

STUDY SERIES  
*(Survey Methodology #2009-11)*

**A Usability and Eye-Tracking Evaluation  
of the Economic Census Web Site: Round 2**

Jennifer Romano  
Temika Holland  
Elizabeth Murphy

Statistical Research Division  
U.S. Census Bureau  
Washington, D.C. 20233

Report Issued: June 18, 2009

*Disclaimer:* This report is released to inform interested parties of research and to encourage discussion. The views expressed are those of the authors and not necessarily those of the U.S. Census Bureau.



## **Abstract**

The Economic Census Web site contains reference information to help users better find, understand, and use Economic Census data. In January and February 2009, the Statistical Research Division (SRD) evaluated the usability of the Economic Census Web site. The testing evaluated the success and satisfaction of nine participants with the site developed by the Economic Planning and Coordination Division (EPCD). Participants attempted to complete ten pre-determined tasks, developed specifically for this study, on the Web site. Usability testing revealed several usability problems, including prominent right navigation links that participants used often and which took them off site; an overwhelming amount of information on the main page; a non-inclusive list of definitions on the Definitions page; lack of guidance to help users find data specific to their county, and a top navigation tool that participants did not use and often overlooked. The pre-determined efficiency goal for medium level tasks was met, but the goals for the easy and hard tasks were not. This report summarizes the methods and findings of this usability evaluation. Recommendations are provided to improve the usability of the Economic Census Web site.

## Executive Summary

In January and February 2009, the Statistical Research Division (SRD) evaluated the usability of the Economic Census Web site. The testing evaluated the success and satisfaction of nine participants with the site developed by the Economic Planning and Coordination Division (EPCD). Participants attempted to complete ten pre-determined tasks, developed specifically for this study, on the Web site. Testing took place at the US Census Bureau Usability lab in Suitland, MD.

Purpose. The primary purpose of this usability testing was to identify elements of the user-interface design that were problematic and led to ineffective, inefficient, and unsatisfying experiences for people using the Web site.

Method. SRD recruited a total of ten participants: nine were recruited externally through a database maintained by the Usability Lab, and one was an internal SRD employee, who had no previous exposure to the Economic Census Web site. One external participant's data were removed from the analysis due to the participant's inexperience navigating the Internet, as observed during the usability testing. The remaining participants were considered knowledgeable in navigating the Internet and using a computer.

Each participant sat in a small room, facing one-way glass and a wall camera, in front of an LCD monitor equipped with an eye-tracking machine. The participant and test administrator were not in the same room. The sessions were audio and video recorded, and tracking of the participants' eye movements were recorded during the usability tests.

While completing the ten tasks, participants were encouraged to think aloud and to share what they were thinking about the tasks. If at any time the participant became quiet, the test administrator reminded the participant to think aloud. The participant's narrative allowed the Usability Lab team to gain a greater understanding of how participants completed tasks and to identify issues with the Web site. The test administrator noted any behaviors that indicated confusion.

After completing all tasks, the participants completed a Satisfaction Questionnaire and then answered debriefing questions. Overall, each usability session ran about 60 minutes.

Results. This report presents issues prioritized from high to low in terms of their effect on participant performance and provides complete descriptions of each finding and recommendations for usability issues. The following section highlights high-priority issues and recommendations to resolve them.

**1. Users often used the right-navigation links, which navigated them away from the Econ Web site.** Most participants used the links on the right side of the main page before attempting to use the rest of the page. In addition, users were not aware that selecting the right-navigation links would direct them to a new Web site.

*Recommendation:* Condense the Related Sites section into one link, and move it to the left-navigation bar.

**2. Too much information is displayed on the main page.** Users stated that there was too much information, and they did not know where to begin. Most users commented that the font was too small on the main page and that the number of links was overwhelming.

*Recommendation:* Reduce the amount of text on the main page so that users are not overwhelmed by the quantity of information displayed. Increase the font size of headings, and increase the font size of all text to accommodate users. Condense the News and Related Sites sections.

**3. Information provided under the Definitions link was not inclusive.** Most participants initially scrolled through the definitions list, expecting to find the meanings of 'Metropolitan Areas' and 'Places' (which were not in the listing but rather located on the Geography page).

*Recommendation:* Include the terms found in the Geography section in the Definitions section. If the two sections are not combined, maintain the same format that is displayed for Definitions in the Geography section.

**4. No direct guidance is provided to help users find statistical data specific to their county.** The County Business Patterns link under Related Sites in the right navigation was misleading to users who expected statistical county data.

*Recommendation:* Provide an alternative link for county data, using appropriate contextual cues, on the main page to direct users. Upon selection of the link, warn users that they will be redirected to another site.

**5. Users did not use the top navigation as a primary navigation tool.** Participants rarely used the top navigation, and it took participants longer to look at the top navigation than any other area of interest. Furthermore, people did not look at the top navigation as often as they looked at the left navigation, right navigation and center of the screen.

*Recommendation:* Increase font size. Change the background color to maintain uniformity with the main page and to match the design of the rest of the page rather than the US Census Bureau banner. Use more descriptive labels for the links to guide users in finding relevant information.

## Table of Contents

1.0 Introduction.....	7
1.1 Background.....	7
1.2 Purpose.....	8
1.3 Usability Goals.....	8
1.4 Scope.....	8
1.5 Assumptions.....	8
2.0 Method.....	8
2.1 Participants and Observers.....	8
2.2 Facilities and Equipment.....	10
2.2.1 Testing Facilities.....	10
2.2.2 Computing Environment.....	10
2.2.3 Audio and Video Recording.....	10
2.2.4 Eye Tracking.....	10
2.3 Materials.....	10
2.3.1 General Introduction.....	10
2.3.2 Consent Form.....	10
2.3.3 Questionnaire on Computer Use and Internet Experience.....	10
2.3.4 Tasks and Task-based Goals.....	11
2.3.5 Satisfaction Questionnaire.....	11
2.3.6 Debriefing Questions.....	11
2.4 Procedure.....	11
2.5 Performance Measurement Methods.....	12
2.5.1 Accuracy.....	12
2.5.2 Efficiency.....	12
2.5.3 Satisfaction.....	12
2.5.4 Eye-Tracking Data.....	13
2.6 Identifying and Prioritizing Usability Problems.....	13
3.0 Results, Recommendations and Team Responses.....	14
3.1 Participant Accuracy.....	14
3.2 Participant Efficiency.....	16
3.3 Participant Satisfaction.....	19
3.4 Eye-Tracking Findings.....	19
3.4.1 Gazes.....	19
3.4.2 Hot Spots.....	21
3.4.3 Scan Paths.....	23
3.5 Positive Findings.....	23
3.6 Usability Problems.....	25
3.6.1 High-Priority Issues.....	25
3.6.2 Medium-Priority Issue.....	34
3.6.3 Low-Priority Issue.....	35
4.0 Conclusions.....	37
5.0 References.....	38
Appendix A. Main Page of the Economic Census Web Site Tested in August 2008.....	39
Appendix B. Recommendations from the 2008 Usability Test (Romano & Murphy, 2008).....	40
Appendix C. Main Page of the Tested Econ Web Site with Areas of Interest Noted.....	43

Appendix D. Main Page of the Revised Econ Web Site.....	44
Appendix E. General Introduction.....	45
Appendix F. Consent Form.....	47
Appendix G. Questionnaire on Computer Use and Internet Experience .....	48
Appendix H. Task List.....	50
Appendix I. Satisfaction Questionnaire .....	51
Appendix J. Debriefing Questionnaire .....	52
Appendix K. Task Order.....	53
Appendix L. Raw Navigation Data and Participant Comments. ....	54

## List of Figures

Figure 1. Tested version of the Econ Web site main page.....	15
Figure 2. AOIs for the Econ Web site usability study. ....	16
Figure 3. Heat map of the tested version of the Econ Web site main page for all participants across all tasks.....	21
Figure 4. Heat maps of the tested version of the Econ Web site (a) Main page and (b) Get Data page for task 8.....	22
Figure 5. Heat map of the tested version of the Econ Web site User Guide page for task 8.....	23
Figure 6. Scan paths for the tested version of the Econ Web site main page for task 9. ....	24
Figure 7. Right navigation links on the main page of the tested version of the Econ Web site. ..	25
Figure 8. Modified Related Sites in the left-navigation bar on the revised Econ Web site main page.....	26
Figure 9. Overwhelming information on the tested version of the Econ Web site main page. ....	27
Figure 10. Using American FactFinder page from the tested Econ Web site.....	28
Figure 11. Scan paths from three users on the tested version of the Econ Web site Definitions page for task 2. Most users exhibited a similar pattern of scanning down the left side of the page.....	29
Figure 12. Scan paths from two users on the tested version of the Econ Web site Geography page. Most users exhibited a similar pattern of looking back and forth from the left- navigation bar to the center text.....	29
Figure 13. Definition page from the tested version of the Econ Web site.....	30
Figure 14. Geography page from the tested version of the Econ Web site. ....	30
Figure 15. Revised version of the Definitions page on the Econ Web site. ....	31
Figure 16. Users were misled by the County Business Patterns link on the tested version of the Econ Web site main page.....	31
Figure 17. Top navigation from the tested version of the Econ Web site. ....	33
Figure 18. Main page with top navigation recommendations.....	33
Figure 19. Contact Info page from the tested version of the Econ Web site. ....	34
Figure 20. Contacts-by-Industry page from the tested version of the Econ Web site. ....	35
Figure 21. Data Release Schedule page from the tested version of the Econ Web site.....	36



### List of Tables

Table 1. Participant Demographics.....	9
Table 2. Participants' Self-Reported Computer and Internet Experience.....	9
Table 3. User and Task Accuracy Scores .....	14
Table 4. Time in Minutes and Seconds to Complete Each Task .....	17
Table 5. Time in Minutes (m) and Seconds (s) Elapsed Before Participants First Looked at AOIs .....	17
Table 6. User Satisfaction Results for the Econ Web Site (1 = low, 9 = high) .....	18
Table 7. Gazes in Right Navigation.....	19
Table 8. Gazes for Center Information .....	20
Table 9. Gazes in Left Navigation .....	20
Table 10. Gazes in Top Navigation .....	20
Table 11. Gazes for the Two Left Census Links .....	21

## **A Usability and Eye-Tracking Evaluation of the Economic Census Web Site: Round 2**

### **1.0 Introduction**

The Economic Census (Econ) Web Site contains reference information to help users better find, understand and use Economic Census data. Thousands of diverse users access the site to retrieve data and information related to the Economic Census. This report specifies the methods and materials that the Statistical Research Division (SRD) used in evaluating the usability of the Econ Web site (<http://www.census.gov/econ/census07/index.html>).

This usability testing evaluated the success and satisfaction of test participants with the Web site developed by the Economic Planning and Coordination Division (EPCD) team. Participants attempted to use the Web site to complete tasks that were developed specifically for this usability test. Findings and recommendations are provided to inform the site sponsor and designer(s) on areas of satisfaction as well as areas where the participants experienced difficulty while using the Econ Web site.

### **1.1 Background**

The user interface is an important element to the design of a Web site. For a Web site to be successful, the user interface must be able to meet the needs of its users in an efficient, effective, and satisfying way. The design of the Web site must support users' attempts to find target information, that is, the user should experience success in navigating through the interface. Success is defined in terms of the accuracy in and timeliness of finding the appropriate information. The overall experience of using the site should be satisfying for users. The present study was designed to examine the user interface of the Econ Web site.

Usability Lab members conducted two expert reviews and a usability test prior to this usability study. One expert review was conducted in February 2008 (Morgan, Beck, Trofimovsky & Murphy, 2008) and the other in July 2008 (Romano & Murphy, 2008b). The first usability test was conducted in August 2008 (Romano & Murphy, 2008a). A screen shot of the Web site from the 2008 usability study and a checklist of high- and medium-priority recommendations from the 2008 usability report are included in [Appendix A](#) and [Appendix B](#), respectively. The EPCD team made changes to the Web site based on recommendations from both expert reviews and the first usability study. A screen shot of the revised site that was tested in the second usability study can be found in [Appendix C](#).

Nine people (eight external participants and one internal employee) participated in the second usability study between January 26 and February 13, 2009. Members of SRD's Usability Lab prepared and disseminated a brief report of major findings and recommendations to the client on March 5, 2009. The Usability Lab team met with members of the EPCD team on March 11, 2009 to discuss findings and recommendations. Responses from the EPCD team to SRD's recommendations are included in the present report following each finding. See [Appendix C](#) for a screen shot of the tested version and [Appendix D](#) for screen shots of the revised version, which includes changes based on SRD's findings and recommendations from the January-February 2009 testing.

## ***1.2 Purpose***

The primary purpose of this usability testing was to identify elements of the user-interface design that were problematic and led to ineffective, inefficient and unsatisfying experiences for people using the Web site.

## ***1.3 Usability Goals***

As is typical with usability studies at the Census Bureau Usability Lab, we defined the usability goals for this study in three categories: user accuracy, efficiency, and satisfaction. In this study, these goals reflect the extent to which the user interface was expected to support user performance and satisfaction.

**Goal 1: To achieve a high level of accuracy in completing the given tasks using the Econ Web site.** The user should be able to successfully complete 75 percent of the given tasks.

**Goal 2: To achieve a high level of efficiency in using the Econ Web site.** The user should be able to complete the tasks in an efficient manner taking two minutes or less to complete each easy task, three minutes or less to complete each medium level task, and four minutes or less to complete each hard task. (Task difficulty is described later, in [Section 2.3.4](#), in this report.) The user should look at the top navigation within one minute and the two left Census links within five minutes.

**Goal 3: To experience a moderate to high level of satisfaction from experience using the Econ Web site.** The overall mean of the Satisfaction Questionnaire ratings should be well above the mid-point (5 or above on a nine-point scale, where 1 is the lowest rating and 9 is the highest rating). The same should be true for the individual Satisfaction Questionnaire items.

## ***1.4 Scope***

All user interactions with the Econ Web site are within the scope of the usability evaluation. The version of the Web site that was tested was the version that was updated, following the July 2008 usability study. The user-interface design was not tested for compliance with the Section 508 regulations at this time. However, since this is a government Web site, it must comply with Section 508 regulations unless a waiver has been granted.

## ***1.5 Assumptions***

- Participants had at least one year of prior Internet and computer experience.
- Participants had prior knowledge of how to navigate a Web site.
- Participants did not have extensive prior experience using the Econ Web site.
- Participants had no known disabilities.

## **2.0 Method**

### ***2.1 Participants and Observers***

SRD Usability Lab members recruited nine participants externally through a database that the lab maintains and also recruited one internal SRD employee, who had no previous exposure to the Econ Web site. One external participant's data were removed from the analysis due to inexperience navigating the Internet, as observed during the usability testing. The remaining

participants appeared to be knowledgeable in navigating the Internet and using a computer. See Table 1 for participant demographics and Table 2 for self-reported computer and Internet experience.

**Table 1. Participant Demographics**

Gender		Age		Education	
Male	4	≤ 30	3	HS, GED	3
Female	5	31-45	1	Some college, AA	1
		46-60	5	Bachelor's	4
				Master's +	1
Mean = 42.11 years <sup>1</sup>				Mean = 14.89 years <sup>2</sup>	

**Table 2. Participants' Self-Reported Computer and Internet Experience**

Participant	Hours per day on the Internet	Scale: 1 (no experience) to 9(very experienced)		Scale: 1 (not comfortable) to 5 (comfortable)			Scale: 1 (never) to 5 (very often)		
		Overall experience with computers	Overall experience with Internet	Comfort in learning to navigate new Web sites	Comfort in manipulating a window	Comfort in using and navigating the Internet	How often working with data through a computer	How often working with complex analyses of data through a computer	How often using the Internet or Web sites to find information
1	2	5	6	5	4	5	3	1	3
2	3	7	6	4	4	4	5	3	4
3	2	8	9	4	5	5	5	2	5
4	2	7	7	3	4	N/A*	4	4	3
5	2	3	4	3	5	5	3	2	2
6	2	8	9	5	4	4	3	3	5
7	3	7	7	4	5	4	5	2	3
8	2	7	8	3	4	4	2	1	4
9	2	7	5	3	4	4	5	5	3
Average across participants	<b>2.22</b>	<b>6.56</b>	<b>6.78</b>	<b>3.78</b>	<b>4.33</b>	<b>4.38</b>	<b>3.89</b>	<b>2.56</b>	<b>3.56</b>

\* Participant did not answer the question.

Observers from the EPCD team watched some of the usability tests on television screens in a room separate from the participant and test administrator. At the end of each test session, the test administrator and observers discussed the findings from that session and compared them to findings from other sessions.

<sup>1</sup> The mean age was calculated from the exact values for each participant. The exact self-reported values were placed in ranges in Table 1 to help the reader get an overview of the data.

<sup>2</sup> The mean years of education was calculated from the exact values of “years of formal education” for each participant. The self-reported values were placed in ranges to help the reader get an overview of the data.

## **2.2 Facilities and Equipment**

Testing took place at the Usability Lab (Room 5K512) at the U.S. Census Bureau in Suitland, MD.

### **2.2.1 Testing Facilities**

The participant sat in a small room, facing one-way glass and a wall camera, in front of an LCD monitor equipped with an eye-tracking machine that was on a table at standard desktop height. During the usability test, the test administrator sat in the control room on the other side of the one-way glass. The test administrator and the participant communicated via microphones and speakers.

### **2.2.2 Computing Environment**

The participant's workstation consisted of a Dell personal computer with a Windows XP operating system, a 17" Tobii LCD monitor equipped with cameras for eye tracking, a standard keyboard, and a standard mouse with a wheel.

### **2.2.3 Audio and Video Recording**

Video of the application on the test participant's monitor was fed through a PC Video Hyperconverter Gold Scan Converter, mixed in a picture-in-picture format with the camera video, and recorded via a Sony DSR-20 digital Videocassette Recorder on 124-minute, Sony PDV metal-evaporated digital videocassette tape. One desk and one ceiling microphone near the participant captured the audio recording for the videotape. The audio sources were mixed in a Shure audio system, eliminating feedback, and were then fed to the videocassette recorder.

### **2.2.4 Eye Tracking**

Using the ClearView 2.0 software program, the Tobii eye-tracking device monitored the participant's eye movements and recorded eye-gaze data. In addition to eye-gaze data, we also collected eye fixations for areas of interest (AOIs). Prior to the usability evaluation, Usability Lab members and EPCD team members identified the following AOIs: (1) top navigation bar and (2) two Economic Census links on the left side of the screen (2007 and 2002). In addition, following the completion of the usability testing, Usability Lab members examined the following AOIs to support usability findings: (3) left navigation, (4) center, and (5) right navigation. See [Appendix C](#) for exact locations of the AOIs.

