# COGNITIVE TESTING OF NEW FORMS FOR THE CURRENT EMPLOYMENT STATISTICS **SURVEY**

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#### 1. Introduction

In September 1, 2005, The Bureau of Labor Statistics (BLS) introduced a number of changes to the Current Employment Statistics (CES) survey. CES, often known as "the payroll survey," is the source of widely-used national data on payroll employment, work hours, and employee earnings. These data serve as key economic indicators and as inputs to economic decision-making at all levels of government and industry.

CES has long collected several key variables each month: the total number of employees (including non-supervisory workers, production, and construction workers) and of women workers<sup>1</sup>; and the employment, hours and regular earnings of production workers (in goods-producing industries) or nonsupervisory workers (in service-producing industries). The survey is expanding to add new data on hours and regular earnings for all workers, as well as a new, more inclusive earnings item that encompasses both regular and irregular pay. Expanding the scope to all workers has been recommended by several high-level review panels and is supported by other federal agencies that utilize these data. The new items will better meet the needs of data users and will provide additional inputs to major economic indicators. In the short term, CES will continue to collect hours and earnings for production workers or non-supervisory workers as well as the new items. After three years, the production workers and non-supervisory workers series will be phased out.

This paper describes the challenges of developing and testing a new earnings measure and new data collection instruments to obtain the additional data, while fitting these into the operational constraints of a quick-turnaround, multi-mode, monthly survey. The paper focuses more on the cognitive testing issues and results than on the economic background of these data items.

# 2. Background

# 2.1 CES Data Collection through August, 2005

CES collects data for approximately 160,000 businesses and government agencies (representing approximately 400,000 individual worksites) each month from respondents who remain in the sample for several years. CES operates in a mixed-mode collection environment. Computer-assisted Telephone Interviews (CATI) is the primary vehicle for new

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sample initiation and for about 20 percent of ongoing data collection. After initiation, respondents are encouraged to selfreport using Touchtone Data Entry (TDE), fax, or the internet. In addition, many very large firms provide electronic data files to BLS for automated processing. Except for the electronic data file reporters, CES respondents receive paper data collection forms tailored to their firms' industries, and use those forms to compile their data. The original forms collected five data elements for establishments in most industries, six for manufacturing establishments and most service industries, and fewer items in educational services and public administration. The two-sided, one-sheet form consisted of a data collection matrix on one side, with the mailing address and detailed instructions on the reverse. (See Appendix A for an example of the grid side of the form.) The columns of the matrix were the individual data items, the rows were the months, and respondents completed one row each month. The reference period for all data was the pay period that included the 12th of the month, the standard for U.S. government establishment surveys.

An important characteristic of CES is that data are collected, processed, analyzed, and reported in about two and a half weeks each month. The BLS news release, The Employment Situation, is released on the first Friday of every month and describes changes from the previous month in payroll employment, worker hours, and average weekly earnings, by industry (along with the national unemployment rate and detailed demographic data from the Current Population Survey).

All continuing CES respondents receive new forms each January and use those forms throughout the year. Each form is for a specific sample location. The data reported to BLS for the previous December are preprinted on the new form. For example, the January 2005 forms began with preprinted December 2004 data for that location.

#### 2.2 Data Requirements: Issues for New Forms

BLS convened an interdisciplinary team of economists, information systems specialists, data collection specialists, survey methodologists, and questionnaire designers and charged them with designing and testing the new CES instruments.<sup>2</sup> The new forms presented numerous challenges.

2.2.1 All Employee Data and Multiple Pay Groups

<sup>&</sup>lt;sup>1</sup> The women workers item was discontinued as part of the survey redesign.

<sup>&</sup>lt;sup>2</sup> Team members represented several organizational units at the BLS National Office and some of the Regional Offices. and most had considerable experience with the CES. In addition to the authors, the team included of Laura Jackson, Robert Knutson, Michael Murphy, and Douglas Prince.

Collecting hours and earnings information for all workers had a number of implications for forms design. BLS has compiled considerable evidence that the information was available, and in many cases more easily or more accurately reported than data for production workers or non-supervisory workers (e.g., ERAS 1981, Goldenberg et al., 2000). However, the vast majority of employers included all of their production workers or non-supervisory workers in a single payroll and paid them all at one time. This was not necessarily the case for reporting payroll for all workers: BLS research showed instead that about 20 percent of employers pay different groups of employees at different pay frequencies (Rosen, 2004). That means that the pay period that includes the 12th would be a different length for the two groups (e.g., weekly and biweekly, or weekly and monthly) and should not be reported as a single figure. The form design had to accommodate at least two different pay frequencies, since we needed to collect all employee data.

