

# Evaluation Report Covering Industry and Occupation Items

Marisa Tegler,  
Barbara Downs, and  
Mary Kirk  
Housing and Household  
Economic Statistics Division

---

Leah Ericson  
Decennial Statistical  
Studies Division

---

# TABLE OF CONTENTS

EXECUTIVE SUMMARY .....	ii
1. BACKGROUND.....	1
<b>1.1 Motivation for the 2006 ACS Content Test.....</b>	<b>1</b>
<b>1.2 Previous Testing or Analysis for Industry and Occupation Items .....</b>	<b>1</b>
2. RESEARCH QUESTIONS AND SELECTION CRITERIA.....	2
<b>2.1 Research Question 1 .....</b>	<b>2</b>
<b>2.2 Research Question 2 .....</b>	<b>2</b>
<b>2.3 Research Question 3 .....</b>	<b>2</b>
<b>2.4 Research Question 4.....</b>	<b>2</b>
3. METHODOLOGY.....	3
<b>3.1 Data Collection Methods .....</b>	<b>3</b>
<b>3.2 Sample Design.....</b>	<b>5</b>
<b>3.3 Methodology Specific to the Research Questions .....</b>	<b>5</b>
4. LIMITATIONS.....	7
<b>4.1 General Content Test and Content Follow Up Limitations .....</b>	<b>7</b>
<b>4.2 Limitations Specific to Industry and Occupation Items .....</b>	<b>8</b>
5. RESULTS.....	8
<b>5.1 Response to the Content Test and Content Follow-Up .....</b>	<b>8</b>
<b>5.2 Will the addition of a separate services industry type check box decrease the proportion of respondents who respond “other?” In addition, will this change impact the distribution of responses for the manufacturing, wholesale, and retail trade categories?.....</b>	<b>8</b>
<b>5.3 Will the addition of the separate services industry type check box and refined examples change the high-level distribution of coded industries and occupations?.....</b>	<b>9</b>
<b>5.4 Will the combined changes reduce the number of cases that are not “codeable?” .....</b>	<b>9</b>
<b>5.5 Will the combined changes result in a decrease in item missing data? .....</b>	<b>9</b>
6. SUMMARY OF EMPIRICAL RESULTS.....	10
References.....	11
APPENDIX A: Information Page.....	12
APPENDIX B: Questionnaires.....	14
APPENDIX C: Tables .....	16

## EXECUTIVE SUMMARY

### Test Objective

- In January through March of 2006, the American Community Survey (ACS) conducted the first test of new and modified content since the ACS reached full implementation levels of data collection. The results of that testing will determine the content for the 2008 ACS.
- The focus of the proposed industry and occupation changes included in the 2006 ACS Content Test was to increase the amount of information provided to coders in order to produce a valid industry or occupation code. The item tested was the Type of Industry check box, an indicator of whether a respondent's reported industry was manufacturing, wholesale trade, retail trade, or something else.

### Methodology

- The Content Test compared two versions of the five survey items included in the industry and occupation question set. The control version replicated the current ACS Type of Industry question. In the control version, the Type of Industry question asked "Is this mainly – Mark (X) one box: "manufacturing, wholesale trade, retail trade, or other (agriculture, construction, service, government, etc.)," following the question "What kind of industry was this?" The test version modified this Type of Industry question by adding an additional check box for "service" after "retail trade" and by deleting the parenthetical reference to service within the "other" industry type. Additionally, the examples provided throughout the Industry and Occupation question series were modified slightly, although the effects of those changes were not statistically tested in isolation.

### Research Questions and Results

- **Question 1: Will the addition of a separate services industry type check box decrease the proportion of respondents who respond "other?" In addition, will this change impact the distribution of responses for the manufacturing, wholesale, and retail trade categories?**  
Results: The proportion of responses showed a statistically significant decrease in responses to "other" and "retail trade" in the test version of the instrument.
- **Question 2: Will the addition of the separate services industry type check box and refined examples change the high-level distribution of coded industries and occupations?**  
Results: The distributions of high-level industry and occupation categories were not statistically different across instruments.
- **Question 3: Will the combined changes reduce the number of cases that are not "codeable?"**  
Results: The proportion of cases considered not "codeable" was not statistically different across instruments.
- **Question 4: Will the combined changes result in a decrease in item missing data?**

Results: There were no statistically significant changes in responses to three of the industry and occupation survey items (Employer Name, Type of Business, and Most Important Activities). Nonresponse to the Type of Industry check box item showed a statistically significant decrease in the test version compared with the control version of the instrument. Nonresponse to the Type of Work item showed a statistically significant increase in the test version compared with the control version of the instrument.

- The findings reported above do not lend strong support for the test version of the Industry and Occupation question series. The unexplainable increase in nonresponse to the Type of Work item is troubling, and potentially damaging to data quality. Thus, it is recommended that the test version of the Industry and Occupation items not be adopted.

# **1. BACKGROUND**

## **1.1 Motivation for the 2006 ACS Content Test**

In January through March of 2006, the American Community Survey (ACS) conducted the first test of new and modified content since the ACS reached full implementation levels of data collection. The results of that testing will determine the content for the 2008 ACS. The year 2008 marks the first year of a three-year aggregated data product that includes data from the same year as the 2010 decennial census (2008 - 2010). Similarly, 2008 is the midpoint year for the first five-year data product that includes data from 2010 (2006-2010). Given the significance of the year 2008, the ACS committed to a research program during 2006 that will result in final content determination in time for the 2008 ACS. This research is the 2006 ACS Content Test.