## **2.3 Materials**

### **2.3.1 General Introduction**

The test administrator read some background material and explained several key points about the session. See [Appendix E](#).

### **2.3.2 Consent Form**

Prior to beginning the usability test, the participant completed a consent form. See [Appendix F](#).

### **2.3.3 Questionnaire on Computer Use and Internet Experience**

Prior to the usability test, the participant completed a questionnaire on his/her computer usage and Internet experience. See [Appendix G](#).

### **2.3.4 Tasks and Task-based Goals**

Members of the EPCD team, as well as members of the Usability Lab, created the tasks and the task-based goals. The tasks were designed to capture the participants' interaction with and reactions to the design and functionality of the Econ Web site. Prior to testing, tasks were categorized by level of difficulty as easy, medium or hard, based on the ratings of three raters from the EPCD team. Tasks 4 and 6 were classified as easy; tasks 7 and 8 were classified as hard, and the remaining six tasks were classified as medium. Inter-rater reliability across tasks was .50. See [Appendix H](#) for a complete listing of the tasks.

### **2.3.5 Satisfaction Questionnaire**

Members of the Usability Lab created the Satisfaction Questionnaire, loosely based on the University of Maryland's Questionnaire for User Interaction Satisfaction (QUIS, Chin, Diehl, and Norman, 1988). In typical usability tests at the Census Bureau, we use 10 to 12 satisfaction items that are tailored to the particular user interface we are evaluating. In this study, the Satisfaction Questionnaire includes 10 items tailored to the Econ Web site. See [Appendix I](#) for the complete questionnaire.

### **2.3.6 Debriefing Questions**

After completing all tasks, the participant answered debriefing questions about his/her experience using the Econ Web site. See [Appendix J](#).

## **2.4 Procedure**

Following security procedures, participants reported separately to the visitor's entrance at the U.S. Census Bureau Headquarters and were escorted to the Usability Lab. Upon arriving, each participant was seated in the testing room. The test administrator greeted the participant and read the general introduction. See [Appendix E](#). Next, participants read and signed the consent form. See [Appendix F](#). After signing the consent form and doing a practice task (from craigslist.org), the test administrator calibrated the participant's eyes. Calibration took approximately fifteen to twenty seconds and involved the participant looking at a dot moving across the computer screen. After calibration, the test administrator placed the task questions and Satisfaction Questionnaire on the desk beside the participant and left the testing room. The test administrator went to the control room and did a sound check. During this time, the participant completed the Questionnaire on Computer Use and Internet Experience. Upon the participant's completion of the questionnaire, the test administrator began the video and eye-tracking recording.

Overall, each usability session lasted approximately 60 minutes. Each participant completed 10 tasks using the Econ Web site. The task order was varied so that no participant received the tasks in the same order. See [Appendix K](#) for the orders of task presentation. At the start of each task, the participant read the task aloud. While completing the tasks, we encouraged the participants to think aloud and to share their thoughts about executing the task. (They had practiced thinking aloud during the practice task.) The participant's narrative allowed us to gain a greater understanding of how they completed the task and to identify issues with the Web site. If at any time the participant became quiet, the test administrator reminded the participant to think aloud, using prompts such as "What are you thinking as you look at this page?," "What are you expecting to see?," and "Tell me about your thoughts." At the conclusion of each task, the participant announced their answer to the task. During the task, the test administrator noted any

behaviors that indicated confusion, such as hesitation, backtracking and frowning. After completing all tasks, the test administrator stopped the eye-tracking device and asked the participant to complete the Satisfaction Questionnaire.

After participants completed the Satisfaction Questionnaire, the test administrator returned to the testing room to administer a debriefing questionnaire. See [Appendix J](#) for the questions that the test administrator asked during debriefing. This debriefing provided an opportunity for a conversational exchange with participants. The test administrator remained neutral during this time to ensure that they did not influence the participants' reactions to the site. At the conclusion of the debriefing, the test administrator stopped the video recording and gave the participant the \$40 honorarium.

## ***2.5 Performance Measurement Methods***

### **2.5.1 Accuracy**

After each participant completed a task, the test administrator rated the task as a success or a failure. In usability testing, successful completion of a task means that the design supported the user in reaching a goal. Failure means that the design did not support task completion. A successful task involved the participant successfully navigating the user interface to identify the correct piece of information on the Web site based on the task objective. If the participant struggled to find the information, but eventually arrived at the correct response, this was marked as a success. A failure was recorded when the participant was unable to identify the correct piece of information.

Average accuracy scores were calculated across all participants for each task and across all tasks for each participant. Prior to the usability testing, the EPCD team and the Usability Lab team set an overall accuracy goal of 75 percent across all participants.

### **2.5.2 Efficiency**

After all usability tests were complete, members of the usability team calculated the average time taken to complete each task. Average times were calculated across all participants for each task and across all tasks for each participant. Prior to usability testing, the EPCD team and the Usability Lab team set efficiency goals of two minutes or less for easy tasks, three minutes or less for medium level tasks, and four minutes or less for hard tasks. In addition, times to look at each AOI were calculated. An average across all participants was calculated for each of the five AOIs. Prior to the usability testing, the EPCD team and the Usability Lab team set AOI goals of one minute for users to see the top navigation and five minutes to see the two Economic Census links on the left side of the screen.

### **2.5.3 Satisfaction**

After completing the usability session, each participant indicated his/her satisfaction with the Web site using the tailored ten-item Satisfaction Questionnaire. For example, participants were asked to rate their overall reaction to the site by circling a number from 1 to 9, with 1 being the lowest possible rating and 9 the highest possible rating. The Usability Lab team calculated ranges and means for the various rated attributes of the Web site. Prior to the usability testing,

the EPCD team and the Usability Lab team set satisfaction goals of the overall mean and the individual item means well above the mid point of the nine-point scale (e.g., 6 or above).

#### **2.5.4 Eye-Tracking Data**

Eye tracking captures exactly where people look as they navigate through a Web site. The eye-tracking data allow us to look at eye-gaze pathways at both the individual level and group levels, revealing unique (individual) and common pathways through a Web site. Eye tracking captures these data through fixations, gazes, hot spots and scan paths.

A fixation, which typically lasts 218 milliseconds, is an instant where the eyes are relatively still (Poole & Ball, 2005). Although the meaning of the variability in amount of fixations is a matter of discussion among experts, some evidence suggests that during an encoding task, such as looking at a Web page, a higher number of fixations indicate either an area of interest or a complex and difficult to understand target (Poole & Ball, 2005). In other words, a higher number of fixations can indicate the need for processing time or greater difficulty identifying the target object. For the purposes of this usability test, the tasks fall into both the encoding and search categories. The analysis of high number of fixations was specific to the given task.

A gaze is the total number of fixations in a uniquely defined area. Gazes indicate which areas are getting the most attention (Poole & Ball, 2005). In this study, we were able to see the exact gazes of the individual participants, as well as gazes across all participants. In this report, we identify gazes for each predetermined AOI.

A hot spot is an area of the screen where people spend a few moments looking. Hot spots can be examined individually or can be collapsed across participants into a heat map for a mean image that displays the average of all hot spots for all the participants together. Heat maps range in color from green (few fixation points) to red (many fixation points). In this report, we examined predefined AOIs and determined whether these areas were hot spots.

A scan path shows the “search → fixate → search” sequence. In search tasks, a straight scan path is optimal, with a short fixation time at the target. A longer-duration scan path is an indication of inefficient searching (Poole & Ball, 2005). In this report, we identify scan paths for specific tasks to support usability findings.

#### **2.6 Identifying and Prioritizing Usability Problems**

To identify design elements that caused participants to have problems completing the task objectives, the test administrator recorded detailed notes during the usability session. To bolster these notes, the test administrator used the videotape recordings from each session to confirm or disconfirm findings. By noting participant behavior and comments, the Usability Lab team inferred the likely design element(s) that caused participants to experience difficulties. We grouped the usability issues into categories based on priority. The usability team assigned each problem a priority code, based on the severity of its effect on performance. The codes are as follows:

- *High Priority* – These problems bring the test participant to a standstill. He or she is not able to complete the task.



- *Medium Priority* – These problems cause some difficulty or confusion, but the test participant is able to complete the task.
- *Low Priority* – These problems cause minor annoyances, but do not interfere with the flow of the tasks.

### 3.0 Results, Recommendations and Team Responses

In this section, we discuss the results from the usability study. We present the quantitative data, eye-tracking data, usability issues, and the EPCD’s team responses to the recommendations. See [Appendix L](#) for navigation data and participant comments.

#### 3.1 Participant Accuracy

The accuracy score for all tasks across all participants was 63 percent. Accuracy scores ranged from 10 percent to 90 percent across users and from 33 percent to 89 percent across tasks. Accuracy scores did not meet the 75 percent accuracy goal. Participants experienced the most difficulty with tasks 1, 7, 8 and 9. See Table 3 for user and task accuracy scores and [Appendix H](#) for the complete tasks.

Tasks 7 and 8 were classified as hard, and tasks 1 and 9 was classified as medium. Four participants (44%) completed tasks 1 and 7 successfully, and three participants (33%) completed tasks 8 and 9 successfully.

**Table 3. User and Task Accuracy Scores**

Difficulty	Task										Mean success rate
	Medium	Medium	Medium	Easy	Medium	Easy	Hard	Hard	Medium	Medium	
Participant	1	2	3	4	5	6	7	8	9	10	
1	Failure	Failure	Success	Success	Failure	Success	Failure	Failure	Failure	Success	40%
2	Success	Success	Failure	Success	Success	Success	Failure	Success	Success	Success	80%
3	Failure	Success	Success	Failure	Success	Success	Success	Failure	Failure	Success	60%
4	Failure	Failure	Success	Failure	Failure	Failure	Failure	Failure	Failure	Failure	10%
5	Failure	Success	Success	Success	Success	Success	Success	Failure	Failure	Success	70%
6	Failure	Success	Success	Success*	Success	Success	Failure	Success	Failure	Success	70%
7	Success	Success	Success	Success	Success	Success	Success	Success	Failure	Success	90%
8	Success**	Success	Success	Failure	Success	Success	Failure	Failure	Success	Failure	60%
9	Success	Success	Success	Success	Success	Success	Success	Failure	Success	Success	90%
<b>Success by task</b>	<b>44%</b>	<b>78%</b>	<b>89%</b>	<b>67%</b>	<b>78%</b>	<b>89%</b>	<b>44%</b>	<b>33%</b>	<b>33%</b>	<b>78%</b>	<b>63%</b>

\* User did not see Industry/Survey link, instead scrolled through chart to get dates.

\*\* User found information for Finance but did not search for Real Estate.

As demonstrated in the raw navigation data in [Appendix L](#), most participants navigated off the Econ Web site for task 7 [You want to find statistics for your county (e.g., sales per establishment for sporting goods stores, number of gas stations). Find the Web page that tells you how to find these statistics.] One participant first navigated through the Business and Industry page (by clicking on the right navigation link) then returned to the Econ main page and selected the County Business Patterns link (also located on the right navigation). Once on the County Business Patterns site, the participant stated, “I would click here on this site,” as if they

had successfully completed the task. After the test administrator redirected the participant back to the Econ main page, the participant selected the County Business Patterns link again, going off the Econ site and thus failing the task. Similarly, 7 of 9 participants (78%) used right navigation links to attempt to complete task 7. Three participants (33%) used the Business and Industry link, five participants (56%) used the County Business Patterns link, and three participants (33%) used the Nonemployer Statistics link, all of which are located in the right navigation. See Figure 1. The wording of the task may have played a role in the performance, as users looked for information about county statistics. The task was intended to get participants to find the page on the Econ Web site that informed users on how to find the data, but participants in this study attempted to find the actual data.

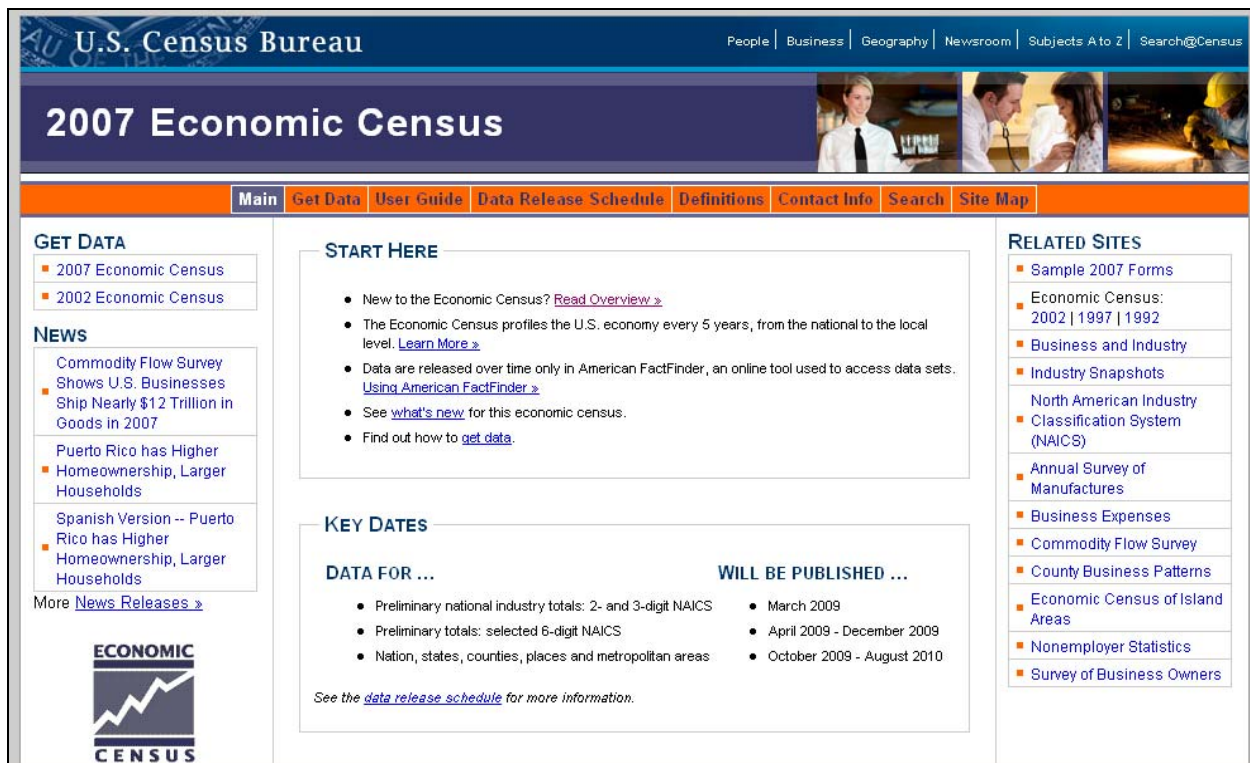


Figure 1. Tested version of the Econ Web site main page.

For task 8 [You want to use data from two different data sources, but are unsure if they are comparable. Find out if this information exists on the site.], the users seemed unclear on where to find the information. Five of nine participants (56%) selected Get Data from the center of the screen, and three of nine (33%) selected User Guide from the top navigation. See Figure 1. Both of these selections were correct, in that people could select either link to find information to complete the task. However, of the five participants who selected Get Data, only two successfully completed the task. Likewise, of the three participants who selected User Guide, only one successfully completed the task.

For task 9 [You are an experienced economic data user and familiar with the North American Industry Classification System (NAICS). You are curious how NAICS codes have changed since the previous economic census. Find the Web page that has this information.], users were again unclear on where to find the information. Eight of nine participants (89%) attempted to

use the NAICS link in the right navigation. Six of nine participants (67%) went off site and were redirected back to the Econ Web site main page to begin again or to “try a different route” to find the desired information. See Figure 1.

### 3.2 Participant Efficiency

We included 58 task responses (64 % of the total) that were answered correctly in the mean timing calculations. We did not include the task failures in the efficiency scores. On average, it took participants 2 minutes 4 seconds to complete easy tasks; 2 minutes 50 seconds to complete medium tasks, and 5 minutes 23 seconds to complete hard tasks. The time to complete easy tasks was slightly more than the 2 minute goal; the time to complete the medium tasks was within the 3 minute goal, and the time to complete the hard tasks was more than the 4 minute goal set for the study. See Table 4 for detailed times to complete each task and [Appendix H](#) for a complete list of the tasks.

Table 5 reports participants’ elapsed time before looking at each AOI, and Figure 2 displays the AOIs. On average, across all tasks, it took participants 1 minute and 43 seconds to look at the top navigation, 33 seconds to look at the two left Census links, 24 seconds to look at the left navigation, 3 seconds to look at the center of the page, and 34 seconds to look at the right navigation. See Table 5 for averages and individual times. Overall, most participants tended to look at each AOI while completing the first task. It took participants less time to look at the right navigation, which contained links that directed users off of the Econ Web site, than it took for them to look at the top navigation, which was more useful in completing the tasks successfully. It is also important to note that it took participants an average of 3 seconds to look to the center of the main page. Because participants took less time to look to the center of the page, it might be beneficial to have more useful information displayed in this area.

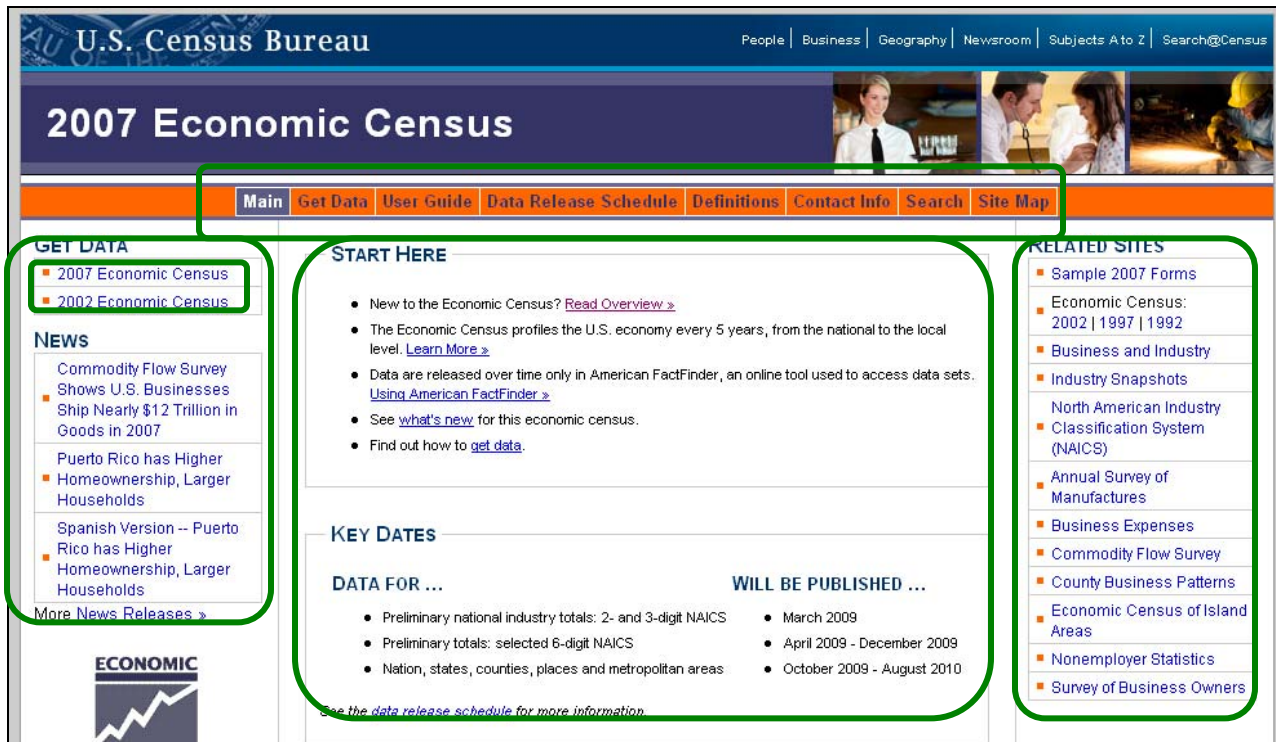


Figure 2. AOIs for the Econ Web site usability study.