#### 2.2.2 Commissions

The CES earnings concept is represented by "payroll," or regular earnings such as wages and salaries, paid leave, overtime, and bonuses paid each pay period. Payroll also includes commissions, but only if they are paid at least once a month. Historically, CES collected commissions separately from other payroll totals for non-supervisory workers reported on the service-providing industries form, while respondents in other industries were directed to include commissions with their payroll figures.

## 2.2.3 Gross Monthly Earnings

The CES payroll definition focuses on regular earnings—wages and salaries, paid leave, overtime, and bonuses paid each pay period. The survey collects payroll for the pay period that includes the 12th of the month, reported before deductions for taxes and employee benefits. The new earnings item both broadens the scope of payments to be reported and changes the reference period from the pay period including the 12th to the entire previous calendar month. The team adopted the term "gross monthly earnings" (GME) to reflect the sum of CES payroll, all commissions, and all other payments to employees during the previous month, before deductions. The intent of gross monthly earnings is to match payments reported under the Federal Insurance Contributions Act (FICA, i.e., Social Security), and it is to be reported for all workers.

While BLS research indicated that the information would be readily available in employer records (Rosen, 2004), GME presented its own set of issues. Timing of earnings was a key concern. Normally there is a lag between the time an employee earns pay and the time the employer disperses it. Do we collect "when earned" or "when paid?" Moreover, pay periods can cross months. If a pay period crosses months, in which month should the respondent count the data?

An additional concern arose from the use of multiple reference periods on the questionnaire. The rest of the form collects data for the pay period that includes the 12th of the month. How do we call attention to the different reference period and ensure that respondents report for the correct time period? Finally, CES analysts needed information about large irregular payments, such as annual bonuses, which could cause GME to increase significantly from one month to the next.

# 2.2.4 Reasons for large changes

The CES forms have a column for respondents to enter a code explaining large changes from the previous month, where "large" is defined as 25 percent or more. The matrix side of the form displays a list of reasons for changes and their associated codes. Since space was at a premium, CES analysts reviewed the list of codes to insure that only the most frequently-used items appeared on the new form. problem, however, is that those codes refer only to the monthly items (employment, payroll, hours) and not to GME. The team needed to find a way to visually and conceptually separate the reasons for large changes in GME from other reasons for changes in the other data items. For example, some reasons for large changes only relate to GME and not to other data items, such as "severance pay distributed."

# 2.3 Operational Constraints

#### 2.3.1 Multiple versions of forms

CES sends respondents data collection forms specific to their establishment's industry sector. Separate forms are prepared Natural Resources and Mining; Construction: for Service-providing Manufacturing: industries; Administration; and Educational Services. These forms vary according to (a) the number and content of data elements on the form; (b) whether the form refers to production workers, nonsupervisory workers, or construction workers; and (c) the content of instructions.

The team developed and tested forms for the manufacturing (which has the most detailed content), service-providing, and construction industries. These last three industries are the largest industries based on employment. Ensuring consistency in wording and format across the form versions, while retaining their industry-specific content, presented yet another difficulty.

## 2.3.2 Printing and other constraints

As the new form evolved, other considerations arose that affected both content and layout of the questionnaire and instructions. First, the form retained the matrix format primarily to facilitate response by TDE and CATI. In addition, CES would continue to preprint reported data for the month prior to mailing.

Second, the form had to retain its "portrait" (vertical) orientation to facilitate mailing in a standard window envelope. The mailing address must fit into a window envelope and meet U.S. Postal Service requirements.

Also, the form had to be suitable for distribution and response by fax. One implication of the fax requirement was that preprinted data describing the sample unit and respondent had to be on the same side as the data matrix. Finally, codes representing reasons for large changes from one month to the next had to appear on the same side as the data entry matrix.

# 2.4 Development of New Data Collection Forms Prior to Testing

Members of the forms team made numerous attempts to design revised data collection forms. The team recognized the need to separate data for production workers or nonsupervisory workers from those for all employees, but at the same time wanted to show that the underlying concepts for both sets of data were the same. GME had to be further differentiated because of the prior-month reference period and different content, but presented so as to be collected for all employees (only) and at the same time as current month data. It quickly became clear that we could not collect more than one pay frequency group on a page at one time. As work progressed, we determined that we also could not collect 12 months of data for all employees and for production workers or non-supervisory workers on the same page. Instead, the team pursued designs that would allow for six months of data collection on a single page, unlike the original version.

