

Revisiting the Survey Form: The Effects of Redesigning the Current Employment Statistics Survey's Iconic 1-Page Form with a Booklet Style Form October 2012

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Abstract: Since 1939, the Current Employment Statistics survey has used a single page form for capturing data. Over time, problems with the design of the form have become apparent. In 2009, research on how to improve the form was completed. Prototypes based on recent research were created and fielded for testing during 2011 and 2012. The test consisted of systematic random samples which were selected and sent to regional data collection centers each month. Samples were stratified by geography, industry, single location vs. multiple locations, and size of firm. Results show improvements in interview times and reduced item non-response.

1. Introduction

This paper presents the results of a large scale test of a new collection form for use in the Current Employment Statistics (CES) program. The test was conducted from March 2011 to February 2012 on a sample of approximately 5,800 firms. The sample was stratified by size, number of locations reported, industry, geography, and interviewer experience level. The goal of the redesign was to develop a form that would more effectively communicate the survey request to the respondent and would allow improved interviewer productivity. The new form builds on a long history of forms design. Important elements of the new form have been used for over 65 years in CES forms.

2. Introduction to the Current Employment Statistics Survey

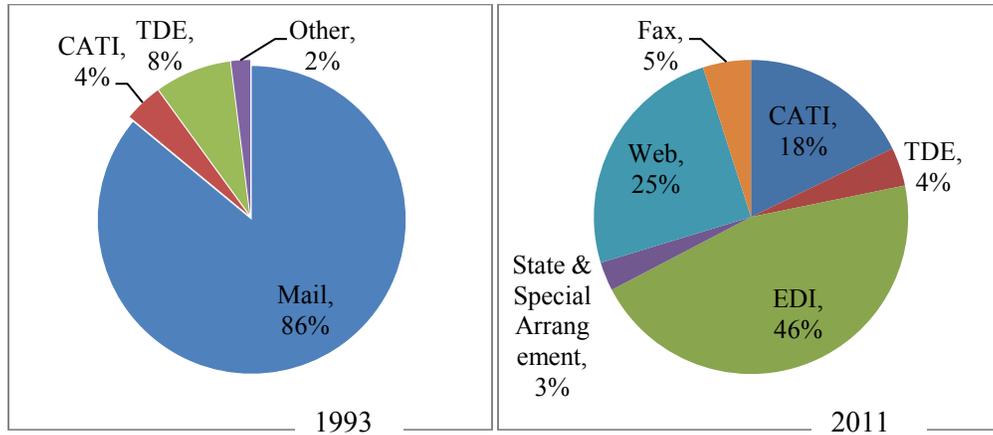
The Current Employment Statistics (CES) survey is conducted by the Bureau of Labor Statistics and is a monthly establishment survey. Its products include employment, hours and earnings at the Nation, State, and local area levels. Its scope includes nonagricultural industries classified by the 2012 North American Industry Classification System (NAICS). The survey's reference period is the pay period that includes the 12th of the month and results are generally on the first Friday of the following month. The sample currently includes about 141,000 businesses and government agencies, representing approximately 486,000 individual worksites.

3. Data Collection in the CES

The CES utilizes multi-mode data collection to meet respondent reporting needs and to collect data in a timely manner. The CES has four telephone centers located in Atlanta, Dallas, Kansas City, and Niceville, Florida. These sites enroll new firms and make Computer Assisted Telephone Interview (CATI) calls for the initial 5 months. After 5 months on CATI, respondents are moved to self response, fax collection, or permanent CATI. Self response methods include web reporting and Touchtone Data Entry (TDE). Files from very large firms are collected and processed by the Electronic Data Interchange center located in Chicago.

The CES program was originally conducted as a mail survey. A form was mailed to the respondent, the completed form was returned and processed, and the form was mailed again for the next month of collection. This “shuttle” process was used for many decades until the CES implemented electronic methods and eliminated mail collection. Figure 1 shows the magnitude of the transition. The data show that mail collection had been eliminated by 2011, with EDI, Web, and CATI becoming the dominant collection methods.

