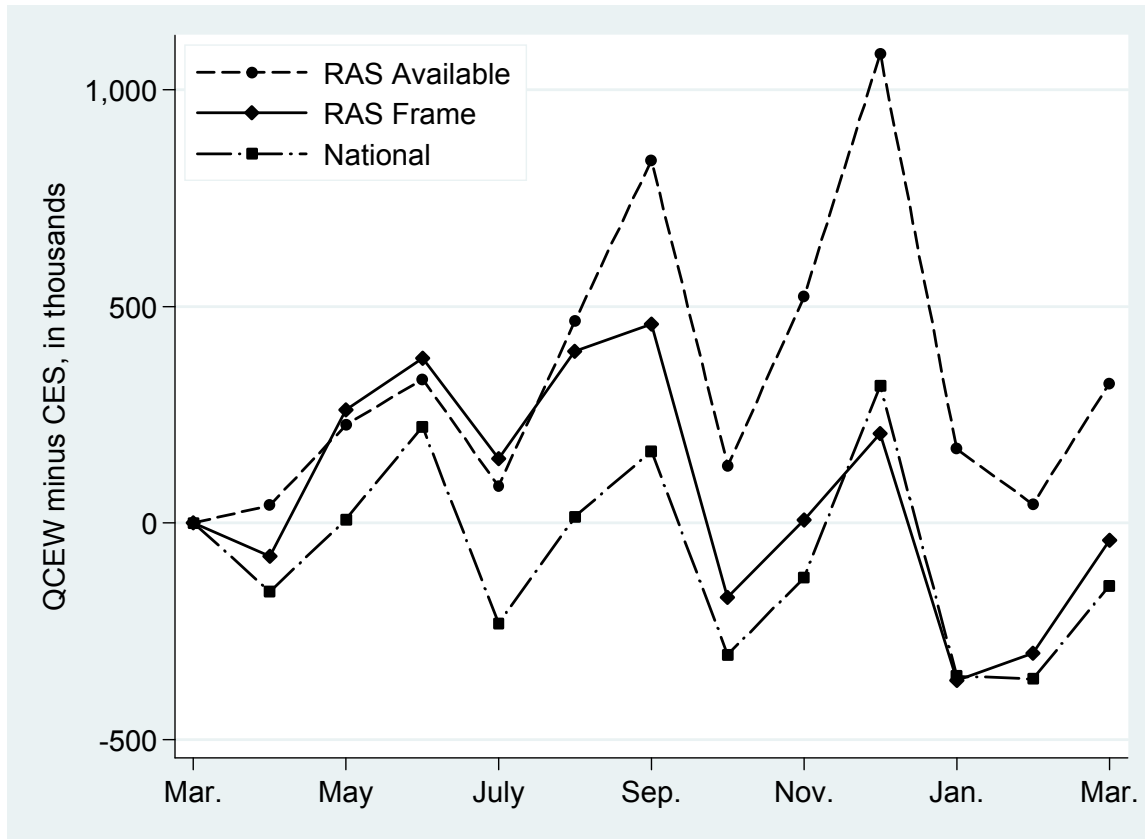
Notes: Employment is total U.S. private nonfarm employment. The series shown, from bottom to top, start in March 2003-2006 (after the benchmark) and end in March 2004-2007 (before the benchmark).

Figure 2. Difference between QCEW and CES Estimates of Employment, March 2003–March 2007



Notes: Employment is total U.S. private nonfarm employment. The series labels correspond to the year at the beginning of a given 13-month period; for instance, the series labeled “2003” begins in March 2003 (after the benchmark) and ends in March 2004 (after the benchmark).

Figure 3. Seasonal Differences between QCEW and CES Employment for RAS Frame and National, March 2006–March 2007



Note: The “National” series is based on the published QCEW and CES estimates of total U.S. private nonfarm employment (same as Figure 2). The “RAS Frame” series is based on a comparison of two sets of CES estimates of total U.S. private nonfarm employment using only the data for RAS frame – one set using QCEW employment and the other using CES employment. The “RAS Available” series is constructed in a similar fashion for the subset of the RAS frame that was available for sampling.

Figure 4: Program identified with respondent-provided reasons for differences (in percent)

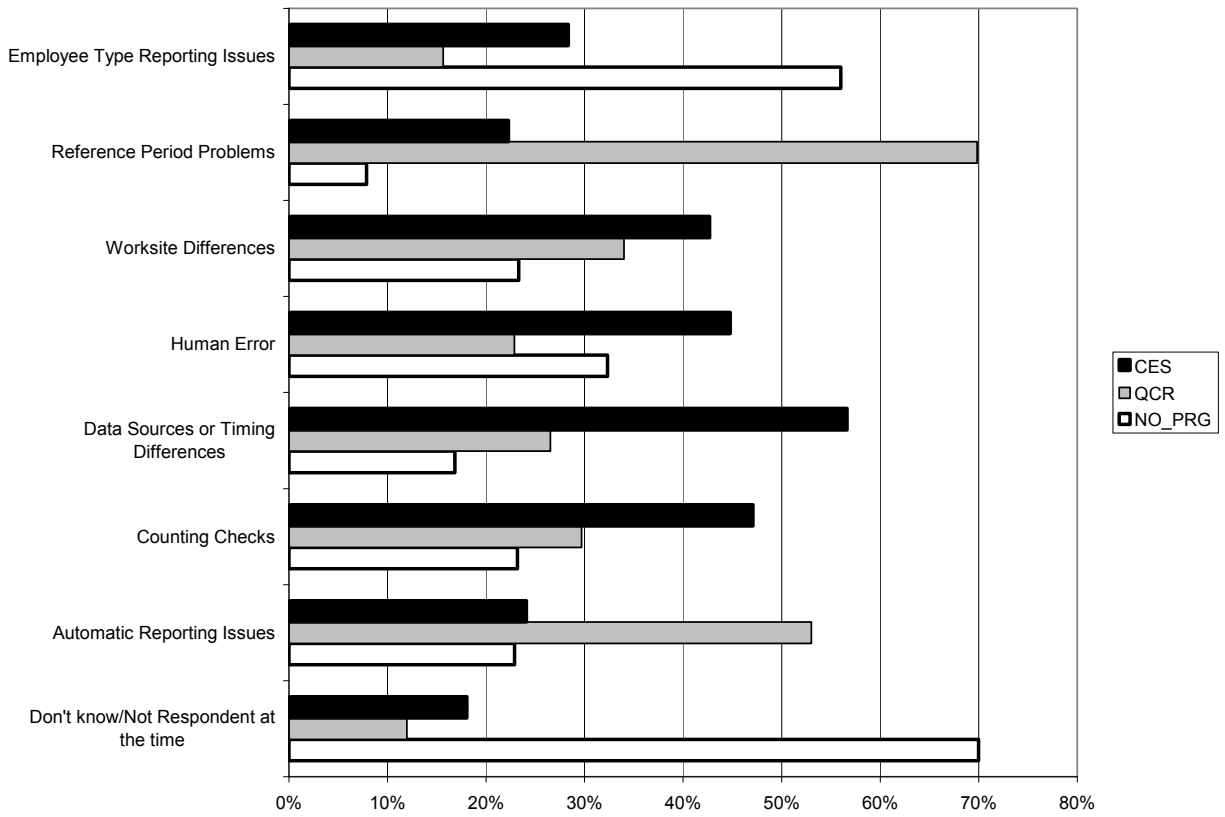


Table 1. Employment Change from October to December and from December to January, QCEW and CES, 2003-04 to 2007-08

October to December

	QCEW	CES	Difference
2003-04	0.49%	-0.26%	0.75%
2004-05	0.68%	0.02%	0.66%
2005-06	0.86%	0.16%	0.69%
2006-07	0.78%	0.24%	0.54%
2007-08	0.50%	0.00%	0.50%

December to January

	QCEW	CES	Difference
2003-04	-2.69%	-2.02%	-0.68%
2004-05	-2.78%	-2.04%	-0.74%
2005-06	-2.43%	-1.96%	-0.46%
2006-07	-2.56%	-1.99%	-0.57%
2007-08	-2.42%	-2.16%	-0.26%

Table 2. Characteristics of Frame and Sample (percentages)

	National	Frame			Sample		
		Entire Frame	Error Groups	Control Group	Entire Sample	Error Groups	Control Group
Number of observations	408,814	49,746	9,474	6,031	3,002	2,902	100
Group							
A		7	36	0	40	41	0
D		6	31	0	36	37	0
C		7	39	0	40	41	0
B		1	6	0	8	9	0
F		3	14	0	9	10	0
H		3	15	0	9	10	0
Control group		12	0	100	3	0	100
Industry							
Manuf. & Nat'l Res./Mining	7	12	13	12	14	14	17
Construction	6	11	14	9	16	16	15
Trade, Transp., Utilities	30	23	18	23	15	15	17
Info. & Financial Activities	14	6	5	8	5	5	8
Prof. & Bus. Services	11	14	18	12	18	18	15
Health & Other Services	12	14	13	13	13	13	15
Leisure & Hospitality	10	18	19	23	20	20	13
Educational Services	3	0	0	0	0	0	0
Public Administration	6	0	0	0	0	0	0
Other	1	0	0	0	0	0	0
Size							
1 to 9 employees	39	21	13	14	16	16	15
10 to 19	16	21	17	11	15	15	10
20 to 49	17	24	24	37	23	22	45
50 to 99	10	14	15	19	16	16	14
100 to 249	10	13	15	15	16	16	9
250 or more	9	7	16	3	14	14	7
Data quality							
QCEW reported all months	69	93	95	90	98	98	99
QCEW multi indicator	58	25	18	43	5	5	7
Length of pay period (CES)							
Weekly	43	36	43	38	42	42	44
Bi-weekly	26	29	29	37	28	28	26
Semi-monthly	27	32	26	21	27	27	24
Monthly	4	3	3	4	3	3	6
Collection mode (CES)							
TDE	20	24	25	31	30	29	51
Fax/Mail	15	26	23	41	13	13	16
CATI	23	29	38	19	42	43	23
EDI	25	0	0	0	0	0	0
Other	17	21	14	9	15	15	10
CES closing code							
First	80	93	93	91	95	94	96
Second	16	6	6	8	5	5	4
Third	1	0	0	0	0	0	0
Fourth	3	0	0	1	0	0	0

Table 3. Characteristics of Frame by Error Group (percentages)

	A	D	C	B	F	H
Number of observations	3,375	2,963	3,697	567	1,342	1,456
Industry						
Manuf. & Nat'l Res./Mining	12	12	15	16	13	12
Construction	16	16	14	11	12	9
Trade, Transp., Utilities	16	16	16	17	22	22
Info. & Financial Activities	5	4	6	3	5	6
Prof. & Bus. Services	21	22	21	18	13	15
Health & Other Services	11	10	10	12	18	17
Leisure & Hospitality	20	19	18	22	18	19
Size						
1 to 9 employees	15	14	12	12	5	10
10 to 19	10	9	9	8	34	39
20 to 49	19	19	19	22	37	38
50 to 99	16	16	17	15	11	7
100 to 249	18	18	19	19	8	4
250 or more	21	24	24	25	4	1
Data quality						
QCEW reported all months	97	95	95	96	95	94
QCEW multi indicator	17	18	22	22	21	11
Length of pay period (CES)						
Weekly	41	42	49	53	44	42
Bi-weekly	26	26	32	34	29	31
Semi-monthly	31	30	16	10	24	22
Monthly	2	3	2	3	2	4
Collection mode (CES)						
TDE	25	25	28	31	29	19
Fax/Mail	21	22	29	24	24	17
CATI	33	32	39	41	39	55
EDI	0	0	0	0	0	0
Other	20	21	5	4	9	8
CES closing code						
First	92	92	91	92	95	96
Second	8	8	8	8	5	3
Third	0	0	0	0	0	0
Fourth	0	0	1	0	0	1

Table 4. Response Rates and Distribution of Respondents/Nonrespondents

	N	Response Rate	Percent of Respondents	Percent of Nonrespondents
All	3,002	70.5	100.0	100.0
Size				
1 to 9	491	64.2	14.9	19.9
10 to 19	458	67.7	14.6	16.7
20 to 49	694	71.2	23.3	22.6
50 to 99	470	73.2	16.3	14.2
100 to 249	472	74.4	16.6	13.7
250 or more	417	72.7	14.3	12.9
Industry				
Manuf. & Nat'l Res/Mining	411	73.5	14.3	12.3
Construction	490	76.3	17.7	13.1
Trade, Transp., Utilities	441	71.4	14.9	14.2
Info. & Financial Activities	141	78.0	5.2	3.5
Prof. & Bus. Svcs.	531	68.9	17.3	18.6
Health & Other Svcs.	390	69.2	12.8	13.6
Leisure & Hospitality	598	63.5	18.0	24.6
Multi or single				
Single	2,846	70.1	94.2	96.2
Multi	156	78.2	5.8	3.8
Length of pay period				
missing	33	66.7	1.0	1.2
Weekly	1,254	71.9	42.6	39.8
Bi-weekly	824	72.5	28.2	25.7
Semi-monthly	805	66.7	25.4	30.3
Monthly	86	68.6	2.8	3.1
CES collection mode				
CATI	1,427	64.8	43.7	56.8
TDE	1,001	75.9	35.9	27.2
Fax/Mail/Web	574	75.4	20.5	15.9
CES closing code				
missing	33	66.7	1.0	1.2
first closing	2,806	70.7	93.7	93.0
second closing	150	68.0	4.8	5.4
third closing	5	60.0	0.1	0.2
fourth closing	8	87.5	0.3	0.1
CES data source				
data collection center	1,661	65.9	51.7	64.0
national office	1,313	76.5	47.4	34.9
state	28	64.3	0.9	1.1
RAS panel				
1	741	72.9	25.7	22.7
2	748	69.7	24.8	25.7
3	747	69.5	24.7	25.8
4	747	69.3	24.7	25.9

Table 5. Adherence to the 12th of the Month Reference Period by Error Group

	CES			QCR		
	Used pay period of 12th	Did not use pay period of 12th	N	Used pay period of 12th	Did not use pay period of 12th	N
All Establishments						
In Error group A						
No	77.2	21.1	946	47.2	46.6	506
Yes	83.4	14.6	616	45.9	46.1	362
In Error group D						
No	79.5	18.2	965	46.7	46.2	565
Yes	79.9	19.1	597	46.5	46.9	303
In Error group C*						
No	79.1	18.5	709	50.0	42.3	402
Yes	79.8	18.4	593	46.3	47.2	333
In Error group B*						
No	79.5	18.8	1031	47.7	44.8	596
Yes	78.8	18.2	132	41.2	50.0	68
In Error group F*						
No	79.5	18.6	1296	48.1	44.9	719
Yes	80.1	18.8	176	39.1	53.3	105
In Error group H*						
No	81.1	17.1	1324	47.1	45.2	756
Yes	60.8	36.2	130	44.1	55.9	59

*Some establishments did not have sufficient information to be included in error group, so the sample size is smaller.