The basic design that emerged from this process was a four-sided, two-sheet document. One side displayed a seven-month data matrix (i.e., rows for six months of new collection plus the preprinted data for the last month from the previous form), while mailing information and instructions appeared on the reverse of each sheet.<sup>3</sup> The two sheets collect data for two different pay frequency groups, with the vast majority of respondents using one page and reporting for one group. The content of the matrix or grid side of both sheets is identical, except for references to Pay Group 1 and Pay Group 2 and instructions for the pay groups.

Once the basic structure was settled, other questions arose. Should the form organize data collection by month, with a request for all employee and production workers data on separate lines? Should the form have separate sections for all employees and for production workers/non-supervisory workers, with rows for each month within all employee and production workers/non-supervisory workers sections? We called these approaches "nested" and "non-nested," respectively. Which would be more logical to respondents?

Also, past CES forms have listed months down the left side of the page, so that respondents would complete one row per month. Since the form would hold seven instead of 13 months of data, it was at least theoretically possible to put months at the top of the page, and to have respondents work down a

<sup>3</sup> When we discuss the forms, we reference the "grid" page and the "instruction" page. The grid side is the front and contains the area where the respondents enter their data, along with some instructions. The instruction page contains all of the definitions, mailing label, and OMB burden statement.

column instead of across a row. We called these approaches "months on side" and "months on top." What would be the best way to present the data request?

We did not find much guidance in the literature. While the CES form is a data matrix, respondents complete one row a month rather than a series of rows and columns, and do so with aggregate information about an establishment. Researchers have looked at matrices for compiling data, but even in establishment surveys, those matrices were generally used to compile data about individuals, and the alternative was to prepare a separate set or block of data for each individual (e.g., Dillman et al., 1993; Moyer, 1996). Jenkins (1992) described problems with grid designs, but not in the context of entering record-based data, and Wright and Barnard's (1978) early work with matrices focused on finding the intersection between a row and column to correctly identify information or enter a code.

The team decided to look at questionnaire layout as an empirical question. The cognitive testing component of this research compared four different questionnaire layouts: months on top, nested; months on top, not nested; months on side, nested; and months on side, not nested. (See Appendices B and C for examples.) Each variant required its own set of instructions, since the instructions contained references to specific row or column locations.

For testing purposes, we developed 12 separate questionnaires—four layouts for each of manufacturing, construction, and service-providing industries. Team members reviewed each questionnaire to ensure that, to the extent possible, items were consistent across versions and across industries.

# 2.5 Testing Considerations

Questionnaire testing addressed both content and form layout. In terms of content, the team was interested in looking at how respondents would report their "all employee" data. Our questions included:

- Would they use the familiar concepts correctly and report for all employees?
- What records would they use?
- Did they have records for all employees? Did they have records for production workers or non-supervisory workers, or did they have to tally the production workers / non-supervisory workers data manually?
- Would all employee reporting add significantly to response burden (time to complete the form)?
- How many different pay frequencies did the firm have? If more than one, how did that affect burden?

We were interested in whether employers paid commissions. Some employers were being asked to report commissions separately for the first time. How would they do so, especially if commission payments were made later in the month than the pay period of the  $12^{th}$ ?

Another major emphasis of our testing was the GME item. The team wrestled with how and what to present to respondents that would convey both the content and the reference period, and it was important to see how the message was being interpreted. Did respondents have a single payroll figure that would match the GME definition? Would they report everything that we asked for? Would they provide data based on "when paid" or "when earned?" Would they tell us about occasional or infrequent payments that are not part of our payroll definition?

In terms of layout, the key question was whether the new formats worked—and which of the formats the respondents liked best. Did respondents understand the new layout? Did they notice and understand the two payroll groups, and understand what the second page was for? Did they notice the reasons for large changes and the associated codes to explain those reasons? Have they used them in the past? Would they use them now?

# 3. Methodology

Our design team decided that our forms testing would be accomplished in two major steps: an expert review and cognitive testing. The cognitive testing was completed in two rounds of cognitive interviews.