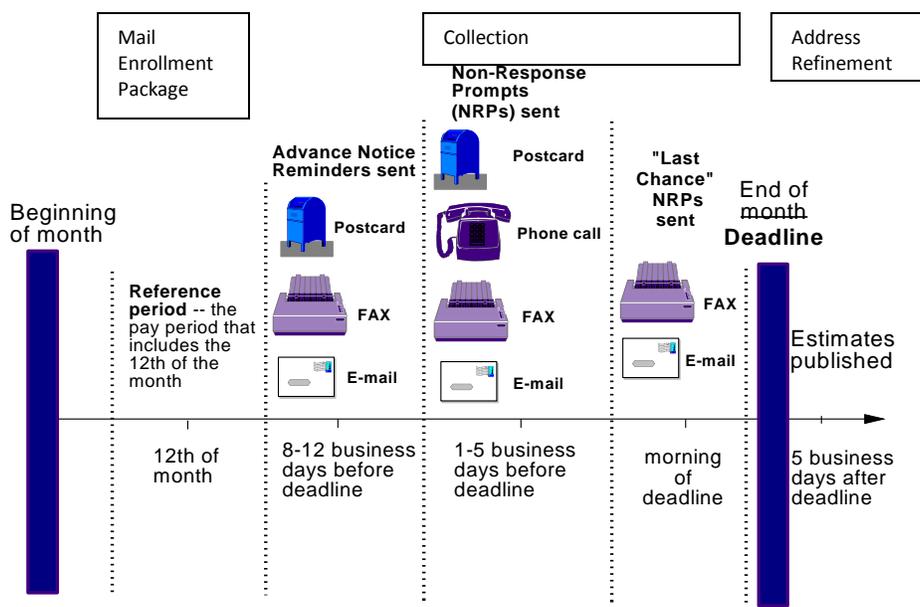
Figure 1. Distribution of Sample by Mode, 1993 and 2011.



The CES collection cycle is characterized by a process of address refinement, new sample enrollment, and on-going collection. The collection centers begin work on address refinement during the first week of the month. Enrollment packages for new firms are mailed the following week. The last two weeks of the month consist of calls to obtain cooperation from new firms and collect data from participating firms. Non-response prompting efforts using postcards, faxes, phone calls, and emails are also conducted.

Figure 2 illustrates the CES collection timeline.

Figure 2. The CES Collection Timeline



The current CES enrollment package consists of the following items:

- One page form with space for six months of data
- Cover letter
- Brochure about BLS data products
- Portfolio folder
- Single sheet of paper with mailing address
- 9"x13" window envelope

The design of the enrollment package is intended to obtain cooperation from the respondent by indicating the importance of the request. Information about the survey and BLS data products is provided along with a folder for storing the form and brochure. CES CATI interviewers are responsible for their assigned cases from address refinement and enrollment through conversion to a self-response method. Thus, each interviewer prints and assembles the packages and mails them.

4. History of the CES form

The BLS has been conducting monthly studies of employment and payroll since 1915. Since 1949, the CES program has been a Federal-State program that provides employment, hours, and earnings information by industry on a national, State, and metropolitan area basis. These agreements allowed the monthly production of employment, hours, and earnings data on a National, State, and Metropolitan Area basis (BLS, 2012). As the program grew, the forms also evolved. A review of the history of the CES form shows the stability of some the design elements in the form while also illustrating the impact of automation and changes in the industrial composition of the economy.

The 1947 form used design elements that are now obsolete. For example, the manufacturing industries form was colored yellow to ensure that it could be rapidly assigned to data entry staff for processing. Other form types had different colors. Special forms were available for Laundries, Dry Cleaning, and Dyeing firms, Hotels, and Telephone companies.

The form was intended to be stored as a permanent record of data received. Additional space was added to facilitate collection of information about the value of products produced by the firm. This information would aid in coding the appropriate industry. The form placed columns for production and related workers first, followed by columns for all employees. This form collected counts of female production workers, an item that was eventually discontinued. Other fields were available for written comments, counts of the number of days worked, and information on wage changes. The grid structure for reporting was retained by all future forms. Figure 3 shows a partial view of the form.