Table 6. Characteristics associated with reporting employment counts for an incorrect or correct reference period

Characteristic	CES (1,562 establishments surveyed)		QCR (868 establishments surveyed)	
	Correct reference period for employment counts	Incorrect reference period for employment counts	Correct reference period for employment counts	Incorrect reference period for employment counts
Size Class	50-99 employees	1-19 employees	250+ employees	1-19 employees; 100-249 employees
Industry		Health, other services	Manufacturing	Info, finance
Single/Multi-Unit Establishment	Multi-establishment		Multi-establishment	
Respondent knowledge of data source content and changes	Strong	Weak	Strong	Weak
Collection Mode		CATI		CATI
Error Groups	Error Group A	Error Group H		Error groups B, C, F, H

Table 7. Single/Multiple Payrolls and Establishment Characteristics [percents that add to 100 within rows]

	Single or multiple payrolls		
	Missing	Multiple	Single
Size			
1 to 9	1.1	6.1	92.8
10 to 19	1.8	7.8	90.5
20 to 49	2.1	12.3	85.7
50 to 99	1.0	12.3	86.7
100 to 249	2.3	15.8	81.9
250 or more	2.3	30.1	67.7
Industry			
Manuf. & Nat'l			
Res/Mining	1.1	28.3	70.6
Construction	0.6	12.2	87.2
Trade, Transp., Utilities	2.2	13.6	84.2
Info. & Financial			
Activities	5.3	8.4	86.3
Prof. & Bus. Svcs.	2.8	12.9	84.3
Health & Other Svcs.	1.3	9.8	89.0
Leisure & Hospitality	1.5	9.5	89.0
Multi or single			
Single	1.7	13.5	84.8
Multi	2.7	19.6	77.7
CES collection mode			
CATI	2.2	10.8	87.1
TDE	1.5	16.2	82.4
Fax/Mail/Web	1.6	16.0	82.4
CES closing code			
first closing	1.8	13.8	84.5
second closing	2.2	16.7	81.1
third closing	0.0	33.3	66.7
fourth closing	0.0	0.0	100.0
CES data source			
data collection center	1.8	12.0	86.2
national office	1.7	15.8	82.5
state	7.7	7.7	84.6

Table 8. Single/Multiple Payrolls and Seasonal Differences between CES and QCEW

	Group A	Group D	Group C	Group B	Group F	Group H	Group J
<u>Percentage in error group</u>							
Single payroll	38.2	36.4	43.7	10.2	14.6	9.2	4.5
Multiple payrolls	43.8	37.2	57.5	15.9	10.7	8.7	0.4
Multiple - single	5.6	0.8	13.8	5.8	-3.9	-0.5	-4.1
<u>Abs. value of diff. in change*</u>							
Single payroll	11.6	11.2	15.6				
Multiple payrolls	23.8	18.9	30.2				
Multiple - single	12.1	7.8	14.7				

* $|dQ - dC|$, where dQ =over-the-month (or over-the-year, depending on the error group) change for QCEW and dC =over-the-month (or over-the-year, depending on the error group) change for CES

Table 9. Pay Frequency and Establishment Characteristics [percentages that add to 100 within rows]

	Pay Frequency				
	Missing	Weekly	Bi-weekly	Semi-monthly	Monthly or Other
Size					
1 to 9	6.6	43.9	30.3	12.3	7.0
10 to 19	4.7	48.6	29.6	14.8	2.3
20 to 49	5.6	39.3	41.9	11.4	1.9
50 to 99	6.9	39.2	42.7	11.2	0.0
100 to 249	7.5	32.3	44.9	15.0	0.4
250 or more	16.7	32.8	42.8	7.8	0.0
Industry					
Manuf. & Nat'l					
Res/Mining	17.9	46.3	28.4	6.8	0.5
Construction	3.5	81.2	12.2	3.1	0.0
Trade, Transp.,					
Utilities	10.6	37.0	37.0	12.3	3.0
Info. & Financial					
Activities	6.1	9.8	56.1	23.2	4.9
Prof. & Bus. Svcs.	7.1	31.0	39.2	19.0	3.7
Health & Other Svcs.	6.7	19.5	51.9	19.1	2.9
Leisure & Hospitality	3.0	27.7	58.0	10.3	1.0
Multi or single					
Single	7.1	40.6	38.1	12.1	2.1
Multi	12.6	23.0	50.6	13.8	0.0
CES collection mode					
CATI	7.1	41.6	36.2	12.2	2.9
TDE	5.8	43.0	37.4	12.3	1.6
Fax/Mail/Web	10.8	29.3	47.1	12.1	0.6
CES closing code					
first closing	7.3	40.7	38.3	12.2	1.5
second closing	8.2	24.7	42.5	13.7	11.0
third closing	0.0	0.0	50.0	0.0	50.0
fourth closing	16.7	33.3	33.3	16.7	0.0
CES data source					
data collection center	8.5	37.0	39.8	12.4	2.3
national office	6.2	42.8	37.2	12.2	1.6
state	9.1	18.2	72.7	0.0	0.0

Table 10. Pay Frequency and Seasonal Differences between CES and QCEW

	Group A	Group D	Group C	Group B	Group F	Group H	Group J
<u>Percentage in error group</u>							
Weekly	40.1	36.8	44.7	9.5	18.3	9.1	4.7
Monthly	33.3	33.3	36.4	5.3	14.3	8.0	14.8
Monthly - weekly	-6.8	-3.4	-8.3	-4.2	-4.0	-1.1	10.2
<u>Abs. value of diff. in change*</u>							
Weekly	11.0	11.2	17.6				
Monthly	5.3	5.4	3.0				
Monthly - weekly	-5.7	-5.8	-14.6				

* $|dQ - dC|$, where dQ =over-the-month (or over-the-year, depending on the error group) change for QCEW and dC =over-the-month (or over-the-year, depending on the error group) change for CES.

Table 11: Major categories and codes for open-ended question on respondent provided reasons for employment differences between the programs

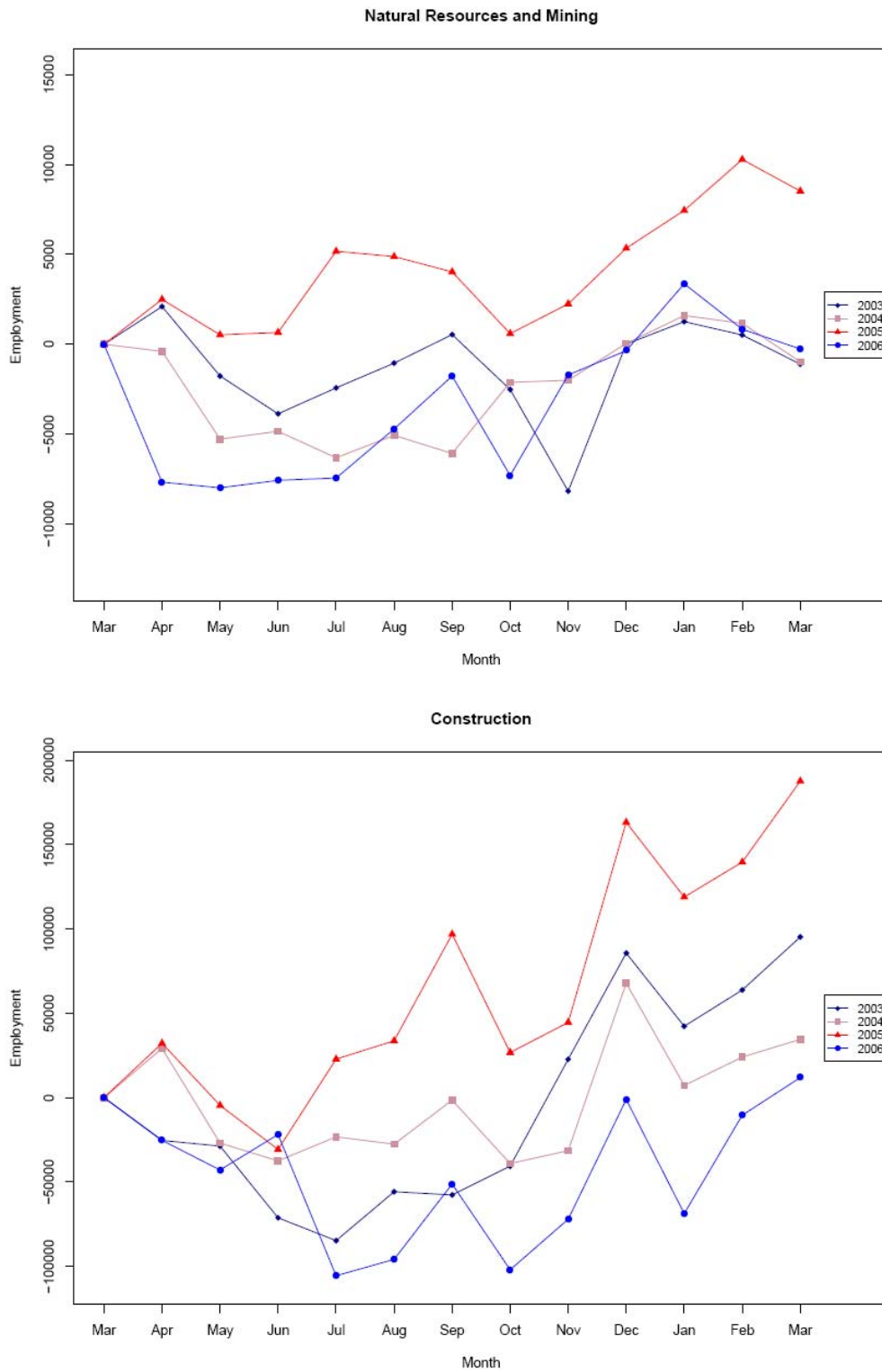
Note: Most frequently used code in each category is in bold text, along with percentage of use.

MAJOR CATEGORIES	CATEGORY CODES
Human Error	<ul style="list-style-type: none"> ▪ Clerical/posting error (94%) ▪ BLS error/change request
Reference Period Problems	<ul style="list-style-type: none"> ▪ Not reporting the pay period including the 12th of the month ▪ Monthly count of all who worked (62%) ▪ Quarterly count of all who worked ▪ Cumulative count of employees
Automatic Reporting Issues	<ul style="list-style-type: none"> ▪ Switched payroll software and/or processing firm ▪ Error/changes in payroll software and/or processing firm (66%) ▪ Changes to in-house reporting procedures ▪ Clean up of records procedures differ
Employee Type Reporting Issues	<ul style="list-style-type: none"> ▪ Inconsistent reporting of seasonal workers ▪ Layoffs/ closings ▪ Different employee types included/excluded in employee counts (73%) ▪ Turnovers
Counting Checks	<ul style="list-style-type: none"> ▪ Counting of checks rather than employees (95%) ▪ Counting of bonus checks in December
Worksite Differences	<ul style="list-style-type: none"> ▪ CES and QCEW worksites are linked incorrectly ▪ Data includes more than one location (87%) ▪ Business structure definition change – buyouts/mergers
Data Source or Timing Difference	<ul style="list-style-type: none"> ▪ Reports are compiled at different times ▪ Reports generated from different data sources ▪ Manual/from memory count/estimation of all employees (40%)
Don't know/Not respondent during time:	<ul style="list-style-type: none"> ▪ Response unclear ▪ Do not know (67%) ▪ Respondent was not the contact person at the time ▪ Other ▪ Question not answered