# 3.1 Expert Review

Prior to testing the forms with potential respondents, we gave the forms to an expert panel for review. The four reviewers were experts in establishment surveys and/or forms design and worked for federal agencies. These experts were not economists, so their suggestions focused on forms design.

# 3.2 Cognitive Interviews

#### 3.2.1 Interviewing sample

The testing strategy had to take into account a number of variables to ensure there that was coverage across all types of respondents, allowing for variations in industry, size of firm, collection mode, commissions, and pay periods of different lengths. The testing team believed that respondents from different types of establishments would interact with the revised forms in different ways and that these interactions could influence their reactions to the forms. For example, TDE units self-report their data each month, so the forms must be completely self-explanatory, whereas CATI respondents can interact with a telephone interviewer and are more likely to ask questions. These factors included industry, size of firm, collection mode, whether commissions were paid, and whether there were multiple lengths of pay for employees.

Due to time and resource limitations we limited the number of cognitive interviews to two rounds. About 50 firms in the Baltimore/Washington DC area were selected to address the major criteria.

# 3.2.2 Interviewer training

The interviewing team was led by a research psychologist from the design team and who had experience in cognitive testing. The rest of the interview team consisted of people experienced with cognitive testing and/or members of the BLS CES program office. Because some interviewers were not familiar with cognitive interviewing, we provided a half-day training. The training covered the response process and survey errors; developing cognitive protocols; conducting interviews including probing; logistical issues; and practice interviews using role-play exercises.

#### 3.2.3 Cognitive protocol

The cognitive interview protocol was quite extensive in its coverage. We wanted the interview to focus on the respondent's reactions to the forms and not waste valuable interview time having them actually filling in the form. Therefore, the protocol had to be retrospective. In addition, very little of the original CES form has been subjected to cognitive testing in the past, and the new forms provided an opportunity to look at a wide range of issues. Specifically, we wanted to test:

- How the respondents opened the package and what they noticed first or second;
- What they read on the grid page;
- What they read on the definition page;
- Connotations of the words and/or reference periods for "pay group," "payroll," and "commissions;"
- Layout preferences when shown all four versions;
- How they calculated their employee count and hours data;
- Their understanding of the codes for large changes in pay period data and GME;
- Their definition and reference period for GME and how they might calculate it;
- Their estimated time to complete the form; and
- Their thoughts about the cover letter.

We contacted potential respondents by telephone and asked for their help in testing a new version of the CES form. Those who agreed to be interviewed were sent a package in advance that contained a cover letter for the test, debriefing questions, and a cover letter explaining the new forms (one that would be used in production). The package also contained one of the four form variations (months on top, nested; months on top, not nested; months on side, nested; and months on side, not nested) that was randomly assigned to the interview. (See Appendices B and C for example form variations.)

We conducted a total of 23 site visits in two rounds. We interviewed 16 respondents in the first round and seven in the second round. During the first round, we found some items that needed to be changed, and we wanted to test those revisions before the form went into production. We modified the cognitive protocol appropriately between the two rounds. For each interview, there were two interviewers, with one taking the lead and the other taking notes. We also audiotaped each interview.

#### 4. Results and Form Changes

#### 4.1 Expert Review

As with all expert reviews, some feedback was inconsistent across the reviewers. Also, some of the changes suggested by the reviewers couldn't be made because of operational constraints mentioned earlier. We did make the following changes, though, based on the review:

- Highlighted some important information, such as the establishment's report number, the explanation of the second page for pay group 2, and the Reason for Large Changes codes;
- Added some white space;
- Shortened the instructions:
- Clarified the length of pay questions;
- Clarified two data items on the grid side;
- Moved the contact information to a prominent space;
- Cleaned up the definitions by changing the order and formatting with more bullets and a two-column layout.

We still couldn't decide which of the four layouts (months on side, nested; months on side, not nested; months on top, nested; and months on top, not nested) worked best. Therefore, we used all four in the cognitive interviews.

# 4.2 Cognitive Interviews

Table 1 shows the background of the interview respondents. They represented a cross-section of establishments and all of the testing criteria described previously.