**Table 4. Time in Minutes and Seconds to Complete Each Task**

Task difficulty	Task										Mean time by participant
	Medium	Medium	Medium	Easy	Medium	Easy	Hard	Hard	Medium	Medium	
Participant	1	2	3	4	5	6	7	8	9	10	
1	4m51s*	8m25s*	57s	2m4s	11m28s*	7m2s	4m36s*	7m28s*	5m38s*	2m54s	<b>3m14s</b>
2	48s	3m45s	4m31s*	2m45s	43s	17s	7m40s*	4m23s	7m42s	12s	<b>2m34s</b>
3	55s	2m29s	1m2s	8m42s*	6m17s	17s	6m12s	6m39s*	5m45s*	52s	<b>2m35s</b>
4	2m9s*	1m54s*	1m26s	2m15s*	2m4s*	7m19s*	10m3s*	8m14s*	6m6s*	11m6s*	<b>1m26s</b>
5	2m5s*	12m47s	2m26s	4m35s	2m11s	1m6s	7m57s	4m20s*	6m19s*	1m37s	<b>4m40s</b>
6	4m58s*	4m28s	4m3s	1m35s	3m53s	3m21s	4m40s*	3m15s	2m3s*	1m22s	<b>3m8s</b>
7	1m41s	3m51s	2m14s	1m19s	1m6s	27s	7m31s	1m59s	6m34s*	3m37s	<b>2m38s</b>
8	58s	3m35s	25s	57s*	8m15s	12s	8m57s*	4m15s*	5m58s	8m10s*	<b>3m14s</b>
9	4m27s	48s	38s	3m30s	42s	20s	6m21s	6m39s*	3m32s	5s	<b>2m16s</b>
<b>Mean time by question (correct responses only)</b>	<b>1m46s</b>	<b>4m32s</b>	<b>1m39s</b>	<b>2m38s</b>	<b>3m13s</b>	<b>1m38s</b>	<b>7m0s</b>	<b>3m12s</b>	<b>5m44s</b>	<b>1m31s</b>	<b>2m56s</b>

\* Task Failure: time not included in mean calculation.

**Table 5. Time in Minutes (m) and Seconds (s) Elapsed Before Participants First Looked at AOIs**

Participant	Area of interest				
	Top navigation	Two left Census links	Left navigation	Center	Right navigation
1	49s	5s	5s	3s	7s
2	2s	3s	3s	2s	4s
3	45s	34s	34s	6s	20s
4	*	*	*	*	*
5	7m48s, in 3rd task	1m27s	27s	2s	27s
6	2m2s, in 2nd task	27s	3s	2s	1m20s
7	18s in 2nd	15s, in 2nd task	15s, in 2nd task	2s	16s, in 2nd task
8	2m2s	20s	20s	2s	2m23s
9	49s	1m50s	1m50s	8s	9s
<b>Mean time to first look at AOI</b>	<b>1m43s</b>	<b>33s</b>	<b>24s</b>	<b>3s</b>	<b>34s</b>

\* No eye-tracking data

**Table 6. User Satisfaction Results for the Econ Web Site (1 = low, 9 = high)**

Participant	Satisfaction survey items										Overall satisfaction rating by participant
	Overall reaction to site: terrible - wonderful	Screen layouts: confusing - clear	Use of terminology throughout site: inconsistent - consistent	Information displayed on the screens: inadequate - adequate	Arrangement of information on the screens: illogical - logical	Tasks can be performed in a straight-forward manner: never - always	Organization of information on the site: confusing - clear	Forward navigation: impossible - easy	Overall experience of finding information: difficult - easy	Census Bureau specific terminology: too frequent - appropriate	
1	7	9	9	8	9	9	8	9	9	9	8.6
2	5	7	3	5	2	3	3	4	3	5	4
3	6	5	6	4	6	5	5	3	3	3	4.6
4	3	2	4	2	5	5	4	5	3	4	3.7
5	4	3	7	6	3	2	5	3	2	4	3.9
6	6	6	6	7	5	6	6	6	6	6	6
7	4	3	7	5	7	5	4	7	6	6	5.4
8	1	1	1	3	9	2	1	2	1	2	2.3
9	5	7	8	8	7	5	7	8	5	7	6.7
<b>Mean satisfaction rating by question</b>	<b>4.56</b>	<b>4.78</b>	<b>5.67</b>	<b>5.33</b>	<b>5.89</b>	<b>4.67</b>	<b>4.78</b>	<b>5.22</b>	<b>4.22</b>	<b>5.11</b>	<b>5.02</b>

### 3.3 Participant Satisfaction

The average satisfaction score for all tasks across all participants on the Satisfaction Questionnaire was 5.02 out of 9, and the ratings for individual items ranged from 4.22 to 5.89. The average score and half of the individual item scores on the questionnaire were only slightly above the mid-point, the goal set for this study, while half of the individual items fell slightly below the mid-point (5 out of 9). Mean ratings across users ranged from 2.3 to 8.6. Five of nine participants (56%) had an overall satisfaction rating that was below average (less than 5). The lower ratings indicate issues that may affect other users. See Table 6 for detailed user satisfaction ratings and [Appendix I](#) for a complete list of satisfaction questions.

### 3.4 Eye-Tracking Findings

#### 3.4.1 Gazes

Tables 7 through 11 show the gaze-frequency data for each of the five AOIs. Participants looked at the right navigation the most, followed by the center, followed by the left navigation, followed by the top navigation, followed by the two Census links on the left. The right navigation was viewed 1616 total times across all participants across all tasks, with a range of 34 to 330 across tasks and a range of 37 to 496 across participants. The center information was viewed 1448 total times across all participants across all tasks, with a range of 44 to 322 across tasks and a range of 38 to 334 across participants. The left navigation was viewed 920 total times across all participants across all tasks, with a range of 34 to 170 across tasks and a range of five to 243 across participants. The top navigation was viewed 410 total times across all participants across all tasks, with a range of 20 to 101 across tasks and a range of four to 174 across participants. The two Census links were viewed 154 total times across all participants across all tasks, with a range of four to 26 across tasks and a range of three to 65 across participants. These results demonstrate that participants do not always look at the important AOIs (i.e., the top navigation and the Census links) and that participants often look at the right navigation links, which take them off site. Furthermore, there are inconsistencies across participants demonstrating that participants have different ways of approaching the Web site.

**Table 7. Gazes in Right Navigation**

Participant	Task										Total gaze by participant
	1	2	3	4	5	6	7	8	9	10	
1	35	9	0	0	1	0	24	0	5	0	<b>74</b>
2	0	128	9	46	17	15	26	5	36	17	<b>299</b>
3	0	34	0	148	7	2	55	136	91	23	<b>496</b>
4	*	*	*	*	*	*	*	*	*	*	
5	0	10	7	1	2	22	49	11	57	8	<b>167</b>
6	44	2	4	1	7	61	109	13	63	5	<b>309</b>
7	4	7	7	3	0	0	13	0	14	6	<b>54</b>
8	0	1	0	6	4	0	0	*	0	26	<b>37</b>
9	25	5	7	39	4	13	54	5	27	1	<b>180</b>
<b>Total gazes by task</b>	<b>108</b>	<b>196</b>	<b>34</b>	<b>244</b>	<b>42</b>	<b>113</b>	<b>330</b>	<b>170</b>	<b>293</b>	<b>86</b>	<b>1616</b>

\* No eye-tracking data.

**Table 8. Gazes for Center Information**

Participant	Task										Total gaze by participant
	1	2	3	4	5	6	7	8	9	10	
1	16	34	8	3	7	6	5	33	4	3	<b>119</b>
2	6	80	4	69	12	3	3	46	46	11	<b>280</b>
3	0	10	20	26	59	5	34	97	15	68	<b>334</b>
4	*	*	*	*	*	*	*	*	*	*	
5	3	34	22	4	2	9	39	61	46	18	<b>238</b>
6	24	4	10	13	56	15	40	76	24	8	<b>270</b>
7	0	2	8	3	3	4	5	2	9	2	<b>38</b>
8	1	4	5	21	3	0	2	*	6	33	<b>75</b>
9	15	2	12	8	7	2	17	7	22	2	<b>94</b>
<b>Total gazes by task</b>	<b>65</b>	<b>170</b>	<b>89</b>	<b>147</b>	<b>149</b>	<b>44</b>	<b>145</b>	<b>322</b>	<b>172</b>	<b>145</b>	<b>1448</b>

\* No eye-tracking data.

**Table 9. Gazes in Left Navigation**

Participant	Task										Total gaze by participant
	1	2	3	4	5	6	7	8	9	10	
1	11	3	0	1	15	0	25	7	1	0	<b>63</b>
2	3	33	34	9	2	4	3	4	24	9	<b>125</b>
3	15	32	9	42	14	13	50	52	4	12	<b>243</b>
4	*	*	*	*	*	*	*	*	*	*	
5	0	42	6	15	0	0	27	0	3	7	<b>100</b>
6	34	10	6	7	45	15	21	6	8	7	<b>159</b>
7	0	0	2	0	0	0	0	0	2	1	<b>5</b>
8	0	4	2	7	25	0	1	*	2	23	<b>64</b>
9	7	46	8	7	3	2	7	32	49	0	<b>161</b>
<b>Total gazes by task</b>	<b>70</b>	<b>170</b>	<b>67</b>	<b>88</b>	<b>104</b>	<b>34</b>	<b>134</b>	<b>101</b>	<b>93</b>	<b>59</b>	<b>920</b>

\* No eye-tracking data.

**Table 10. Gazes in Top Navigation**

Participant	Task										Total gaze by participant
	1	2	3	4	5	6	7	8	9	10	
1	0	0	0	0	1	1	1	1	0	0	<b>4</b>
2	5	9	1	0	0	0	0	9	3	4	<b>31</b>
3	9	11	7	16	18	7	36	55	4	11	<b>174</b>
4	*	*	*	*	*	*	*	*	*	*	
5	1	10	6	11	0	0	3	2	0	0	<b>33</b>
6	20	13	5	0	21	7	6	19	1	0	<b>92</b>
7	0	1	4	0	0	0	1	0	1	0	<b>7</b>
8	2	6	0	1	1	1	1	*	5	5	<b>22</b>
9	7	3	5	1	0	0	8	15	6	2	<b>47</b>
<b>Total gazes by task</b>	<b>44</b>	<b>53</b>	<b>28</b>	<b>29</b>	<b>41</b>	<b>16</b>	<b>56</b>	<b>101</b>	<b>20</b>	<b>22</b>	<b>410</b>

\* No eye-tracking data.

**Table 11. Gazes for the Two Left Census Links**

Participant	Task										Total gaze by participant
	1	2	3	4	5	6	7	8	9	10	
1	3	0	0	0	3	0	2	1	1	0	<b>10</b>
2	1	3	0	1	0	2	1	0	5	4	<b>17</b>
3	0	1	0	19	7	9	14	9	1	5	<b>65</b>
4	*	*	*	*	*	*	*	*	*	*	
5	0	4	0	0	0	0	4	0	0	1	<b>9</b>
6	5	1	3	1	0	10	1	0	1	3	<b>25</b>
7	0	0	1	0	0	0	0	0	1	1	<b>3</b>
8	0	0	0	0	0	0	0	*	1	12	<b>13</b>
9	2	2	0	2	1	1	2	0	2	0	<b>12</b>
<b>Total gazes by task</b>	<b>11</b>	<b>11</b>	<b>4</b>	<b>23</b>	<b>11</b>	<b>22</b>	<b>24</b>	<b>10</b>	<b>12</b>	<b>26</b>	<b>154</b>

\* No eye-tracking data.

### 3.4.2 Hot Spots

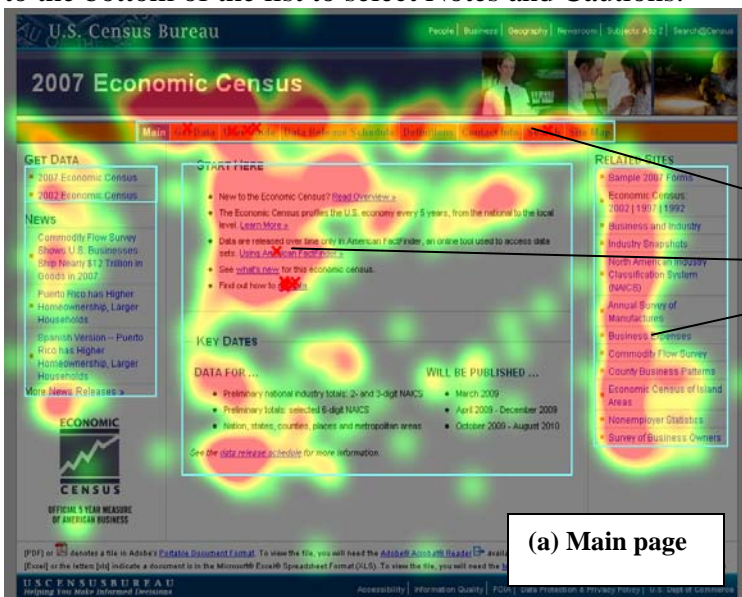
The hot-spot data indicate areas where participants spent some time looking. Figure 3 shows a heat map of the main page of the Econ Web site for all participants across all tasks. The reds and the oranges indicate more fixations, while the greens and yellows indicate fewer fixations; red X's denote user clicks. As shown in Figure 3, no important piece of information on the main page was overlooked. However, a greater number of fixations do not necessarily indicate positive results. Overall, as is apparent in Figure 3, users fixated on the right navigation equally as often as they did on other areas of the page. This fixation pattern may indicate confusion or lack of clarity as to where to find information.



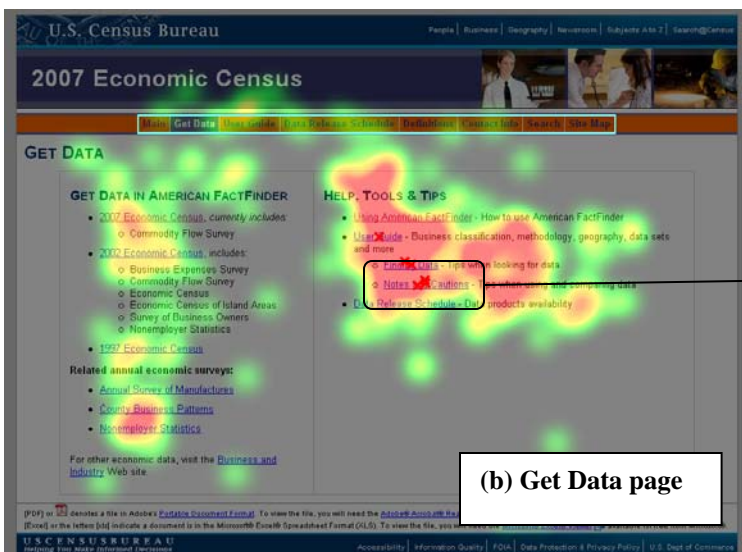
**Figure 3. Heat map of the tested version of the Econ Web site main page for all participants across all tasks.**



In this section, we highlight heat-map data for task 8, which six of nine participants (67%) did not complete successfully. Heat maps for task 8 are displayed in Figures 4 and 5. As shown in Figure 4a, users looked to various parts of the main page to determine where to find the target information. Specifically, they looked at the top navigation, the right navigation and the center of the screen. As previously reported in [Section 3.1](#) of this report, five of nine participants (56%) selected Get Data from the center of the screen, and three of nine (33%) selected User Guide from the top navigation. However, of the five participants who selected Get Data, only two successfully completed the task. As Figure 4(b) suggests, it seems to be unclear to users where they can find this information on the Get Data page. Users looked in the correct area of the page, but three of the five participants who navigated to this page did not click on the Notes and Cautions link that they were supposed to select. Likewise, of the three participants who selected User Guide, only one successfully completed the task. As shown in Figure 5, users did not look to the bottom of the list to select Notes and Cautions.

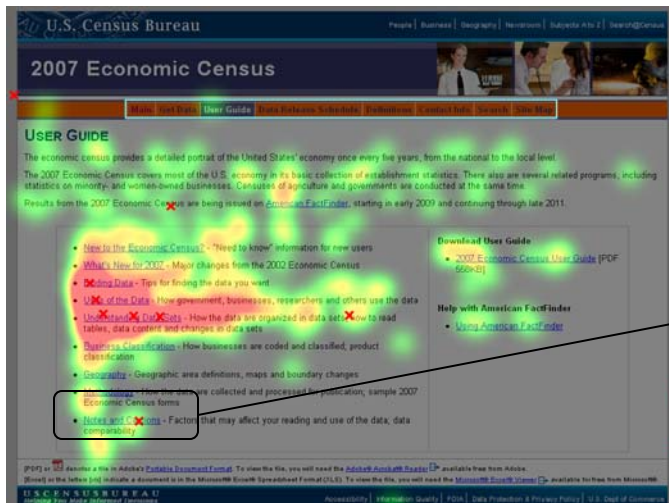


(a) Main page



(b) Get Data page

Figure 4. Heat maps of the tested version of the Econ Web site (a) Main page and (b) Get Data page for task 8.



Two of the three participants who navigated to this page did not select Notes and Cautions to successfully complete the task.

Figure 5. Heat map of the tested version of the Econ Web site User Guide page for task 8.

### 3.4.3 Scan Paths

Examining scan-path data is ideal to identify patterns of search performance. In this section, we highlight scan-path data for task 9, which six of nine participants (67%) did not complete successfully. The scan-path data indicate that participants often overlooked vital information needed to successfully complete the task.