Table 12: Distribution of Major Reasons for Employment Difference

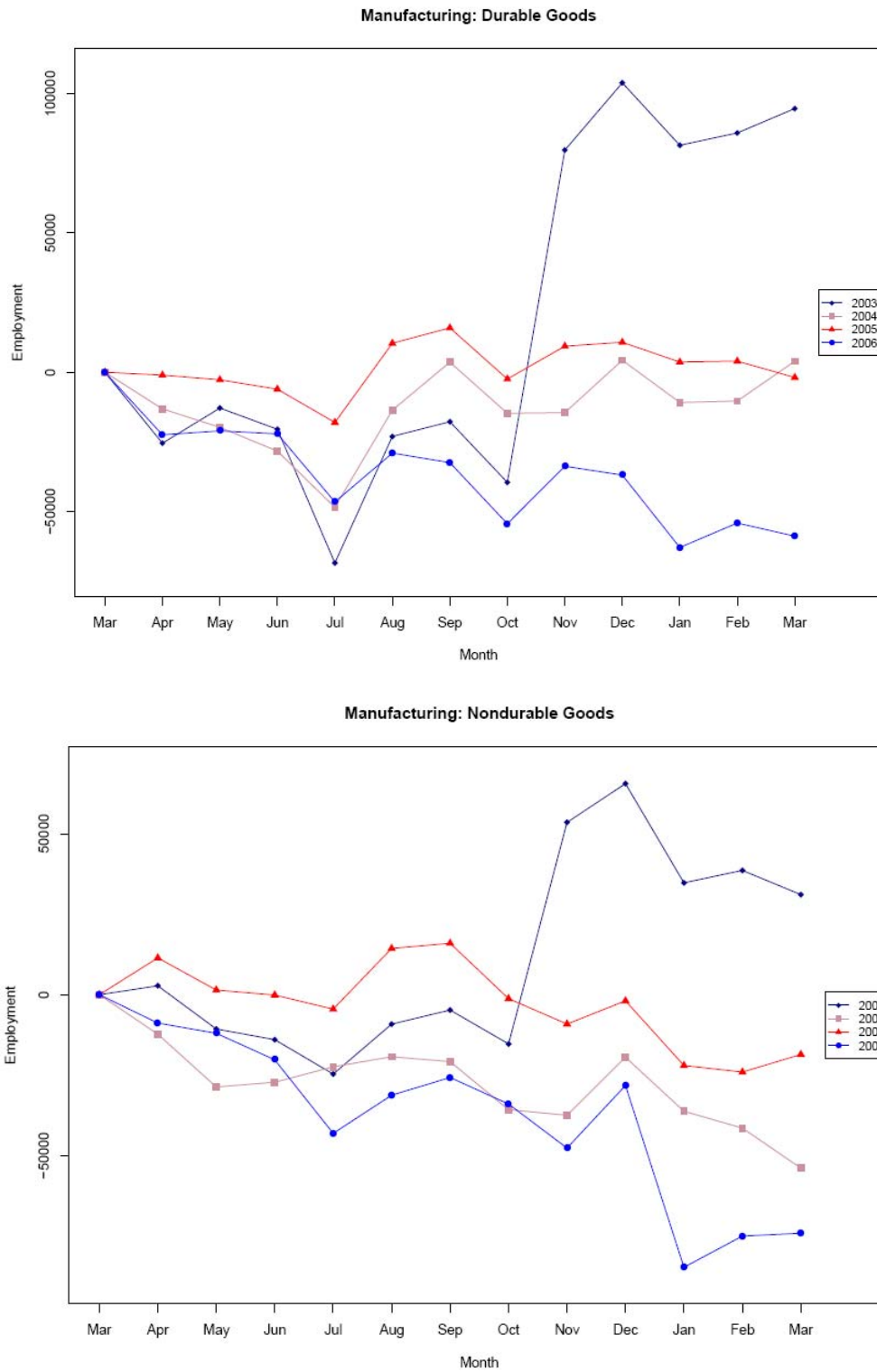
	All Respondents	Respondents answering only difference question
Employee Type Reporting Issues	28%	30%
Reference Period Problems	26%	24%
Worksite Differences	11%	18%
Human Error	9%	12%
Data Sources or Timing Differences	7%	10%
Counting Checks	6%	7%
Automatic Reporting Issues	4%	2%
Don't know/Not Respondent at the time	25%	13%

Figure A.1. Difference between QCEW and CES Estimates of Employment, by Industry Group, March 2003–March 2007



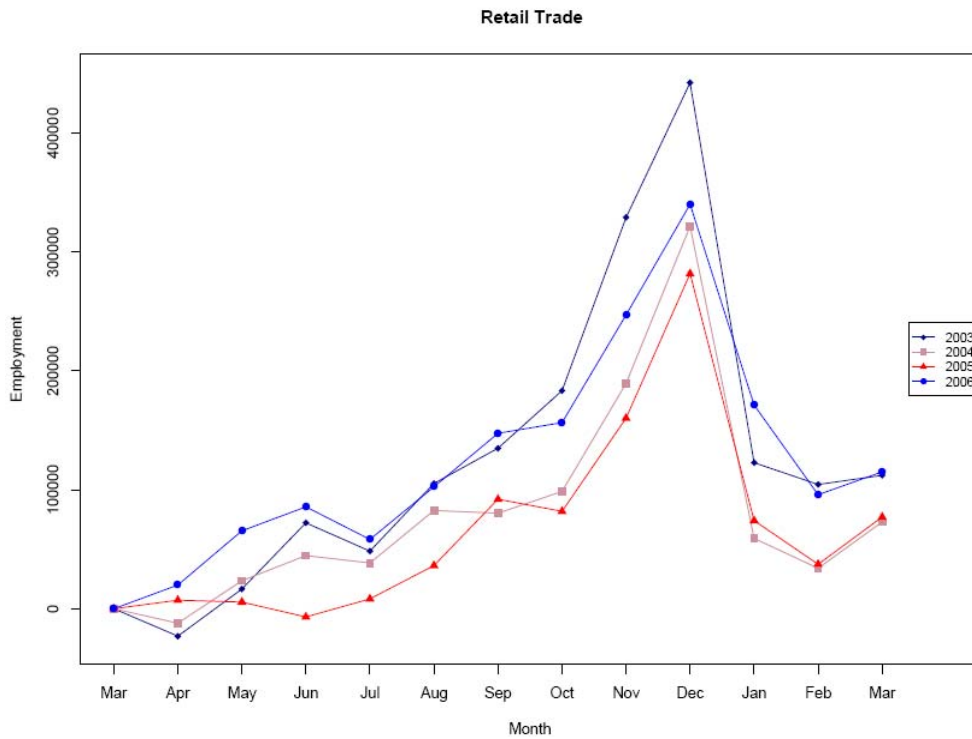
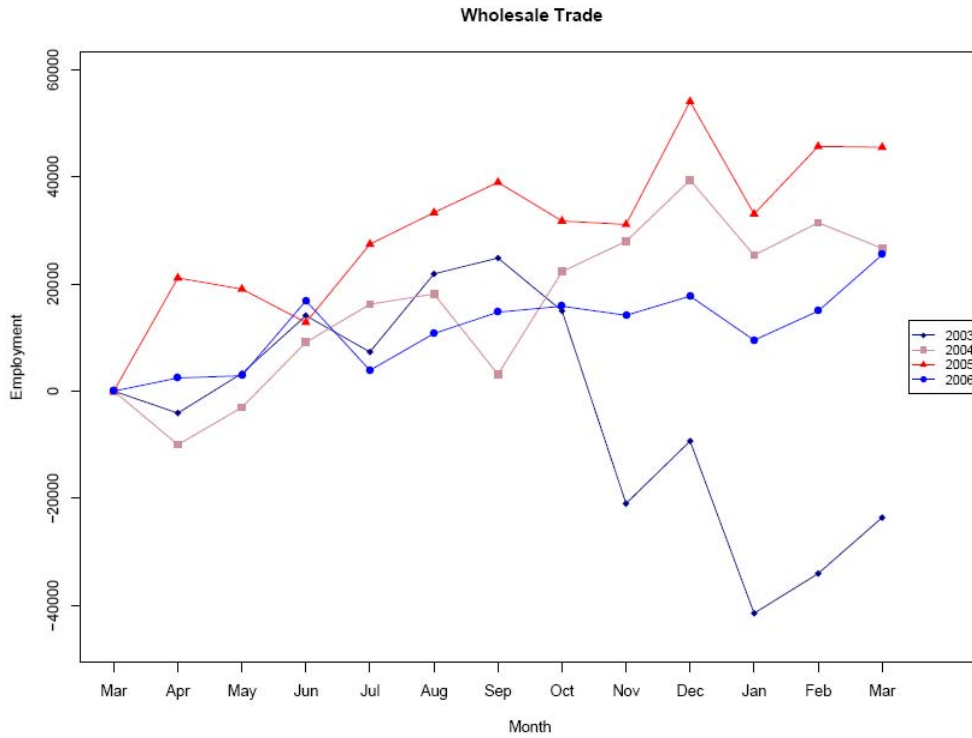
Notes: Employment is total U.S. private nonfarm employment. The series labels correspond to the year at the beginning of a given 13-month period; for instance, the series labeled “2003” begins in March 2003 (after the benchmark) and ends in March 2004 (before the benchmark).

Figure A.1 (continued). Difference between QCEW and CES Estimates of Employment, by Industry Group, March 2003–March 2007



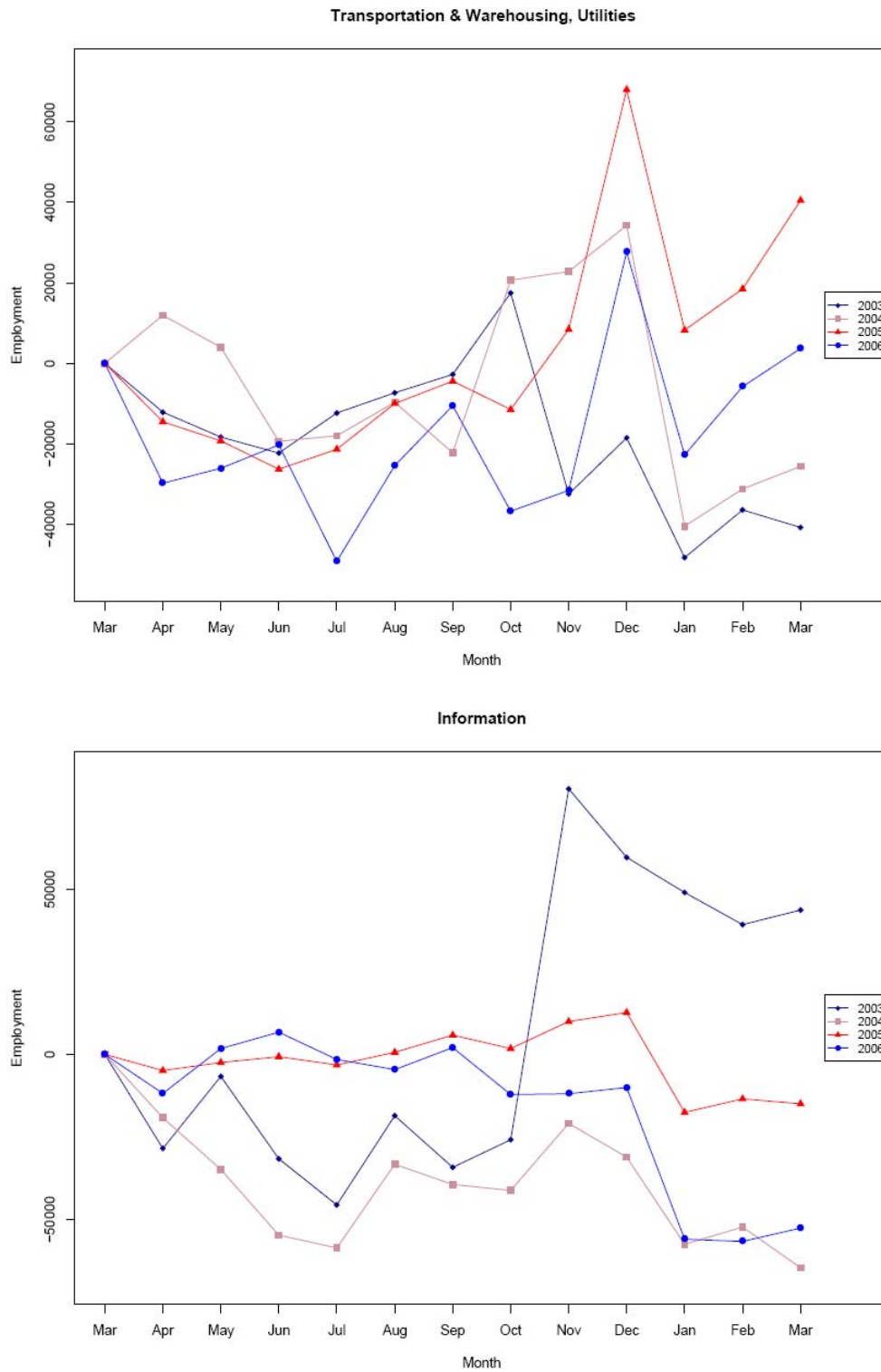
Notes: Employment is total U.S. private nonfarm employment. The series labels correspond to the year at the beginning of a given 13-month period; for instance, the series labeled “2003” begins in March 2003 (after the benchmark) and ends in March 2004 (before the benchmark).