**Table 1:** Number of Cognitive Interview Respondents by Type of Establishment.

Type of	Number of Establishments	Number of Establishments
Establishment	Interviewed:	Interviewed:
Establishinch	Round 1	Round 2
Industry	Round 1	Round 2
Industry		
Construction	5	4
Manufacturing	5	2
Service-Providing	6	1
Data Collection		
Mode		
CATI	7	3
TDE/Fax	9	4
Size		
Large	3	4
Medium	5	2
Small	8	1
Multiple Pay Lengths	3	3
Commissions Paid	4	1
Total	16	7

#### 4.2.1 Opening the package

Respondents reported that when they opened the package, they turned the form to the grid side. Most of the respondents started reading at the top of the grid side at the "START HERE" (i.e., the instructions). (See Appendix D.) Less than half of the respondents read the cover letter.

## 4.2.2 All employee data

We asked respondents whether or not they could easily provide all employee hours and payroll data. All of the respondents understood that we were asking about *all* employees and what we meant by "employee." Also, all of the respondents stated that they could provide the all employee data with minimal effort. Therefore, we did not feel the need to change any of our data items that dealt with all employees.

As a result of the testing, we made minor changes to wording at the top of some of the data grid columns. We changed "Payroll" to "Payroll, excluding commissions." Also, we changed "Hours" to "Hours, Including Overtime." We found that without the extra instruction of where to include overtime hours, people did not know how to treat these hours.

For the definition of "payroll," we made two minor changes. We deleted the reference to severance pay, which confused some respondents. We also added "commissions" to the exclude list.

We did make one major change to the form layout. As noted above, the grid side could only cover six months of data, instead of the twelve months collected on the earlier form. This decision was made early in the development process due to form space constraints. We were basically doubling the amount of data we were collecting but trying to keep the data summary grid (table) to one side of the page.

# 4.2.3 Multiple pay groups

We found one issue with asking respondents to report multiple pay groups. It was unclear to respondents that the second sheet of the form was for pay group 2. Some respondents thought it was just another copy of the form. Therefore, in the revised form, we made the banner at the top of the second sheet larger to call attention to the fact that it was for pay group 2. (See Appendix E.)

#### 4.2.4 Commissions

We asked respondents whether or not their establishments paid commissions. The question on the form was a yes/no question regarding commissions with a follow-up question on frequency. (See Appendix D, question B.) If their establishments paid commissions, we asked whether or not they could report a figure for commissions paid and at what time during the month the data were available.

Five of our respondents' establishments paid commissions. While the respondents could track commissions paid at least

once a month, they were double-counting them by including them in their reported payroll figure. (This behavior was consistent with the instructions on the CES form being used at the time, for all industries except service-providing.) The definition for "payroll" on the definition side of the page shows commissions in its list of exclusions, but people did not notice it. Therefore, we included the instruction "Payroll, excluding commissions" on the grid side of the page in the column title. We did not change the commission question at the top of the form, though, because the yes/no format with a follow-up question worked well.

#### 4.2.5. Gross Monthly Earnings: Round 1

The gross monthly earnings concept was the most problematic element of the revised forms. During the first round of the testing, we found several issues.

Within the box for data entry of gross monthly earnings for the entire previous month, we included instructions to "check [box] if total includes irregular payments." We noted in the definition of GME that "Irregular payments include annual or quarterly bonuses and commissions, severance pay, stock options that have been exercised, and other payments made less frequently than each pay period." We were trying to capture payments made less frequently than each pay period and therefore would not be reported under "payroll" data. We found that respondents did not understand the term "irregular payments." Respondents thought they understood GME, but they didn't. We have to remember that most of the CES respondents are not accountants or payroll experts and may not understand subtle differences in terms. One respondent even stated that irregular payments sounds like payments that were somehow "suspect," "dubious," or "questionable." We decided to delete the instruction to "check [box] if total includes irregular payments" under GME. Instead, we added Reason for Large Changes codes specific to GME. These new GME codes were "bonuses and awards," "profit distribution," "executive pay or lump sum payment," "stock options exercised and distributed," "severance pay distributed," "quarterly or annual commissions," and "other reason, gross monthly earnings."

When asked about what types of payments should be included in GME, a few respondents reported "pay for work done," "same as payroll," or the "gross amount on the payroll report." More often than not, the respondents did not understand the reference to the FICA in the definition. There were mixed results on whether it included severance pay, bonuses, reimbursements, and commissions.

As far as reference period, we used "report earnings for all pay periods that ended during the previous month" in the definition of GME. We asked respondents what reference period they might use for GME, if they had a preference. A couple of respondents were unsure or had no preference. For those respondents having a preference, they usually used the date employees were paid (check date). This coincides with how their payroll software runs end-of-the-month reports.