Figure 3. 1947 Manufacturing Form

This is our permanent office record; please handle carefully.

BUDGET BUREAU NO. 44-8467.1
APPROVAL EXPIRES JANUARY 31, 1948

Confidential Employment Report—Manufacturing

(FOLLOW IN MAILING ADDRESS, INCLUDE POSTAL ZONE NUMBER—CHANGE IF INCORRECT.)

Location of Establishment
(A separate report is requested for each establishment)

STREET _____
CITY _____
(If within corporate limits)
COUNTY _____

Est. State-Ind. Est. # IG Man-City Cal Code _____

I. PRINCIPAL PRODUCTS IN ORDER OF IMPORTANCE OF ANNUAL SALES VALUE _____

II. EMPLOYMENT, PAY ROLL, AND HOURS (Before entering data, see instructions on other side)

Year and Month	Period Reported		Do Not Use	Production and Related Workers—(See Instruction 1)			All Employees			Do Not Use	
	From	To		NUMBER	PAY ROLL	HOURS	NUMBER				
	(1)	(2)	(4)	Total both sexes (5)	Female (6)	Total both sexes (7)	Total both sexes (8)	Total both sexes (9)	Female (10)	Excl. code (11)	(12)
1946 Dec.											
1947 Jan.											
Feb.											
Mar.											

The instructions for the 1947 form were single column, in a small serif font. They were printed on the back of the collection page along with a letter from an official.

The Small Business Report Form of 1947 was only able to capture employment data. While very simple to understand, it was eventually discontinued. It used a simple grid structure to facilitate reporting. It also had a different reference period than the one now used.

Figure 4. 1947 Small Business Report form.

B. L. S. 1714
U. S. DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS

Budget Bureau No. 44-8466.4
Approval expires 9-30-48.

CONFIDENTIAL EMPLOYMENT REPORT, SEPTEMBER 1947—AUGUST 1948

Please indicate in the space below the total number of full- and part-time employees on your pay roll in this establishment who worked or received pay during the week ending nearest the 15th of the current month. Do NOT include proprietors, partners, firm heads, and unpaid family workers.

Total Number of Paid Employees

(State)	(Tab.)	(Ind.)	(City)	(Block)	(Est.)

(If you have no paid employees, write "0")

PLEASE REPORT PROMPTLY
(Enclosed envelope requires no postage)

Do not hold. This form will be returned to you for next month's report.

16-47229-3 GPO

Other reports specified different deadlines for reporting than are used now. The District of Columbia Government Report, 1947-1948 specified a due date after the 5th of the month. Figure 5 has detail from the form. Unlike other forms of the period, this form used Courier font.

Figure 5. Report of Employment and Payrolls for the District of Columbia

B.L.S. 783-A

U. S. DEPARTMENT OF LABOR
BUREAU OF LABOR STATISTICS
WASHINGTON 25, D. C.

Budget Bureau No. 44-6632.2
Approval expires 7-31-1949

REPORT OF EMPLOYMENT AND PAY ROLLS FOR THE
DISTRICT OF COLUMBIA GOVERNMENT

Name of department or unit _____

Report for month of _____

PAY-ROLL PERIOD		EMPLOYEES	PAY ROLLS	REASON FOR CHANGE
Date ending	Length	Number of full-time, part-time, and intermittent employees on the pay roll with pay	Gross amount before deductions	If there is any marked change since previous month, or any discrepancy between employment and pay rolls, please state reason
(1)	(2)	(3)	(4)	(5)

The CES form had significant revisions in the 1960's and 1970's. The form changed to landscape format, a confidentiality statement became more prominent, and the ordering of data items changed so that the all employees columns came first, followed by the production workers columns. Women production workers were dropped from the 1968 form and Production Worker Overtime Payroll data were dropped from the 1972 version.