For task 9 [You are an experienced economic data user and familiar with the North American Industry Classification System (NAICS). You are curious how NAICS codes have changed since the previous economic census. Find the Web page that has this information.], it was not clear to users where they could find the information they were seeking. As we previously reported in [Section 3.1](#) of this report, eight of nine participants (89%) attempted to use the NAICS link in the right navigation. The test administrator redirected six of nine participants (67%) to the Econ Web site main page to begin again or to “try a different route” to find the target information. Consistent with the accuracy data, as can be seen in the scan paths for each user in Figure 6, most participants looked all over the main page to try to determine where to find the target information.

### 3.5 Positive Findings

1. Links in the top navigation change color when a user clicks on them. This change helps users “remember” where they have been on the site.
2. Users said that they liked the amount of white space on the main page.
3. Users said they liked the colors on the Web site.
4. Users found the links for “Get Data” to be helpful and easily accessible.
5. Eight participants were able to successfully locate the 2007 Economic Census forms from the “Get Data” subheading for task 6.
6. Most participants tended to look at each AOI while attempting to complete the first task.
7. The mean performance time for the medium-level tasks met the efficiency goal.
8. The mean time to look at the two Census links on the left of the screen met the efficiency goal.



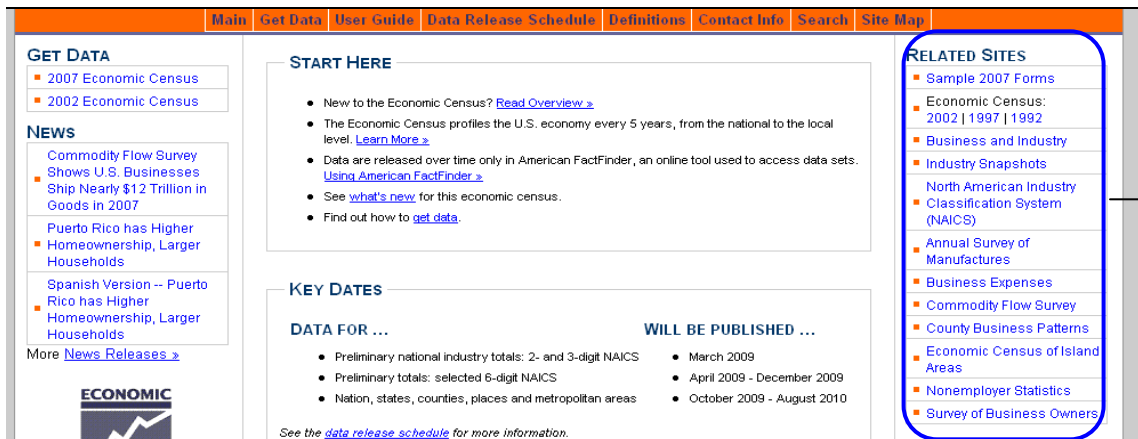
### 3.6 Usability Problems

Explanations for the performance deficits are discussed in the list of usability violations that follows. We prioritized the usability problems from high to low based on their effects on participant performance. The usability issues deal primarily with difficulty finding important information within the Web site. Fixing the high- and medium-priority problems should result in improvement in the participants' performance and satisfaction. [Appendix L](#) contains the raw navigation data from which we derived these findings and recommendations.

#### 3.6.1 High-Priority Issues

Testing identified four high-priority usability issues listed below. We include our recommendations and the EPCD team responses with each finding.

**1. Users often used the right-navigation links, which navigated them away from the Econ Web site.** Most participants used the links on the right side of the page before attempting to use the rest of the main page. Even after the test administrator directed them back to the main page and asked if there was another way to find information, users often went to the right-navigation links again. See Figure 7 for a screen shot of the right-navigation links on the main page. In addition, users were not aware that selecting the right-navigation links would direct them to a new Web site. Users often claimed that the links on the right side of the page made it easier to find the information they were seeking. This may have led to greater user satisfaction due to perceptions about the ease of tasks (Lindgaard & Dudek, 2003).



Participants often used these links and unknowingly went off site.

Figure 7. Right navigation links on the main page of the tested version of the Econ Web site.

For task 9, eight of nine participants (89%) used the NAICS link located in the right-navigation to attempt to find the target information. See [Appendix L](#) for complete raw navigation data.

As previously stated in [Section 3.4.1](#) of this report, the total number of gazes in the right-navigation bar across all participants and all tasks was 1,616. This number far exceeded all of the other AOI gazes we examined and reported.

As reported in [Section 3.2](#) of this report, users took less time to look at the right-navigation bar (across all tasks) than to look at the top navigation. This finding supports the observation that the participants spent a significant amount of time utilizing and focusing on the right-navigation links.

**Recommendation:** Condense the Related Sites section into one link, and move it to the left-navigation bar. After a user selects a link under Related Sites, display a warning that they will be redirected to another site, as it is important to provide the user with navigation cues to let them know when they are about to leave your site (Pearrow, 2000). The warning gives users a chance to decide to stay on the current site and not go elsewhere. Without a warning, users may end up somewhere else totally unexpected and have no idea what happened or how to get back to your site.

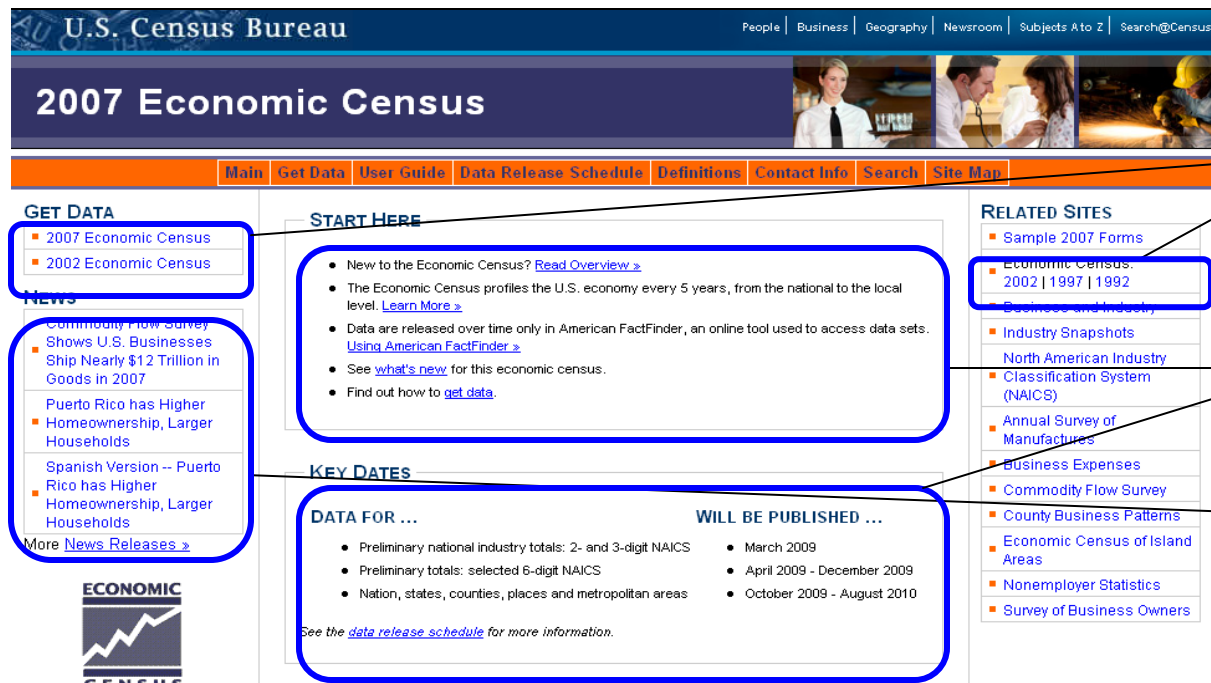
**Team Response:** The Related Sites have been eliminated from the right-navigation bar. They are now located on the lower left of the screen, below the fold of the page, and many of the links have been condensed into a heading: More Related Sites. See Figure 8. \*Note: A video tutorial has been added to the center of the screen.



Figure 8. Modified Related Sites in the left-navigation bar on the revised Econ Web site main page.

**2. Too much information is displayed on the main page.** Users stated that there was too much information on this page and that they did not know where to begin the tasks. Some users said that they generally tended to look to the left but it seemed that much important information was in the center of the screen. Most users commented that the font was too small on the main page and that the many links were overwhelming. One user said that the redundant Census links (on the right and the left) “confused” her. Other participants mentioned that the “News” links were too prominent and distracting. See Figure 9 for a screen shot of the main page. The heat map data of the main page illustrates this confusion. Figure 3 shows that people spent a lot of time looking at various areas of the main page for direction. It appears that users found it unclear where to navigate to find target information.

While examining the content in the center of the page, one participant commented that there were too many words in the center and that many words could have been eliminated. Another participant made the recommendation that the main page be more uniform, similar to the Using American FactFinder page. See Figure 10. It is essential that the main page give a positive first and lasting impression so that users are more likely to revisit the site. If a user does not have a satisfying, positive experience, they may exit the site and never return (Dustin, Rashka & McDiarmid, 2002). As it is now, users do not describe a positive experience with the main page.



The Census links on both the right and left sides of the screen are redundant.

The font size in the center is very small.

News is very prominent and distracting.

Figure 9. Overwhelming information on the tested version of the Econ Web site main page.

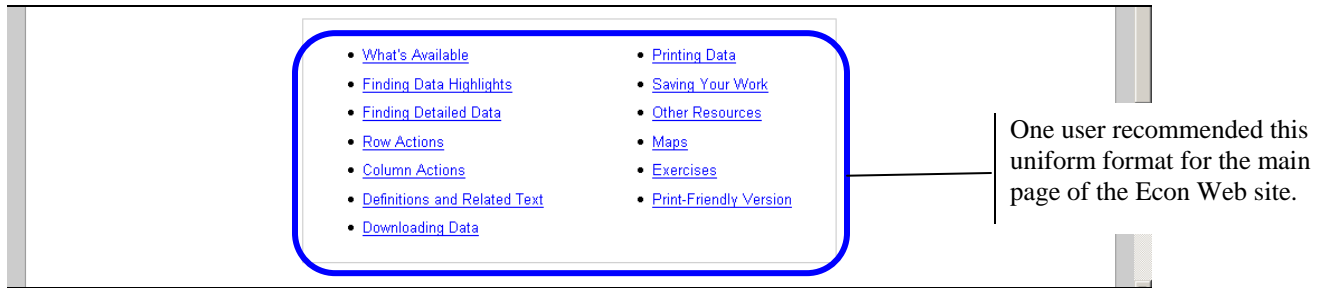


Figure 10. Using American FactFinder page from the tested Econ Web site.

**Recommendation:** Reduce the amount of text on the main page so that the quantity of information displayed does not overwhelm users. Increase the font size of headings so that they are easily differentiated from each other (Head, 1999), and increase the font size of all text to accommodate all users. Condense the News and Related Sites sections. As we noted in [Section 3.2](#) of this report, the participants viewed the center information before any other area of the screen. Consider displaying the most useful information in the center of the screen.

**Team Response:** The Related Sites have been eliminated from the right and are now below the fold of the page on the left side of the screen. See high-priority issue 1 above. Font size has increased in the center text. See Figure 8.

**3. Information provided under the Definitions link was not inclusive.** For task 2 [You are unsure of the difference between ‘Places’ and ‘Metropolitan Areas.’ Where would you find this information on this site?], most participants initially scrolled through the definitions list, expecting to find the meanings of ‘Metropolitan Areas’ and ‘Places’ (which were not in the listing but rather located on the Geography page). Figure 11 displays selected scan paths from three users during task 2. These scan paths are representative of participants in this usability study, as many users demonstrated a similar pattern. As shown in Figure 11, users scrolled through the definitions list and fixated on areas in the list where the terms were most likely to occur. Two participants never used the Geography link and instead navigated to the Site Map to find the target information.

Upon examining the Geography section, users mentioned that they expected the format to be the same as the format of the Definitions page. They did not like the fact that the formats were inconsistent. One user stated that she did not enjoy having to click “back and forth” on the Geography section to view definitions for each term (i.e., ‘Metropolitan Areas’ and ‘Places’). The user said that she would have preferred the items of information to be combined under one listing as they were in the Definitions section.

Figure 12 displays scan paths from two users on the Geography page. These scan paths are also representative of the participants in this usability study, as most exhibited this pattern of search performance for this task.

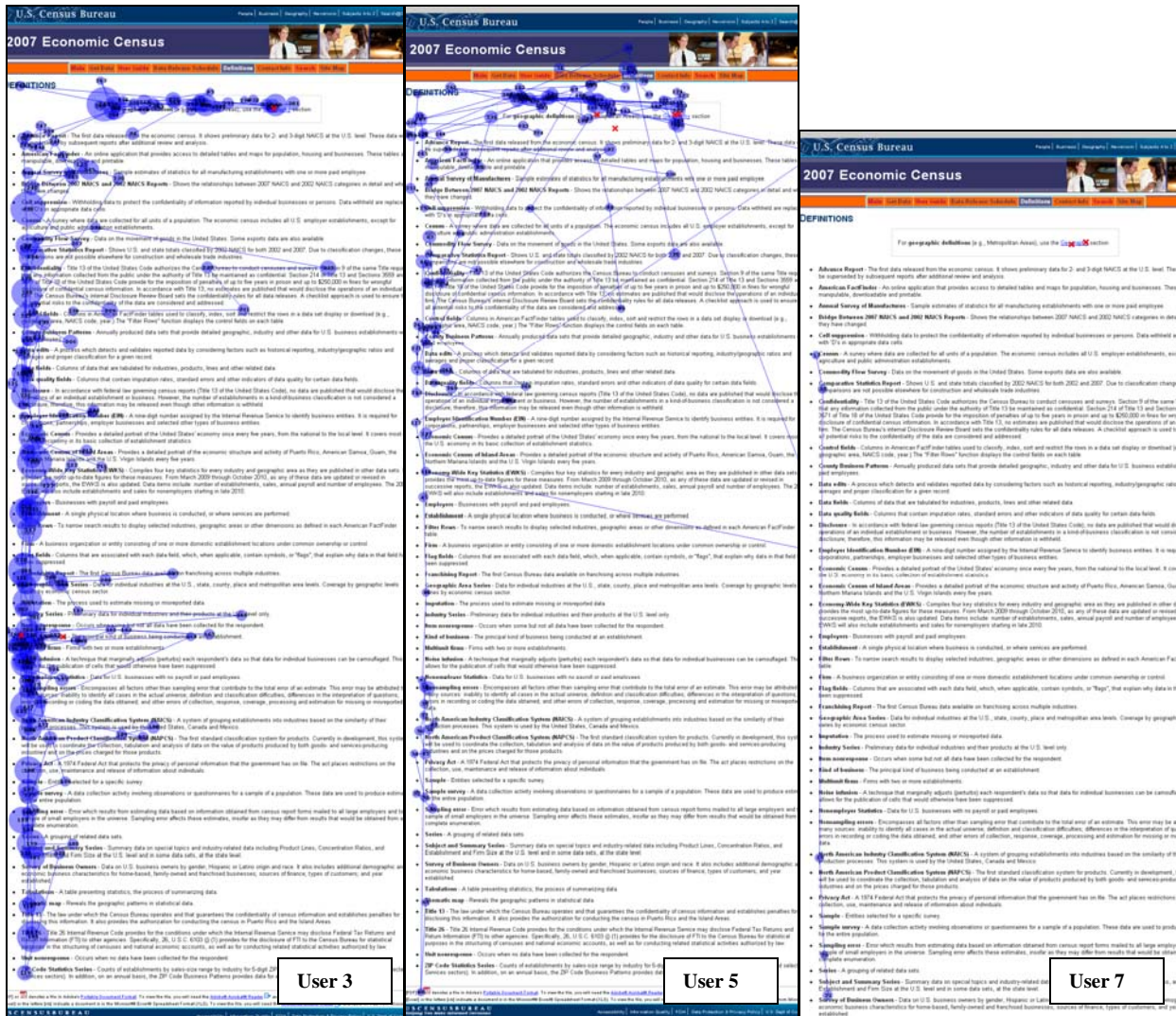


Figure 11. Scan paths from three users on the tested version of the Econ Web site Definitions page for task 2. Most users exhibited a similar pattern of scanning down the left side of the page.

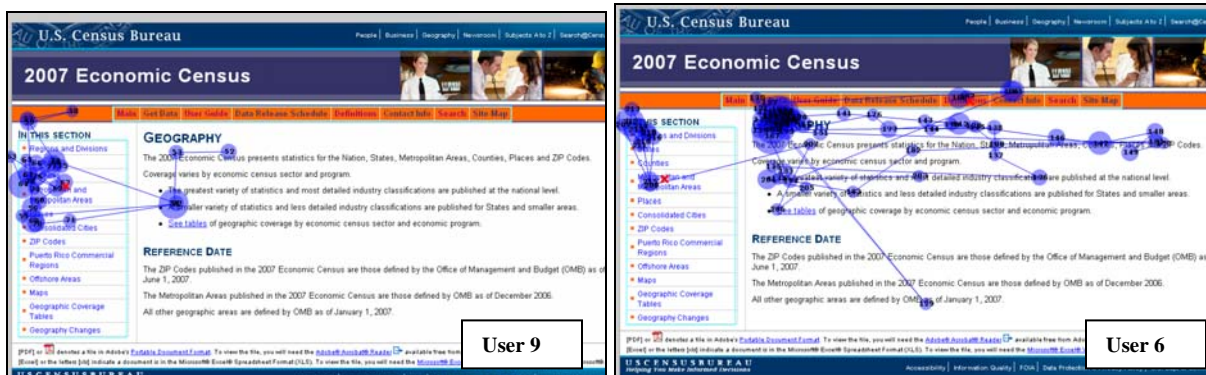
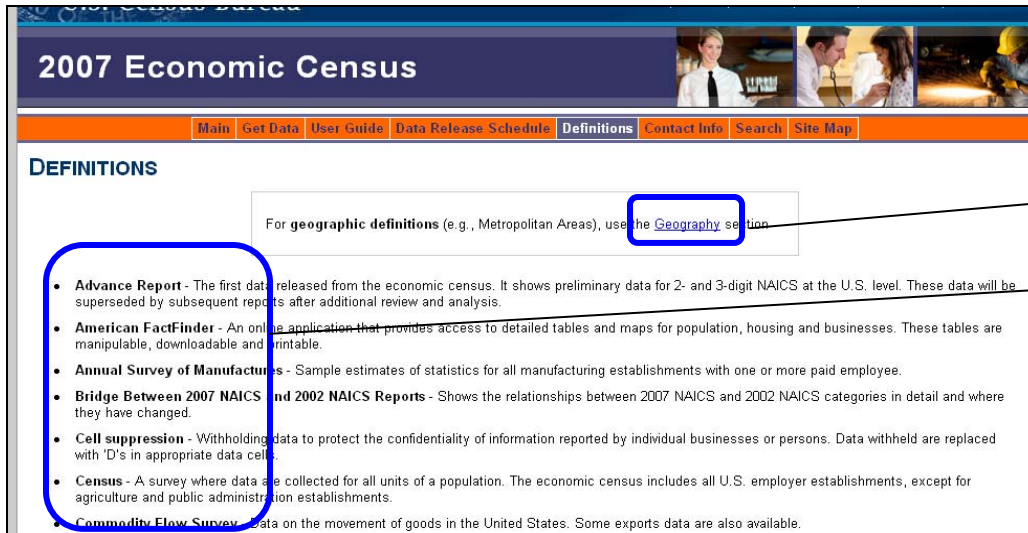


Figure 12. Scan paths from two users on the tested version of the Econ Web site Geography page. Most users exhibited a similar pattern of looking back and forth from the left-navigation bar to the center text.