Through the Office of Management and Budget (OMB) Interagency Committee on the ACS, the Census Bureau included subject matter experts and key data users from other federal agencies in identifying questions for inclusion in the Content Test. In general the Content Test evaluated alternatives for questions which showed some indication of a problem, for example, high missing data rates, estimates which differed systematically from other sources of the same information, or high simple response variance as measured in the Census 2000 Content Reinterview survey. In addition, the Content Test also included testing of three new topics proposed by other federal agencies for inclusion in the ACS.

To meet the primary objective of the 2006 ACS Content Test, analysts evaluated changes to question wording, response categories, instructions, or examples relative to the current version of the questions. Additionally, the Content Test design reflected two secondary objectives. One of the secondary objectives addressed form design alternatives for the basic demographic section of the form. The second addressed the content of the questionnaire mailing package. Results indicated no interaction between either of the two secondary objectives and the first objective addressing changes made to questions. Thus, this report will only address testing specific to the first objective - testing of alternative questions, response categories, etcetera. Specifically, this report discusses changes to response categories and examples within industry and occupation questions.

## **1.2 Previous Testing or Analysis for Industry and Occupation Items**

The control version of the instrument replicated the current ACS Type of Industry question. In the control version, the Type of Industry question asks “Is this mainly – Mark (X) one box: “manufacturing, wholesale trade, retail trade, or other (agriculture, construction, service, government, etc.),” following the question “What kind of industry was this?” The test version modified this Type of Industry question by adding an additional check box for “service” after “retail trade” and by deleting the parenthetical reference to service within the “other” industry type. Additionally, the examples provided throughout the Industry and Occupation question series were modified slightly in the test version, although the effects of those changes were not statistically tested in isolation.

The test version of the Type of Industry check box item is used in the Survey of Income and Program Participation (SIPP). The item has been used since the 1996 panel of the SIPP.

## **2. RESEARCH QUESTIONS AND SELECTION CRITERIA**

### **2.1 Research Question 1**

Will the addition of a separate services industry type check box decrease the proportion of respondents who respond “other?” In addition, will this change impact the distribution of responses for the manufacturing, wholesale, and retail trade categories?

Selection criteria: A significant decrease in the number of responses to the “other” category and no change in the response distribution for the manufacturing, wholesale trade, and retail trade categories.

### **2.2 Research Question 2**

Will the addition of the separate services industry type check box and refined examples change the high-level distribution of coded industries and occupations?

Selection criteria: No change in the high-level distributions of coded industries and occupations (at the level for which industry and occupation items are published).

### **2.3 Research Question 3**

Will the combined changes reduce the number of cases that are not “codeable?”

Selection criterion: A reduction in the number of cases that are not “codeable.”

### **2.4 Research Question 4**

Will the combined changes result in a decrease in item missing data?

Selection criterion: A decrease in item missing data.

## 3. METHODOLOGY

### 3.1 Data Collection Methods

#### *3.1.1 The 2006 ACS Content Test data collection*

The 2006 ACS Content Test consisted of a national sample of approximately 62,900 residential addresses in the contiguous United States. (The sample universe did not include Puerto Rico, Alaska and Hawaii). To meet the primary test objective of evaluating question wording changes, approximately half of the sample addresses were assigned to a test group (31,450) and the other half to a control group (31,450). For the topics already covered in the ACS, the test group included the proposed alternative versions of the questions, and the control group included the current version of the questions as asked on the ACS. Both the test and control questionnaires included three new topics not currently on the ACS. Both test and control included the three new topics to keep context and questionnaire length consistent between the two versions.

The ACS Content Test used a similar data collection methodology as the current ACS, though cost and time constraints resulted in some deviations. Initially, the ACS collects data by mail from sampled households, following a mailing strategy geared at maximizing mail response (i.e., a pre-notice letter, an initial questionnaire packet, a reminder postcard, and a replacement questionnaire packet). The Content Test implemented the same methodology, mailing each piece on the same dates as the corresponding panel in the ACS. However, the Content Test did not provide a toll-free number on the printed questionnaires for respondents to call if they had questions, as the ACS does. The decision to exclude this service in the Content Test primarily reflects resource issues in developing the materials needed to train and implement the operation for a one-time test. However, excluding this telephone assistance allows us to collect data that reflects the respondent's interpretation and response without the aid of a trained Census Bureau interviewer.

The ACS follows-up with mail nonrespondents first by Computer Assisted Telephone Interviewing (CATI) if a phone number is available, or by Computer Assisted Personal-visit Interviewing (CAPI) if the unit cannot be reached by mail or phone. For cost purposes, the ACS subsamples the mail and telephone nonrespondents for CAPI interviewing. In comparison, the Content Test went directly to CAPI data collection for mail nonrespondents, dropping the CATI data collection phase in an effort to address competing time and resource constraints for the field data collection staff. While skipping the CATI phase changes the data collection methods as compared to the ACS, eliminating CATI allowed us to meet the field data collection constraints while also maintaining the entire mail nonrespondent universe for possible CAPI follow-up. Using CATI alone for follow-up would have excluded households for whom we do not have a phone number.