Figure 6. Manufacturing form, 1968

BLS Codes

Form BLS 790 C

State Report No. Ind. _____

LOCATION OF ESTABLISHMENT COVERED IN THIS REPORT
(Number of establishments) (City) (County) (State)

Before entering data see explanations on other side.

Year and Month	PAY PERIOD					ALL EMPLOYEES				PRODUCTION AND RELATED WORKERS				YOUR COMMENTS
	From (State date)	Through (State date)	Ending the period (State date)	Beginning the period (State date)	Days in period (State date)	NUMBER	Men	Women	NUMBER	Total Production Workers (State date)	Men	Women	Production Workers (State date)	
(II)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)	(I)
1962														
1963														
Jan														
Feb														
Mar														
Apr														
May														
June														
July														
Aug														
Sept														
Oct														
Nov														
Dec														

(Print in to address all questions when reporting this report)

U.S. GOVERNMENT PRINTING OFFICE: 1967 O-276-624

The instructions for the 1968 Manufacturing form were changed to a two column portrait format that is still used today.

The 1996 Manufacturing form returned to earlier designs as the data collection page was again in portrait format. The font had changed to a more modern Arial style. Space was available for collecting an e-mail address along with the more traditional contact information. Touchtone Data Entry was introduced as a collection mode, so features were added to facilitate reporting. To remove any ambiguity, the numeric equivalents of dates were added to the reference period column. For example, December was equal to 12, and January was equal to 1. Additional guidance was added to remind respondents to omit cents and fractions. Additional legal and collection burden statements were added to the top of the form. Figure 7 shows some of the detail from the 1996 form. Instead of asking the respondent to enter start and end dates of the pay period, checkboxes were added so that the respondent could check the appropriate length of pay.

Figure 7. 1996 Manufacturing Form

Bureau of Labor Statistics Report on
Employment, Payroll, and Hours – Manufacturing

U.S. Department of Labor

Form Approved
O.M.B. No. 1220-0011

This report is authorized by law 29 U.S.C. 2. Your voluntary cooperation is needed to make the results of this survey comprehensive, accurate, and timely. The Bureau of Labor Statistics and the State Agency collecting this information will use the information you provide for statistical purposes only and will hold the information in confidence to the full extent permitted by law.

We estimate that it will take an average of 7 minutes to complete this form each month including time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing this information. If you have any comments regarding these estimates or any other aspect of this survey, send them to the Bureau of Labor Statistics, Division of Monthly Industry Employment Statistics (1220-0011), 2 Massachusetts Avenue, Washington NE, D.C. 20212. Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number.

Report Number _____ **Industry** _____

A. Contact person, in case of questions:

Your Name _____ Title _____ Phone Number _____ FAX Number _____
E-mail Address _____

B. Please provide the number and location of establishments covered by this report.

Number of establishments _____ City _____ County _____ State _____

C. Please check one: Production workers are paid

each week every 2 weeks twice a month once a month
 other, specify: _____

D. Please complete columns 1-6 for the single pay period checked above which includes the 12th of the month. Detailed directions are on the back.

Reference Period	(1) All Employees:	(2) Women Employees:	(3) Production Workers:	(4) Production Worker Payroll:	(5) Production Worker Hours:	(6) Production Worker Overtime Hours:	(7) Comment Code	BLS Use Only
<small>Please report data only for the pay period that includes the 12th of the month</small>	<small>Report the number of paid employees who worked during or received pay for any part of the pay period that includes the 12th of the month</small>	<small>Report the number of employees from column 1 who are women</small>	<small>Report the number of employees from column 1 who are production workers</small>	<small>Report the total production worker payroll, including overtime and excluding lump sum payments for the pay period that includes the 12th of the month</small>	<small>Report the total production worker hours paid, including overtime, for the pay period that includes the 12th of the month</small>	<small>Report the total production worker overtime hours paid included in column 5</small>		LP
12=DEC				OMIT CENTS \$ _____	OMIT FRACTIONS	OMIT FRACTIONS		
1=JAN				OMIT CENTS				
2=FEB				OMIT CENTS				

The 1996 Manufacturing form instructions contained a box referencing common sources of adjustments to data. The adjustments were determined from the results of the 1995 Response Analysis Survey (Werking, Clayton, Rosen, 1995). Forms for other industries had similar information. An example of the changes to the instructions is shown in Figure 8.

remained consistent for decades. The grid for monthly reporting has been retained for at least 65 years. The two-column instruction page has been in use since 1968.