One or two respondents reported GME based on when the employees had earned the payment (pay period ending date).

Given these findings, we made the following changes to GME prior to the second round of cognitive interviewing:

- Deleted the "check [box] if total includes irregular payments" under GME and tried to capture this using a column for GME Reason for Large Changes codes;
- Shortened the GME definition and moved much of the text to a bulleted include/exclude list;
- Changed the GME reference period from when pay period ended (when worked) to when pay was distributed (when paid); and
- Added definition/instructions regarding data item comment codes and GME comment codes on the definition page.

#### 4.2.6 Gross Monthly Earnings: Round 2

During round two of the cognitive interviewing, there were still some mixed results regarding what types of payments to include for GME. Some respondents were still confused about whether to include severance pay, bonuses, reimbursements, and commissions. They were still interpreting GME as the "same as payroll," "total gross dollars paid out," or "amount before taxes." A couple of respondents believed that GME was not the same as FICA, even though we meant it to be. We also realized that many respondents were confused by the mention of FICA in the definition since they did not fully understand the notion of what is reported for FICA. Furthermore, it is important to note that many of the respondents did not read the GME definition prior to our discussion.

Between rounds one and two of testing, we had deleted "for entire previous month" from the column heading for GME. This was due to space constraints. However, we decided to put this phrase back in the column heading to emphasize that the GME period was for the previous month. GME is unlike the other data items in that it is for the previous month as opposed to the pay period that included the 12<sup>th</sup> of the month.

We asked respondents whether or not they read the GME Reasons for Large Changes codes and whether or not they might use them. While respondents did notice the codes on the form, many said they would not automatically use them unless prompted by the telephone interviewer or web data collection program to use them. We decided to shorten the list and slightly change the wording of some codes based on feedback from the respondents.

On a positive note, more often than not respondents had no issues with using the date paid as the reference period for GME. Therefore, we did not change the reference period.

In summary, we made the following changes regarding GME for the final form:

 Deleted the reference to FICA in the definition (see Appendix F);

- Added "previous calendar month" to the column heading for GME; and
- Shortened the list of GME Reasons for Large Changes codes from seven to six and changed the wording of some of the codes.

## 4.2.7 Reasons for Large Changes

As mentioned previously, we believed it was necessary to add a column for Reasons for Large Changes in GME. That way, we would try to capture changes in GME associated with irregular payments. We also lettered the reason codes columns so they looked more like questions (D1, D2, etc.). We thought items that looked like question would be more likely to be read. Additionally, we inserted cross-references to show which reason codes should be used for which data items.

#### 4.2.8 *Layout*

While we mailed respondents one variation of the questionnaire (months on top, nested; months on top, not nested; months on side, nested; and months on side, not nested), during the interview we showed respondents all four versions and asked respondents for their preference. We asked that they consider how their payroll reports are organized as well as individual work styles.

During round one, there was no consensus on page layout preference. Nine respondents liked months on the top and seven liked months on the side. Eight respondents liked nonnested while seven preferred nested.

During round two of the cognitive interviews, we received more of a consensus regarding layout. All seven of the respondents preferred the months on the side version. The respondents may have preferred the months on the side because it most closely matched the original version. For nesting, four liked the nested and three liked the non-nested. Accordingly, the revised form uses the months on the side layout with nesting all employee and production workers / non-supervisory workers rows.

#### 4.2.9 Definition page

In addition to the changes already mentioned, we added a return address to the definition page. We also added column references to the definition of GME reason codes. That way, respondents would know where to enter codes explaining large GME changes.

## 5. Conclusions

Overall, the testing was a positive process for helping fine tune the form revisions. We had to double the amount of data collected from the respondent but keep the form to a one-page double-sided form. The only exception to this constraint was the inclusion of a second sheet if the respondents had a second pay group. We had some positive findings, in that respondents were willing and able to provide all employee data in addition to the usual production workers / non-supervisory workers series of data items. They also preferred the form with months on the side, which is closest to the original form.

The testing also highlighted some areas that needed work. Respondents' definitions of economic terms, such as GME, don't necessarily match economists' definitions. We attempted to make the definitions easily noticed and read, but this still does not insure that respondents will read or use them. We even tried to make the definitions visually more appealing by changing some of the text to bulleted lists. Additionally, we tried to improve the form so that it was clearer that the second sheet was for a second pay group. We hope that CES respondents will understand the second sheet now that the revised form has been put into production as of September 2005.

