

Contamination of Census 2000 Data Collected in Accuracy and Coverage Evaluation Block Clusters

FINAL REPORT

This evaluation study reports the results of research and analysis undertaken by the U.S. Census Bureau. It is part of a broad program, the Census 2000 Testing, Experimentation, and Evaluation (TXE) Program, designed to assess Census 2000 and to inform 2010 Census planning. Findings from the Census 2000 TXE Program reports are integrated into topic reports that provide context and background for broader interpretation of results.

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EXECUTIVE SUMMARY

To measure coverage error of the United States population in Census 2000, the United States Census Bureau conducted the Accuracy and Coverage Evaluation. The Accuracy and Coverage Evaluation included various stages of sampling. An initial Accuracy and Coverage Evaluation sample of block clusters was drawn, and housing units within the sampled block clusters were listed. Then the Accuracy and Coverage Evaluation was reduced through sub-sampling operations, and the remaining housing units interviewed during the Accuracy and Coverage Evaluation Person Interview.

The Accuracy and Coverage Evaluation uses dual-system estimation to measure coverage error. The dual system estimation method assumes there are two independent lists of the population. The first list is the original Census enumerations, and the second list is a list of those people covered by the sampling frame for the Accuracy and Coverage Evaluation sample.

The independence assumption can fail due to causal dependence, or conditioning of Census 2000 data collected in Accuracy and Coverage Evaluation block clusters. This can also be referred to as contamination. Contamination occurs when the event of an individual's inclusion or exclusion from one list affects the probability of their inclusion in the other list. Research undertaken in the 1990 Census and on test censuses leading up to Census 2000 mostly show that we have not experienced contamination in the past between the census and the coverage measurement survey. One paper found some possible evidence of contamination, and another found the update/leave Type of Enumeration Areas to be a weak area of concern for contamination.

We performed three separate analyses to determine the potential existence of contamination. They are the Whole Group Analysis, the Shadow Block Analysis, and the Debriefing Analysis. We did each of these analyses for the United States and Puerto Rico separately. The Whole Group Analysis and Shadow Block Analysis are quantitative, and the Debriefing analysis is qualitative.

The Whole Group Analysis and Shadow Block Analysis try to determine if the Accuracy and Coverage Evaluation contaminated Census data collected in Accuracy and Coverage Evaluation Blocks. To determine the potential existence of contamination, the two quantitative analyses aggregate census data in Accuracy and Coverage Evaluation blocks to the national, evaluation poststrata, or regional and Type of Enumeration Area levels. Then they compare census data in Accuracy and Coverage Evaluation blocks to census data in non-Accuracy and Coverage Evaluation blocks to see if significant differences exist. We examined the data to see if there was any firm evidence of contamination for:

- Three fundamental indicators.
- Demographic, geographic, and response related indicators.

The first fundamental indicator of contamination is the ratio $N_{c,ace}/N_c$. To detect contamination we performed a t-test to see if the ratio differed significantly from one. We calculated this ratio for the Whole Group Analysis at the National and evaluation poststrata levels. $N_{c,ace}$ is the sample-weighted number of census enumerations in the Accuracy and Coverage Evaluation, and

N_c is the Census count from all clusters.

The second fundamental indicator of contamination is the average number of persons per block. This average helps determine if the Accuracy and Coverage Evaluation affected the census count in Accuracy and Coverage Evaluation blocks. To detect contamination we calculated this average for Accuracy and Coverage Evaluation and non-Accuracy and Coverage Evaluation blocks at the 36 evaluation poststrata level, but not at the National level, and performed t-tests.

The third fundamental indicator of contamination is the average number of housing units per block. This average helps determine if the Accuracy and Coverage Evaluation affected the census housing unit count in Accuracy and Coverage Evaluation blocks. To detect contamination we calculated this average for Accuracy and Coverage Evaluation and non-Accuracy and Coverage Evaluation blocks at the state level, but not at the National level, and conducted t-tests.