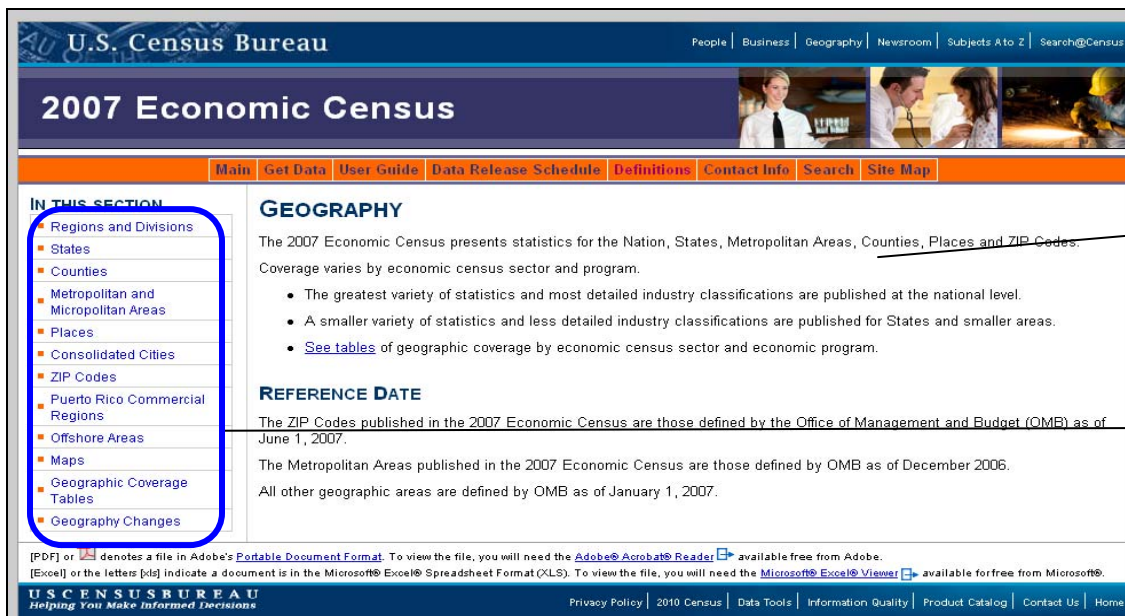


**Recommendation:** Include the terms found in the Geography section in the Definitions section. If the two sections are not combined, maintain the same format that is displayed for Definitions in the Geography section. Consistency will ease learning and navigation, and it will allow users to concentrate on completing the task (Head, 1999). See Figures 13 and 14 for screen shots of the tested Definitions page and Geography page.



Users first scrolled through the definitions on the left, expecting to find definitions. They did not go to the Geography link first.

Figure 13. Definition page from the tested version of the Econ Web site.

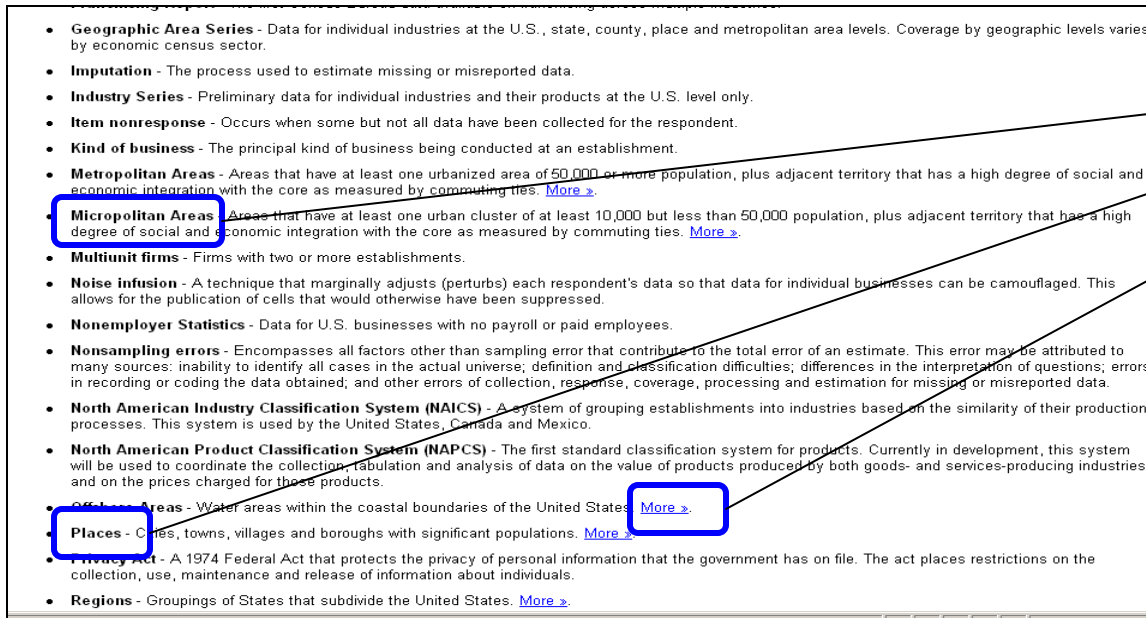


Make this format consistent with the Definitions Section format (See Figure 12).

Include these terms in Definitions section.

Figure 14. Geography page from the tested version of the Econ Web site.

**Team Response:** For each item in the Geography section, a short definition is now listed in Definitions. Each item has a 'More' link that takes users directly to the Geography page. See Figure 15.



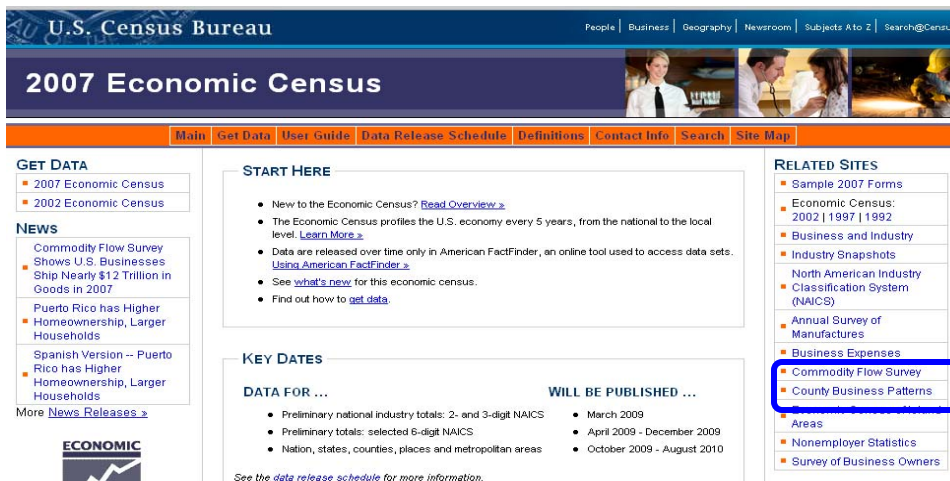
Terms from the Geography page are now in the Definitions list, and each item includes 'More' which navigates users to the Geography page.

Figure 15. Revised version of the Definitions page on the Econ Web site.

#### 4. No direct guidance is provided to help users find statistical data specific to their county.

The County Business Patterns link under Related Sites in the right navigation was misleading to users who expected to find statistical county data. See Figure 16. Five of nine (56%) participants selected the link when asked to find statistics for their county for task 7. This result is likely due to the fact that the link was the only one that contained the word 'county' or that showed any type of association with the task. Titles of links should and often do give users a sense of what to expect upon selecting the link (Head, 1999).

**Recommendation:** Provide an alternative link for county data, using appropriate contextual cues, on the main page to direct users. Otherwise, users will be unable to determine where the information is located on the site. Upon selection of the link, warn users that they will be redirected to another site.



Users expected county data from this link.

Figure 16. Users were misled by the County Business Patterns link on the tested version of the Econ Web site main page.

\*Note: If the right-navigation links are condensed, as recommended in high-priority issue 1, then users may behave differently. Future usability testing will be required to determine whether users select different routes to find county information.

**Team Response:** As mentioned in [Section 3.1](#) of this report, task 7 was intended to get participants to find the page on the Econ Web site that informed users on *how* to find data. Participants attempted to find the actual statistical data. We will revise this task in future usability studies.

**5. Users did not use the top navigation as a primary navigation tool.** As shown in the raw navigation data in [Appendix L](#), people rarely used the top navigation, and as demonstrated in [Section 3.2](#) of this report, it took participants longer to look at the top navigation than to look at any other AOI. Furthermore, as demonstrated in [Section 3.4.1](#) of this report, people did not look at the top navigation as often as they looked at the left navigation, right navigation, and center of the screen. In fact, on average, it took participants three times longer to look at the top navigation than it did for them to look at the left navigation.

During debriefings, participants were asked what they thought about the top navigation. Approximately half of the participants had positive reactions. Two participants said that it was good that it changed color when they clicked on something; one participant said that the links made finding things easier (but that the search function should be separate); and one participant said that if “you do not know where you are going, you can tell right away because the labels are clear.” However, some participants had negative reactions to the top navigation. One participant said that he had looked there to get information but that the links were not helpful; one participant said that she wanted to hover over the links to get information (tool tips) and that she had to keep clicking to get information that she was seeking; and one participant said that he did not see the top navigation until he was working on other tasks.

The top-navigation and left-navigation bars are supposed to be the user’s primary navigation tools on a Web site (Lazar, 2001), as they are always present on the screen, no matter what page a user navigates to on the site. However, in this study, the users often failed to use the top-navigation links during tasks for which the links would have been beneficial. For example, in task 4 [Your work requires you to frequently use manufacturing data. Find the dates for all the manufacturing data to be released.], six of the nine participants (67%) successfully completed the task. Of these six participants, four (67%) used the Data Release Schedule link at the bottom of the page, rather than the link in the top navigation. Another participant, who did not complete the task successfully, also used the bottom link to attempt to find the information. For task 9 [You are an experienced economic data user and familiar with the North American Industry Classification System (NAICS). You are curious how NAICS codes have changed since the previous economic census. Find the Web page that has this information.], the scan-path images in Figure 5 illustrate that users rarely fixated on the top navigation. It appears that the top-navigation bar did not capture the users’ attention.

The heat-map image of the main page (see Figure 3) illustrates that, as is typical, users looked at various areas of the main page. It appears that users may have needed more guidance to locate relevant information on the main page. This need for guidance is problematic because it may

have affected other usability measures, including efficiency and satisfaction. It might have taken users less time to locate target information if they had used the top navigation.

The font in the top-navigation bar is small, and some users recommended larger font size on the main page. Presently, the top navigation is bright orange with smaller purple-grey lines at the top and bottom, and the font within the navigation bar is blue. A white line lies between the top navigation and the Economic Census banner. See Figure 17. Although previous attempts have been made to make the top navigation bar stand out, it seems that too much in the top navigation is now emphasized. The end result is that *nothing* is emphasized (Tufte, 2006). In this study, it seems that people glossed over the top navigation, as if it were part of the top (relatively un-useful) banner.

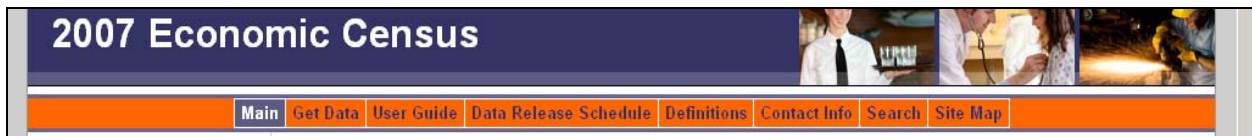


Figure 17. Top navigation from the tested version of the Econ Web site.

**Recommendation:** Increase font size. Change the background color to maintain uniformity with the main page so that the bar looks as if it goes with the rest of the page, rather than with the US Census Bureau banner. See Figure 18 for an example of a modified top navigation. Use more descriptive labels for the links to guide users in finding relevant information. Abstraction should be avoided so users do not have to guess meanings (Head, 1999).

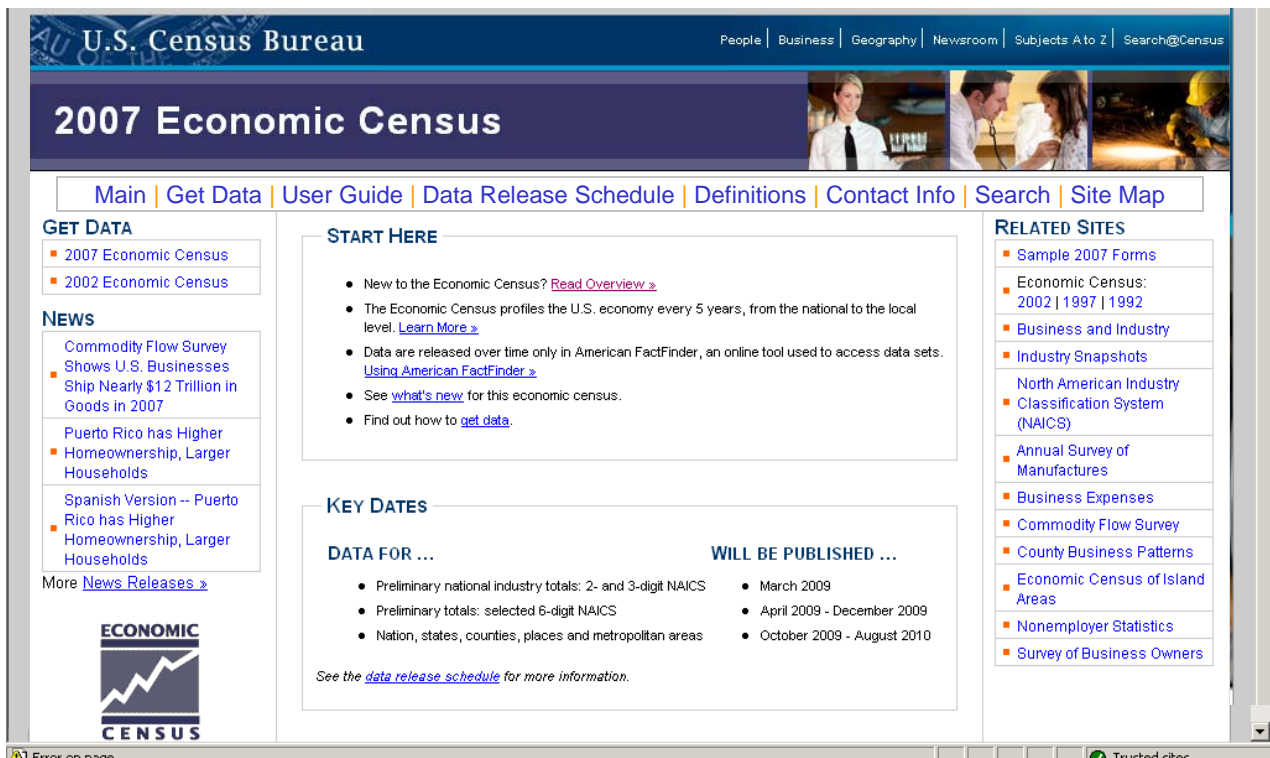


Figure 18. Main page with top navigation recommendations.

### 3.6.2 Medium-Priority Issue

**The Contacts-by-Industry link was not useful in locating industry-specific contact information.** Five of nine participants (56%) did not click on the Contacts-by-Industry link. The link is not highly visible, and as previously reported in [Section 3.4.1](#) of this report, participants looked to the center of the main page sooner than they looked at the left navigation. Therefore, it is plausible that when participants arrive at the Contact Info page, they do not look for the additional link on the left. They think they have already found the correct information. Users may not be aware that the industry-specific list exists.

Figure 19 displays a heat map for the Contact Info page, and Figure 20 displays a heat map for the Contacts-by-Industry page for all participants for task 1 [You have a question about Finance & Real Estate information and would like to send an e-mail. Find the e-mail address where you should send your question.]. As shown in Figure 19, participants looked at all parts of the Contact Info page. However, of the seven participants who successfully navigated to the Contacts Info page, only four clicked on the Contacts-by-Industry link, suggesting that the textual information is unclear for users.

When users clicked on the Contacts-by-Industry link, they often were unsure of which contact information they needed to successfully complete the task. See Figure 20. One participant stated, “I don’t see finance and real estate. I am getting lost. I would go to two different emails.” Although the contact information was the same for both industries, they were listed separately, causing users to be unsure of which contact information to select. Figure 20 displays red Xs where participants clicked. As shown, participants clicked on both ‘Finance and Insurance’ and ‘Real Estate and Rental and Leasing’ email addresses.

**Recommendation:** The Contacts-by-Industry link should be moved to the center of the screen so that users recognize it easily. The Contacts-by-Industry link should have a condensed listing of contact information for industries that share the same email address and phone number.