Figure A.1 (continued). Difference between QCEW and CES Estimates of Employment, by Industry Group, March 2003–March 2007



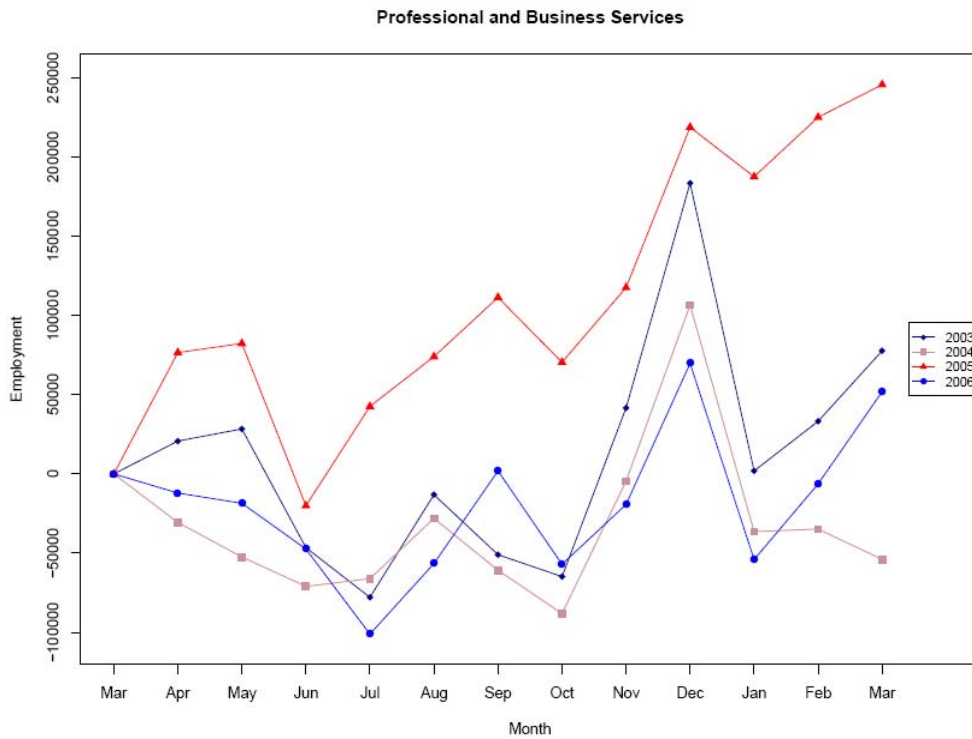
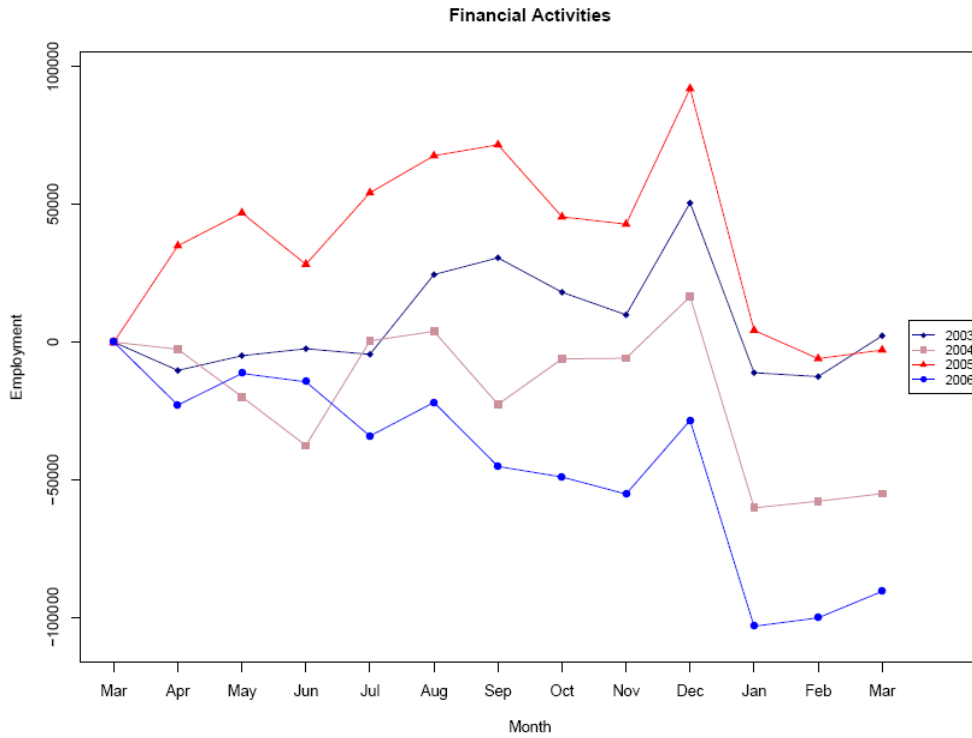
Notes: Employment is total U.S. private nonfarm employment. The series labels correspond to the year at the beginning of a given 13-month period; for instance, the series labeled “2003” begins in March 2003 (after the benchmark) and ends in March 2004 (before the benchmark).

Figure A.1 (continued). Difference between QCEW and CES Estimates of Employment, by Industry Group, March 2003–March 2007



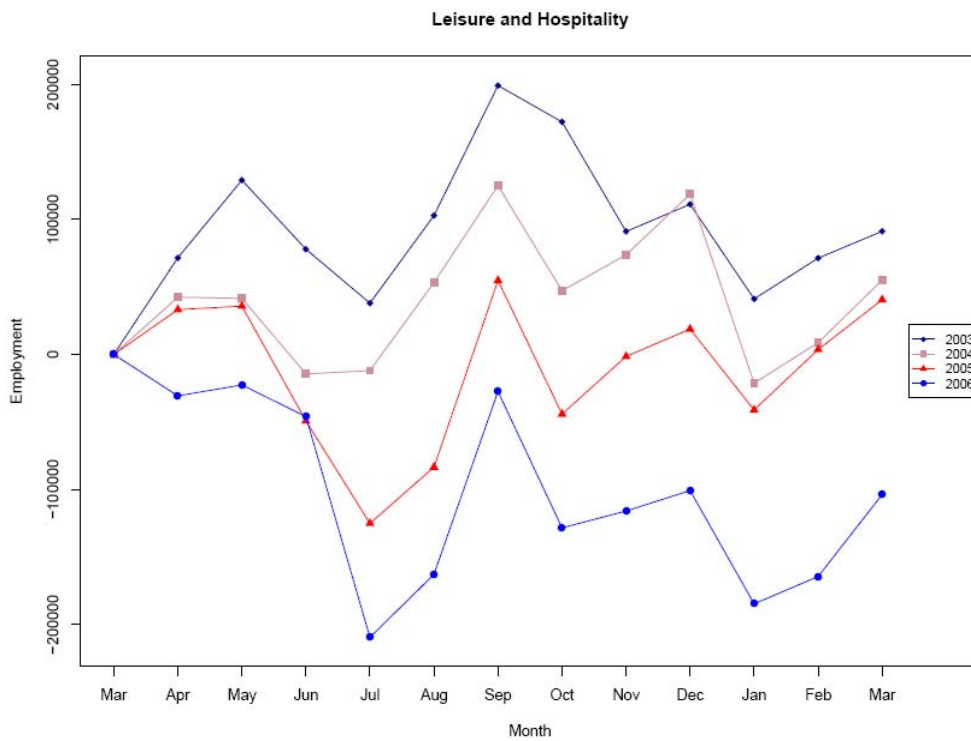
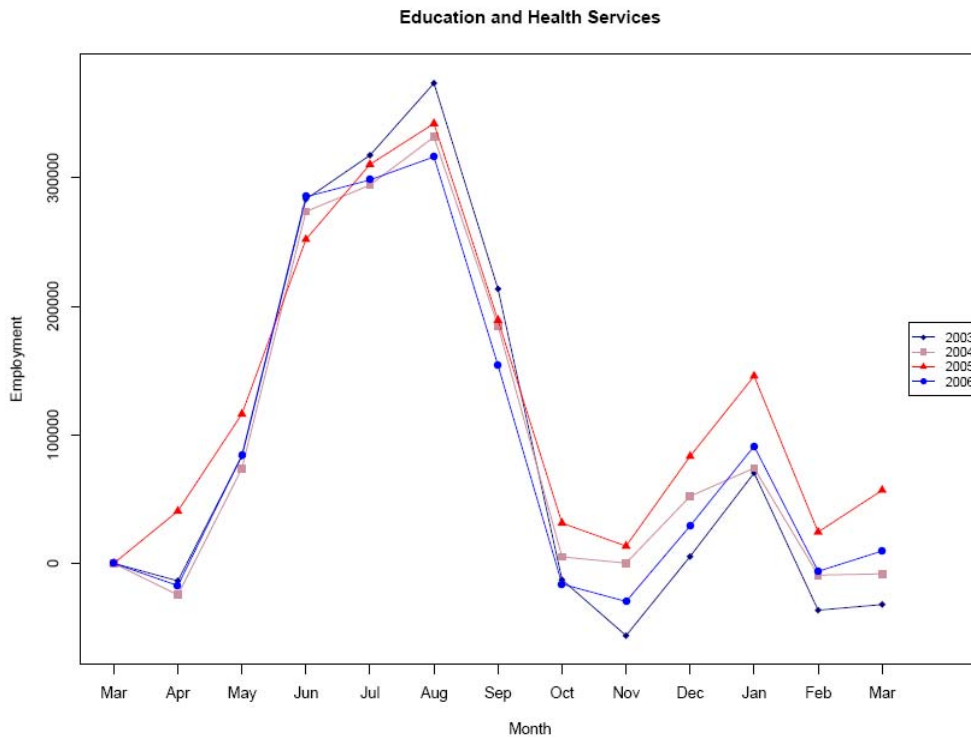
Notes: Employment is total U.S. private nonfarm employment. The series labels correspond to the year at the beginning of a given 13-month period; for instance, the series labeled “2003” begins in March 2003 (after the benchmark) and ends in March 2004 (before the benchmark).

Figure A.1 (continued). Difference between QCEW and CES Estimates of Employment, by Industry Group, March 2003–March 2007



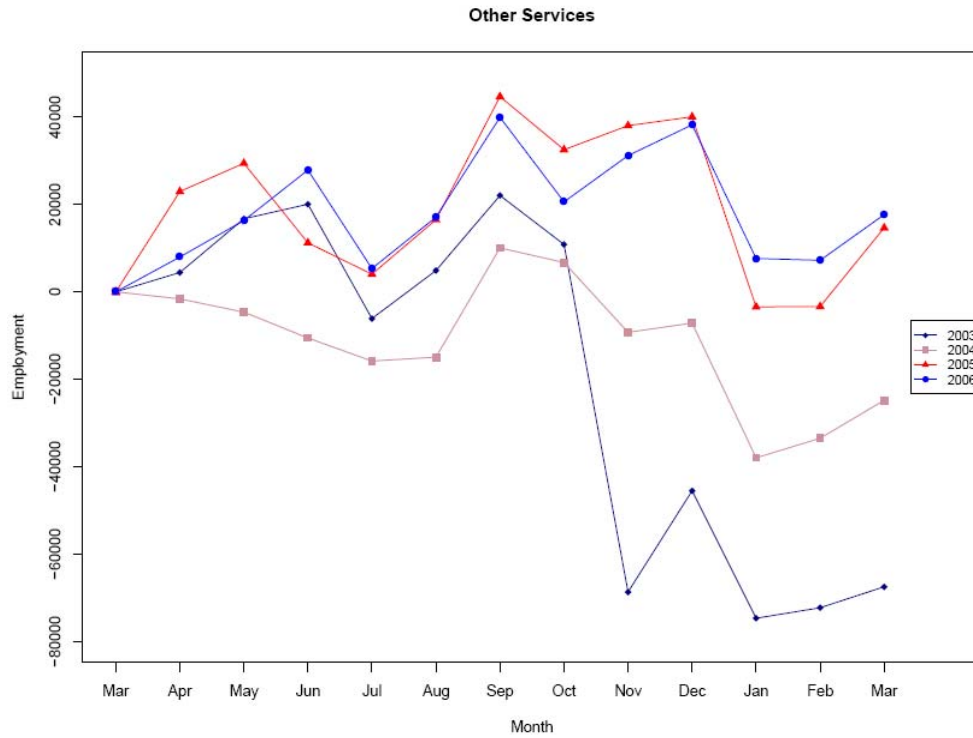
Notes: Employment is total U.S. private nonfarm employment. The series labels correspond to the year at the beginning of a given 13-month period; for instance, the series labeled “2003” begins in March 2003 (after the benchmark) and ends in March 2004 (before the benchmark).

Figure A.1 (continued). Difference between QCEW and CES Estimates of Employment, by Industry Group, March 2003–March 2007



Notes: Employment is total U.S. private nonfarm employment. The series labels correspond to the year at the beginning of a given 13-month period; for instance, the series labeled “2003” begins in March 2003 (after the benchmark) and ends in March 2004 (before the benchmark).

Figure A.1 (continued). Difference between QCEW and CES Estimates of Employment, by Industry Group, March 2003–March 2007



Notes: Employment is total U.S. private nonfarm employment. The series labels correspond to the year at the beginning of a given 13-month period; for instance, the series labeled “2003” begins in March 2003 (after the benchmark) and ends in March 2004 (before the benchmark).