We further investigated the presence of contamination with demographic, geographic, and response related indicators at the evaluation poststrata level and region and Type of Enumeration Area levels. We compared Census data in Accuracy and Coverage Evaluation block clusters to Census data in non-Accuracy and Coverage Evaluation block clusters by performing t-tests for the difference between various proportions in Accuracy and Coverage Evaluation block clusters and proportions in non-Accuracy and Coverage Evaluation block clusters. For example, we calculated the proportion of Census people in Accuracy and Coverage Evaluation blocks who are of the Black or African American race, and the proportion of Census people in non-Accuracy and Coverage Evaluation blocks who are of the Black or African American race. We subtracted the proportion for non-Accuracy and Coverage Evaluation blocks from the proportion for Accuracy and Coverage Evaluation blocks and did a t-test on this difference to see if it was significantly different from zero. We calculated proportions for a number of different variables, and calculated one set of t-statistics by the 36 evaluation poststrata, and the other sets of t-statistics by region and Type of Enumeration Area. We also calculated the t-statistics by the 16 preliminary evaluation poststrata.

The Whole Group Analysis has two parts. The first part of the Whole Group Analysis examines the influence of the Accuracy and Coverage Evaluation Independent Listing and the Accuracy and Coverage Evaluation Person Interview on Census 2000 data collected in Accuracy and Coverage Evaluation block clusters. The second part examines the influence of Accuracy and Coverage Evaluation Independent Listing on Census 2000 data collected in Accuracy and Coverage Evaluation block clusters.

The Whole Group Analysis and Shadow Block Analysis are basically the same. While the Whole Group Analysis compares Accuracy and Coverage Evaluation to all non-Accuracy and Coverage Evaluation clusters, the Shadow Block Analysis compares Accuracy and Coverage Evaluation block clusters to block clusters that surround Accuracy and Coverage Evaluation clusters. In addition, variances are calculated for the non-Accuracy and Coverage Evaluation block clusters during the Shadow Block Analysis. During the Whole Group Analysis, the non-Accuracy and Coverage Evaluation block clusters are treated as constants.

The Debriefing analysis examines the debriefing sessions after the Accuracy and Coverage Evaluation Independent Listing and the Accuracy and Coverage Evaluation Person Interview, and an Accuracy and Coverage Evaluation Person Interview interviewer questionnaire. The Field Division arranged debriefing sessions with listing and interviewing staffs to evaluate the listing and interviewing operations. With the help of Field, the Planning, Research, and Evaluation Division added questions on the concepts of independence and dependence avoidance to the debriefing guides for the debriefing sessions. Accuracy and Coverage Evaluation regional office managers, or a designee, debriefed listers, interviewers, crew leaders, and field office supervisors in these sessions. Additionally, for the interviewing operation, headquarters debriefed Accuracy and Coverage Evaluation regional office managers. Furthermore, the Planning, Research, and Evaluation Division prepared, distributed, and collected a questionnaire on independence for interviews in one Local Census Office per Accuracy and Coverage Evaluation regional office.

The evidence suggests that contamination bias is not a problem. Globally, we did not find evidence of contamination bias for high-level proportions and averages for both the Whole Group Analysis and the Shadow Block Analysis. For the Whole Group Analysis, we computed a t-statistic to see if the ratio $N_{c,ace}/N_c$ was significantly different from one for the Nation and the 36 evaluation poststrata. None of these t-tests were significant. In addition, for the Whole Group Analysis and the Shadow Block Analysis, the t-tests used to detect significant differences between A.C.E. and non-A.C.E. proportions for the second (average number of persons per block) and third (average number of housing units per block) fundamental indicators yielded little to no evidence of contamination.

The study also broke the data down to very detailed cells. These cells were demographic, geographic, and response related indicators of contamination broken down by the 36 evaluation poststrata, and region and Type of Enumeration Area. No systematic error was detected in these cells, although the number of significant results were somewhat above chance levels. Many of them were not considered as significant when we drew conclusions. This happened under two circumstances. First, there were several proportions that were close to 0 or 1. We regarded t-tests that used these small or large proportions to be unreliable because design based estimation procedures underestimate the variances for small proportions. Second, some of the differences between Accuracy and Coverage Evaluation and non-Accuracy and Coverage Evaluation proportions were extremely small. So, while these difference were mathematically significant they were not practically significant.

