

September 10, 2013

NOTE TO THE
REVIEWER OF:

OMB CLEARANCE 1220-0141
“Cognitive and Psychological Research”

FROM:

Brandon Kopp
Research Psychologist
Office of Survey Methods Research

SUBJECT:

Submission of Materials for the Usability
Testing of the Consumer Expenditure
Mobile Diary Web Application – Phase 2

Please accept the enclosed materials for approval under the OMB clearance package 1220-0141 “Cognitive and Psychological Research.” In accordance with our agreement with OMB, we are submitting a brief description of the study.

The total estimated respondent burden hours for this study are 32.5.

If there are any questions regarding this project, please contact Brandon Kopp at 202-691-7514 or Jean Fox at 202-691-7370.

1. Introduction and Purpose

The proposed study is a follow-up to the recently completed study: Usability Testing of the Consumer Expenditure Mobile Diary Web Application.

The Consumer Expenditure Survey (CE) Program currently uses a paper diary to collect household expenditures but is redesigning the diary as part of ongoing improvements to the survey. Changes to the survey include the addition of web and mobile modes of data collection. The primary goal of the mobile web version of the diary is to solve a recurring data collection challenge: collecting accurate data on purchases that do not yield a receipt or are forgotten before one returns home to enter items into the diary.

To accomplish this goal, the Bureau of Labor Statistics (BLS) and the U.S. Census Bureau (Census) designed a web diary instrument for use on smartphones and tablets (hereafter, referred to as smartphones). A wireframe prototype of this instrument was tested during the usability study “Usability Testing of the Consumer Expenditure Mobile Diary Web Application.” That initial study provided feedback on possible problems with the diary as well as recommendations for the optimal design of the diary. The study concluded that participants were able to easily use the diary and quickly complete tasks typical of diary data entry, though some modifications to the instrument and help materials are necessary.

The current usability test will address the following objectives:

- 1) Usability on respondents’ own devices and compatibility across platforms: The wireframe prototype approximated the screen size of typical smartphones but used a desktop keyboard for data entry. A usability test of the instrument prototype as it would be used by a respondent on his or her own device is needed.
- 2) Diary placement instructions: Some participants did not understand the level of information that was needed for different types of expenses. Testing is needed to understand how placement instructions and respondent help materials affect participants’ ability to complete tasks accurately and efficiently with no help from the experimenter.
- 3) Navigational symbols and screen organization: Some participants did not understand the function of several buttons. Also, some participants raised concerns about the organization of information in the instrument. The navigation and organization have been revised and the changes need to be tested.

- 4) Long item lists: The wireframe prototype was not designed to accept more than five items. Furthermore, some participants expressed an unwillingness to enter many items during probing about a hypothetical scenario. A task that requires the entry of many items was added to the current study to ensure the web diary facilitates the entry of many items and to obtain input from participants about entering many items.

2. Research Design

Participants will come to the Office of Survey Methods Research (OSMR) research lab at BLS. The testing will take place in a usability testing room with a facilitator and a video camera set up to record the screen of a mobile device. This recording will capture the smartphone screen, the participants' actions (e.g., swipes and taps), the participants' voice, and the facilitator's voice. Observers will monitor the session from an adjacent room.

The session facilitator will begin by introducing the purpose of the study (Appendix A). Thereafter, the instructions given to participants will be determined by a split-ballot design, to understand the effectiveness of the proposed placement instructions. Half of the participants will receive a full placement protocol, as if from a field representative, while the other half of the participants will receive only the pamphlet as a reference resource without any additional guidance (Appendix B). Tasks are divided into two blocks and the order of the blocks will be counterbalanced across participants to minimize order effects.

The session facilitator will ask respondents to complete 13 tasks using the diary (See Appendix C for diary screenshots and Appendix D for protocol). Following each task, participants will be asked to rate the ease or difficulty of the task using a seven-point scale ranging from "Very Difficult" to "Very Easy." The facilitator will verbally ask for the rating after each task and record each participant's responses. Once the tasks are complete, the facilitator will ask a series of follow-up questions about participants' overall experience with the instrument and placement (Appendix E). If, at any time during the testing session, a participant has a noteworthy issue with one of the tasks, the facilitator may spontaneously probe to understand the issue.