Table A.1. Employment Not Covered by Unemployment Insurance

Industry	NAICS 2007	Non-Covered Employees
PRIVATE INDUSTRIES		
Newspaper publishing	511110	Publishers of religious materials (In MA only)
Periodical publishing	511120	" (In TN, UT, NH only)
Book publishing	511130	" (In TN, UT, TX only)
Music publishing	512230	"
Internet publishing and broadcasting	519130	"
Class I railroads	482111	Employees of Class I railroads covered under the Railroad Retirement Act
Other railroads (class 2,3,6)	482112, 488210	Employees of other railroads, and switching and terminal companies who are covered under the RRA
Local & suburban transportation (class 9)	485111, 485113, 485999	Employees of local & suburban transportation companies employed under the RRA
Rental of RR cars (class 8)	488210, 532411	Employees of railroad car loan companies who are covered under the RRA
Insurance	524113, 524114, 524130	Commissioned non-office sales agents
Educational, religious and charitable trusts	813211	Employees of religious trust
General medical and surgical hospitals	622110	Interns and trainees in private hospitals
Psychiatric and substance abuse hospitals	622210	"
Specialty hospitals	622310	"
Private elementary & secondary schools	611110	Non-covered staff of private elementary and secondary schools
Private colleges & universities	611310,	Working students and working spouses of students on the payrolls of private colleges and universities
Junior colleges	611210	"
Job training services	624310	Handicapped employees of work activity centers

Table A.1 (continued). Employment Not Covered by Unemployment Insurance

Industry	NAICS 2007	Non-Covered Employees
PRIVATE INDUSTRIES		
Child day care services	624410	Employees of religious organizations working in child day care services
Religious organizations	813110	Employees of churches and religious organizations
Political & membership organizations	813910, 813940, 813990, 813312, 813410	Employees of non-profit organizations with fewer than 4 employees
North Dakota, Oregon, and Washington	Various	Corporate Officers
STATE GOVERNMENT		
State hospitals	622110, 622210, 622310	Interns & trainees in state hospitals
State education	611310, 611210	Working students and working spouses of students on the payrolls of state colleges and universities
State general administration	921140, 922190, 923110, 924110, 925110, 926110, 927110, 928110	Elected officials, legislators and members of judiciary, members of state national guard & air national guard, temporary emergency employees (in cases of fire, storm, flood, earthquake, or similar emergency), policymaking and advisory positions
LOCAL GOVERNMENT		
Local hospitals	622110, 622210, 622310	Interns & trainees in local hospitals
Local education	611310, 611210	Working students and working spouses of students on the payrolls of local colleges and universities
Local general administration	921140, 922190, 923110, 924110, 925110, 926110, 927110, 928110	Elected officials, legislators and members of judiciary, members of state national guard & air national guard, temporary emergency employees (in cases of fire, storm, flood, earthquake, or similar emergency), policymaking and advisory positions

APPENDIX A: FINAL VERSION (12/3/07)
CES / QCR SEASONALITY RESPONSE ANALYSIS SURVEY²²

CALL SHEET

Hello. My name is _____ from the Bureau of Labor Statistics. I'm calling in reference to the monthly report on employment, payroll, and hours submitted by your firm. May I please speak to CONTACT NAME?

CS1. Our records show that you are the contact person for the monthly Report on Employment, Payroll, and Hours. Are you the person who prepares this report?

- YES → GO TO CS3
 NO

CS2. Who is the person who prepares the monthly report on Employment, Payroll, and Hours for your company? What is (CONTACT NAME'S) telephone and fax number?

CES CONTACT NAME: _____
CES CONTACT PHONE NUMBER: _____
CES CONTACT FAX NUMBER: _____

CS3. In addition to the monthly employment, payroll and hours report, your firm also submits a (NAME OF STATE QUARTERLY WAGE AND TAX REPORT) to (NAME OF STATE EMPLOYMENT AGENCY NAME) for unemployment insurance tax purposes. Are you (also) the person in your company who prepares this quarterly report?

- YES → GO TO RECRUITMENT SCRIPT
 NO

CS4. Are you familiar with the (NAME OF STATE QUARTERLY WAGE AND TAX REPORT)? Do you receive copies or summaries of the report?

- YES, FAMILIAR WITH AND RECEIVE COPIES/SUMMARIES
 YES, FAMILIAR WITH, BUT DOES NOT RECEIVE COPIES/SUMMARIES
 NOT FAMILIAR

CS5. Do you know who prepares the (NAME OF STATE QUARTERLY WAGE AND TAX REPORT)? Is it someone else in the company, a payroll service, an accounting, or someone else?

- SOMEONE ELSE IN COMPANY
 PAYROLL PROCESSOR, please specify: _____
 ACCOUNTANT
 OTHER, please specify: _____

GO TO RECRUITMENT SCRIPT

²² This instrument follows general PAPI conventions to make it easier to follow, i.e., text in CAPS is not read to respondents, while text in small case is. Also, if no skip pattern is noted, continue to the next question.

RECRUITMENT SCRIPT

We routinely ask businesses to help us assure that we collect the best data possible, so we are contacting a small sample of our respondents to discuss (differences in) the employment numbers between the monthly and quarterly reports. We recently mailed you a letter about this. Did you receive our letter?

It would be very valuable to us if we could talk to you about any differences and your procedures, reports, and software. I realize you are very busy, but would you have a little time to answer some questions over the telephone? The questions usually take about 15 minutes, and I can schedule an appointment at your convenience.

IF RESPONDENT AGREES ask:

- Which day between [DATE] and [DATE] would be best for me to call you back? And what time of day?

APPT DAY: _____

TIME OF DAY: _____

- I called [PHONE NUMBER]. Is this the best phone number to use to reach you?
 - YES
 - NO → CORRECT THE INFORMATION HERE: _____

IF RESPONDENT DID NOT RECEIVE LETTER: We would like to FAX you a letter describing in more detail our need to understand employment (differences/data quality). We will also attach your company's reported employment counts for these two reports.

- Would it be alright if I faxed you these documents?
 - YES
 - NO → USE MAIL, VERIFY CORRECT MAIL ADDRESS
- IF YES, Ask for respondent's FAX number (or verify if interviewer has it)

FAX Number: _____

- If you need to reach me for any reason, you can call me at [NUMBER]. Again, my name is [NAME]. Do you have any questions for me?

Questionnaire Introduction

INTRO1. We recently (mailed/FAXed) you a letter with a copy of employment data that your company provided for the monthly and quarterly reports last year. It will be useful to refer to while we speak. Do you have it available?

- YES, HAVE COPY AVAILABLE → GO TO INTRO3
- NO

INTRO2. I will have some questions about the employment data we included with the letter. It would be better if I sent you another copy that you could refer to. Can I verify your FAX number?

- YES → VERIFY FAX NUMBER, MAKE CALL BACK APPT, FAX INFO
- NO (OR NO FAX) → VERIFY MAIL ADDRESS, MAKE CALL BACK APPT, MAIL INFO

INTRO3. We are calling to find out more about how companies keep records and prepare employment counts for the monthly and quarterly reports. First, let me assure you that: CHECK AFTER READING TO RESPONDENT.

- The purpose of this call is for statistical purposes only and quality control. This call is not involved with unemployment insurance tax system liability in any way. Your participation is voluntary, and you can decline to answer any questions.
- The information you provide will be held in confidence to the full extent permitted by law. Your firm will not be identified in any way.

In accordance with the Confidential Information Protection and Statistical Efficiency Act of 2002 (Title 5 of Public Law 107-347) and other applicable Federal laws, your responses will not be disclosed in identifiable form without your informed consent. The OMB control number for this interview is: 1220-0011. You are not required to respond to the collection of information unless it displays a currently valid OMB control number.

INTRO4. To make the interview easier, Is there a common name that your firm uses to refer to the monthly report, since I will be asking questions about it? How about the quarterly wage and tax report? (INTERVIEWER: THESE COULD BE SUBSTITUTED IN QUESTIONS IN LIEU OF OTHER NAMES THAT ARE USED FOR THE REPORTS)

MONTHLY REPORT NAME: _____

QUARTERLY REPORT NAME: _____

Questionnaire

Q1. First, I'd like to make sure that we have the correct worksite information. We're looking at: (READ IDENTIFIERS FOR CES AND/OR QCR WORKSITES; CAN REFER RESPONDENT TO EMPLOYMENT DATA SHEET). Do the reported numbers represent the same worksite, or is it possible they represent other worksites?

- SAME WORKSITE
- OTHER WORKSITES
- DON'T KNOW

Q2. (Before we talk about the specific differences in the employment reports), I'd like to ask some questions on payroll, company recordkeeping practices, and how employment numbers are prepared. First, do all of your employees appear on the same payroll or do you have more than one payroll? (For example, sometimes hourly workers are on a different payroll than salaried workers or executives.)

- SAME PAYROLL FOR ALL EMPLOYEES
- MORE THAN ONE PAYROLL

Q3. Do you use the same or different payroll time periods for employees? (For example, sometimes one group of employees is paid monthly and another is paid weekly.)

- SAME TIME PERIOD
- DIFFERENT TIME PERIOD

IF Q2 IS MORE THAN ONE PAYROLL AND/OR Q3 IS DIFFERENT TIME PERIOD, GO TO Q5, OTHERWISE CONTINUE

Q4. How often do you pay your employees?

- Weekly
- Bi-weekly (every other week)
- Semi-monthly (twice a month)
- Monthly
- Other, please specify: _____

GO TO Q7

Q5. What employee groups are on different payrolls or have different pay periods? (ENTER GROUPS BELOW.) What type of pay period(s) are used for (EACH GROUP)—weekly, biweekly, semi-monthly, monthly, or other?

Groups	Weekly	Bi-weekly	Semi-monthly	Monthly	Other
GROUP 1: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GROUP 2: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GROUP 3: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GROUP 4: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GROUP 5: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Q6.** Are you able to include employees from all pay groups in the “all employee” figure for the monthly CES report?
- YES
 - NO → Which employee groups are not included? _____
→ Approximately how many employees are not included? _____
 - DON'T KNOW
- Q7.** Do you prepare your payroll in-house at this location, or do you have an outside person, organization, or service bureau prepare it for you?
- IN-HOUSE
 - OUTSIDE PERSON, ORG., SERVICE BUREAU
 - OTHER, specify: _____
- Q8.** Is the “all employee” figure you provide for the monthly CES Report obtained from this payroll or payroll reports?
- YES
 - YES → IF OUTSIDE PERSON, ORG., SERVICE BUREAU IN Q7, GO TO Q13
 - NO → GO TO Q12
 - DON'T KNOW → GO TO Q12
- Q9.** You said that your payroll is prepared in-house. Does your firm use a computer program/software program to prepare the payroll?
- YES
 - NO → GO TO Q12
 - DON'T KNOW → GO TO Q12
- Q10.** Is your payroll software: a product that was developed internally for your own use, a product you lease or license from a software company, a commercially-available software package that your firm purchased, or something else?
- DEVELOPED INTERNALLY FOR OWN USE → GO TO Q17
 - LEASED OR LICENSED FROM A SOFTWARE COMPANY
 - PURCHASED COMMERCIALY-AVAILABLE PACKAGE
 - OTHER (DESCRIBE) → GO TO Q17

Q11. What company developed the software you use to prepare your payroll? IF NOT LISTED, CHECK "OTHER" AND WRITE IN NAME.

ABRA PAYROLL SOFTWARE	MILLENNIUM PAYROLL	SLS TRIAD
CCS ACCOUNTING	PAYCHEX	SOFTWARE PLUS
CHECKMARK SOFTWARE	PEACHTREE SOFTWARE	TESSERACT
DATA PRO ACCOUNTING SOFTWARE	PENSOFT PAYROLL SOLUTIONS	
EBUSINESSPAY BY EBUSINESSLOGIC	PEOPLESOFT	
GENESYS	QUICKBOOKS	
LTAX	RED WING BUSINESS SYSTEMS	OTHER SOFTWARE COMPANY:
MASTERTAX	SAGE SOFTWARE	NAME: _____
MPAY SERVICES	SAP	DON'T KNOW

Go to Q17

Q12. Where do you get the "all employees" number that you use for the monthly CES Report? (PROBE WHETHER SOURCE IS ELECTRONIC AND RECORD FOR SELECTED CATEGORIES)

- Human resources, personnel, or benefits records ELECTRONIC
- Time cards or attendance records ELECTRONIC
- Other, please specify: _____ ELECTRONIC
- Memory or personal knowledge
- Don't know

GO TO Q17

Q13. You said that your payroll is prepared by an outside organization. Would that be a payroll processing service, an accounting firm, your corporate or franchise headquarters, or something else?

- PAYROLL PROCESSING SERVICE
- ACCOUNTING FIRM OR ACCOUNTANT → GO TO Q15
- CORPORATE/FRANCHISE HEADQUARTERS → GO TO Q15
- OTHER (DESCRIBE) → GO TO Q15

Q14. What is the name of the payroll processing service your company uses? CHECK NAME; IF NOT LISTED, CHECK "OTHER" AND WRITE IN NAME.

ACCOUNTIX	COMPUPAY	PERFECT SOFTWARE
ACCUPAY	DAVISON	PLATFORM ONE
ADP (AUTOMATED DATA PROCESSING)	J.D. EDWARDS	PRECISION PAYROLL
ADVANTAGE PAYROLL SERVICES	KRONOS	PROBUSINESS SERVICES
ALPHA STAFF	LAWSON	QUICKBOOKS
AMERIPAY	NATIONAL PAYROLL SERVICE	SUMMITT SOFTWARE
CERTIFIED PAYROLL SERVICES	PAYTIME	OTHER PPF:
CERIDIAN	PAYCHEX	NAME: _____
		DON'T KNOW

- Q15.** Does the (payroll processor, accountant, headquarter, other) prepare the monthly CES report for you?
- YES
- NO → GO TO Q17
- Q16.** Does the (payroll processor, accountant, headquarter, other) also submit your monthly CES report, or do you submit it?
- YES, OUTSIDE FIRM/PPF SUBMITS CES REPORT → GO TO Q18
- NO, UNIT ITSELF SUBMITS CES REPORT → GO TO Q18
- DON'T KNOW → GO TO Q18
- Q17.** Do you have any existing program or report that you use every month to compile the monthly CES report?
- YES
- NO
- DON'T KNOW
- Q18.** Can you think of any changes to the software, reports, or other data sources used to compile the monthly CES report that might have affected your employment counts during 2006/07?
- YES
- NO → GO TO Q21
- DON'T KNOW → GO TO Q21
- Q19.** What types of changes?
- SWITCHED PROVIDER OR SOFTWARE
- CHANGED OR ADDED PAY PERIODS
- CHANGE OR REVISION IN REPORTS
- OTHER, PLEASE SPECIFY:
- Q20.** When were the changes made? MM: _____ YYYY: _____
- Q21.** Does your company or payroll provider clean up or purge employee records at the end of the calendar year or at any other specific time frame? (READ CATEGORIES IF NECESSARY.)
- YES, END OF CALENDAR YEAR
- YES, AFTER TAXES AND/OR W2 FORMS ARE COMPLETED
- YES, END OF QUARTER
- YES, END OF MONTH
- YES, OTHER TIMES, please specify: _____
- NO → GO TO Q26
- DON'T KNOW → GO TO Q26

Q22. What type of employee records clean up or purging is done?