#### 6. References

Dillman, D.A., Sinclair, M.D., and Clark, J.R. 1993. "Effects of Questionnaire Length, Respondent-Friendly Design, and a Difficult Question on Response Rates for Occupant-Addressed Census Mail Surveys. *Public Opinion Quarterly* 57: 289-304.

Goldenberg, K.L., Gomes, A., Manser, M., and Stewart, J. 2000. "Collecting All-Employee Earnings Data in the Current Employment Statistics Survey: A Comparison of Two Concepts. *Proceedings of the Section on Government Statistics*. American Statistical Association, pp. 139-144.

Jenkins, C. R. 1992. "Questionnaire Research in the Schools and Staffing Survey: A Cognitive Approach." *Proceedings of the Section on Survey Research Methods*. American Statistical Association, pp.434-439.

Moyer, L. H. 1996. "Which is Better: Grid Listing or Grouped Questions Design for Data Collection in Establishment Surveys?" *Proceedings of the Section on Survey Research Methods.* American Statistical Association, pp. 986-991.

Rosen, R. 2004. "Preliminary Results: Payroll RAS 2003." U.S. Bureau of Labor Statistics, internal report, January.

U.S. Bureau of Labor Statistics. 1983. *Employer Records Analysis Survey of 1981*. Internal report.

Wright, P. and Barnard, P. 1978. "Asking multiple questions about several items: the design of matrix structures on application forms." *Applied Ergonomics* 9 (1): pp. 7-14.

# 7. Appendices

# Appendix A: Grid Side of the Original Form

Current	Employme	nt Statistic	s Report Fo		U.S. Department of Labor				
Report N reptnur		Indust Code			rinformation number: 1- ta Collection Center	dcophone			
							pcnumber		
A. This r	eport is for lo	cation: local	tion	If this is ir	correct, please contac	t us.			
		Worl	ksite street ac	ldress,					
		Worl	ksite city, Stat	e, zip					
_		s are paid:			weeks 🗆 twice a mo		nth		
C. Please	[1]	[2]	ine single pay [3]	period checked ab	ove which includes the	12th of the month.	[7]		
Reference Period	All Employees	Women Employees	Production Workers	Production Worker Payroll OMIT CENTS		Production Worker Overtime Hours ROUND TO THE NEAREST HOUR	Comment Code (see Part D)		
12=DEC				OWIT COUNT S					
01=JAN				OWIT COURT					
	<del>                                     </del>			OWIT COUNT	1				
02=FEB				\$					
02=FEB 03=MAR				S own coord					

Appendix B: Months on Top, Nested (Colored for Emphasis)

		Report row	/s 1-11 for the p	pay period that	includes the 12	th of the month		
	Please call by date shown	JUN (06) 6/23	JUL (07) 7/26	AUG (08) 8/24	SEP (09) 9/23	OCT (10) 10/24	NOV (11) 11/23	DEC (12) 12/26
	Employee Count							
1	All Workers							
2	Production Workers							
	PayToll (Whole dollars)							
3	All Workers	\$	\$	\$	\$	\$	\$	\$
4	Production Workers	\$	\$	\$	\$	\$	\$	\$
	Commissions Paid at Least Once a Month (Whole dollars)				7			
5	All Workers	\$	\$	\$	\$	\$	\$	\$
6	Production Workers	\$	\$	\$	\$	\$	\$	\$
	Hours (No fractions)							
7	All Workers							
8	Production Workers							
_	Overtime Hours							

Appendix C: Months on Side, Not Nested (Colored for Emphasis)

ALL WORKERS	: Report of	dumns 1-6 for the	pay period that	includes the	12th of the	month.		ort columns 7-8 for ti previous calendar m	
	1	2	3	4	5	6		7	8
Month Please call by date ahown	Employee Count	Payroll (Whole dollars)	Commissions Paid at Least Once a Month (Whole dollars)	Hours (No fractions)	Overtime Hours (No fractions)	Reason for Large Changes (Codes below)	ges (Al workers)		Reason for Large Changes (Codes below)
JUN (06) 6/23		\$	\$				MAY	\$	
JUL (07) 1/26		\$	\$				JUN	\$	
AUG (08) 2/24		\$	\$				JUL	\$	
SEP (09) 9/23		\$	\$				AUG	\$	
OCT (10) 10/24		\$	\$				SEP	\$	
NOV (11) 11/23		\$	\$				ост	\$	
DEC (12) 12/26		\$	\$				NOV	\$	
PRODUCTION \	VORKERS	Report column:	s 9-14 for the pa	y period that	includes ti	ne 12th of t	he ma	nth.	
Month	9 Employee Count	10 Payroll (Whole dollars)	11 Commissions Paid at Least Once a Month (Whole dollars)	12 Hours (No fractions)	13 Overtime Hours (No fractions)	14 Reason for Large Changes (Codes below)			
JUN (06)		\$	\$						
JUL (07)		\$	\$						
AUG (08)		\$	\$						
SEP (09)		\$	\$				1		