The ACS also implements an edit procedure on returned mail questionnaires, identifying units for follow-up who provided incomplete information on the form, or who reported more than five people living at the address. (The ACS questionnaire only has space to collect data for five people.) This is called the Failed Edit Follow Up operation (FEFU). The ACS calls all households identified as part of the FEFU edit to collect the remaining information via a CATI



operation. The Content Test excluded this follow-up operation in favor of a content reinterview, called the Content Follow-Up (CFU). The CFU also contacts households via CATI but the CFU serves as a method to measure response error, providing critical evaluative information. The CFU operation included all households who responded by mail or CAPI and for whom we had a phone number. More information about the CFU operation follows below.

The Content Test mailed questionnaires to sampled households around December 28, 2005, coinciding with the mailing for the ACS January 2006 panel. The Content Test used an English-only mail form but the automated instruments (both CAPI and CFU) included both English and Spanish translations. Beginning February 2006, a sample of households that did not respond by mail was visited by Census Bureau field representatives in attempt to collect the data. The CAPI operations ended March 2, 2006.

### *3.1.2 Content Follow-Up data collection*

The CFU reinterview, conducted by the Census Bureau's three telephone centers, provided a method for measuring response error. About two weeks after receiving the returned questionnaire or completed CAPI interview, the responding unit entered the CFU operation. Telephone staff completed the CFU interviews between January 17 and March 17, 2006. At the first contact with a household, interviewers asked to speak with the original respondent. If that person was not available, interviewers scheduled a callback at a time when the household member was expected to be home. If at the second contact we could not reach the original respondent, interviewers completed the interview with another adult household member.

The CFU reinterview did not replicate the full ACS interview. Rather, the CFU used the roster and basic demographic information from the original interview and only asked questions specific to the analytical needs of the Content Test. Reinterview questions were of two general formats: the same question as asked in the original interview (in some cases, modified slightly for a CATI interview), or a different set of questions providing more detail than the question(s) asked in the original interview for the same topic. For topics in which the CFU asked the same question as the original interview, the CFU asked the test or control version of the question based on the original treatment. For these cases, the goal was to measure the reliability of the answers – how often we obtained the same answer in the CFU as we did in the original mail or CAPI data collection. For topics using a different question or set of questions than the original interview, we asked the same detailed series of questions regardless of the original treatment condition. Generally, these questions were more numerous than what we could ask in the ACS. In some cases the questions came from another existing survey, for example, for labor force, we asked the labor force questions from the Current Population Survey questions. In other cases the CFU asked additional probing questions based on prior testing results, such as for health insurance. For these topics, the goal was to measure how close the original answers were to the more detailed CFU answers.

### **3.2 Sample Design**

The sample design for the ACS Content Test consisted of a multi-stage design, with the first stage following the Census 2000 Supplementary Survey (C2SS) design for the selection of Primary Selection Units (PSUs) defined as counties or groups of counties. The first stage selection of PSUs resulted in 413 PSUs or approximately 900 counties being selected.

Within sampled PSUs, households were stratified into high and low response strata based on tract-level mail response rates to the Census 2000 long form and a stratified systematic sample of households was selected. The strata were defined such that the high response stratum contained 75 percent of the housing units that reside in tracts with the highest mail response rate. The balance of the tracts was assigned to the low response stratum. To achieve similar expected number of mail returns for the high and low response strata, 55 percent of the sample was allocated to the low response strata and 45 percent to the high response strata.

A two-stage sampling technique was used to help contain field costs for CAPI data collection. The initial sample of PSUs was sorted by percentage of foreign-born population since the majority of that target population responds via CAPI. At least one item undergoing testing in the content test required an adequate sample of this population. The 20 PSUs with the highest percentage of foreign-born population were included with certainty and the remaining PSUs were sampled at a rate of 1 in 3. For the second stage, mail nonresponding households were sampled at a rate of 1 in 2 within the top 20 PSUs and at a sampling rate of 2 in 3 within the remaining PSUs. The final design designated 151 PSUs be included in the CAPI workload.

In the majority of PSUs, we assigned cases to both the control and test groups. To maintain field data collection costs and efficiencies, PSUs with an expected CAPI workload of less than 10 sampled addresses had all of their work assigned to only one treatment (either control or test). The PSUs were allocated to the two groups such that the aggregated PSU characteristics between the two groups are similar for employment, foreign born, high school graduates, disabled, poverty status, tenure, and Hispanic origin. For more information on the 2006 ACS Content Test sample design, see Asiala (2006).

There was no sampling for CFU. A CFU interview was attempted for all responding households to the Content Test for which we had a phone number.

### **3.3 Methodology Specific to the Research Questions**

The industry and occupation question set consists of five survey items (see Appendix A). The first two items ask for the employer's name and a description of the type of employer's business or industry. The third item is a check box asking for further clarification of industry type. The final two items ask for a description of each household member's work.

In the industry and occupation question set for current ACS production, the Type of Industry question allows respondents to choose between three industry types (manufacturing, wholesale trade, and retail trade) and a catch-all category called "other." The majority of responses within

the “other” category receive service industry codes. In the 2006 ACS Content Test, an additional service industry type category tested whether respondents would choose this new box, providing more information to the coders who assign industry and occupation codes.

In the control version of the Content Test, the design replicated the current ACS Type of Industry question, in which the Type of Industry question follows “What kind of business or industry was this?” and asks “Is this mainly – Mark (X) one box” with four check-box options: “manufacturing, wholesale trade, retail trade, or other (agriculture, construction, service, government, etc.).” In the test version, a check box for “service” was added after the “retail trade” option, and the parenthetical reference to service within the “other” industry type was deleted (see Test and Control questionnaires in Appendix B).