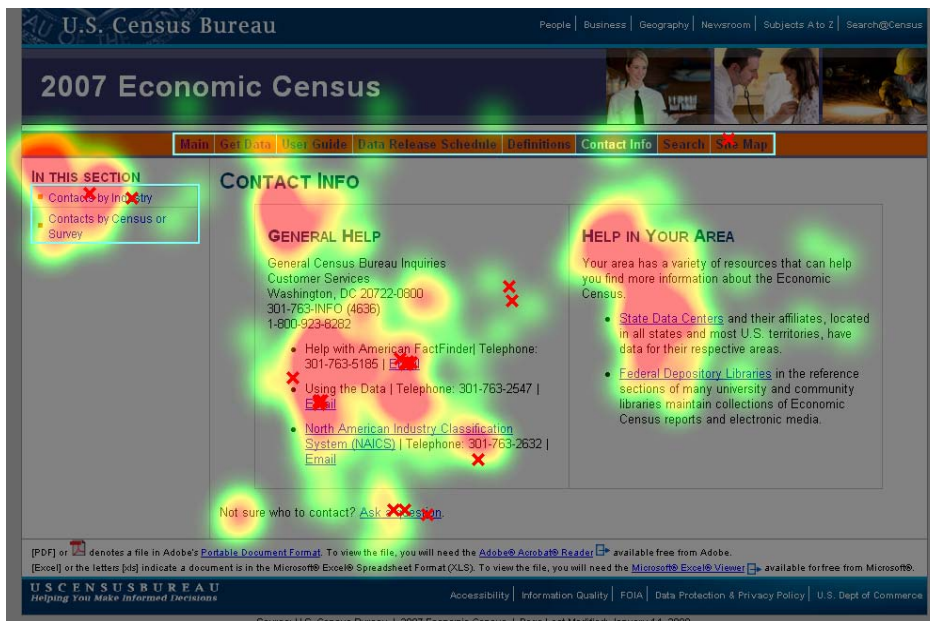


Figure 19. Contact Info page from the tested version of the Econ Web site.

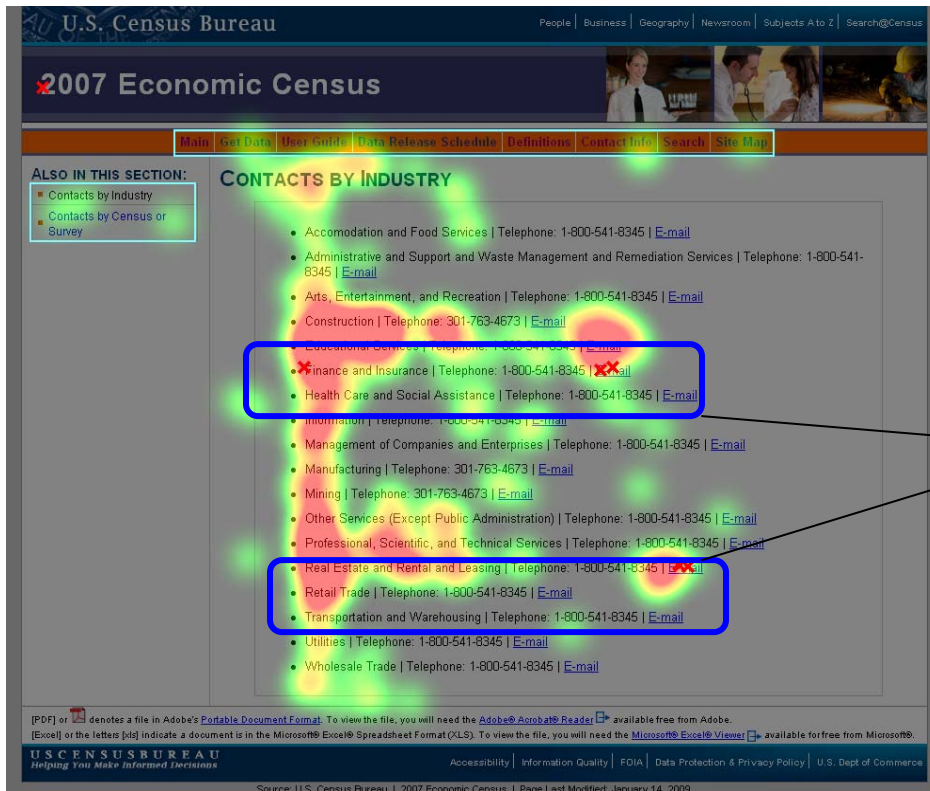


Figure 20. Contacts-by-Industry page from the tested version of the Econ Web site.

### 3.6.3 Low-Priority Issue

**The Data Release Schedule information is not well-organized.** Often users moved their cursors through the chart to view the pop-up information relating to a particular industry instead of using the PDF links for the dates. However, the information displayed in the pop-up window did not provide dates for data release. Instead, it provided the date ranges for the reports. Some participants did not notice the PDF file because it was below the fold of the page. See Figure 21. Often, when using the Web, users will give up on a page fairly quickly because it does not appear to be relevant, when in fact, the information they were searching for lies beneath the fold of the screen (Loranger and Nielsen, 2006).

**Recommendation:** Move the PDF links to the top of the page (above the fold and above the chart) so they can be seen by users.

U.S. Census Bureau

People | Business | Geography | Newsroom | Subjects A to Z | Search@Census

## 2007 Economic Census

[Main](#) | [Get Data](#) | [User Guide](#) | [Data Release Schedule](#) | [Definitions](#) | [Contact Info](#) | [Search](#) | [Site Map](#)

Census.gov > Business & Industry > 2007 Economic Census > Data Release Schedule

### DATA RELEASE SCHEDULE

[Download Schedule >](#)

Want to be notified when your data is available? [Learn More >](#)

#### INSTRUCTIONS

Each block in the table indicates at least one release will be available for that series/program and quarter.

- **Using a mouse:** Move your mouse over the block to display a list of the scheduled reports.
- **Using tabs:** You may also use the TAB and SHIFT+TAB keys to move forward and backwards through each block.

**2007 Economic Census Data Release Schedule**

	2008		2009			2010				2011			
	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
<b>Economic Census</b>													
Multi-Sector													
Mining													
Utilities													
Construction													
Wholesale Trade													
Retail Trade													
Transportation and Warehousing													
Finance and Insurance													
Real Estate and Rental and Leasing													
Accommodation and Food Services													
Services [1]													
<b>Economic Census: Island Areas</b>													
<b>Annual Survey of Manufactures</b>													
<b>Business Expenses</b>													
<b>Commodity Flow Survey</b>													
<b>County Business Patterns</b>													
<b>Nonemployer Statistics</b>													
<b>Survey of Business Owners</b>													

[1]: Combination of sectors: 51, 54, 55, 56, 61, 62, 71 and 81

**DOWNLOAD SCHEDULE**

- [by Industry/Survey](#) [PDF 64KB]
- [by Date](#) [PDF 61KB]
- [by Data Series](#) [PDF 62KB]

**MORE INFORMATION**

- [View schedule by data series](#)
- [Sector definitions](#)
- [Explanation of economic surveys and data series](#)

*(fold of the page)*

Often users did not scroll below the fold of the page to see the downloadable schedule.

Figure 21. Data Release Schedule page from the tested version of the Econ Web site.

## **4.0 Conclusions**

Analysis of testing data identified key issues that led to many task failures, as well as user frustrations with the Economic Census Web site. The EPCD team has implemented many of the recommendations that we provided in the Quick Report, along with several other major changes to the Web site. Further improvements to the site can certainly improve the user's success and satisfaction.

Participants in this usability study were diverse in age, education, and comfort with Web sites and the Internet. It is probable that individuals who were more comfortable with the Internet and with higher levels of education were likely to understand the site better than those who were at a more novice level, but we did not statistically test for this. Future usability testing on the site should aim to include a diverse sample of both novices and experts. We also recommend testing with users who have disabilities to determine whether the site works for special-needs users. Technical compliance with federal regulations on accessibility does not guarantee usability for everyone.

Upon completion of all changes, we recommend conducting further usability testing to evaluate whether the changes to the user interface support users in achieving their goals on the Economic Census Web site.



## 5.0 References

- Andre, A. D. & Wickens, C. D. (1995). When users want what's NOT best for them. *Ergonomics in Design*, 4, 10-14.
- Beck, J. & Murphy, E. (2008). Usability evaluation of the Wholesale Trade Survey Web site; Human-computer interaction memorandum series #115. (Submitted to Suneye Holmes, SSSD). U.S. Census Bureau.
- Chin, J. P., Diehl, V.A., & Norman, K. L. (1988). Development of an instrument measuring user satisfaction of the human-computer interface. *Proceedings of CHI '88: Human Factors in Computing Systems* (pp. 213-218). New York: ACM.
- Dustin, E., Rashka, J., & McDiarmid, D. (2002). *Quality Web systems: Performance, security, and usability*. Upper Saddle River: Addison-Wesley.
- Head, A.J. (1999). *Design wise: A guide for evaluating the interface design of information resources*. Medford, NJ: CyberAge Books.
- Lazar, J. (2001). *User-centered Web development*. Sudbury, MA: Jones and Bartlett Publishers.
- Lindgaard, G. & Dudek, C. (2003). What is this evasive beast we call user satisfaction?. *Interacting with computers*. 15, 429-452.
- Malakhoff, L. (2007). An Accessibility and usability evaluation of the X-12 Arima Graphing Application; Human-computer interaction memorandum series #104. (Submitted to Demetra Lytras, Office of Statistical Methods, Research Economics Program). U.S. Census Bureau.
- Morgan, A., Beck, J., Trofimovsky, A., & Murphy, E. (2008). Usability expert review for the 2007 Economic Census Website. Expert review prepared for Matthew Olsen, Summary Statistics Processing Branch, Economic Planning and Coordination Division, U.S. Census Bureau.
- Neilsen, J. & Loranger, H. (2006). *Prioritizing Web usability*. Berkeley: New Riders.
- Pearrow, M. (2000). *Web site usability handbook*. Hingham, MA: Charles River Media.
- Poole, A. & Ball, L. J. (2005). Eye tracking in human-computer interaction and usability research: current status and future prospects. In Ghaoui, Claude (Ed.). *Encyclopedia of Human Computer Interaction* (pp. 211-219). Hershey, PA: Idea Group.
- Romano, J. & Murphy, E. (2008a). Comments and recommendations for the 2008 Economic Census Web site. Expert review prepared for Matthew Olsen, Summary Statistics Processing Branch, Economic Planning and Coordination Division, U.S. Census Bureau.
- Romano, J. & Murphy, E. (2008b). A usability evaluation of the economic census Web site (Statistical Research Division Study Series SSM2008-11). U.S. Census Bureau. <http://www.census.gov/srd/papers/pdf/ssm2008-11.pdf>.
- Tufte, E. (2006). *Beautiful evidence*. Cheshire, CT: Graphics Press LLC.

## Appendix A. Main Page of the Economic Census Web Site Tested in August 2008

U.S. Census Bureau

People | Business | Geography | Newsroom | Subjects A to Z | Search@Census

# 2007 Economic Census

Main | Using American Factfinder | Get Data | User Guide | Data Release Schedule | FAQs | Contact Info | Site Map

### User Guide

- What's New for 2007
- Getting Data
- Uses of the Data
- Understanding Data Sets
- Business Classification
- Geography
- Methodology
- Notes and Cautions

### More Data

- Other Economic Data
- 2007 Business Expenses
- [business.census.gov](http://business.census.gov)
- 2002 Economic Census
- 1997 Economic Census
- 1992 Economic Census

[Web site comments](#)

The Economic Census profiles the U.S. economy every 5 years, from the national to the local level. [read more](#)

### Finding and Using Data

- Data are being released over time **only in American FactFinder**, a free online tool used to access Census Bureau data sets.
- Learn [how to use American FactFinder](#).
- Search economic data for a [specific geography or industry](#).
- Learn more about the [Economic Census](#) and related surveys.

## Get Economic Census Data!

### Industry Code Finder

Enter keyword

2007 NAICS Search

### Upcoming Releases

- Commodity Flow Survey (Preliminary Report)
- Advance Report
- Northern Mariana Islands

### News

- Puerto Rico has Higher Homeownership, Larger Households
- Spanish Version -- Puerto Rico has Higher Homeownership, Larger Households
- USA Counties

More [News Releases >](#)

39

## Appendix B. Recommendations from the 2008 Usability Test (Romano & Murphy, 2008).

*Note: Items that were changed on the new Web site are marked with an asterisk (\*).*

### High-Priority Usability Issues

#### \*1. Top Navigation Bar

Most of the time most participants missed the top navigation bar altogether. Once they scrolled over and noticed the change in color, they then were able to use the navigation buttons. *Recommendation:* Adjust colors in top navigation to have greater contrast. Figures 1, 2 and 3 display contrasting colors in the top navigation. Make the navigation bar wider and include a white bar in between the header and top navigation. As it is now, the top navigation looks like it is part of the header; white space would separate the two. See Figures 2 and 3 for examples of white space between the header and top navigation. Make the lines in between the links more pronounced, perhaps in a different color. Figures 1, 2, and 3 display pronounced lines in between the links. From the start, highlight Main on the top navigation. This will bring attention to the top navigation bar and inform users that they are currently on the Main page. See Figure 2 for an example.



Figure 1. Example of White Lines Between Links and White Space Between Header and Top Navigation.

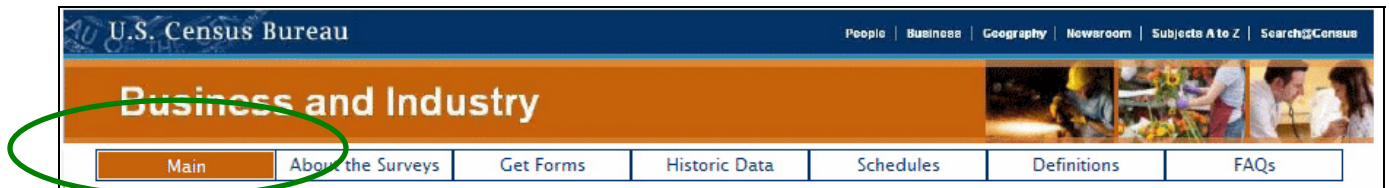


Figure 2. Example of Main Link Highlighted in Top Navigation.

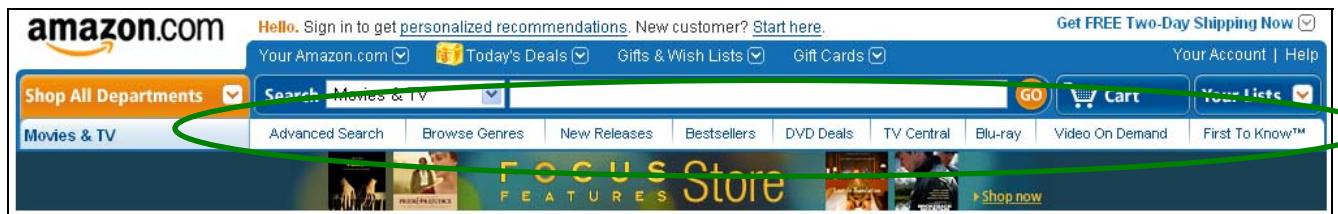


Figure 3. Example of Words in Top Navigation in a Contrast Color.

#### \*2. Information on the Main Page

The information on the main page is not informative enough to guide the user in an efficient manner. Oftentimes, users are able to complete tasks, but only after searching the Web site and using the back button frequently.

*Recommendation:* Organize information on the Main page according to novice users. Perhaps have a tutorial for first time users that details how to get data and information. Add a definitions link to common terms. Add a Search function, specific to the Economic Census Web site. Figure 4 displays a Search bar that is specific to the site. It is located in the upper right corner, where users expect to find it, and it is clearly marked so that users know that they are searching the site and not the NAICS codes. Introduce another “layer” above the present structure that is less detailed and more over-arching. When the user clicks on options, go into specific details. For example, begin with the Main page, then a Pathway page, followed by the Information page (Redish, 2007, p.114). Users typically read only a few words of a page before deciding if it has what they are looking for (Redish, 2007, p.102), so keep the information clear and concise.



Figure 4. Example of Search Bar Specific to the Site.

#### Medium-Priority Usability Issue

##### \*3. Multiple Ways to Get Data

The “Get Data” link in the top navigation takes users off the Economic Census Web site to the American FactFinder Web site.

*Recommendation:* Combine the “Using American FactFinder,” “Get Data,” and “Getting Data” links into one link. For example, eliminate the “Using American FactFinder” link from the top navigation, and when users click on “Get Data” on the top navigation, the first page will be the one that currently is under “Using American FactFinder.” This page gives information about how to get data, how to manipulate data, how to save data, etc. The first link on the “Using American FactFinder” page takes users off the Economic Census Web site onto the American FactFinder Web site. This route of getting data while gaining information from the Web site is more consistent with what users expect (Redish, 2007), as they are not expecting to be taken off the Economic Census Web site when they click on “Get Data.” In addition, add a link on this page that specifies how to find codes that are relevant for Economic Census data, presently the page that a user gets by clicking on the “Getting Data” in the left navigation. Then, from there, users can find more information about codes, or if they are expert users, they can go right on to AFF. Both the top navigation and left navigation links should have the same name.

American Community Survey (ACS) uses a similar route for users to get data. See Figure 5. We do not recommend following the exact layout that ACS currently uses, but rather use this as a template for an intermediary page between “Get Data” and American FactFinder. Include on this page the two lines that are currently at the top of the “Using American FactFinder” page that introduce American FactFinder.

U.S. Census Bureau

People | Business | Geography | Newsroom | Subjects A to Z | Search@Census

## American Community Survey (ACS)

ACS Main | About the ACS | **Access Data** | How to Use the Data | About the Data | Site Map | Search ACS

Census > ACS Main > **Access Data**

### 2007 ACS Data Release

**GET DATA**

- American FactFinder (AFF)**
- File Transfer Protocol (FTP) Site
- Public Use Microdata Sample (PUMS) Files
- Request a Custom Tabulation

**DATA USER TOOLS & TIPS**      **DOCUMENTATION**

Available in this Section

- 2007 ACS Data Release Main

Get Data

- American FactFinder (AFF)
- FTP Site
- PUMS Files
- Request a Custom Tab

Data User Tools and Tips

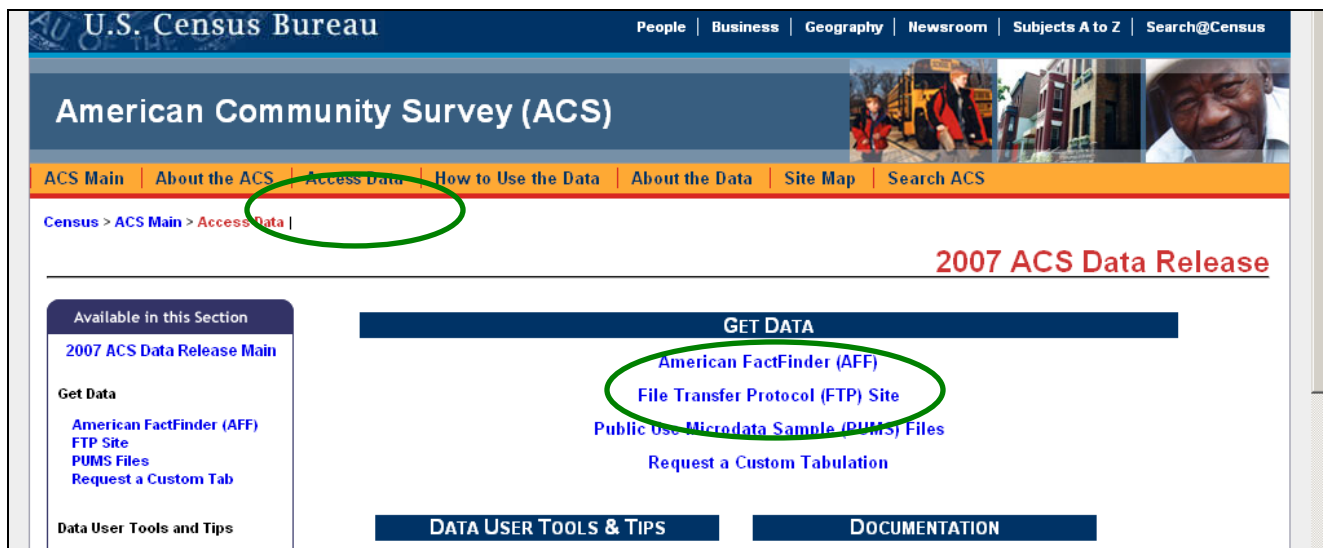


Figure 5. Example of Intermediary Page Before Going to American FactFinder.