Participants' success or failure at each task and any problems they had while completing the tasks will be noted by observers according to the following two ratings: fully successful or not successful. A participant is 'fully successful' in completing a task when he or she completes

the stated task as intended with no help from the facilitator. For tasks that require the entry of expenses into the diary (including multiple expense tasks), this rating should only be given if all information is entered correctly. That is, the correct date, price, and category. The description should give enough information to place it into a CE-relevant category and category-specific questions should also be answered correctly. A participant is ‘not successful’ when he or she does not complete the task as intended or can only do so after asking the facilitator for assistance (though the participant can consult help materials). For tasks that require the entry of expenses into the diary, the rating of ‘not successful’ should be given if the participant enters unusable data. For example, if a participant enters a full receipt as a single entry (when item level detail is required) or if the participant enters the description of an item that is insufficient to classify it into a CE-relevant category. The entry of incorrect information should also be rated as ‘not successful.’ For tasks that require the editing of expenses, the rating should be given if the participant alters the data in a way other than intended. For example, if a participant completes the “Delete Jeans” task by removing the cost and resaving the expense. Compatibility of the diary with participants’ own devices across a range of platforms will be monitored throughout the study across all tasks.

3. Participants

Census will recruit 30 participants from a Census-maintained participant database. During the recruiting process, recruiters will screen individuals to identify those who are part of our target population of individuals with experience using smartphones (Appendix F: Screening Questions). Selected individuals will be directed to come to the OSMR lab at BLS. Screening Question 1, 3, and 4 will be used to identify participants with the desired characteristics of owning and having varying levels of experience with smartphones. Questions 2 will be used to ensure a range of platforms is represented in the sample. We will aim to balance participants across these groups. We will also seek to balance the number of participants with characteristics associated with level of household spending; education, income, and household size. This information is already in the Census database and will not require additional screening questions.

4. Burden Hours

Our goal is to obtain feedback from 30 participants in the OSMR lab. We anticipate that each session will average 45 minutes and last no longer than one hour. Screening potential participants from the Census database is estimated to take an additional 5 minutes per participant. Burden hours for screening and participation are expected to total no more than 65 minutes per participant, for a total of 32.5 burden hours. Participants will receive \$40 for their time.

5. Data Confidentiality

Participants will be informed as to the voluntary nature of the study. Participants will also be informed that the study will be used for internal purposes to improve the design of the Consumer Expenditure mobile diary survey. Participants will be given a consent form to read and sign (Appendix G). Information related to this study will not be released to the public in any way that would allow identification of individuals except as prescribed under the conditions of the Privacy Act Notice.

Appendix A: Introduction

- Hi! Thank you for coming in today.
- I have a couple colleagues in the next room that will be observing and taking notes.
- Explanation of the study purpose:
 - Today we're going to be testing a part of the Consumer Expenditure survey. This survey collects information about how US households spend their money. We currently ask people to complete a paper diary to keep track of expenses, but with the increased use of smartphones, we want to give people the option of entering this information into their phones.
 - It's important to note that this is not a test of your ability. Our purpose today is to find out how easy or difficult it is to use the diary and to identify ways to improve it. Your feedback now can help make our future work more productive.
- Consent Form and permission to audiotape
- Any questions before we begin?

Appendix B: Placement Protocol and Pamphlet

Half of the participants will receive only the pamphlet. The other half will receive the pamphlet plus an explanation of the contents of the pamphlet and the basic data requirements of the diary.

Adding expenses to your mobile diary

Every time that you add a new expense, you will see the screen below.

Logout (To logout at any time, tap on Logout)

CE Diary (To return to your home screen, tap on Home icon)

March 10, 2013 (Select the date of the purchase.)

Enter Description (Describe the expense. If Food & Drink Away from Home, describe the meal. For all other categories, describe the item. See examples inside.)

\$0.00 (Enter the cost. Include tax for Food & Drink Away from Home. For all other categories, do not include tax.)

Select Category (Select the category. After you select a category, follow-up questions specific to that category will appear below for you to complete. See examples inside.)

Cancel (To cancel and return to your home screen, tap on Cancel)

Save (To save the expense entry tap on Save)

Questions?

Some Frequently Asked Questions are answered on the back of this pamphlet. If you still have questions after reviewing these, please call your field representative.