The examples within each write-in style question in the industry and occupation section were also updated on the Content Test. They were tested as part of the “combined changes” of the Content Test in Research Questions 3 and 4 but were not evaluated in isolation.

The responses given for this question set were treated differently in the Content Test data processing than in a regular ACS cycle. In regular production, the responses to the five industry and occupation questions, Name of Employer, Type of Business, Type of Industry, Type of Work, and Most Important Activities, are sent to the National Processing Center (NPC) in Jeffersonville, IN to be translated into four-digit industry and occupation codes. These codes are then sent through a thorough editing process that eliminates any combinations of variables that are impossible or unlikely and ensures consistency between industry, occupation, age, educational attainment, employment status, and income. This process reduces the impact of item missing data and cases that are not “codeable.”

In the Content Test data processing, the industry and occupation questions were coded at the NPC, but were not put through any of the edits. Thus, for the purposes of this report, any mark in a field or check box regardless of eventual accuracy was considered a response, and “codeable” cases were those in which the coders were able to determine a code based on the information given. Only those cases with illegible responses, nonsensical responses, or a complete absence of information in any applicable write-in were given a missing value for the code and considered not “codeable.”

## 4. LIMITATIONS

### 4.1 General Content Test and Content Follow Up Limitations

As noted in section 3.1, Data Collection Methods, the Content Test maintained the same general mail data collection methodology as the ACS, but differed in the mail nonresponse follow-up operations. In general the deviations did not impact the validity of the results, and in many cases increased the effectiveness of the testing. However, some aspects of the Content Test implementation should be considered in evaluating the data.

- As noted, the Content Test did not include CATI data collection in order to meet field data collection constraints. While the design of the Content Test allowed all sampled housing units an opportunity to participate even without CATI, questions administered differently over the phone did not get the benefit of a full CATI operation (though some of the CAPI interviews actually do occur by phone). However, since only ten percent of ACS data is collected by CATI and CATI interviewers are trained to help respondents understand question intent and response categories, overall ACS data quality should not suffer when questions are implemented using CATI.
- Though the test design required that field interviewers work only control or only test cases, interviewers in both conditions worked regular ACS production interviews at the same time they completed the Content Test cases. By design the control instrument very closely replicated the ACS production instrument, only differing in the addition of the three newly proposed topics. As a result, interviewers in the test condition had to learn and use two very different instruments, while control interviewers used basically the same instrument between their Content Test cases and ACS production. Thus, test interviewers experienced more challenges in completing their overall caseload. Interviewer debriefing suggested that test interviewers had some difficulty dealing with the two very different instruments simultaneously which may have some impact on the administration of the test version.
- On the first day of CFU interviewing, we discovered a usability problem with the CFU instrument. Left unaddressed, the usability problem could have potentially impacted comparisons between the Content Test and CFU responses when looking specifically at gross difference rate or simple response variance calculations. However, we immediately implemented two steps to mitigate any data problems -- a special instruction sheet to remind interviewers about how to avoid the potential problem and a procedure to report any problems to headquarters for repair. Interviewers followed the instructions and reported 90 cases to us. Post-collection processing corrected all reported errors, though it is possible that some cases went unreported.
- The CFU universe did not include non-telephone households and vacant housing units. This only affects those question topics included in the CFU study that are related to the non-telephone household or vacant universes.

## 4.2 Limitations Specific to Industry and Occupation Items

The utility of the industry and occupation question set is dependent on accurate descriptions of each respondent's work. One person generally completes the survey for the entire household. Accurate data is dependent on whether the person completing the survey is familiar with the work experiences of all household members, and is able to describe those experiences with clarity. If people completing the ACS were unable to provide clear and accurate descriptions of their work and the work of others in the household, the industry and occupation data are limited in their utility.

## 5. RESULTS

### 5.1 Response to the Content Test and Content Follow-Up

Control and test treatment groups obtained equivalent response rates overall, and for each mode of collection. Similarly, response to the Content Test is comparable to response for the production ACS.

Table 1 (see Appendix C) gives the weighted response rates for each data collection operation and a test of differences between the control and test groups. The overall response rate reflects the final response to the initial data collection (mail and CAPI only). There were no significant differences between response rates for the control and test groups. Note that the denominator for each calculation included only eligible cases for each mode.

### **5.2 Will the addition of a separate services industry type check box decrease the proportion of respondents who respond "other?" In addition, will this change impact the distribution of responses for the manufacturing, wholesale, and retail trade categories?**

The test version and the control version of response distributions for the Type of Industry item are shown in Table 2.<sup>1</sup> Responses to the "other" category statistically decreased by 44.2 percent in the test version compared with the control version. In the test version of the type of industry question, 47.4 percent of respondents chose the "service" box.

The statistically significant decrease in the number of responses to "other" passed the first condition of the Research Question 1 selection criteria. However, the data did not pass the second condition of the criteria as there was a statistically significant decrease of 1.9 percent in responses to "retail trade" on the test version.

---

<sup>1</sup> The response distributions include some cases where the respondent checked more than one box. In those cases, the first response was counted. If a respondent checked both manufacturing and wholesale trade, only manufacturing was counted. If a respondent checked both wholesale trade and retail trade, only wholesale trade was counted.