# Appendix D: Grid Side of the Revised Form

page and for ti	RE for R to count Se eduction allo incheductions to rothers? Ent e second in F	eport Number e back. mployees? Enter some employees er the information lay Group 2 on the is not correct, play	39999999  r the Information	requested in Par eekty pay for so Pay Group 1 on	(Bis) (Add (Chy) (Rep me (Cou this UBS) TO RE 1-88	ORM REQUINES NAME) (PESS NAME) (PESS) (ST./ZIP) (ORTHING UNIT DE (NO) (PORT YOUR (S-9999) (ORE INFOR	N99 NAICS6 III DATA BY TOUCHTO Your report#: 99999	FOR: <b>\(\frac{1}{2}\)</b>	
B. Do employees #FYES)Emp	ALL EMPLOYEES IN PAY GROUP 1  A. Employees receive pay: (check one)								
C. Rep	ort columns	i 1-8 for the pay (	oeriod thacindu	desone 12th of	them on th		Report columns 7 entare prewous cale		7
Month Fluare call by date shown	1 Employee Count	2 Payroll, Escluding Committalons (Addeddies)	3 Commissions Paid at Least Once a Month (White didtes)	4 Hours, Including Overtime (Whdehours)	5 Overtime Hours (Ahdehous)	6 Realion for Large Changell (01-02billow)	7 Gro II Monthly Earning I, previous calendar month (All workes)	8 Realion for Large Changel (81-83below)	
JUN (06) ser/ on All Workers	9,999,999	\$ 99,999,999	\$ 9,999,999	99,999,999	9,999,999	99.99	MAY \$ 9,999,999	99,99	
Production Workers	9,999,999	\$ 99,999,999	\$ 9,999,999	9,999,999	9,999,999				

Appendix E: Second Sheet of Revised Form

Current Employment Statistics Report Form — Manufacturing	U.S. Department of Labor 🎉
THIS PAGE IS FOR PAY GROUP 2  • Use the other page (All Employees in Pay Group 1) if all employees are paid at the same time.  • Use this page only if employees are paid on different schedules—for example, weekly for some and morthly for others. Enter the information for one pay schedule on the previous page (Pay Group 1). This page is for the second group.	S FORM REQUESTS INFORMATION FOR:   Justiness name)  REPORT YOUR DATA BY TOUCHTONE:  999-999-9999 Your report # 99999999  R MORE INFORMATION:  999-999-9999 Data Collection Center XXX
ALL EMPLOYEES IN PAY GROUP 2	!
A Employees receive pay: (check one) Each week	weeks ☐ Twice a month ☐ Once a month the most recent complete period available.
C. Report columns 1-6 for the pay period that includes the 12th of the month	Report columns 7-8 for the entire previous calendar mont

Appendix F: Explanation of GME, Definition Side of Revised Form

	Otherwise leave Column 5 blank.
	GROSS MONTHLY EARNINGS (Column 7) Total grosswages paid during the entire <i>previous</i> calendar month, before deductions. Report for All Workers.
r	Include:  Earnings from all pay distributed during the previous month, such as:  Payroll  Commissions  Bonuses or awards  Incentive pay  Severance pay  Stock options exercised  Exclude:  Employer contributions to:  AUTK or pension plans  Medical insurance accounts  Health insurance accounts  Reimbursements for:  Iravel expenses
	REASON FOR LARGE CHANGES, GROSS MONTHLY EARNINGS (Column 8)  If Gross Monthly Earnings increased by 25% or more, enter one or two numbers from D1, D2, or D3 at the bottom of the page to explain the change. Otherwise leave Column 8 blank.  BLS 790 C2 Rev Dec 2004