Frequently Asked Questions

- 1. What should I do if I forget my User ID or Password?**
Call your Field representative.
- 2. How detailed should my description be?**
For Food and Drinks Away from Home, briefly describe the meal. For all other expenses, briefly describe the individual item.
- 3. How can I delete or make changes to an expense that I've saved?**
Go to the Home Screen and tap on the "Edit" button next to the item.
- 4. What should I do when I use coupons, discount cards, or loyalty cards?**
Enter the amount you paid, after any discounts.
- 5. How should I record multiple quantities?**
If the items are identical, you can combine them in the same entry and enter the total cost of all the items.
- 6. How should I record pre-payments such as a subway fare card?**
Record the expense when you pay for it, not when you use it.
- 7. How should I record credit card purchases?**
Record the individual expense on the day that you use your credit card to pay for something, not on the day you pay your entire credit card bill.
- 8. Can I just give you receipts instead of entering the expense?**
If you have a receipt with more than 10 items, you may give the receipt (or a copy of it) to your Field representative instead of entering the individual items.
- 9. What about gift certificates or gift cards?**
If you buy a gift certificate to give to someone, enter it as a regular expense. If you buy something using a gift card, enter the full amount that you paid, including all payment methods.
- 10. What do I do about returns and exchanges?**
If an item is bought and returned during the diary week, it can be selected on the Home Screen and deleted on the Edit Screen. If it was bought outside the week and returned during the week, do not make any entry. If an item is exchanged during the week, select the item on the Home Screen and make the necessary changes on the Edit Screen.
- 11. Should I record subsidized/reimbursed expenses?**
Only record any extra amount that you or someone in your household paid. Do not record any amount that someone not in your household has or will pay for.

U.S. DEPARTMENT OF COMMERCE
Economics and Statistics Administration
U.S. CENSUS BUREAU

Acting as a collecting agent for
U.S. Department of Labor
Bureau of Labor Statistics

Your Daily Expenses

A quick guide to recording your expenses using the CE Mobile Diary

Please record all of your expenses for the following period:

___/___/___ - ___/___/___
start date end date

If you have any questions, please call:

Field representative's name: _____
Telephone: _____

Field representative supervisor's name: _____
Telephone: _____

Getting Started

Enter the provided User ID and Password

You will be given the option to set a personalized password. Use a password that you can easily remember!

Tap on the **INFO** button to learn more about the CE Survey

Your scheduled start date can be found on the front of this pamphlet

Enter your e-mail address to receive reminders to add your expenses

This is your Home Screen

To add an expense, tap on **Add a new expense now**

After you've added an expense, you will see it listed here. At any point in the diary, you can tap on the **Home** button to return to this screen to see a summary of your entered expenses.

To view, edit, or delete any of your recorded expenses tap on **Edit** next to that expense.

Date	Description	Cost
Oct 26	pasta dinner	\$52.76
Oct 26	drinks at bar	\$14.85
Oct 27	bus fare	\$1.25
Oct 27	scarf	\$21.99
Oct 27	shirt	\$34.99
Oct 27	chinese takeout	\$26.98
Oct 27	electric bill	\$120.89
Oct 28	bus fare	\$.125
Oct 28	dry cleaning	\$28.96
Oct 28	haircut	\$48.00
Oct 29	coffee	\$2.59

Food and Drink Away from Home

Select the date of the purchase: March 10, 2013

Enter the cost of the meal including tax: \$0.00

Select the category: Food and Drink Away from Home

Select the type of meal: Breakfast, Lunch, Dinner, Snack/Other

Select the type of vendor: [Dropdown]

Indicate if alcohol was included (mark all that apply): None, Wine, Beer, Other

Cost of Alcohol: \$0.00

Describe the meal. (e.g. coffee, buffet, drinks from cash bar, sandwich & chips)

Select the type of vendor

Enter the total cost of the alcohol

Food and Drink for Home Consumption

Select the date of the purchase: March 10, 2013

Enter the cost of the item without tax: \$0.00

Select the category: Food and Drink for Home Consumption

Select the type of packaging: Fresh, Frozen, Bottled/Canned, Other

Is this item: [Dropdown]

Describe the item. (e.g. whole milk, eggs, cereal, bananas, case of beer)

Select the category: Food and Drink for Home Consumption

Check if purchased for someone outside your household:

Clothing, Shoes, Jewelry, and Accessories

Select the date of the purchase: March 10, 2013

Enter the cost of the item without tax: \$0.00

Select the category: Clothing, Shoes, Jewelry, and Accessories

Select the gender for whom the item was purchased for: Male, Female

Select the age range for whom the item was purchased for: Under 2, 2-15, 16 & Over

Check if purchased for someone outside your household:

Describe the item. (e.g. jeans, soccer cleats, ring, baseball cap)

Select the category: Clothing, Shoes Jewelry, and Accessories

Check if purchased for someone outside your household

All Other Products and Services

Select the date of the purchase: March 10, 2013

Enter the cost of the item without tax: \$0.00

Select the category: All Other Products and Services

Check if purchased for someone outside your household:

Describe the item. (e.g. electric bill, dry cleaning, area rug, DVD, car insurance)

Select the category: All Other Products and Services

Check if purchased for someone outside your household

Appendix C: Screenshots of Mobile Diary

Login

CE Individual Diary

User ID:

Password:

Burden	Accessibility
Privacy	Security

OMB No.: 1220-0050
Approval Expires: 4/30/2014

**** WARNING ****
 You have accessed a UNITED STATES GOVERNMENT computer. Use of this computer without authorization or for purposes for which authorization has not been extended is a violation of Federal law and can be punished with fines or imprisonment (PUBLIC LAW 99-474). System usage may be monitored, recorded, and subject to audit. Use of this system indicates consent to monitoring and recording.

Initial Setup

Logout **CE Individual Diary** INFO

Select the date you are scheduled to begin entering expenses:

Email address: (optional)

We will not share your email address with any 3rd parties. We ask for your email address only to send reminders regarding your participation in this survey.

Expense Summary

Logout **CE Individual Diary** INFO

Summary of Expenses
You have no entered expenses.

Common Entry

Logout **CE Individual Diary** ?

Food Away From Home

Logout **CE Individual Diary** ?

Alcohol Included?

Cost of Alcohol:

Food At Home

Logout **CE Individual Diary** ?

Is this item:

Purchased for someone outside your household

Clothing

Logout CE Individual Diary ?

March 10, 2013

Enter Description

\$0.00

Clothing, Shoes, Jewelry, and Accessories

Was the item for:

Male Female

Age:

Under 2 2-15 16 & Over

Purchased for someone outside your household

Cancel Save

Other Expense

Logout CE Individual Diary ?

March 10, 2013

Enter Description

\$0.00

All Other Products and Services

Purchased for someone outside your household

Cancel Save

Appendix D: Interview Protocol

Diary Task Instructions

Now I'm going to ask you to complete a series of tasks using the diary. We are trying to simulate what it would be like for you to complete the diary. If you have any questions while we're going through, remember that there are materials here and help menus within the diary.

Do you have any questions before we begin?

Block A

1. Log In

Let's get started. First, I'd like you to use this Username and password to log into the diary...

<p style="text-align: center;">CE Mobile Diary</p> <p>Username: 948142</p>
--

2. Set Personalized Password

Next you will be given the option to set a personalized password. You will be logging into the diary several times, so you will want to use something you can remember. Please do not use a password that you use somewhere else, like your email. It's important that you don't forget the password since we can't quickly reset it, so do whatever you would normally do to keep track of a password.

3. Set Start Date

Next, you will see a screen asking you to select your start date. Please select October 21st as your start date. Below the start date, you will see that we ask for your e-mail address. You can skip that box. Please select the "Continue" button.

4. Enter Own Food Expense

Think back to the last food purchase you made. Please add that item to the diary as if the purchase was made on October 21st.

Log Out – *Once you've entered your expense, please log out.*

5. Enter Book for Friend, Enter Jeans for Self

On October 22nd, you go shopping and buy a book for a friend and a pair of jeans for yourself. Here are the receipts. Please enter these expenses into the diary.

The next day, on the 23rd, you decide to return the pants that you had bought. Please go back and delete that item.

8. Change Book Details

You also decide that, rather than give the book to your friend, you are going to keep it for yourself. Please update that item to reflect that the book was purchased for you.

Log Out – Once you’ve changed the information for that item, please log out.