### **5.3 Will the addition of the separate services industry type check box and refined examples change the high-level distribution of coded industries and occupations?**

Research Question 2 was evaluated by comparing the high-level distribution of coded industries and occupations between the test version and the control version. Table 3 shows the high-level distribution of coded industries (thirteen categories). The chi-square statistic measures the difference in the control and test distributions for a given question. If the statistic is significantly large, the distributions are not the same. In the high-level distribution of industries, the chi-square value indicates there was no statistically significant change. While there was a significant increase of 1.4 percent in the percent of industries within the Professional, Scientific, Management, Administrative, and Waste Management Services Industries category in the test version compared with the control version, there were no other statistically significant changes in any other category.

Table 4 shows the high-level distribution of coded occupations (six categories). The chi-square value indicates there was no statistically significant change in the distribution of high-level occupation categories.

The selection criteria for Research Question 2 were met for both industry and occupation as chi-square values indicate that the control and test versions of the distributions of industry and occupation were not statistically different from each other.

### **5.4 Will the combined changes reduce the number of cases that are not “codeable?”**

To evaluate Research Question 3, the proportion of not “codeable” cases were compared between the test version and the control version. The term “codeable,” in this analysis, refers to any valid industry or occupations code. Cases given the code “9990-Uncodeable” or cases that did not respond to any of the write-in industry and occupation questions were designated as not codeable or missing. Tables 5 and 6 show the proportion of codeable industry and occupation responses within the Content Test cases. For both tables, the proportion of codeable and not codeable responses were not statistically different between the test version and the control version. Coding staff in Jeffersonville, IN indicated the addition of the “service” checkbox did not improve the ability of coders to assign codes.

The selection criteria for Research Question 3 were not met because there was not a significant reduction in the number of cases that were not “codeable.”

### **5.5 Will the combined changes result in a decrease in item missing data?**

To evaluate this question, the item nonresponse rates within the industry and occupation question set were compared between the test version and the control version. The item nonresponse rate (INR) measures the proportion of housing unit or person responses with “missing data.” In these items, a response was categorized as the presence of any mark in a write-in field or check box. Thus, “missing data” or *nonresponse* means that the respondent wrote nothing in the field or checked none of the boxes.

Table 7 shows the item nonresponse rates for all five questions: Name of Employer, Type of Business, Type of Industry check box, Type of Work, and Most Important Activities. There were no statistically significant changes between survey instruments for the Name of Employer, Type of Business, or Most Important Activities items. In Type of Industry, there was a statistically significant decrease of 0.7 percent in the INR in the test version compared with the control version.

For the Type of Work item, there was a statistically significant increase of 0.9 percent, from 3 percent to 4 percent, in the INR on the test version compared with the control version. There was no obvious catalyst for this increase in INR to the Type of Work item. Several avenues of investigation were explored. When this increase in INR was investigated by survey response mode, the mail surveys showed a statistically significant increase of 1.0 percent in Type of Work INR in the test version versus the control version, while CAPI surveys showed a 0.9 percent non-statistically significant increase across survey instruments.

Within the mail survey questionnaires, the control version of the instrument displayed the entire series of industry and occupation items in a single column, while the test version broke the series across two columns (see Appendix B). The resulting test version layout places the Type of Work item in a corner of the questionnaire, where it may have been overlooked. It is plausible that this difference in layout contributed to the statistically significant increase in the INR among mail surveys and the overall statistically significant increase in INR for Type of Work. However, the CAPI increase in INR was of a similar magnitude as the mail INR, although not statistically significant. Thus, it is impossible to state with certainty that the increase in INR was due to survey layout.

## **6. SUMMARY OF EMPIRICAL RESULTS**

Overall, analytic results do not strongly support the test version of the Industry and Occupation questionnaire items. Some of the criteria for selecting the test version were met, while most were not. Specifically, the proportion of “other” responses to the Type of Industry check box was reduced, the high-level industry and occupation distributions did not change, and the INR to Type of Industry was reduced. However, the proportion of “Retail Trade” responses to the Type of Industry check box decreased, there was no increase in the proportion of cases deemed “codeable,” and there was an unexplainable increase in INR to one of the survey items. Thus, we recommend the test version of the Industry and Occupation questionnaire items not be adopted and that the control version of the questionnaire items continue to be used.

## References

Asiala M. and Navarro A. (2006). "Experimental Design for the 2006 American Community Survey Content Test," American Statistical Association 2006 Proceedings of the Section on Survey Research Methods [CD-ROM].