The Debriefing Analysis results also suggest that the Accuracy and Coverage Evaluation and Census 2000 were not contaminated. The Accuracy and Coverage did not influence participation in the Census. Furthermore, the processes to keep the Accuracy and Coverage Evaluation and Census 2000 independent and prevent contamination, such as the Accuracy and Coverage Evaluation Independence Rules, were correctly implemented.

The Whole Group Analysis, Shadow Block Analysis, and the Debriefing Analysis yielded no strong evidence that Accuracy and Coverage Evaluation Independent Listing alone or Accuracy

and Coverage Evaluation Independent Listing and the Accuracy and Coverage Evaluation Person Interview influenced how people responded to Census 2000 in the United States. For Puerto Rico, the Whole Group Analysis, Shadow Block Analysis, and the Debriefing Analysis yielded results consistent with those for the United States. These findings are consistent with the earlier assumption that contamination bias would not occur during Census 2000.

1. BACKGROUND

This report provides information to help determine if the Accuracy and Coverage Evaluation (A.C.E.) contaminated Census data collected in A.C.E. blocks.

To measure the overall and differential coverage of the United States population in Census 2000, the United States Census Bureau conducted the A.C.E. The A.C.E. included various stages of sampling. An initial A.C.E. sample of block clusters was drawn, and housing units within the sampled block clusters were listed. Then the A.C.E. was reduced through sub-sampling operations, and the remaining housing units interviewed during the A.C.E. Person Interview (Childers and Fenstermaker, 2000).

The A.C.E. uses the dual-system estimation (DSE) method to measure coverage error. The DSE method assumes there are two independent lists of the population. The first list is the original Census enumerations, and the second list is a list of those people covered by the sampling frame for the A.C.E. sample (Hogan, 2000).

The independence assumption can fail due to causal dependence, or contamination, between the two lists. Contamination occurs when the event of an individual's inclusion or exclusion from one list affects the probability of their inclusion in the other list (Mulry and Spencer, 1991). Research undertaken in the 1990 Census and on test censuses leading up to Census 2000 mostly show that we have not experienced contamination in the past between the Census and the coverage measurement survey (Davis, 1990; West, 1991; Hawala, 1999). One paper found some possible evidence of contamination, and another found the update/leave Type of Enumeration Areas (TEA) to be a weak area of concern for contamination (Griffiths, 1996; Bench, Kearney, and Petroni, 2000). Brief descriptions of these studies follow:

- The 1990 Post Enumeration Survey (PES) Evaluation Project, P14, Part I: *Independence of the Census and the P-sample: Comparison of Blocks* by Mary Davis conducted a paired block analysis that looked at the difference between PES blocks and non-PES blocks. This analysis first drew a sample of PES blocks paired with comparable non-PES blocks; second, for each block, aggregated Census data from person/housing unit level records to block level records; third, tested preliminary variables for relevance, completeness, and redundancy; and finally, tested the resulting data for the difference between PES and non-PES blocks with paired t-test comparisons and Wilcoxon signed rank tests. After testing a variety of census data, Davis concluded that no differences attributable to the PES were found between surveyed and nonsurveyed blocks.
- The 1990 PES Evaluation Project P14-Part 2: *Independence of Census and P-sample Field Debriefing Report* by Kirsten K. West conducted a debriefing of the 1990 PES field staffs to evaluate independence between Census and PES regional office operations. The debriefings consisted of two debriefing sessions and a debriefing questionnaire. Headquarters staff debriefed groups of PES interviewers, crew leaders, regional office staff and managers from New York City and the New England area, and PES interviewers filled out a debriefing questionnaire. From the debriefing results, West concluded that

the Census and PES operations were conducted independently of each other, and the procedures instituted to keep the operations separate in the field and the regional offices were implemented successfully.