Q23. Is it done manually or automatically?

- MANUALLY
- AUTOMATICALLY
- DON'T KNOW

STUDY GROUP CHECKPOINT 1

- IF STUDY GROUP LETTER IS "J" (THE CONTROL GROUP) → GO TO Q26
- IF NOT IN STUDY GROUP "J" → CONTINUE TO Q24

Q24. For the next question can you refer to the employment table that we sent you (showing CES monthly and quarterly UI report employment). Is it likely that the records cleanup would explain any of the employment differences that are shown in the table (last row of table)?

- YES → Which months would be affected? _____
- NO → GO TO Q26

Q25. Would the cleanup affect employment for the monthly CES report, quarterly UI report, or both reports (CHECK ALL THAT APPLY)? Could you explain how it would affect the numbers ?

- MONTHLY CES REPORT ONLY _____
- QUARTERLY UI REPORT ONLY _____
- BOTH REPORTS _____
- DON'T KNOW ABOUT MONTHLY CES REPORT
- DON'T KNOW ABOUT QUARTERLY UI REPORT
- DON'T KNOW ABOUT EITHER REPORT

Q26. When you provide the all employee count for the monthly CES do you use (READ CATEGORIES BELOW AND CHECK ALL THAT APPLY)?

- Cumulative count of employees who worked during the month
- Count of employees who worked during the pay period that includes the 12th of the month
- Count of employees who worked during a pay period other than the pay period that includes the 12th of the month
- Any other, PLEASE SPECIFY: _____
- DON'T KNOW

- Q27.** Is it likely that your monthly CES report counts persons who worked anytime during the month rather than just the (pay/time) period including the 12th?
- YES
 - NO
 - DON'T KNOW

- Q28.** Is it likely that your monthly CES report might include a count of the number of checks issued rather than the number of persons receiving pay? An example is if an employee received both a paycheck and a commission or bonus check, he or she could be counted twice.
- YES → Would that occur in all or just some months? _____
If just some months, which ones?: _____
 - NO
 - DON'T KNOW

- Q29.** We're interested in finding out exactly who gets counted in the CES monthly report employee numbers. I'm going to read a list of different types of employees; please tell me if you usually have these types of employees. (CHECK YES OR NO BELOW IN COLUMN 1.)

Now, a followup question, are (EMPLOYEE TYPE) typically included in the employment numbers you provide for the CES monthly report?

Employee Type	(1) HAS EMPLOYEE TYPE?	(2) INCLUDED?
Employees working in locations outside of the state	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Employees working in locations outside of US	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Trainees	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Seasonal or temporary employees	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Retired employees receiving pensions	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Part-time employees	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Executives or corporate officials	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Employees on paid vacation, sick, or other paid leave	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Employees who received bonus pay but who were not working	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Employees who received pay advances but who were not working	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK

Q30. The next groups of workers are slightly different. Please indicate if you have these types of workers, if they are included in the monthly report, and the type of tax form they receive.

Employee Type	(1) HAS EMPLOYEE TYPE?	(2) INCLUDED IN CES?	(3) W2 OR 1099?
Self-employed persons	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> W2 <input type="checkbox"/> 1099 <input type="checkbox"/> NEITHER <input type="checkbox"/> DK
Outside service providers (such as contractors and their employees)	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> W2 <input type="checkbox"/> 1099 <input type="checkbox"/> NEITHER <input type="checkbox"/> DK
Real Estate/insurance/sales personnel working solely for commissions (ASK ONLY IF NAICS 524210, 531200)	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> W2 <input type="checkbox"/> 1099 <input type="checkbox"/> NEITHER <input type="checkbox"/> DK

Q31. Do you typically have any of the following types of employees who may be on your books, but who did not receive pay? A followup question, would you typically include or exclude them in the CES monthly report?

EMPLOYEE TYPE	(1) HAS EMPLOYEE TYPE?	(2) INCLUDED?
employees on family leave not receiving pay	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
employees on other leave without pay	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
employees on workers compensation or disability	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
employees available for work or on-call, but not working	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
employees on layoff or on strike	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
employees not at work who resigned, were terminated or were fired	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
employees not at work who received travel or other non-wage payments	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK

QUARTERLY REPORT CHECKPOINT 1

CHECK ONE:

- IF RESPONDENT COMPLETES BOTH CES AND QCR (CS3)→ CONTINUE TO Q32
- IF RESPONDENT IS NOT FAMILIAR WITH QCR (CS4) →GO TO Q53
- IF RESPONDENT IS FAMILIAR WITH BUT DOES NOT COMPLETE QCR (CS4), ASK:
Now I have some questions on the Quarterly Unemployment Insurance Wage and Tax Report. You indicated you do not complete this report yourself. Do you feel familiar enough with the report to continue with some questions? (The questions are similar to those I've asked about the CES report on the records sources, how the report is prepared, and the employees that are included.)
 - YES→ CONTINUE TO Q32
 - NO→ GO TO Q53

Q32. Now I have some questions about the Quarterly Unemployment Insurance Wage and Tax Report. Are the employment numbers you provide for this report obtained from the same source as the CES monthly report? That would be: (IN THIS ORDER: Q12 ANSWER FOR INTERNAL RECORDS, Q7 IN-HOUSE PAYROLL, Q13 OUTSIDE ORGANIZATION).

- SAME SOURCE Q12 OR Q7→ GO TO Q40
- SAME SOURCE Q13→ GO TO Q38
- DIFFERENT SOURCE
- DON'T KNOW→ GO BACK TO QCR CHECKPOINT 1; CHECK "NOT FAMILIAR"
- OTHER, specify: _____ →GO TO Q40

Q33. Where do you get the monthly employment numbers that you use for the quarterly report? (PROBE WHETHER SOURCE IS ELECTRONIC AND RECORD FOR SELECTED CATEGORIES.)

- In-house payroll software
- An outside organization→ GO TO Q36
- Human resource, personnel, or benefits records (ELECTRONIC) →GO TO Q40
- Time cards or attendance records (ELECTRONIC) →GO TO Q40
- Other, please specify: (ELECTRONIC) →GO TO Q40
- Memory or personal knowledge→ GO TO Q40
- Don't know→ GO BACK TO QCR CHECKPOINT 1;CHECK "NOT FAMILIAR"

Q34. Is your payroll software: a product that was developed internally for your own use, a product you lease or license from a software company, a commercially-available software package that your firm purchased, or something else?

- DEVELOPED INTERNALLY FOR OWN USE → GO TO Q40
- LEASED OR LICENSED FROM A SOFTWARE COMPANY
- PURCHASED COMMERCIALY-AVAILABLE PACKAGE
- OTHER (DESCRIBE) → GO TO Q40

Q35. What company developed the software you use to prepare your payroll? IF NOT LISTED, CHECK "OTHER" AND WRITE IN NAME.

ABRA PAYROLL SOFTWARE	MILLENNIUM PAYROLL	SLS TRIAD
CCS ACCOUNTING	PAYCHEX	SOFTWARE PLUS
CHECKMARK SOFTWARE	PEACHTREE SOFTWARE	TESSERACT
DATA PRO ACCOUNTING SOFTWARE	PENSOFT PAYROLL SOLUTIONS	
EBUSINESSPAY BY EBUSINESSLOGIC	PEOPLESOFT	
GENESYS	QUICKBOOKS	
LT TAX	RED WING BUSINESS SYSTEMS	OTHER SOFTWARE COMPANY:
MASTERTAX	SAGE SOFTWARE	NAME: _____
MPAY SERVICES	SAP	DON'T KNOW

GO TO Q40

Q36. Would that be a payroll processing service, an accounting firm, your corporate or franchise headquarters, or something else?

- PAYROLL PROCESSING SERVICE
- ACCOUNTING FIRM OR ACCOUNTANT → GO TO Q38
- CORPORATE/FRANCHISE HEADQUARTERS → GO TO Q38
- OTHER (DESCRIBE) → GO TO Q38

Q37. What is the name of the payroll processing service your company uses? CHECK NAME; IF NOT LISTED, CHECK "OTHER" AND WRITE IN NAME.

ACCOUNTIX	COMPUPAY	PERFECT SOFTWARE
ACCUPAY	DAVISON	PLATFORM ONE
ADP (AUTOMATED DATA PROCESSING)	J.D. EDWARDS	PRECISION PAYROLL
ADVANTAGE PAYROLL SERVICES	KRONOS	PROBUSINESS SERVICES
ALPHA STAFF	LAWSON	QUICKBOOKS
AMERIPAY	NATIONAL PAYROLL SERVICE	SUMMITT SOFTWARE
CERTIFIED PAYROLL SERVICES	PAYTIME	OTHER PPF:
CERIDIAN	PAYCHEX	NAME: _____
		DON'T KNOW

Q38. Does the (payroll processor, accountant, headquarter, other) prepare the quarterly report for you?

- YES
- NO → GO TO Q40
- DON'T KNOW → GO TO Q40

Q39. Does the (payroll processor, accountant, headquarter, other) also submit your quarterly report, or do you submit it?

- YES, OUTSIDE FIRM/PPF SUBMITS QUARTERLY REPORT
- NO, UNIT ITSELF SUBMITS QUARTERLY REPORT
- DON'T KNOW

Q40. Can you think of any changes to the software, reports, or other data sources you use to compile the quarterly UI report that might have affected your employment counts during 2006/07?

- YES
- NO → GO TO Q43
- DON'T KNOW → GO TO Q43

Q41. What types of changes?

- SWITCHED PROVIDER OR SOFTWARE
- CHANGED OR ADDED PAY PERIODS
- CHANGE OR REVISION IN REPORTS
- OTHER, PLEASE SPECIFY:

Q42. When were the changes made? MM: _____ YYYY: _____

Q43. (ASK ONLY IF MULTIPLE PAYPERIODS OR PAYROLLS IN Q5). You indicated earlier you had more than one payroll or payperiod. Are you able to include employees from all pay groups in the monthly employment numbers for the Quarterly report?

- YES
- NO → Which employee groups are not included? _____
→ Approximately how many employees are not included? _____
- DON'T KNOW

Q44. (DO NOT ASK IF REPORT IS COMPLETED BY PAYROLL PROCESSOR, ACCOUNTANT, HEADQUARTERS, OTHER) When do you typically complete the quarterly report?

- DON'T KNOW

- Q45.** The quarterly tax report asks for employment for each month of the quarter. Does the data source you use to complete the quarterly report contain separate employments counts for each individual month of the quarter?
- YES → GO TO Q47
 - NO
 - DON'T KNOW
- Q46.** How do you obtain the employment counts for the separate months contained in the quarterly report?
- Q47** When you provide the monthly UI employment counts do you use (READ CATEGORIES BELOW AND CHECK ALL THAT APPLY)?
- Cumulative count of employees who worked during the month
 - Count of employees who worked during the pay period that includes the 12th of the month
 - Count of employees who worked during a pay period other than the pay period that includes the 12th of the month
 - Any other, PLEASE SPECIFY: _____
 - DON'T KNOW
- Q48.** Is it likely that your (monthly) UI employment figures include persons who worked anytime during the month rather than just the (pay/time) period including the 12th?
- YES
 - NO
 - DON'T KNOW
- Q49.** Is it likely that your (monthly) UI employment figures include a count of the number of checks issued rather than the number of persons receiving pay? An example is if an employee received both a paycheck and a commission or bonus check, he or she could be counted twice.
- YES → Would that occur in all or just some months? _____
If just some months, which ones?: _____
 - NO
 - DON'T KNOW

Q50. We're interested in finding out exactly who gets counted as part of the employee numbers in the quarterly UI report. Do you typically include (ASK ONLY IF YES IS CHECKED IN 1)?

EMPLOYEE TYPE	(1) HAS EMPLOYEE TYPE?	(2) INCLUDED?
Employees working in locations outside of the state	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Employees working in locations outside of US	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Trainees	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Seasonal or temporary employees	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Retired employees receiving pensions	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Part-time employees	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Executives or corporate officials	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Employees on paid vacation, sick, or other paid leave	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Employees who received bonus pay but who were not working	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Employees who received pay advances but who were not working	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK

Q51. The next groups of workers may be handled differently than others. Please indicate if you include any of the following workers in the quarterly report. (ASK ONLY IF YES IS CHECKED IN 1)

Employee Type	(1) HAS EMPLOYEE TYPE?	(2) INCLUDED IN QUARTERLY REPORT?
Self-employed persons	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Outside service providers (such as contractors and their employees)	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Real Estate/insurance/sales personnel working solely for commissions (ASK ONLY IF NAICS 524210, 531200)	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK

Q52. Do you typically include in the quarterly report any of these employees who may be on your books, but who did not receive pay? (ASK ONLY IF YES IS CHECKED IN 1)

EMPLOYEE TYPE	(1) HAS EMPLOYEE TYPE?	(2) INCLUDED?
employees on family leave not receiving pay	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
employees on leave not receiving pay	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
employees on workers compensation or disability	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
employees available for work or on-call, but not working	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
employees on layoff or on strike	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
employees not at work who resigned, were terminated or were fired	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
employees not at work who received travel or other non-wage payments	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK

STUDY GROUP CHECKPOINT 2

- IF STUDY GROUP LETTER IS "J" (THE CONTROL GROUP) → GO TO QCR CHECKPOINT 2
- IF NOT IN STUDY GROUP "J" → CONTINUE TO Q53

Q53. Finally, looking at the data table we sent with the monthly CES and Quarterly UI figures, there are some months with the same employment, and others that differ. (We have gone over some possible reasons for the differences.) Why do you think the figures are different?