**APPENDIX A: Information Page**

**CONTENT TEST INFORMATION PAGE**  
**For**  
**INDUSTRY AND OCCUPATION**

**Question Wording:**

Current ACS Wording	Content Test Wording
<p><i>For whom did this person work?</i>  <b>Name of company, business, or other employer</b></p> <hr/> <p><i>What kind of business or industry was this?</i>  <b>Describe the activity at the location where employed. (For example: hospital, newspaper publishing, mail order house, auto engine manufacturing, bank)</b></p> <hr/> <p><i>Is this mainly – Mark (X) one box.</i></p> <p><input type="checkbox"/> manufacturing?  <input type="checkbox"/> wholesale trade?  <input type="checkbox"/> retail trade?  <input type="checkbox"/> other (agriculture, construction, service, government, etc.)?</p> <p><b>What kind of work was this person doing?</b> (<i>For example: registered nurse, personnel manager, supervisor of order department, secretary, accountant</i>)</p> <hr/> <p><b>What were this person’s most important activities or duties?</b> (<i>For example: patient care, directing hiring policies, supervising order clerks, typing and filing, reconciling financial records</i>)</p> <hr/>	<p><i>For whom did this person work?</i>  <b>Name of company, business, or other employer</b></p> <hr/> <p><i>What kind of business or industry was this?</i>  <b>Describe the activity at the location where employed. (For example: hospital, child care center, computer services, auto repair shop, bank)</b></p> <hr/> <p><i>Is this mainly – Mark (X) one box.</i></p> <p><input type="checkbox"/> manufacturing?  <input type="checkbox"/> wholesale trade?  <input type="checkbox"/> retail trade?  <input type="checkbox"/> service?  <input type="checkbox"/> other (agriculture, construction, government, etc.)?</p> <p><b>What kind of work was this person doing?</b> (<i>For example: registered nurse, child care supervisor, secretary, auto mechanic, accountant</i>)</p> <hr/> <p><b>What were this person’s most important activities or duties?</b> (<i>For example: patient care, supervising employees, setting up meetings, repairing cars, keeping financial records</i>)</p> <hr/>

**Research Questions & Evaluation Measures:**

No.	Research Questions	Evaluation Measures
1.	Will the addition of a separate services industry type check box decrease the proportion of respondents who respond “other?” In addition, will this change impact the distribution of responses for the manufacturing, wholesale, and retail trade categories?	Compare the proportion of respondents who answer “other” between test and control  Compare the response distribution for the manufacturing, wholesale, and retail trade categories between control and test
2.	Will the addition of the separate services industry type check box and refined examples change the high-level distribution of coded industries and occupations?	Compare the high-level distribution of coded industries and occupations between test and control
3.	Will the combined changes reduce the number of cases that are not “codeable?”	Compare for each the proportion of cases not “codeable” between test and control
4.	Will the combined changes result in a decrease in item missing data?	Compare item nonresponse rates between the test and control versions

**Selection Criteria:**

Research Q	Criteria
2	No change in the high-level distribution of coded industries and occupations (at the level for which I&Os are published)
3	A reduction in the number of cases that are not “codeable.”
4	A decrease in item missing data
1	A significant decrease in the number of responses to the “other” category and no change in the response distribution for the manufacturing, wholesale, and retail trade categories

# APPENDIX B: Questionnaires

## Control Questionnaire

### Person 1 (continued)

**29** At what location did this person work LAST WEEK? If this person worked at more than one location, print where he or she worked most last week.

a. Address (Number and street name)

If the exact address is not known, give a description of the location such as the building name or the nearest street or intersection.

b. Name of city, town, or post office

c. Is the work location inside the limits of that city or town?

- Yes  
 No, outside the city/town limits

d. Name of county

e. Name of U.S. state or foreign country

f. ZIP Code

**30** How did this person usually get to work LAST WEEK? If this person usually used more than one method of transportation during the trip, mark (X) the box of the one used for most of the distance.

- |   |   |
|---|---|
| <input type="checkbox"/> Car, truck, or van       | <input type="checkbox"/> Motorcycle                           |
| <input type="checkbox"/> Bus or trolley bus       | <input type="checkbox"/> Bicycle                              |
| <input type="checkbox"/> Streetcar or trolley car | <input type="checkbox"/> Walked                               |
| <input type="checkbox"/> Subway or elevated       | <input type="checkbox"/> Worked at home → SKIP to question 38 |
| <input type="checkbox"/> Railroad                 | <input type="checkbox"/> Other method                         |
| <input type="checkbox"/> Ferryboat                |   |
| <input type="checkbox"/> Taxicab                  |   |

**I** Answer question 31 if you marked "Car, truck, or van" in question 30. Otherwise, SKIP to question 32.

**31** How many people, including this person, usually rode to work in the car, truck, or van LAST WEEK?

Person(s)

**32** What time did this person usually leave home to go to work LAST WEEK?

Hour Minute  a.m.  
 p.m.

**33** How many minutes did it usually take this person to get from home to work LAST WEEK?

Minutes

**J** Answer questions 34–37 if this person did NOT work last week. Otherwise, SKIP to question 38.

**34** a. LAST WEEK, was this person on layoff from a job?

- Yes → SKIP to question 34c  
 No

b. LAST WEEK, was this person TEMPORARILY absent from a job or business?

- Yes, on vacation, temporary illness, labor dispute, etc. → SKIP to question 37  
 No → SKIP to question 35

c. Has this person been informed that he or she will be recalled to work within the next 6 months OR been given a date to return to work?

- Yes → SKIP to question 36  
 No

**35** Has this person been looking for work during the last 4 weeks?

- Yes  
 No → SKIP to question 37

**36** LAST WEEK, could this person have started a job if offered one, or returned to work if recalled?

- Yes, could have gone to work  
 No, because of own temporary illness  
 No, because of all other reasons (In school, etc.)

**37** When did this person last work, even for a few days?

- Within the past 12 months  
 1 to 5 years ago → SKIP to question 40  
 Over 5 years ago or never worked → SKIP to question 46

**38** During the PAST 12 MONTHS, how many WEEKS did this person work? Count paid vacation, paid sick leave, and military service.

Weeks

**39** During the PAST 12 MONTHS, in the WEEKS WORKED, how many hours did this person usually work each WEEK?

Usual hours worked each WEEK

**K** Answer questions 40–45 if this person worked in the past 5 years. Otherwise, SKIP to question 46.

**40–45 CURRENT OR MOST RECENT JOB ACTIVITY.** Describe clearly this person's chief job activity or business last week. If this person had more than one job, describe the one at which this person worked the most hours. If this person had no job or business last week, give information for his/her last job or business.