5. Why Redesign the Form?

In 2008, BLS started a research program to address problems with the design of the current form and produce a redesigned enrollment package. Objectives of the research were to improve efficiency of the interviewers through improved ability to explain the reporting task, to improve the respondent's comprehension of the task, and to decrease respondent burden. In May 2008, BLS contracted with Dr. Don Dillman, of the Social and Economic Sciences Research Center (SESRC) at Washington State University, to conduct this research. A final report was prepared in January 2009 (Dillman, 2009) based on research conducted at the Kansas City Data Collection Center. Revisions to the form are based on principles described in *The Tailored Method*, 3rd ed., (Dillman, Smyth, Christian, 2009).

Four goals for the redesigned package were identified. Two of the goals, items 3 and 4, were seen as significant for the project:

1. Convince the recipient to open the package.
2. Convince the recipient to read and attempt to understand the contents of the mail-out package.
3. Provide a reasonably clear explanation of what the recipient is being asked to do.
4. Persuade the recipient to comply with the request.

Research found five problems that affected the form's ability to provide a reasonably clear explanation of the survey task:

1. The cover letter is not well connected to the form.
2. The reference period is not understood.
3. Respondents do not understand that they will be called each month.
4. Some respondents complete all months of reporting at once.
5. The complexity of instructions for reporting multiple payrolls caused non-response.

Persuading the recipient to comply with the request requires addressing a variety of different considerations: These are addressed by the current enrollment package, but could be more optimally placed in a revised form. These issues include:

1. Who is asking for the information?
2. Will the results be confidential?
3. Will my cooperation make a difference?
4. Is this voluntary or mandatory?
5. How am I being treated by whoever makes the request?
6. Who authorized this study and does it have an OMB number?
7. How long does it take?
8. Does my boss want me to do or not do this?

Different people think different issues are important and the new enrollment package was intended to address all concerns. Arguments should not be long, laborious, or unnecessarily detailed. One other design concept is to distribute arguments across all components of the mail-out package rather than concentrating them in a cover letter, form, or brochure.



Page 4 contains a “thank you” message along with general information about the survey. Links are provided to the BLS web site along with a Frequently Asked Questions page. The burden statement and legal citations are available at the bottom of the page.

6. Design of Test

To evaluate the effectiveness of the new form, a systematic random sample of new firms to be enrolled was selected. Test and control samples were stratified by size, whether the firm had a single or multiple locations, industry, geography, and interviewer tenure. Because CATI is used for the initial 5 months, the goal of the test is to find efficiency gains from the new form rather than increases in response rates. Firms are defined by an Unemployment Insurance account number. Each Unemployment Insurance account number can represent multiple locations and each location will have a unique report number.

The test began in March 2011. Each center received a monthly panel of 120 test firms and 120 control firms. We stopped sending new test panels to the centers in February 2012. Every month, the centers would refine the addresses, prepare the appropriate enrollment package, contact the respondent, and collect data. It was important to ensure that the participants in the test were entirely new to the CES and had no previous experience with the current report form. Therefore, firms were dropped from the test if the interviewer determined that the reporter was already being contacted for another Unemployment Insurance account. As of the end of the test in February 2012, the test sample had 4009 reports and the control sample had 3628 reports.

7. Results

The following figures show the results obtained by the collection centers. Since the project is focused on efficiency gains from the new forms, we were looking for improvements in average data collection time and enrollment time. Item response rates

were also evaluated to assess data quality improvements. Finally, response and collection rates were tracked over the project.