Block B

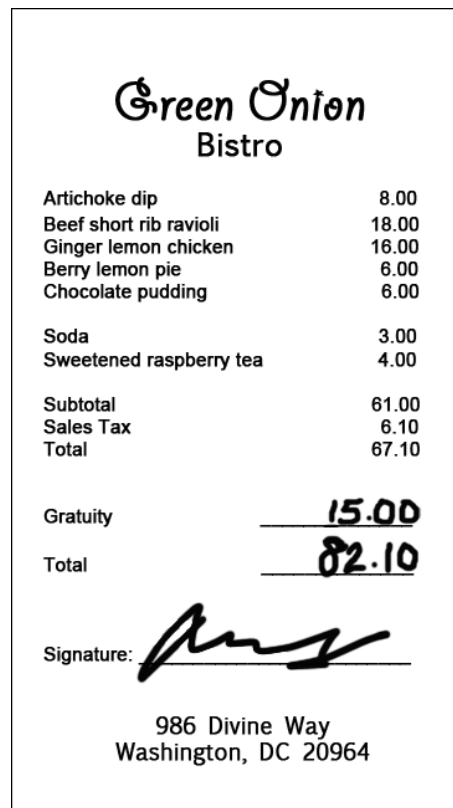
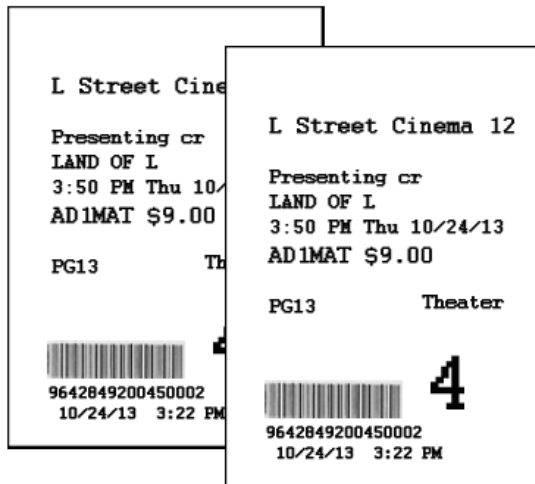
1. Enter Own Non-Food Purchase

Think back to the last purchase you made, other than food. Please add that item to the diary as if the purchase was made on October 23rd.

Log Out – Once you’ve entered your expense, please log out.

2. Enter Dinner, Enter Movie

On October 24th, you treat a friend to dinner and a movie and you pay for both. You decide to enter the purchases into the diary as you’re waiting for the movie to begin. Here is your ticket stub and the receipt from dinner.



3. Enter Drinks

On the way home from the movie, you and your friend stop to get a couple drinks. Here is the receipt. Please enter this expense into the diary.

Log Out – Once you've entered this expense, please log out.

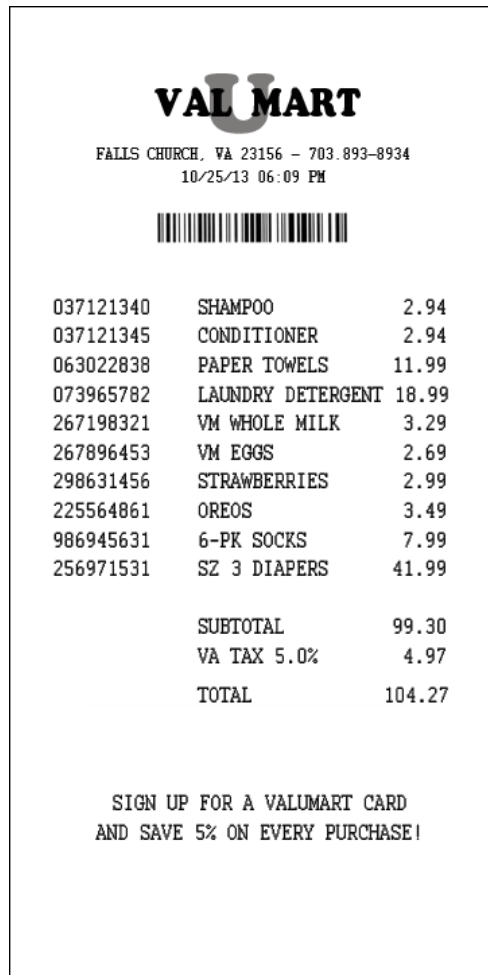
4. Edit Price of Drinks Purchase

The next day you realize that you had left a \$5 bill as a tip for the drinks you purchased, but forgot to enter that as part of the expense. Please change the entry to reflect the full price paid for the drinks.



5. Enter Long Receipt

On the 25th, you go to the Val-U-Mart superstore to buy a few things for your house – enter your expenses from this receipt.



Block C (if participant did not use buttons during testing)

I have a few additional questions for you about the diary.

1. Ask about INFO button

[Point to INFO button] *What do you think that this button does?*

2. Ask about HOME button

Please press the button to add an expense.

[Point to the HOME button] *What do you think that this button does?*

3. Ask about HELP button

[Point to the HELP button] *What do you think that this button does?*

(if help) What would you expect to find on the help screen?