**40** Was this person – Mark (X) ONE box.

- an employee of a PRIVATE FOR PROFIT company or business, or of an individual, for wages, salary, or commissions?  
 an employee of a PRIVATE NOT FOR PROFIT, tax-exempt, or charitable organization?  
 a local GOVERNMENT employee (city, county, etc.)?  
 a state GOVERNMENT employee?  
 a Federal GOVERNMENT employee?  
 SELF-EMPLOYED in own NOT INCORPORATED business, professional practice, or farm?  
 SELF-EMPLOYED in own INCORPORATED business, professional practice, or farm?  
 working WITHOUT PAY in family business or farm?

**41** For whom did this person work?

If now on active duty in the Armed Forces, mark (X) this box →  and print the branch of the Armed Forces.

Name of company, business, or other employer

**42** What kind of business or industry was this? Describe the activity at the location where employed. (For example: hospital, newspaper publishing, mail order house, auto engine manufacturing, bank)

**43** Is this mainly – Mark (X) one box

- manufacturing?  
 wholesale trade?  
 retail trade?  
 other (agriculture, construction, service, government, etc.)?

**44** What kind of work was this person doing? (For example: registered nurse, personnel manager, supervisor of order department, secretary, accountant)

**45** What were this person's most important activities or duties? (For example: patient care, directing hiring policies, supervising order clerks, typing and filing, reconciling financial records)

# Person 1 (continued)

**K** Answer questions 40–45 if this person worked in the past 5 years. Otherwise, SKIP to question 46.

**40–45 CURRENT OR MOST RECENT JOB ACTIVITY.** Describe clearly this person's chief job activity or business last week. If this person had more than one job, describe the one at which this person worked the most hours. If this person had no job or business last week, give information for his/her last job or business.

- 40 Was this person –**  
Mark (X) ONE box.
- an employee of a PRIVATE FOR PROFIT company or business, or of an individual, for wages, salary, or commissions?
  - an employee of a PRIVATE NOT FOR PROFIT, tax-exempt, or charitable organization?
  - a local GOVERNMENT employee (city, county, etc.)?
  - a state GOVERNMENT employee?
  - a Federal GOVERNMENT employee?
  - SELF-EMPLOYED in own NOT INCORPORATED business, professional practice, or farm?
  - SELF-EMPLOYED in own INCORPORATED business, professional practice, or farm?
  - working WITHOUT PAY in family business or farm?

- 41 For whom did this person work?**  
If now on active duty in the Armed Forces, mark (X) this box →  and print the branch of the Armed Forces.  
Name of company, business, or other employer  
\_\_\_\_\_

- 42 What kind of business or industry was this?**  
Describe the activity at the location where employed. (For example: hospital, child care center, computer services, auto repair shop, bank)  
\_\_\_\_\_

- 43 Is this mainly –**  
Mark (X) ONE box.
- manufacturing?
  - wholesale trade?
  - retail trade?
  - service?
  - other (agriculture, construction, government, etc.)?

- 44 What kind of work was this person doing?** (For example: registered nurse, child care supervisor, secretary, auto mechanic, accountant)  
\_\_\_\_\_

- 45 What were this person's most important activities or duties?** (For example: patient care, supervising employees, setting up meetings, repairing cars, keeping financial records)  
\_\_\_\_\_

- 46 INCOME IN THE PAST 12 MONTHS.**  
Mark (X) the "Yes" box for each type of income this person received, and give your best estimate of the TOTAL AMOUNT during the PAST 12 MONTHS. (NOTE: The "past 12 months" is the period from today's date one year ago up through today.)  
Mark (X) the "No" box to show types of income NOT received.  
If net income was a loss, mark the "Loss" box to the right of the dollar amount.

For income received jointly, report the appropriate share for each person – or, if that's not possible, report the whole amount for only one person and mark the "No" box for the other person.

- a. Wages, salary, commissions, bonuses, or tips from all jobs.** Report amount before deductions for taxes, bonds, dues, or other items.
- Yes → \$ \_\_\_\_\_ .00  
 No TOTAL AMOUNT for past 12 MONTHS

- b. Self-employment income from own nonfarm businesses or farm businesses, including proprietorships and partnerships.** Report NET income after business expenses.
- Yes → \$ \_\_\_\_\_ .00  Loss  
 No TOTAL AMOUNT for past 12 MONTHS

- c. Interest, dividends, net rental income, royalty income, or income from estates and trusts.** Report even small amounts credited to an account.
- Yes → \$ \_\_\_\_\_ .00  Loss  
 No TOTAL AMOUNT for past 12 MONTHS

- d. Social Security or Railroad Retirement.**
- Yes → \$ \_\_\_\_\_ .00  
 No TOTAL AMOUNT for past 12 MONTHS

- e. Supplemental Security Income (SSI).**
- Yes → \$ \_\_\_\_\_ .00  
 No TOTAL AMOUNT for past 12 MONTHS

- f. Any public assistance or welfare payments from the state or local welfare office.**
- Yes → \$ \_\_\_\_\_ .00  
 No TOTAL AMOUNT for past 12 MONTHS