## Appendix C. Main Page of the Tested Econ Web Site with Areas of Interest Noted

U.S. Census Bureau

People | Business | Geography | Newsroom | Subjects A to Z | Search@Census

# 2007 Economic Census

Main | Get Data | User Guide | Data Release Schedule | Definitions | Contact Info | Search | Site Map

### GET DATA

- 2007 Economic Census
- 2002 Economic Census

### NEWS

Commodity Flow Survey Shows U.S. Businesses Ship Nearly \$12 Trillion in Goods in 2007

Puerto Rico has Higher Homeownership, Larger Households

Spanish Version -- Puerto Rico has Higher Homeownership, Larger Households

More [News Releases >](#)

### START HERE

- New to the Economic Census? [Read Overview >](#)
- The Economic Census profiles the U.S. economy every 5 years, from the national to the local level. [Learn More >](#)
- Data are released over time only in American FactFinder, an online tool used to access data sets. [Using American FactFinder >](#)
- See [what's new](#) for this economic census.
- Find out how to [get data](#).

### KEY DATES

<b>DATA FOR ...</b>	<b>WILL BE PUBLISHED ...</b>
<ul style="list-style-type: none"> <li>Preliminary national industry totals: 2- and 3-digit NAICS</li> <li>Preliminary totals: selected 6-digit NAICS</li> <li>Nation, states, counties, places and metropolitan areas</li> </ul>	<ul style="list-style-type: none"> <li>March 2009</li> <li>April 2009 - December 2009</li> <li>October 2009 - August 2010</li> </ul>

See the [data release schedule](#) for more information.

### RELATED SITES

- Sample 2007 Forms
- Economic Census: 2002 | 1997 | 1992
- Business and Industry
- Industry Snapshots
- North American Industry Classification System (NAICS)
- Annual Survey of Manufactures
- Business Expenses
- Commodity Flow Survey
- County Business Patterns
- Economic Census of Island Areas
- Nonemployer Statistics
- Survey of Business Owners

**ECONOMIC CENSUS**

## Appendix D. Main Page of the Revised Econ Web Site

The screenshot shows the main page of the U.S. Census Bureau's 2007 Economic Census website. The header includes the U.S. Census Bureau logo and navigation links for People, Business, Geography, Newsroom, Subjects A to Z, and Search@Census. The main title is "2007 Economic Census". Below the title is a navigation bar with links for Main, Get Data, User Guide, Data Release Schedule, Definitions, Contact Info, Search, and Site Map. A search box is located on the right side of the page. The page is divided into several sections: "GET DATA" with links for 2007 and 2002 Economic Census; "NEWS" with a list of recent news releases and a link to "Check out Industry Snapshots"; "OVERVIEW" with a list of key information points; "FINDING BUSINESS DATA USING AMERICAN FACTFINDER" with a video player; "RELATED SITES" with links to sample forms, 2002 Economic Census, NAICS, and Business Expenses; and "KEY DATES" at the bottom.

U.S. Census Bureau

People | Business | Geography | Newsroom | Subjects A to Z | Search@Census

# 2007 Economic Census

Main | Get Data | User Guide | Data Release Schedule | Definitions | Contact Info | Search | Site Map

Census.gov > Business & Industry > 2007 Economic Census

Enter keyword(s) Search Site

### GET DATA

- 2007 Economic Census
- 2002 Economic Census

### NEWS

- First Data from the 2007 Economic Census Released
- Northern Mariana Islands Economy Tops \$1.3 Billion in Sales in 2007

More [News Releases >](#)

Check out Industry Snapshots  
business.census.gov

### OVERVIEW

- The economic census profiles U.S. national and local economies every 5 years. [Learn More >](#)
- New to the economic census? [Learn More >](#)
- Want to be notified when data are available? [Learn More >](#)
- Data are released [over time](#) only in [American FactFinder](#).
- See [what's new](#) for this economic census.
- Find out how to [get data](#).

### FINDING BUSINESS DATA USING AMERICAN FACTFINDER

Learn more about [using American FactFinder](#).

### RELATED SITES

- Sample 2007 Forms
- 2002 Economic Census
- North American Industry Classification System (NAICS)
- Business Expenses

More [Related Sites >](#)

### KEY DATES

## Appendix E. General Introduction

Thank you for your time today. My name is (Test Administrator). I work here in the U.S. Census Bureau Usability Lab, and I will be working with you today. In this lab, we evaluate how easy or difficult Census products are to use. We bring in people like you who are potential users of our products to try them out while there is still time to make changes to them. What works well, we keep. When potential users such as you have difficulty with something, we have an opportunity to fix it.

Today, we will be evaluating the Economic Census Web site by having you work on several tasks. There are two parts to our session. First, you will complete 10 tasks using the Web site. Then, at the end of the session, you will fill out a questionnaire about your experience during the session. The entire session should last about an hour.

Before we start, there is a form I would like you to read and sign. It explains the purpose of today's session and your rights as a participant. It also informs you that we would like to videotape the session to get an accurate record of your feedback. Only those of us connected with the project will review the tape and it will be used solely for research purposes. Your name will not be associated with the tape or any of the other data collected during the session.

*[Hand consent form; give time to read and sign; sign own name and date.]*

Thank you.

Before we start, I want to tell you that you can't make a mistake or do anything wrong here. Difficulties you may run into reflect the design of the Web site, not your skills or abilities. This product is intended for people like you. Where it works well, that's great. If you have a problem using parts of it, that is also great, because you will help us to identify these places. We are going to use your comments and data as well as comments and data from the other participants to give feedback to the developers of the site. Your comments and thoughts will help the developers make changes to improve the site. I did not create the site, so please do not feel like you have to hold back on your thoughts to be polite. We are not evaluating you or your skills, but rather you are helping us see how well the site works. Please share both your positive and negative reactions to the site. And remember, there are no right or wrong answers.

In addition to the tasks I am about to give you, we are also going to do some eye tracking to record where you are looking on the screen. It will be very simple. In a moment, we will do a very short simple task that will allow the computer to find your eyes.

I am going to give you 10 tasks to work on. Your comments are very important to us. I'd like you to tell me your impressions and thoughts as you work through the tasks. So give me your open impressions, both good and bad of what you see and what you experience on the site.

While you are working, I would like you to think aloud. In other words, I'd like you to tell me what you are thinking, describe the steps you are taking, what you are expecting to see, why you are doing what you are doing, what you are going to do, and why. Tell me why you clicked on a link or where you expect the link to take you. Tell me if you are looking for something and what it is and whether you can find it or not.

Ok, now we will practice thinking aloud. *[open [www.craigslist.com](http://www.craigslist.com) and do practice question.]*



Ok, that was fine. Do you have any questions about the “think-aloud” process we’ve just practiced and that I have asked you to use?

***[Calibrate eyes]*** Now I am going to calibrate your eyes for the eye tracking. Please position yourself in front of the screen and sit the same way you will sit while working on the tasks. You will want to see your nose in the reflection at the bottom of the monitor. To calibrate your eyes, please follow the blue dot across the screen with your eyes. ***[Do Calibration]***

Ok, now we are ready to begin. I am going to go around to the other room and do a sound check. While I am doing that, please take a moment to complete this computer usage and internet experience questionnaire. Here are your task questions. When we are ready to begin, you will be working with them. Also, here is the questionnaire you will complete at the very end. I will tell you when to complete this.

***[Hand computer experience form. Set the task questions and questionnaire by participant.]***

I am going to leave, but we will still be able to communicate through a series of microphones and speakers. Do you have any questions?

***[Go to control room. Do sound check. Start video recording.]***

Now we are ready to begin. For the next 60 minutes, I will ask you to work on the 10 tasks. We will begin each task by having you read the task question out loud. As you work, remember to talk to me about what you are thinking and feeling. Once you have found the information you are looking for please state your answer aloud. For example, say, “My answer is ---” or “This is my final answer”. After each task, I will return you to the page where you can begin the next task.

## Appendix F. Consent Form



### **Consent Form For Individual Participants Usability Testing of the Economic Census Web Site**

Each year the Census Bureau conducts many different usability evaluations. For example, the Census Bureau routinely tests the wording, layout and behavior of products, such as Web sites and online surveys and questionnaires in order to obtain the best information possible.

You have volunteered to take part in a study to improve the usability of the Economic Census Web site. In order to have a complete record of your comments, your usability session will be videotaped. We plan to use the tapes to improve the design of the product. Only staff directly involved in the research project will have access to the tapes. Your participation is voluntary and your answers will remain strictly confidential.

This usability study is being conducted under the authority of Title 13 USC. The OMB control number for this study is 0607-0725. This valid approval number legally certifies this information collection.

**I have volunteered to participate in this Census Bureau usability study, and I give permission for my tapes to be used for the purposes stated above.**

Researcher's Name: \_\_\_\_\_

Researcher's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

Participant's Name: \_\_\_\_\_

Participant's Signature: \_\_\_\_\_ Date: \_\_\_\_\_

## Appendix G. Questionnaire on Computer Use and Internet Experience

1. Do you use a computer at home or at work or both?

(Check all that apply.)

- Home  
 Work

2. If you have a computer at home,

a. What kind of modem do you use at home?

- Dial up  
 Cable  
 Other \_\_\_\_\_  
 Don't know

b. Which browser do you typically use at home? Please indicate the version if you can recall it.

- Firefox  
 Internet Explorer  
 Netscape  
 Other \_\_\_\_\_  
 Don't know

c. What operating system does your home computer run in?

- MAC OS  
 Windows 95  
 Windows 2000  
 Windows XP  
 Windows Vista  
 Other \_\_\_\_\_  
 Don't know

3. On average, about how many hours do you spend on the Internet per day?

- 0 hours  
 1-3 hours  
 4-6 hours  
 7 or more hours

4. Please rate your overall experience with the following:

Circle one number.

	No experience					Very experienced				
Computers	1	2	3	4	5	6	7	8	9	
Internet	1	2	4	5	5	6	7	8	9	

5. What computer applications do you use?

Mark (X) for all that apply

- E-mail  
 Internet  
 Word processing (MS-Word, WordPerfect, etc.)  
 Spreadsheets (Excel, Lotus, Quattro, etc.)  
 Accounting or tax software  
 Engineering, scientific, or statistical software  
 Other applications, please specify \_\_\_\_\_

For the following questions, please circle one number.

	<b>Not Comfortable</b>					<b>Comfortable</b>				
	1	2	3	4	5					
6. How <i>comfortable</i> are you in learning to navigate new Web sites?										
7. Computer windows can minimize, resize, and scroll through. How <i>comfortable</i> are you in manipulating a window?										
8. How <i>comfortable</i> are you using and navigating through the Internet?										
	<b>Never</b>					<b>Very Often</b>				
9. How <i>often</i> do you work with any type of data through a computer?										
10. How <i>often</i> do you perform complex analyses of data through a computer?										
11. How <i>often</i> do you use the Internet or Web sites to find information? (e.g., printed reports, news articles, data tables, blogs, etc.)										
	<b>Not familiar</b>					<b>Very familiar</b>				
12. How <i>familiar</i> are you with the Census (terms, data, etc.)?										
13. How <i>familiar</i> are you with the current Economic Census Web site (terms, data, etc.)?										

## Appendix H. Task List

1. You have a question about Finance & Real Estate information and would like to send an e-mail. Find the e-mail address where you should send your question.  
Easy task
2. You are unsure of the difference between “Places” and “Metropolitan Areas.” Where would you find this information on this site?  
Easy task
3. When using American FactFinder, you experienced trouble getting all the columns of a table to print on the same page. Where would you find information about printing datasets?  
Hard task
4. Your work requires you to frequently use manufacturing data. Find the dates for all the manufacturing data to be released.  
Easy task
5. You are using American FactFinder and are wondering how to sort rows in descending order based on payroll. Find on the Web site where this is explained.  
Hard task
6. You want to access economic census data. Find an economic census data table.  
Easy task
7. You want to find statistics for your county (e.g., sales per establishment for sporting goods stores, number of gas stations). Find the Web page that tells you how to find these statistics.  
Hard task
8. You want to use data from two different data sources, but are unsure if they are comparable. Find out if this information exists on the site.  
Hard task
9. You are an experienced economic data user and familiar with the North American Industry Classification System (NAICS). You are curious how NAICS codes have changed since the previous economic census. Find the Web page that has this information.  
Hard task
10. You want to see a blank 2007 Economic Census form. Find the Web page with the forms.  
Easy task

## Appendix I. Satisfaction Questionnaire

Please circle the numbers that most appropriately reflect your impressions about using this Web -based instrument.

- |   |              |   |   |   |   |   |   |   |   |   |             |                |
|---|--------------|---|---|---|---|---|---|---|---|---|-------------|----------------|
| 1. Overall reaction to the Web site:                    | terrible     | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | wonderful   | not applicable |
| 2. Screen layouts:                                      | confusing    | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | clear       | not applicable |
| 3. Use of terminology throughout the Web site:          | inconsistent | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | consistent  | not applicable |
| 4. Information displayed on the screens:                | inadequate   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | adequate    | not applicable |
| 5. Arrangement of information on the screen:            | logical      | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | illogical   | not applicable |
| 6. Tasks can be performed in a straight-forward manner: | never        | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | always      | not applicable |
| 7. Organization of information on the site:             | confusing    | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | clear       | not applicable |
| 8. Forward navigation:                                  | impossible   | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | easy        | not applicable |
| 9. Overall experience of finding information:           | difficult    | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | easy        | not applicable |
| 10. Census Bureau-specific terminology:                 | too frequent | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | appropriate |                |

Additional Comments:

## Appendix J. Debriefing Questionnaire

1. Can you walk me through your thinking on why you marked (a particular QUIIS item) especially low/high? (Do this for several low/high QUIIS ratings).
2. What do you think of the basic screen layout?
  - a. Overall?
  - b. Colors?
  - c. Links and information around the center pane?
  - d. Context of the information on the homepage?
  - e. Other?
3. What do you think of the navigational methods?
  - a. Previous and Next buttons?
  - b. Drop down menus across the center navigation?
  - c. Links on the sides of the pages?
  - d. Other?
4. Was there anything you found visually distracting about the page?
5. What did you like best about the Web site?
6. What did you like least about the Web site?
7. Is there anything that you feel should be changed?
8. Is there anything that you feel should stay the same?
9. How easy or difficult do you feel it was to complete the tasks? What made a task easy or difficult?
10. Is there anything you would like to mention that we haven't talked about?
11. Additional Comments:

## Appendix K. Task Order

Participant 1: Task 5→10→1→6→4→9→2→7→3→8

Participant 2: Task 9→4→3→8→10→5→2→7→6→1

Participant 3: Task 5→10→9→4→8→3→7→2→1→6

Participant 4: Task 7→4→9→8→1→2→5→10→6→3

Participant 5: Task 10→9→8→7→6→5→4→3→2→1

Participant 6: Task 4→9→5→10→1→6→2→7→3→8

Participant 7: Task 6→3→7→2→8→1→9→4→10→5

Participant 8: Task 10→9→2→5→3→8→1→6→7→4

Participant 9: Task 1→6→7→3→9→10→5→4→8→2



## Appendix L. Raw Navigation Data and Participant Comments.

Note: P = Participant. TA = Test Administrator. AFF = American FactFinder.

**Task 1:** You have a question about Finance & Real Estate information and would like to send an e-mail. Find the e-mail address where you should send your question.

Participant 1

1. Failure
2. P said, "I usually start from the left side and go down." → (Find out how to) get data → P said, "Usually when I go online, I go to the address bar or search and put in what I am looking for." → back → 2007 Economic Census → back → Contact info → Email (nothing occurred)
3. P stopped at the main email address.

Participant 2

1. Failure
2. Contact Info → Email (AFF link)
3. P replied with the main email address and did not go into the industry-specific email link.

Participant 3

1. Success
2. Contact Info → Contacts by Industry

Participant 4

1. Failure
2. Business Expenses (on right)
3. P replied with the email address from a different site.

Participant 5

1. Failure
2. Contact Info → Ask a question (at bottom)

Participant 6

1. Failure
2. Contact Info → P said, "...help in your areas...I would go there for help with info about my area." → TA asked about information for the whole US. → P said P would go to "Help with AFF."

Participant 7

1. Success
2. P said, "Normally contact info is at the bottom...or top...but I don't see it in either place." → Contact Info → Ask a question → back → Email → Ask a question → back → Site Map → Contacts by Industry → P clicked on each one separately.
3. P got the correct answer but found it in Site Map rather than Contact Info.

Participant 8

1. Success
2. Contact Info → P said, "I am looking for anything about finance and real estate information." → Contacts by Industry

Participant 9

1. Success
2. Contact Info → Email (using the data) (nothing occurred) → back → Site Map → P

said, "I don't see anything with finance and real estate where I can send an email." → Contact by Industry → P said, "I don't see finance and real estate. I am getting lost. I would go to two different emails.

**Task 2:** You are unsure of the difference between "Places" and "Metropolitan Areas." Where would you find this information on this site?