WRITE IN RESPONDENT EXPLANATION:

1. _____

2. _____

3. _____

4. _____

5. _____

Q54. Do you think that either the CES monthly, quarterly UI tax, or both figures are incorrect?

- YES, CES MONTHLY FIGURE IS INCORRECT
- YES, QUARTERLY UI TAX FIGURE IS INCORRECT
- YES, BOTH FIGURES ARE INCORRECT
- NO
- DON'T KNOW

Q55. (PULL UP GRID WITH EMPLOYMENT DIFFERENCES THAT WAS SENT TO RESPONDENT)
Can you identify or provide what you think is/are the most accurate employment number(s) for the month(s) that differ the most? (INTERVIEWER: ATTEMPT TO GET CORRECT VALUES FOR THE LARGEST DIFFERENCES, AND THE DECEMBER 2006/JANUARY 2007 DIFFERENCES).

- YES, FILL IN VALUES
- NO

QUARTERLY REPORT CHECKPOINT 2

IF THE RESPONDENT PREPARES BOTH THE CES AND QCR → END INTERVIEW AND GO TO QUALITY QUESTIONS

IF THE RESPONDENT DOES NOT PREPARE THE QCR , ASK:

If we have questions on the quarterly report, would it be possible to contact the person that prepares it and ask them a few questions?

YES → GET QCR CONTACT INFORMATION

NO → END INTERVIEW AND GO TO QUALITY QUESTIONS

NO, MAJOR PAYROLL PROCESSOR PREPARES QCR → END INTERVIEW AND GO TO QUALITY QUESTIONS

IF YES, Can I get that person's name, telephone, and fax number?

QUARTERLY REPORT CONTACT NAME: _____

QUARTERLY REPORT CONTACT PHONE: _____

QUARTERLY REPORT CONTACT FAX: _____

Those are all of the questions I have. Thank you very much for your time and for your participation in these important programs, which are critical for the reporting of accurate and timely state and federal employment statistics by the Bureau of Labor Statistics.

**ADDITIONAL RESPONDENTS
QUARTERLY REPORT**

Questionnaire Introduction

INTRO1. We recently (mailed/FAXed) you a letter with a copy of employment data that (your company/company name) provided for the monthly and quarterly reports last year. It will be useful to refer to while we speak. Do you have it available?

- YES, HAVE COPY AVAILABLE → GO TO INTRO3
- NO

INTRO2. I will have some questions about the employment data we included with the letter. It would be better if I sent you another copy that you could refer to. Can I verify your FAX number?

- YES → VERIFY FAX NUMBER, MAKE CALL BACK APPT, FAX INFO
- NO (OR NO FAX) → VERIFY MAIL ADDRESS, MAKE CALL BACK APPT, MAIL INFO

INTRO3. We are calling to find out more about how companies keep records and prepare employment counts for the monthly and quarterly reports. First, let me assure you that: CHECK AFTER READING TO RESPONDENT.

- The purpose of this call is for statistical purposes only and quality control. This call is not involved with unemployment insurance tax system liability in any way. Your participation is voluntary, and you can decline to answer any questions.
- The information you provide will be held in confidence to the full extent permitted by law. Your firm will not be identified in any way.

In accordance with the Confidential Information Protection and Statistical Efficiency Act of 2002 (Title 5 of Public Law 107-347) and other applicable Federal laws, your responses will not be disclosed in identifiable form without your informed consent. The OMB control number for this interview is: 1220-0011. You are not required to respond to the collection of information unless it displays a currently valid OMB control number.

INTRO4. To make the interview easier, Is there a common name that you use to refer to the monthly CES report, since I will be asking questions about it? How about the quarterly wage and tax report? (INTERVIEWER: THESE COULD BE SUBSTITUTED IN QUESTIONS IN LIEU OF OTHER NAMES THAT ARE USED FOR THE REPORTS)

MONTHLY REPORT NAME: _____

QUARTERLY REPORT NAME: _____

Questionnaire

Q1. First, I'd like to make sure that we have the correct worksite information. We're looking at: (READ IDENTIFIERS FOR CES AND/OR QCR WORKSITES; CAN REFER RESPONDENT TO EMPLOYMENT DATA SHEET). Do the reported numbers represent the same worksite, or is it possible they represent other worksites?

- SAME WORKSITE
- OTHER WORKSITES
- DON'T KNOW

Q2. (Before we talk about the specific differences in the employment reports,) I'd like to ask some questions on payroll, company recordkeeping practices, and how employment numbers are prepared. First, do all of (your company/company name) employees appear on the same payroll or is there more than one payroll? (For example, sometimes hourly workers are on a different payroll than salaried workers or executives.)

- SAME PAYROLL FOR ALL EMPLOYEES
- MORE THAN ONE PAYROLL

Q3. Does (your company/company name) use the same or different payroll time periods for employees? (For example, sometimes one group of employees is paid monthly and another is paid weekly.)

- SAME TIME PERIOD
- DIFFERENT TIME PERIOD

**IF Q2 IS MORE THAN ONE PAYROLL AND/OR Q3 IS DIFFERENT TIME PERIOD, GO TO Q5,
OTHERWISE CONTINUE**

Q4. How often does (your company/company name) pay employees?

- Weekly
- Bi-weekly (every other week)
- Semi-monthly (twice a month)
- Monthly
- Other, please specify: _____

GO TO Q7

Q5. What employee groups are on different payrolls or have different pay periods? (ENTER GROUPS BELOW.) What type of pay period(s) are used for (EACH GROUP)—weekly, biweekly, semi-monthly, monthly, or other?

Groups	Weekly	Bi-weekly	Semi-monthly	Monthly	Other
GROUP 1: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GROUP 2: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GROUP 3: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GROUP 4: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
GROUP 5: _____	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

- Q6.** Is (your company/company name) able to include employees from all pay groups in the monthly employment numbers for the quarterly UI report?
- YES
 - NO → Which employee groups are not included? _____
→ Approximately how many employees are not included? _____
 - DON'T KNOW
- Q7.** (DO NOT ASK IF TALKING TO OUTSIDE PERSON, JUST CHECK THE APPLICABLE BOX.)
Does (your company/company name) prepare the payroll in-house, or does an outside person, organization, or service bureau prepare it?
- IN-HOUSE
 - OUTSIDE PERSON, ORG., SERVICE BUREAU
 - OTHER, specify: _____
- Q8.** Are the monthly employment figures provided for the quarterly UI report obtained from the payroll or payroll reports?
- YES
 - YES → IF OUTSIDE PERSON, ORG., SERVICE BUREAU IN Q7, GO TO Q13
 - NO → GO TO Q12
 - DON'T KNOW → GO TO Q12
- Q9.** You said that the payroll is prepared in-house. Does (your company/company name) use a computer program/software program to prepare the payroll?
- YES
 - NO → GO TO Q12
 - DON'T KNOW → GO TO Q12
- Q10.** Is the payroll software: a product that was developed internally for your own use, a product you lease or license from a software company, a commercially-available software package that your firm purchased, or something else?
- DEVELOPED INTERNALLY FOR OWN USE → GO TO Q17
 - LEASED OR LICENSED FROM A SOFTWARE COMPANY
 - PURCHASED COMMERCIALY-AVAILABLE PACKAGE
 - OTHER (DESCRIBE) → GO TO Q17

Q11. What company developed the software used to prepare the payroll? IF NOT LISTED, CHECK "OTHER" AND WRITE IN NAME.

ABRA PAYROLL SOFTWARE	MILLENNIUM PAYROLL	SLS TRIAD
CCS ACCOUNTING	PAYCHEX	SOFTWARE PLUS
CHECKMARK SOFTWARE	PEACHTREE SOFTWARE	TESSERACT
DATA PRO ACCOUNTING SOFTWARE	PENSOFT PAYROLL SOLUTIONS	
EBUSINESSPAY BY EBUSINESSLOGIC	PEOPLESOFT	
GENESYS	QUICKBOOKS	
LTAX	RED WING BUSINESS SYSTEMS	OTHER SOFTWARE COMPANY:
MASTERTAX	SAGE SOFTWARE	NAME: _____
MPAY SERVICES	SAP	DON'T KNOW

Go to Q17

Q12. Where does (your company/company name) get the monthly employment figures for the quarterly UI report? (PROBE WHETHER SOURCE IS ELECTRONIC AND RECORD FOR SELECTED CATEGORIES)

- Human resources, personnel, or benefits records ELECTRONIC
- Time cards or attendance records ELECTRONIC
- Other, please specify: _____ ELECTRONIC
- Memory or personal knowledge
- Don't know

GO TO Q17

Q13. (DO NOT ASK IF TALKING TO OUTSIDE PERSON, JUST CHECK THE APPLICABLE BOX.) You said that the payroll is prepared by an outside organization. Would that be a payroll processing service, an accounting firm, the corporate or franchise headquarters, or something else?

- PAYROLL PROCESSING SERVICE
- ACCOUNTING FIRM OR ACCOUNTANT → GO TO Q15
- CORPORATE/FRANCHISE HEADQUARTERS → GO TO Q15
- OTHER (DESCRIBE) → GO TO Q15

Q14. What is the name of the payroll processing service (your company/company name) uses? CHECK NAME; IF NOT LISTED, CHECK "OTHER" AND WRITE IN NAME.

ACCOUNTIX	COMPUPAY	PERFECT SOFTWARE
ACCUPAY	DAVISON	PLATFORM ONE
ADP (AUTOMATED DATA PROCESSING)	J.D. EDWARDS	PRECISION PAYROLL
ADVANTAGE PAYROLL SERVICES	KRONOS	PROBUSINESS SERVICES
ALPHA STAFF	LAWSON	QUICKBOOKS
AMERIPAY	NATIONAL PAYROLL SERVICE	SUMMITT SOFTWARE
CERTIFIED PAYROLL SERVICES	PAYTIME	OTHER PPF:
CERIDIAN	PAYCHEX	NAME: _____
		DON'T KNOW

- Q15.** Do you (does the payroll processor, accountant, headquarter, other) prepare the quarterly UI report?
- YES
 - NO → GO TO Q17
- Q16.** (Do you/does the payroll processor, accountant, headquarter, other) also submit the quarterly UI report, or does (your company/company name) submit it?
- YES, OUTSIDE FIRM/PPF SUBMITS CES REPORT→ GO TO Q18
 - NO, UNIT ITSELF SUBMITS CES REPORT→ GO TO Q18
 - DON'T KNOW→ GO TO Q18
- Q17.** (Do you/does your company/company name) have any existing program or report that is used every quarter to compile the quarterly UI report?
- YES, →IF OUTSIDE ORGANIZATION, SUCH AS ACCOUNTANT, ASK FOR NAME OF ANY SOFTWARE PROGRAM USED: _____
 - NO
 - DON'T KNOW
- Q18.** Can you think of any changes to the software, reports, or other data sources used to compile the quarterly report that might have affected the monthly employment counts during 2006/07?
- YES
 - NO → GO TO Q21
 - DON'T KNOW→ GO TO Q21
- Q19.** What types of changes?
- SWITCHED PROVIDER OR SOFTWARE
 - CHANGED OR ADDED PAY PERIODS
 - CHANGE OR REVISION IN REPORTS
 - OTHER, PLEASE SPECIFY:
- Q20.** When were the changes made? MM: _____ YYYY: _____
- Q21.** (Do you/does your company/company name) clean up or purge employee records at the end of the calendar year or at any other specific time frame? (READ CATEGORIES IF NECESSARY.)
- YES, END OF CALENDAR YEAR
 - YES, AFTER TAXES AND/OR W2 FORMS ARE COMPLETED
 - YES, END OF QUARTER
 - YES, END OF MONTH
 - YES, OTHER TIMES, please specify: _____
 - NO→ GO TO Q26
 - DON'T KNOW→ GO TO Q26

Q22. What type of employee records clean up or purging is done?

Q23. Is it done manually or automatically?

- MANUALLY
- AUTOMATICALLY
- DON'T KNOW

STUDY GROUP CHECKPOINT 1

- IF STUDY GROUP LETTER IS "J" (THE CONTROL GROUP) → GO TO Q26
- IF NOT IN STUDY GROUP "J" → CONTINUE TO Q24

Q24. For the next question can you refer to the employment table that we sent you (showing CES monthly and quarterly UI report employment). Is it likely that the records cleanup would explain any of the employment differences that are shown in the table (last row of table)?

- YES → Which months would be affected? _____
- NO → GO TO Q26

Q25. Would the cleanup affect employment for the monthly CES report, quarterly UI report, or both reports (CHECK ALL THAT APPLY)? Could you explain how it would affect the numbers?

- MONTHLY CES REPORT ONLY _____
- QUARTERLY UI REPORT ONLY _____
- BOTH REPORTS _____
- DON'T KNOW ABOUT MONTHLY CES REPORT
- DON'T KNOW ABOUT QUARTERLY UI REPORT
- DON'T KNOW ABOUT EITHER REPORT

Q26. When you provide the monthly UI employment counts do you use (READ CATEGORIES BELOW AND CHECK ALL THAT APPLY)?

- Cumulative count of employees who worked during the month
- Count of employees who worked during the pay period that includes the 12th of the month
- Count of employees who worked during a pay period other than the pay period that includes the 12th of the month
- Any other, PLEASE SPECIFY: _____
- DON'T KNOW

Q27. Is it likely that the monthly employment numbers for the quarterly UI report include persons who worked anytime during the month rather than just the (pay/time) period including the 12th?

- YES
- NO
- DON'T KNOW

Q28. Is it likely that the monthly employment numbers for the quarterly UI report might include a count of the number of checks issued rather than the number of persons receiving pay? An example is if an employee received both a paycheck and a commission or bonus check, he or she could be counted twice.