- g. Retirement, survivor, or disability pensions.** Do NOT include Social Security.
- Yes → \$ \_\_\_\_\_ .00  
 No TOTAL AMOUNT for past 12 MONTHS

- h. Any other sources of income received regularly such as Veterans' (VA) payments, unemployment compensation, child support or alimony.** Do NOT include lump sum payments such as money from an inheritance or the sale of a home.
- Yes → \$ \_\_\_\_\_ .00  
 No TOTAL AMOUNT for past 12 MONTHS

- 47 What was this person's total income during the PAST 12 MONTHS?** Add entries in questions 46a to 46h; subtract any losses. If net income was a loss, enter the amount and mark (X) the "Loss" box next to the dollar amount.
- None OR \$ \_\_\_\_\_ .00  Loss  
TOTAL AMOUNT for past 12 MONTHS

Continue with the questions for Person 2 on the next page. If only 1 person is listed on pages 2 and 3, SKIP to page 28 for mailing instructions.

## APPENDIX C: Tables

### 2006 ACS Content Test

#### Evaluation Report Covering Industry and Occupation Items: Tables

Table 1. Content Test Response Rates, Control vs. Test

Response Rate	Total (%)	Control (%)	Test (%)	Difference (%)	Margin of Error (%)	Significant
Overall response rate	95.7	95.8	95.5	-0.3	± 0.9	No
Mail response rate	51.3	51.5	51.2	-0.3	± 2.2	No
CAPI response rate	92.4	92.6	92.1	-0.4	± 1.7	No
CFU response rate	76.2	75.9	76.4	0.5	± 1.6	No

## Research Question 1

Table 2: Distribution of Responses to Type of Industry Question

	Control	Test	Diff	ME	Significant
Total, Civilian Employed 16+	100%	100%			
Manufacturing	11.9	10.8	-1.1	1.3	No
Wholesale Trade	3.1	2.9	-0.1	0.7	No
Retail Trade	15.4	13.5	-1.9	1.3	Yes
Service	N/A	47.4	N/A	1.6	N/A
Other (Agriculture, Construction, Government, etc)	69.6	25.4	-44.2	1.9	Yes

## Research Question 2

Table 3: Distribution of Coded Values for Industry (high-level groupings)

	Control	Test	Diff	ME	Significant
Total	100%	100%			
Agriculture, Forestry, Fishing, and Hunting, and Mining Industries	1.8	1.7	-0.2	0.6	No
Construction Industries	7.8	7.1	-0.7	1.4	No
Manufacturing Industries	12.1	11.4	-0.8	1.3	No
Wholesale Trade Industries	3.7	3.3	-0.4	0.6	No
Retail Trade Industries	11.5	11.0	-0.5	1.1	No
Transportation and Warehousing, and Utilities Industries	5.1	4.6	-0.5	0.7	No
Information Industries	2.2	2.4	0.2	0.5	No
Finance and Insurance, and Real Estate and Rental and Leasing	7.1	7.4	0.2	0.9	No
Professional, Scientific, Management, Administrative, and Waste Management Services Industries	9.6	11.0	1.4	1.1	Yes
Educational Services and Healthcare, and Social Assistance Industries	21.5	22.3	0.8	1.6	No
Arts, Entertainment, Recreation, Accommodation, and Food Services, Industries	7.3	7.7	0.4	1.1	No
Other Services, except Public Administration Industries	5.0	5.0	0.0	0.8	No
Public Administration Industries	5.2	5.3	0.1	0.8	No

p= 0.63

$\chi^2$  Value: 9.82

Table 4: Distribution of Coded Values for Occupation (high-level groupings)

	Control	Test	Diff	ME	Significant
Total	100%	100%			
Management, Professional, and Related Occupations	35.4	36.3	0.9	1.9	No
Service Occupations	15.9	15.7	-0.2	1.3	No
Sales and Office Occupations	25.8	26.8	1.0	1.5	No
Farming, Fishing, and Forestry Occupations	0.6	0.6	0.1	0.3	No
Construction, Extraction, Maintenance, and Repair Occupations	9.9	8.5	-1.4	1.4	No
Production, Transportation, and Material Moving Occupations	12.4	12.1	-0.4	1.3	No
p= 0.43	$\chi^2$ Value: 4.90				



### Research Question 3

Table 5: Proportion of Codeable Responses (Industry Codes)

	Control	Test	Diff	ME	Significant
All Cases With Responses	100%	100%			
Coded a Valid Value	97.4	96.9	-0.5	0.5	No
Uncodeable	2.6	3.1	0.5	0.5	No

Table 6: Proportion of Codeable Responses (Occupation Codes)

	Control	Test	Diff	ME	Significant
All Cases With Responses	100%	100%			
Coded a Valid Value	96.9	96.4	-0.5	0.5	No
Uncodeable	3.1	3.6	0.5	0.5	No

### Research Question 4

Table 7: Item Nonresponse Rates for Name of Employer, Type or Kind of Business, Type of Industry, Type of Work, and Most Important Activities

	Control	Test	Diff	ME	Significant
Name of Employer	7.9	8.1	0.2	0.9	No
Type of Business	3.9	4.2	0.3	0.6	No
Type of Industry	4.4	3.7	-0.7	0.5	Yes
Type of Work	3.0	4.0	0.9	0.6	Yes
Mail	3.2	4.2	1.0	0.5	Yes
CATI/CAPI	2.8	3.7	0.9	1.3	No
Most Important Activities	5.0	5.5	0.5	0.8	No