Participant 1

1. Failure
2. Data Release Schedule → Sector Definitions (error) → back → back → 2007 Economic Census → Economic Census Main Page → Learn more → Geography → Get Data → back → back → back (to Economic Census Main page) → P said, "I see nation, states, counties, places and metropolitan areas. I would think it is here, but I can't click on it...the words are there, the info should be there. I would click on it to get the info." → Data Release Schedule → back

Participant 2

1. Success
2. P said, "I am looking for 'location,' 'places,' 'geographical areas.'" → Economic Census of Island areas (nothing occurred) → back → County Business Patterns → Recent Changes in County Business Patterns → back → back → Site Map → P said, "I am totally stumped on this one." → Geography → Metropolitan and Micropolitan Areas → Places

Participant 3

1. Success
2. Definitions → P scrolled through the definitions looking for the words, 'places' and 'metropolitan areas.' → P said, "...looks like it should be here." → Geography → Metropolitan and Micropolitan Areas → Places

Participant 4

1. Failure
2. P gave the key dates from the main page.

Participant 5

1. Success
2. Get Data → back → Business and Industry (on right) → Information and Communication Technology → back → P said "This question got me stuck. I don't think this information is on this site." → back → What's New? → Metropolitan and Micropolitan Statistical Area Boundary Coverage → back → back → back → Definitions → scrolled → P said, "I looked for anything that said 'places' and 'metropolitan areas.'" → back → Site Map → Places (under Geography) → back → Metropolitan and Micropolitan Areas → back → P said, "Geography doesn't make any sense but it explains the difference."
3. P got the correct answer but found it through the Site Map rather than through Definitions.

Participant 6

1. Success
2. Definitions → P expected 'places' and 'metropolitan areas' to be in definitions. P said, "...Oh! I have to go another click. I thought it would be a part of the definitions. It's one too many clicks. Why can't they all be together?" →

Metropolitan Areas → Places

Participant 7

1. Success
2. Definitions → P looked for Metropolitan Areas → Geography → back → Geography → Metropolitan Areas → Places

Participant 8

1. Success
2. Definitions → P scrolled looking for Places → Geography → Metropolitan Areas → P said, “That’s not the definition...expected a definition. I am looking for a comparison, something that tells me the difference between ‘places’ and ‘metropolitan areas.’ I have to read it all.” → Places

Participant 9

1. Success
2. Definitions → Geography → Metropolitan Areas → Places

**Task 3:** When using American FactFinder, you experienced trouble getting all the columns of a table to print on the same page. Where would you find information about printing datasets?

Participant 1

1. Success
2. Using AFF → Printing Data

Participant 2

1. Failure
2. Using AFF (in center) → Printing Data → Downloading data → Print (from File menu) → Printing data → Print (from File menu) → P reread question and said, “What if all columns were not on the same page? I would minimize it”
3. In order to get all the column on the same page, P would make the table smaller.

Participant 3

1. Success
2. Using AFF → Printing Data

Participant 4

1. Success
2. Using AFF → Printing Data

Participant 5

1. Success
3. User Guide → Using AFF → Printing Data

Participant 6

1. Success
2. Get data → P said, “seems like it should be here: help, tips, tools, should be something about print.” → Notes and Cautions → back → back → Using AFF → Printing Data

Participant 7

1. Success
2. User Guide → Using AFF → Printing Data → P read but didn’t realize answer was there. → Column Action → Printing Action → Column Action → back → P said, “I would try to print it and if it didn’t work, I would try again.”
3. P got correct answer but did not know it.

Participant 8

1. Success
2. Using AFF → Printing Data

Participant 9

1. Success
2. Using AFF → Printing Data

**Task 4:** Your work requires you to frequently use manufacturing data. Find the dates for all the manufacturing data to be released.

Participant 1

1. Success
2. Data Release Schedule (at bottom of page) → P said this was the final answer. → TA prompted for dates. → By date

Participant 2

1. Success
2. Annual Survey of Manufactures (error) → back → Annual Survey of Manufactures (error) → back → P said P would have expected data that deal with manufacturing data. → TA prompted back to Economic Census Main Page and asked if there was another way to find the information. → Data Release Schedule (at bottom of page) → P moved the mouse over chart for dates.
3. P did not use the link for the dates, instead moved the mouse over the chart.

Participant 3

1. Failure
2. Annual Survey of Manufactures (on right) (error) → back → P expected a list of manufacturers or a list of survey related to manufacturing. → Business and Industry (on right) → Manufacturing (error) → back → P said P was looking for dates. → Annual Survey of Manufactures → 2006 → Manufacturing (sector specific date) (error) → back → P said, "All I can find is 2006. I can't find much else." → Enter Keyword in Industry Search- 'Manufacturing' → TA prompted P back to the Economic Census Main Page → 2007 Economic Census (on left) → Search for Data Sets → Industry or Product → P typed 'Manufacturing' in the Search → Selected Manufacturing → OK → Search for Data Sets → Keyword search tab → Typed 'Manufacturing' → Enter

Participant 4

1. Failure
2. Date Release Schedule (at bottom of page)
3. P answered: 2008, 2009, 2010 and 2011.

Participant 5

1. Success
2. Using AFF → Finding data highlights → back → What's Available → Other resources → back → back → back → User guide → back → Data Release Schedule → By Date

Participant 6

1. Success
2. Data Release Schedule (at bottom) → P scrolled over chart.
3. P did not use the link for the dates, instead moved the mouse over the chart.

#### Participant 7

1. Success
2. Data Release Schedule → P moved mouse over chart → Industry/Survey
3. P commented that the PDF was better. P said P was only looking for manufacturing dates and not the rest. P scanned the PDF for manufacturing dates.

#### Participant 8

1. Failure
2. Data Release Schedule (at bottom of page)
3. P got to the correct page but did not get dates for a specific industry.

#### Participant 9

1. Success
2. Survey of Manufacturers (on right) → P expected published manufacturing data → 2007 Economic Census → (off site) Annual Survey of Manufacturers → P said, "I see the word 'manufacturer' so I want to go there." → 2007 Census Schedule → Industry/Survey

**Task 5:** You are using American FactFinder and are wondering how to sort rows in descending order based on payroll. Find on the Web site where this is explained.

#### Participant 1

1. Failure
2. Using AFF → AFF → P attempted to click on words under 2007 Economic Census and Surveys- the title, 'Start Here,' the black box, and said, "I wonder why it's not clicking." → more → back → P said, "I see 'annual payroll' and want to click on it," and attempted to click 'Start here' again. → more → TA prompted back to Economic Census Main Page → Downloading data → P said, "I don't see where it is explained." → back → Finding detailed data → TA prompted P to reread question and that 'payroll' was just an example → Row actions → Finding detailed data → TA asked if P wanted to move on to the next task.
3. P ended task.

#### Participant 2

1. Success
2. Using AFF → Row Actions

#### Participant 3

1. Success
2. P wanted to type into the navigation bar; TA prompted P to stay on site. → P said, "I want to Search." → P typed 'American FactFinder' into Search on top. → P chose second option (a PDF). → P clicked on factfinder.census.gov link on the first page of the PDF. → P said, "I am trying to figure out how this would be in a link...looking for a link that would hit on key words like 'rows'...rows would be in some sort of a table..." → Table and Map Formats → P said, "I am having trouble finding the information." → TA prompted P back to Economic Census Main Page → P said, "Ordinarily, I would go to Search, but now I see it in the middle of the page." → Using AFF → Row Actions.

#### Participant 4

1. Failure
2. Using AFF → Finding Data Highlights → Finding Detailed Data → Finding Data

Highlights.

3. P said, "This is where it would be explained."

Participant 5

1. Success
2. Using AFF → Row Actions

Participant 6

1. Success
2. Using AFF → Downloading Data → Row Actions

Participant 7

1. Success
2. Using AFF → Row Actions

Participant 8

1. Success
2. Contact Info → Search: "American FactFinder" → Go → P chose first option → (off site to AFF) → TA prompted P back to Economic Census Main Page → Get data → back → using AFF → Row Actions → back → Row Actions

Participant 9

1. Success
2. Using AFF → Row Actions

**Task 6:** You want to access economic census data. Find an economic census data table.

Participant 1

1. Success
2. 2007 Economic Census

Participant 2

1. Success
2. 2007 Economic Census

Participant 3

1. Success
2. 2007 Economic Census

Participant 4

1. Failure
2. Read Overview → Using AFF → Finding Data Highlights → Economy-Wide Key Statistics (did not work) → detailed data sets → Data Item → X to close → Data Item → X to close → Finding Data Highlights → detailed data sets → Data Item → X to close → P said, "I am trying to find a data table. I have never seen one so I don't know what it looks like. I don't know if this is one."
3. P ended task with this page.

Participant 5

1. Success
2. 2007 Economic Census

Participant 6

1. Success
2. P said, "It is kind of confusing because you have Economic Census 07 and 02 on the left, then on the right you have 07, 97 and 92. On left it says 'get data' and on the right it says 'related sites'. It's throwing me off. It seems that they are the same. The

left say to get data so I would go there. → 2007 Economic Census

Participant 7

1. Success
2. 2007 Economic Census

Participant 8

1. Success
2. Get Data → first option

Participant 9

1. Success
2. 2007 Economic Census

**Task 7:** You want to find statistics for your county (e.g. sales per establishment for sporting goods stores, number of gas stations). Find the Web page that tells you how to find these statistics.

Participant 1

1. Failure
2. Business and Industry (on right) → Current Quarter → 3Q 2008 → back → Quarterly E-Commerce Sales → P said, “I would click on a table of contents for whatever county.” → back → County Business Patterns → back → P said, “I would click here on this site.” → TA prompted back to Economic Census Main Page → County Business Patters

Participant 2

1. Failure
2. Business and Industry (on right) → Monthly retail sales → Retail and Wholesale Trade → Monthly Retail Sales and Inventories → P said P would find it here but did not see P’s county. → TA prompted back to Economic Census Main Page → Survey of Business Owners (on right) (nothing occurred) → back → Industry snapshots (on right) → back → Find out how to get data (center) → County Business Patterns → (offsite) AFF → Quick reports → P tried to use AFF for a bit and said, “...shooting in the dark here...feeling a bit lost here.”
3. P ended task.

Participant 3

1. Success
2. P said, “I am looking for where I can get statistics.” → 2007 Census (on left) → (off site) P tried getting information through AFF, then went back to Economic Census Main Page → Nonemployer Statistics (on right) → County Business Patterns (on right) → Nonemployer Statistics → P said, “Now I am going in a circle.” → back → back → back → User Guide → Finding Data → Finding Common Statistics

Participant 4

1. Failure
2. Using AFF → Finding Data Highlights → Economy-Wide Key Statistics → P expected to see the number of sporting good stores. P also expected an alphabetical list. → Next → back → back → Economy-Wide Key Statistics → P said, “I keep thinking things are in alphabetical order, but they aren’t.” → back → P read words under Economy-Wide Key Statistics
3. P ended task.

#### Participant 5

1. Success
2. Nonemployer Statistics (on right) → P said, “It’s the only one I see that talks about statistics.” → Changes for nonemployer statistics starting with 2002 → for more information about these changes → P said, I believe this is the one I would go to...doesn’t tell you how to find them, just gives you information about changes...I don’t know what I would do.” → back → back → back → TA prompted P back to Economic Census Main Page and asked if there was another way to get the information. → Get Data → Finding Data → Finding Common Statistics

#### Participant 6

1. Failure
2. P said, “I am looking at Related Sites for Industry Snapshots...not thinking this info will be on this site...do I want to go to AFF or related sites? Statistics means I should find something right here somewhere.” → County Business Patterns (on right) (didn’t work) → P said, “That is where I would go.”

#### Participant 7

1. Success
2. Geography (top right of page) → back → 2007 Economic Census Data → (off site) P tried to get information from AFF site → TA prompted P back to Economic Census Main Page → Get Data → Finding Data → User Guide → Finding Data → P said, “I have no clue how to get the data.” → Finding Common Statistics

#### Participant 8

1. Failure
2. Business and Industry (on right) → (off site) P tried to get information off site. → TA prompted P back to Economic Census Main Page → P said, “I am looking for anything that says statistics.” → Nonemployer Statistics (on right) (nothing happened) → back → P chose first option under News (on left)
3. P ended task.

#### Participant 9

1. Failure
2. County Business Patterns (on right) → (off site) AFF → County Business Patterns 2006 → back → County Business Patterns → TA prompted P back to Economic Census Main Page → Get Data → P said, “When I think of data, I think of a data set.” → Finding Data → geographic coverage area → back → Finding Common Statistics → P said, “I totally didn’t see that before.”

**Task 8:** You want to use data from two different data sources, but are unsure if they are comparable. Find out if this information exists on the site

#### Participant 1

1. Failure
2. P said “ I don’t see any info referring to two different data sources” → Get Data → Finding Data → back → Notes and Cautions → back → Finding Data → back → back → Using AFF → Finding Detailed data → back → back → (Find out how to) get data → back → P said, “I don’t think this information exists on this site. It has steps to find out what to do to collect data, finding data, things like that.”



Participant 2

1. Success
2. Get Data (center) → P said, “I would find one data, minimize I, open the other and look at them side by side.” → TA asked where P would find that information on this site. → Notes and Cautions → Different Data Sources

Participant 3

1. Failure
2. User Guide → Understanding Data Sets → back → Finding Data → back → Uses of the Data → back → back → Search “compare data” → P chose first option. → back → back → back → P said, “I don’t know if this information appears on this site.”
3. P’s final answer was no, it does not appear on this site.

Participant 4

1. Failure
2. P said P was looking for two different sources. → NAICS (on right) → back → Business Expenses → P checked back and forth to see if they are comparable. → Whats new for 2007? → New data on data and other fringe benefits → back → New and Changing Industries
3. P said they are comparable.

Participant 5

1. Failure
2. Get Data → User guide → Understanding Data Sets → P said the information does exist.

Participant 6

1. Success
2. Get Data → Notes and Cautions → Different Data Sources

Participant 7

1. Success
2. User Guide → Notes and Cautions → Different Data Sources

Participant 8

1. Failure
2. Get Data → Finding Data → List of Data items → (off site)
3. P said, “Yes, you can compare.”

Participant 9

1. Failure
2. User Guide → Understanding Data Sets → Content (Data Items) → back → P said, “I don’t know where to look unless I know which two data sources to compare. I would look here. Somehow I would find it here. I would Search.” → Reading Data Sets → P said, “no, I don’t want to read them...this might give me info on them, depending on how much info I want.” → Content → P said, “I would look myself if they are comparable. I wouldn’t look at the site.”
3. P ended task.

**Task 9:** You are an experienced economic data user and familiar with the North American Industry Classification System (NAICS). You are curious how NAICS codes have changed since the previous economic census. Find the Web page that has this information.

#### Participant 1

1. Failure
2. 2007 Economic Census → NAICS (on right) → NAICS update process fact sheet → X to close → FAQs → 5. What is the NAICS structure and how many digits are in a NAICS code? → P said, 'I'd go in here where it talks about codes.' → TA prompted back to Economic Census Main Page → NAICS (on right) → back

#### Participant 2

1. Success
2. NAICS (on right) → History → Search: 2002 NAICS → TA prompted P back to Economic Census Main Page → Whats new → P said, "Nothing on this page is guiding me to the former codes." → New and Changing Industries → P said, "...classification changes, but it doesn't say anything about code changes." → back
3. P got to the correct page but did not know it.

#### Participant 3

1. Failure
2. NAICS (on right) → history → P said, "I am looking for codes." → back → FAQs → Do NAICS codes change over time? → NAICS update process fact sheet → back → back → TA prompted P back to Economic Census Main Page → NAICS ( on right) → Concordance

#### Participant 4

1. Failure
2. (Find out how to) get data → Data release Schedule → AFF (at bottom) → (off site) → data Release Schedule → back → TA prompted P back to Economic Census Main Page → P said Data release Schedule is the page.

#### Participant 5

1. Failure
2. NAICS (on right) → P said, "this is the page with the information." → TA asked what P's thoughts were. → P said, "I am looking for how the codes have changed...looking for something about the changes that have been made...could be this page here." → changing of codes in 2007 → NAICS Search box (didn't work) → P said, "I expected that it would direct me to a form or page about the changing of different codes in the system." → back → NAICS update process fact sheet- PDF

#### Participant 6

1. Failure
2. NAICS (on right) (didn't work) → back → TA asked P to try a different route. → P said, "that link makes sense. I would go there. It is the related site."

#### Participant 7

1. Failure
2. P said, "I am looking for a trend chart." → What's New? → P said, "There is no code stuff here." → back → 2002 Economic Census → back → 2007 Economic Census → P said, "I don't want to look back and forth. I want to find it somewhere." → NAICS → FAQs → Do NAICS codes change over time? → NAICS Update Process Fact Sheet → X to close → Control F (to find) "2002" → How does NAICS 2007 differ from 2002?

#### Participant 8

1. Success
2. P said, "I am looking for anything that says 'NAICS' or for a Search box that I can type it in." → NAICS (on right) (nothing happened) → P expected information about NAICS or a page about it. → Get Data → back → Search 'NAICS' → 2007 Economic Census- Codes not covered → back → P typed "how the NAICS codes have changed" → Go → P said, "I don't see anything that talks about how the coded have changed." → P chose first option → X to close → Revisions → 2007 NAICS PDF
3. P got the correct answer but went a different route. P went off site.

#### Participant 9

1. Success
2. NAICS (on right) → P said, "I would put in a key word for what I was looking for and put in 2007." → TA prompted P back to Economic Census Main Page → What's New → Revised Industry Classification System → 2007 NAICS → back → 2007 NAICS → P said, "I would look at both of them." → New and Changing Industries → Excel → open

**Task 10:** You want to see a blank 2007 Economic Census Form. Find the Web page with the forms

#### Participant 1

1. Success
2. 2007 Economic Census → TA prompted back to Economic Census Main Page → Sample 2007 forms
3. P said "So many things to read on here."

#### Participant 2

1. Success
2. Sample 2007 Forms

#### Participant 3

1. Success
2. Sample 2007 Forms

#### Participant 4

1. Failure
2. Data Release Schedule (at bottom) → back → (Find out how to) Get data → P said, "I am looking for a page that has forms on it." → Get Data (top) → Data Release Schedule → back → Finding Data → back → P said, "I usually type in something that I am looking for." → Get Economic Census → 2007 Economic Census Release Schedule → back → back → 2007 Economic Census → Economic Census Main Page → 2007 Economic Census

#### Participant 5

1. Success
2. Sample 2007 Forms

#### Participant 6

1. Success
2. P said, "it's not popping out at me, like 'hey, the forms should be right here.'" → Sample 2007 forms → P said, "I don't know why I thought it would be on the left. I

guess because I read left to right.”

Participant 7

1. Success
2. P said, “I am looking for a place that has forms.” → 2007 Economic Census → (off site) Annual Economic Surveys → back → download center → 2007 Economic Census and Forms → back → main → Economic Census- Learn More → back → back → back → back (to Economic Census Main Page) → Sample 2007 Forms

Participant 8

1. Failure
2. P said, “I am looking for the 2007 Economic Census form.” → 2007 Economic Census (on left) → (off site) P said, “I am looking for anything that says forms.” → back → back → Get Data → 2007 Economic Census → P said, “I am feeling frustrated, I don’t feel close to the answer. I don’t see ‘form’ anywhere.”
3. P ended task.

Participant 9

1. Success
2. Sample 2007 Forms