- YES → Would that occur in all or just some months? _____
If just some months, which ones?: _____
- NO
- DON'T KNOW

Q29. We're interested in finding out exactly who gets counted in the employee numbers. I'm going to read a list of different types of employees; please tell me if (your company/company name) usually has these types of employees. (CHECK YES OR NO BELOW IN COLUMN 1.)

Now, a followup question, are (EMPLOYEE TYPE) typically included in the monthly employment numbers for the quarterly UI report?

EMPLOYEE TYPE	(1) HAS EMPLOYEE TYPE?	(2) INCLUDED?
Employees working in locations outside of the state	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Employees working in locations outside of US	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Trainees	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Seasonal or temporary employees	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Retired employees receiving pensions	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Part-time employees	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Executives or corporate officials	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Employees on paid vacation, sick, or other paid leave	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Employees who received bonus pay but who were not working	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
Employees who received pay advances but who were not working	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK

Q30. The next groups of workers are slightly different. Please indicate if (your company/company name) has these types of workers, if they are included in the monthly employment for the UI quarterly report, and the type of tax form they receive.

Employee Type	(1) HAS EMPLOYEE TYPE?	(2) INCLUDED IN CES?	(3) W2 OR 1099?
Self-employed persons	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> W2 <input type="checkbox"/> 1099 <input type="checkbox"/> NEITHER <input type="checkbox"/> DK
Outside service providers (such as contractors and their employees)	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> W2 <input type="checkbox"/> 1099 <input type="checkbox"/> NEITHER <input type="checkbox"/> DK
Real Estate/insurance/sales personnel working solely for commissions (ASK ONLY IF NAICS 524210, 531200)	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> W2 <input type="checkbox"/> 1099 <input type="checkbox"/> NEITHER <input type="checkbox"/> DK

Q31. Do you typically have any of the following types of employees who may be on (your company/company name) books, but who did not receive pay? A followup question, would they typically be included or excluded in the monthly employment numbers for the quarterly UI report?

EMPLOYEE TYPE	(1) HAS EMPLOYEE TYPE?	(2) INCLUDED?
employees on family leave not receiving pay	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
employees on other leave without pay	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
employees on workers compensation or disability	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
employees available for work or on-call, but not working	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
employees on layoff or on strike	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
employees not at work who resigned, were terminated or were fired	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK
employees not at work who received travel or other non-wage payments	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK	<input type="checkbox"/> YES <input type="checkbox"/> NO <input type="checkbox"/> DK

Q32. When (do you/does your company/company name) typically complete the quarterly report?

DON'T KNOW

Q33. The quarterly tax report asks for employment for each month of the quarter. Does the data source used to complete the quarterly report contain separate employments counts for each individual month of the quarter?

YES → GO TO Q35

NO

DON'T KNOW

Q34. How does (your company/company name) obtain the employment counts for the separate months contained in the quarterly report?

STUDY GROUP CHECKPOINT 2

IF STUDY GROUP LETTER IS "J" (THE CONTROL GROUP) → GO TO QUALITY QUESTIONS

IF NOT IN STUDY GROUP "J" → CONTINUE TO Q35

Q35. Finally, looking at the data table we sent with the monthly CES and Quarterly UI figures, there are some months with the same employment, and others that differ. (We have gone over some possible reasons for the differences.) Why do you think the figures are different?

WRITE IN RESPONDENT EXPLANATION:

1. _____

2. _____

3. _____

4. _____

5. _____

Q36. Do you think that either the CES monthly, quarterly UI tax, or both figures are incorrect?

- YES, CES MONTHLY FIGURE IS INCORRECT
- YES, QUARTERLY UI TAX FIGURE IS INCORRECT
- YES, BOTH FIGURES ARE INCORRECT
- NO
- DON'T KNOW

Q37. (PULL UP GRID WITH EMPLOYMENT DIFFERENCES THAT WAS SENT TO RESPONDENT)
Can you identify or provide what you think is/are the most accurate employment number(s) for the month(s) that differ the most? (INTERVIEWER: ATTEMPT TO GET CORRECT VALUES FOR THE LARGEST DIFFERENCES, AND THE DECEMBER 2006/JANUARY 2007 DIFFERENCES).

- YES, FILL IN VALUES
- NO

Those are all of the questions I have. Thank you very much for your time and for your participation in these important programs, which are critical for the reporting of accurate and timely state and federal employment statistics by the Bureau of Labor Statistics.

APPENDIX B: Regression Trees

Previous analyses looked for factors with a higher incidence of error, but it is instructive to look at how each observation influences the aggregate December-to-January seasonal difference.

Measuring Influence

To review influence we first measure the residual for each observation twice: once with CES and once with QCEW data. The residual is the difference between the expected employment value and the actual reported employment value for each RAS respondent and is measured by calculating the ratio of over-the-month change (R) in the same way that the ratio is calculated in CES estimation (using QCEW as the example):

$$resid_{i,QCEW} = \frac{w_i \left(Employment_{i,January,QCEW} - R_{QCEW} Employment_{i,December,QCEW} \right)}{\sum_{i=1}^n w_i Employment_{i,December,QCEW}}$$

where

$Employment_{i,January,QCEW}$ = January QCEW employment

$Employment_{i,December,QCEW}$ = December QCEW employment

R_{QCEW} = The weighted link-relative estimate of the over the month change using the RAS respondents.

w_i = product of the CES sample weight and the RAS sample weight

Note: Each of these variables has a corollary using CES instead of QCEW data.

In the equation the expected January employment is calculated by applying the ratio of the over-the-month change for January (R_{QCEW})²³ to the establishment's December employment value. The expected January value is subtracted from the actual reported January value, and then divided by the total weighted employment in December to calculate the QCEW residual for this establishment. The weighted employment total in the denominator centers the distribution of the influence (defined below) around

²³ In calculating R we only used RAS respondents that reported data in December 2006 and January 2007, which was the time period and reference period used to define the group.

zero, preventing erroneous results from occurring. After computing a residual for both the QCEW and CES we can compute the influence, which is the difference between the QCEW and CES residuals:

$$influence_i = resid_{i,QCEW} - resid_{i,CES}$$

The influence measures the effect that each establishment has on the ratio estimate for each data source. If an establishment pulls the CES ratio higher but pulls the QCEW ratio lower, then this establishment has a negative influence, making the seasonal difference larger. An establishment from the control group should have a nearly equal effect for each ratio, since they report almost identical information to the CES and QCEW, so the influence from a control group member should be very close to zero. As an example, Figure 5 plots the December and January employment for three hypothetical establishments. The diagonal line is a ratio estimate, and the vertical lines originating from the diagonal line are the residuals. Two residuals are shown for each establishment, with the red line representing the QCEW residual as shown in the preceding equation, and the blue line showing the CES residual. The first establishment (left) has the two residuals moving in the same direction and with the same magnitude (no influence on the employment difference). The second establishment (middle) has the two residuals moving in opposite directions (CES with a positive over-the-month change and the QCEW with a negative over-the-month change), so it has a negative influence. The third establishment has both residuals showing a negative over-the-month change; however, the magnitudes are much different, creating a negative influence in this case.

Regression Trees

The influence is the dependent variable explored with a data mining technique called a regression tree. Starting with the full set of data, the regression tree procedure repeatedly partitions the sample into two subsets based on the size and direction of the influence. The tree continues to partition the data until there are no meaningful partitions left. The tree uses establishments' responses to the RAS questionnaire

as the independent variables. For example, if an incorrect reference period for the CES leads to a large group of negative influences, then the tree chooses that variable. Given their methods and speed, regression trees can analyze all of the RAS variables at one time.

We can think of the tree as stripping away observations that are less interesting—for example, symmetric influences that balance each other—leaving final groups with a specified set of characteristics, a smaller number of observations (less than 10% of the RAS respondents), and a large seasonal influence. For example, there might be a variable—such as the incorrect reporting of out-of-state employees—that enters the tree model, but it includes just as many negative influences (QCEW drops more than CES) as positive influences (CES drops more than QCEW). In the end, the variable does not tell us anything about the seasonal error because the influences cancel each other out, and it is therefore dropped from the model. The tree model will instead select a variable for which there are more negative influences.

Determining Effect on the Seasonal Difference

The seasonal difference between the CES and QCEW programs is measured by taking the difference between the weighted link relative calculations for each series. To express it more formally:

$$\text{Seasonal Difference} = R_{QCEW} - R_{CES}$$

Using the RAS respondents this difference is -.011, implying the QCEW fell by more than the CES between December and January.

The final tree creates a set of mutually exclusive groups, and each group is a set of establishments defined by a set of characteristics. To measure each of the mutually exclusive group's influence on the seasonal difference, we removed one group at a time from the weighted link relative calculations to see how the seasonal difference changed. If removing a mutually exclusive group shrinks the seasonal difference by a substantial amount, then the characteristics of the removed group are probably substantial. A more formal expression of what we were trying to find is given below.

Find group g such that $|R_{QCEW,-g} - R_{CES,-g}| < |-.011|$

where

$R_{QCEW,-g}$ = weighted link relative estimate using QCEW data for the RAS respondents after removing group g from the calculations.

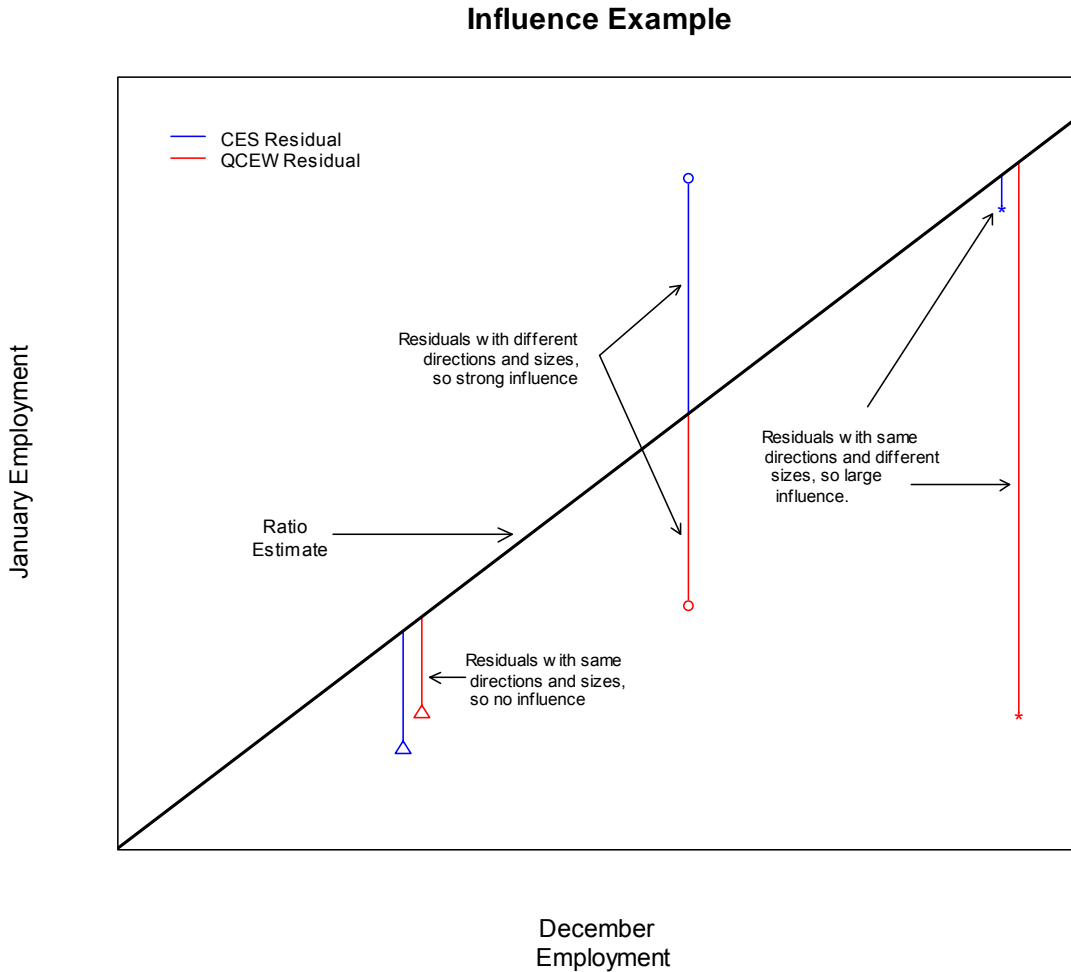
$R_{CES,-g}$ = weighted link relative estimate using CES data for the RAS respondents after removing group g from the calculations.

The multivariate analysis discussed in section 4 gave percentages of the difference explained by each of the different factors. The percentages were calculated in the following manner:

$$\% \text{ of Seasonal Difference explained by group } g = \left(1 - \frac{R_{QCEW,-g} - R_{CES,-g}}{-.011} \right) * 100\%$$

For example, when $R_{QCEW,-g} - R_{CES,-g} = 0$ then group g explains all of the seasonal difference.

Figure 5: Example of influence.



Notes: Each symbol represents a different observation or hypothetical establishment. The lines measure the residual for each point and for each data source—red for QCEW and blue for CES. The first establishment (on the left, represented by triangles) has nearly identical residuals for CES and QCEW, so they have almost no influence on the seasonal difference. The second establishment (in the middle, represented by circles) has residuals of the same magnitude but go in different directions. This characteristic indicates that the establishment has a positive effect on the CES ratio, but it has a negative effect on the QCEW ratio. The third establishment (on the right, represented by asterisks) has residuals in the same direction, but the magnitudes are very different. The observation has a much stronger downward pull on the QCEW ratio than on the CES ratio. Given their much stronger negative influences on the QCEW, the second and third establishments are examples of establishments with important influences.