Figure 14. Average Enrollment Time in Seconds

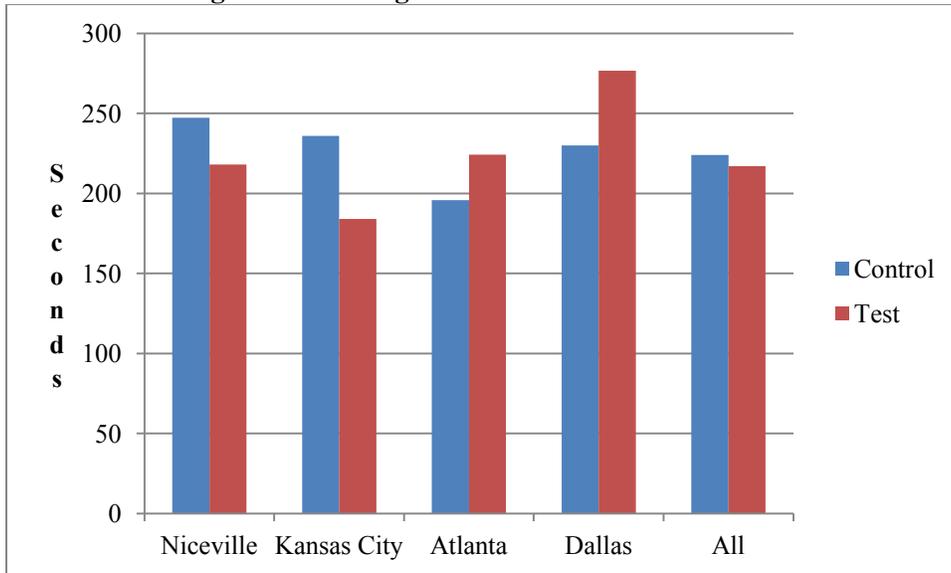


Figure 14 shows average time in seconds for enrollment efforts across the four collection centers. Enrollment is the effort of contacting a firm and obtaining an agreement to provide data. As expected, enrollments using the test form in Niceville and Kansas City took less time than those using the standard form. The Atlanta and Dallas results showed that the current form enrollment times were faster than those using the test form. Atlanta's control panel results were faster than the other collection centers and its test panel results were comparable to those obtained by Niceville. We have some suspicions that the Dallas results are due to issues with the phone system impacting the time tracking software built into the CATI software used by the centers. Atlanta has interviewers who have long tenure with the current form, suggesting the possibility that experience was driving the exceptional performance with the control panel. Both the Atlanta and Dallas interviewers liked working with the new forms.