Appendix E: Follow-up Questions

1. What did you think of the mobile diary?
2. Was it easy or difficult to use? Very Easy, Somewhat Easy, Neither Easy nor Difficult, Somewhat Difficult, Very Difficult
3. How confident did you feel in filling out the entries in the diary? Not at all Confident, A Little Confident, Somewhat Confident, Very Confident, Extremely Confident
4. How much training do you think the average person would need to get started on using the diary? None, A Little, A Moderate Amount, A Lot
5. Were there any tasks that you found particularly difficult?
6. Is there anything you would change to improve it?
 - a. Are there any functions or features that would make the mobile diary better or easier to use?
7. Imagine I came to your door and asked you to take part in a survey about what you spend money on. Would you be willing to use a mobile diary like this to keep track of your expenses?
 - a. How long would you be willing to use this mobile diary to keep track of your expenses?
 - b. Do you think you would need technical assistance?
 - c. Would you rather fill out a diary on a phone like this or on a computer? Why?
 - d. Would you rather fill out a diary on a phone or a paper diary? Why?

IF YES to 7 – indicates willingness to use the app

8. Imagine that you have agreed to keep track of your expenses for a week and you have the web diary on your phone.
 - a. When would you record your expenses? Check all that apply.
 - Right away, at the cash register
 - Right after I leave the store or make the payment
 - Whenever I have downtime throughout the day
 - At the end of the day
 - Whenever I have downtime throughout the week
 - At the end of the week
 - b. How would you record your expenses? Check all that apply.
 - Keep the receipts
 - Use the app when I don't have a receipt
 - Use the app when I only have one expense to enter
 - Make notes on paper to refer to later
 - Make notes in another budget app to refer to later
 - Use my memory to remember expenses

9. You had some experience with entering multiple items from a single receipt. How many items would you be willing to enter from a single receipt? _____
10. You logged into the web diary several times. What did you think of that experience?

Appendix F: Screening Questions

1. Do you own a smartphone or tablet?

IF UNSURE –

A smartphone is a phone on which you can easily access emails, download files and applications, as well as view websites and generally surf the internet. Popular brands of smartphone include iPhone, Blackberry, and Android phones such as the Samsung Galaxy.

A tablet is a device on which you can easily access emails, download files and applications, as well as view websites and generally surf the internet. The typical screen size of a tablet is larger than a smartphone. Popular brands of tablets include iPad, Kindle Fire, and Google Nexus.

- Yes (Go to Q2)
- No (Not eligible to participate)
- Don't know (Not eligible to participate)

2. Which operating system (OS) is on your device?

- iOS/Apple/iPhone/iPad
- Blackberry/RIM
- Android/Google
- Windows
- Palm
- Other
- Don't Know/Not Sure

3. (If Yes to Q1) How much experience do you have with using smartphones or tablets?

- None (Not eligible to participate)
- A Little
- A Moderate Amount
- A Lot

4. (If Yes to Q1) How much experience do you have with using applications or apps on smartphones or tablets?

- None (Not eligible to participate)
- A Little
- A Moderate Amount
- A Lot

Appendix G: Informed Consent

Consent Form

The Bureau of Labor Statistics (BLS) is conducting research to increase the quality of BLS surveys. This study is intended to suggest ways to improve the procedures the BLS uses to collect survey data.

The BLS, its employees, agents, and partner statistical agencies, will use the information you provide for statistical purposes only and will hold the information in confidence to the full extent permitted by law. 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 Privacy Act notice on the back of this form describes the conditions under which information related to this study will be used by BLS employees and agents.

During this research you may be audio and/or videotaped, or you may be observed. If you do not wish to be taped, you still may participate in this research.

We estimate it will take you an average of 45 minutes to participate in this research (ranging from 30 minutes to 60 minutes).

Your participation in this research project is voluntary, and you have the right to stop at any time. If you agree to participate, please sign below.

Persons are not required to respond to the collection of information unless it displays a currently valid OMB control number. OMB control number is 1220-0141, and expires February 28, 2015.

I have read and understand the statements above. I consent to participate in this study.

Participant's signature

Date

Participant's printed name

Researcher's signature

OMB Control Number: 1220-0141
Expiration Date: 02-28-2015

PRIVACY ACT STATEMENT

In accordance with the Privacy Act of 1974, as amended (5 U.S.C. 552a), you are hereby notified that this study is sponsored by the U.S. Department of Labor, Bureau of Labor Statistics (BLS), under authority of 29 U.S.C. 2. Your voluntary participation is important to the success of this study and will enable the BLS to better understand the behavioral and psychological processes of individuals, as they reflect on the accuracy of BLS information collections. The BLS, its employees, agents, and partner statistical agencies, will use the information you provide for statistical purposes only and will hold the information in confidence to the full extent permitted by law. 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.