Figure 15. Average Collection Time in Seconds

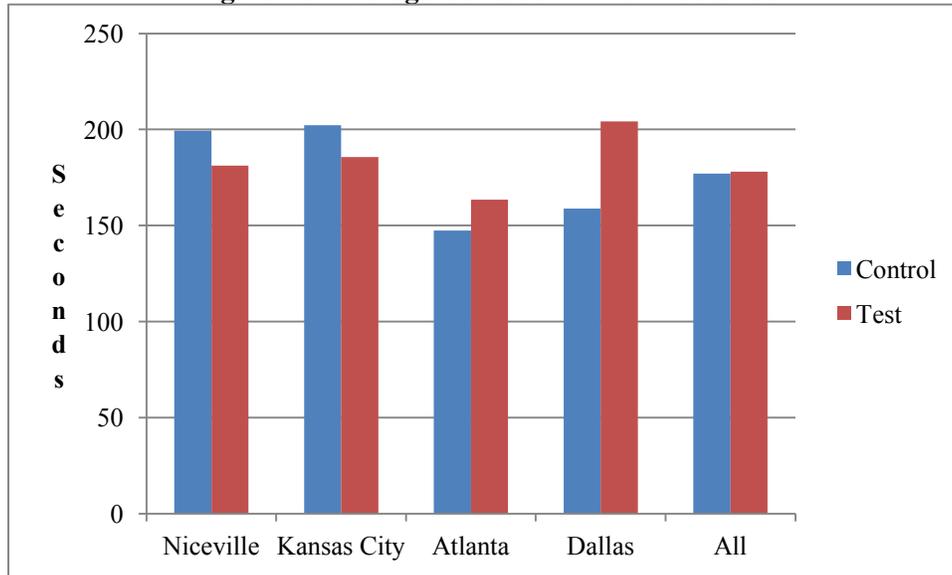


Figure 15 shows average collection times by collection center. Collection time is defined as the amount of time needed to collect data each month. Niceville and Kansas City had similar results and found that the test form outperformed the standard form used with the control sample. Interestingly, Atlanta had shorter collection times than the other centers, but the standard form outperformed the test form. Dallas results indicated that the test form yields slower collection times than the standard form. Like the enrollment rate findings, we have a suspicion that issues with the phone system affected the Dallas results.

Figure 16. Item Response Rates

Date	Group	Women Workers	Production or Non-supervisory Workers	All Employee Hours	Production Worker Hours
Jun-11	Test	91.0%	84.0%	73.0%	60.0%
	Control	91.0%	88.0%	67.0%	60.0%
Jul-11	Test	90.0%	87.0%	72.0%	61.0%
	Control	90.0%	87.0%	64.0%	56.0%
Aug-11	Test	88.0%	87.0%	71.0%	63.0%
	Control	89.0%	84.0%	65.0%	56.0%
Sep-11	Test	87.0%	86.0%	69.0%	60.0%
	Control	87.0%	82.0%	64.0%	54.0%
Oct-11	Test	87.0%	86.0%	67.0%	58.0%
	Control	87.0%	81.0%	63.0%	52.0%
Nov-11	Test	87.0%	85.0%	66.0%	57.0%
	Control	86.0%	80.0%	61.0%	51.0%
Dec-11	Test	86.0%	84.0%	61.0%	53.0%
	Control	85.0%	80.0%	58.0%	48.0%
Jan-12	Test	86.0%	85.0%	61.0%	53.0%
	Control	84.0%	80.0%	58.0%	48.0%
Feb-12	Test	86.0%	86.0%	62.0%	55.0%
	Control	85.0%	80.0%	58.0%	48.0%

Figure 16 shows item response rates for selected data items. The test forms had better item response rates for all of the items during the last four months of the test, possibly reflecting a learning curve. Improvements were observed for some of the items in prior months. These differences are highlighted in bold.

Figure 17. Enrollment Rates at Preliminary Estimate

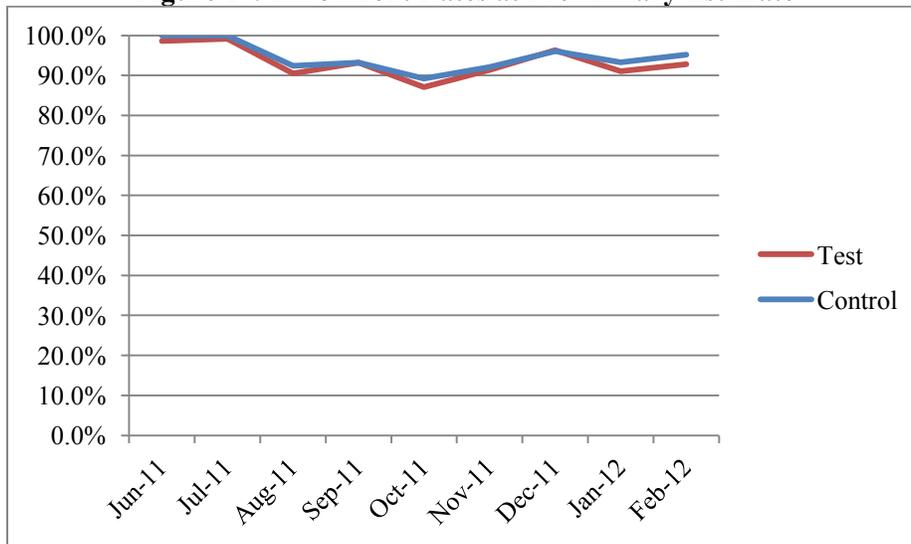


Figure 17 shows enrollment rates over 90% for most months of the test. There is little difference between the control and test groups. June and July had very high enrollment rates due to the long collection periods in those months.

Figure 18. Response Rates at Preliminary Estimate

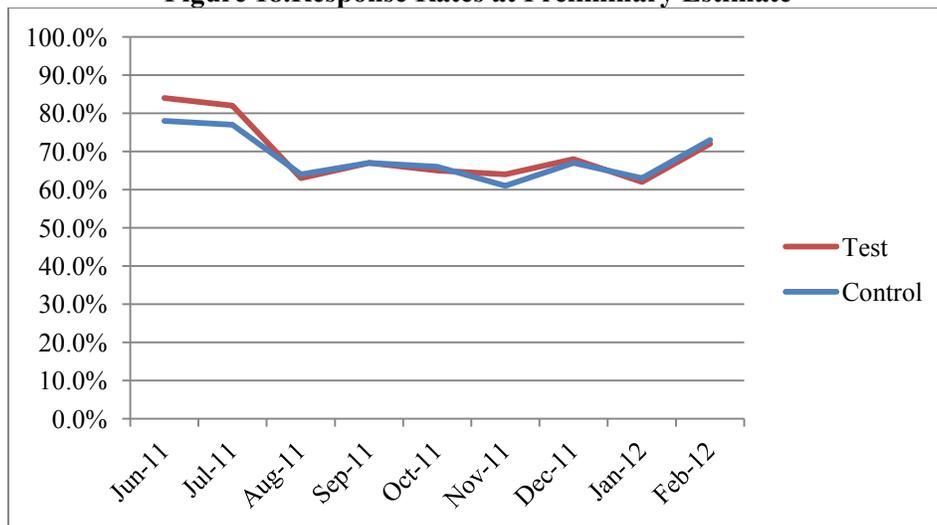


Figure 18 shows response rates achieved during the test. Response rates have been stable, staying between 60% and 70% during most months of the test. The test and control rates are very similar.

Figure 19. Collection Rates at Preliminary Estimate

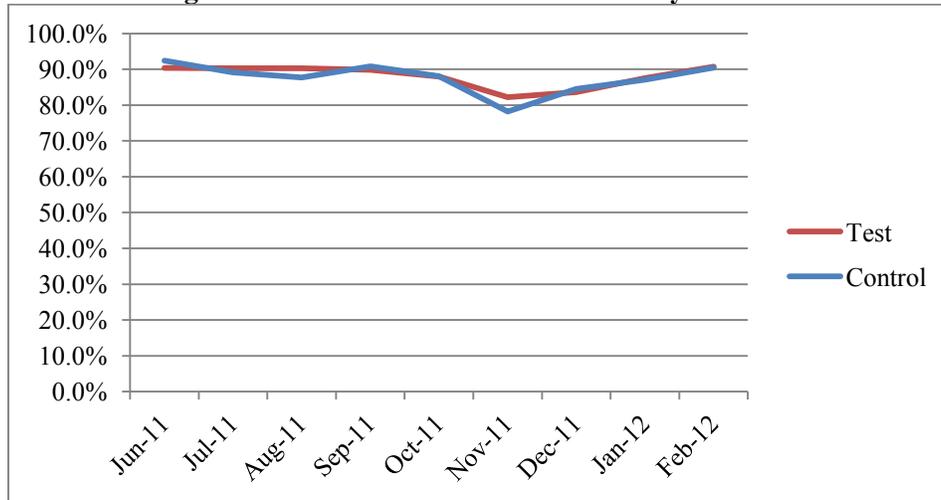


Figure 19 shows collection rates for all months of the test. Like the response rates, collection rates are very similar between the test and control samples.

8. Summary

We believe that the new form offers improvements in interviewer efficiency and data quality. These benefits include:

- Converting to a four page design eliminated a source of mismatched letters and forms.
- Improvements in Item Non-response were observed.
- Interviewers reported that it was easier to enroll firms with the new form. Kansas City and Niceville enrollment time results confirmed this observation.
- Collection times were also faster in Kansas City and Niceville.
- Response and Collection rates were similar between test and control samples.

References

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