- The 1995 Census Tests Integrated Coverage Measurement (ICM) Evaluation Project 11: *The Contamination Study* by Richard Griffiths conducted a paired block analysis similar to the 1990 study that compared ICM and non-ICM blocks for the four ICM sampling strata. He found differences in mail response rates between ICM and non-ICM for blocks with a high concentration of Asian-Pacific Islanders. This indicated possible contamination in only one of the four strata. He concluded the “evidence of contamination was somewhat weak”, and “would better serve as a warning than a call to arms.”
- The Census 2000 Dress Rehearsal Evaluation Memorandum C-2: *Contamination of Initial Phase Data Collected in ICM Block Clusters* by Sam Hawala conducted a paired block analysis that compared ICM/PES blocks with non-ICM/PES blocks. The study was based on the approach used in the 1990 PES Evaluation Project P14 and the 1995 Census Tests ICM Evaluation Project 11, except that Hawala paired block clusters that were in ICM/PES with at least two block clusters that were not in the ICM/PES. Hawala found very few significant differences in population coverage and no significant differences in housing unit status and respondent reaction indicators. He concluded that there was no evidence of contamination between the two operations.
- The 2000 American Statistical Association paper by Katie M. Bench, Anne T. Kearney, and Rita J. Petroni titled, *An Investigation into the Independence Between the Census 2000 Dress Rehearsal and the Integrated Coverage Measurement/Post Enumeration Survey*, compared aggregated data from A.C.E. blocks to non-A.C.E. blocks. They found that Update/Leave TEAs were a weak area of concern for contamination. There were few significant results, and most of these were found in Update/Leave TEAs.

2. METHODS

To determine the potential existence of contamination in Census 2000, we performed two quantitative analyses and one qualitative analysis. These analyses are done for the United States and Puerto Rico separately. The quantitative analyses are the Whole Group Analysis (WGA) (Bench, 2001; Kearney, 2001; Bench, Kearney, and Petroni, 2000), and the Shadow Block Analysis (Bench, 2002; Kearney, 2001). The qualitative analysis is the Debriefing Analysis (Kearney, 2001). We describe the methods for the WGA and Shadow Block Analysis in sections 2.1 and 2.2, the Debriefing Analysis in section 2.3, and the Quality Assurance procedures followed in section 2.4.

2.1 Whole Group Analysis and Shadow Block Analysis methods

The quantitative analyses aggregate Census data in A.C.E. blocks to the national, evaluation

poststrata, or the region and TEA levels, and Census data in non-A.C.E. blocks to the National, evaluation poststrata, or the region and TEA levels. We then compare Census data from A.C.E. blocks to Census data from non-A.C.E. blocks to see if significant differences exist. The quantitative analyses approach detecting contamination bias from a global hypothesis. We first examined three fundamental indicators of contamination, and then looked at demographic, geographic, and response related indicators.

Since contamination bias is defined as $DSE \cdot (1 - N_{c,ace}/N_c)$, we viewed the ratio $N_{c,ace}/N_c$ as the first fundamental indicator of contamination. T-tests were performed to see if this ratio differed significantly from one at the National and 36 evaluation poststrata levels (defined in Appendix A). $N_{c,ace}$ is the sample-weighted number of Census enumerations in the A.C.E., and N_c is the Census count from all clusters (Spencer, 2002).

The second fundamental indicator of contamination is the average number of persons per block. This average helps determine if the A.C.E. affected the Census count in A.C.E. blocks. To detect contamination we calculated this average for A.C.E. and non-A.C.E. blocks at the 36 evaluation poststrata level, but not at the National level, and performed t-tests.

The third fundamental indicator of contamination is the average number of housing units per block. This average helps determine if the A.C.E. affected the census housing unit count in A.C.E. blocks. To detect contamination we calculated this average for A.C.E. and non-A.C.E. blocks at the state level, but not at the National level, and computed t-tests.

We further investigated the presence of contamination with demographic, geographic, and response related indicators at the evaluation poststrata level and region and TEA levels. We compared Census data in A.C.E. block clusters to Census data in non-A.C.E. block clusters by performing t-tests for the difference between the proportions in A.C.E. block clusters and the proportions in non-A.C.E. block clusters. For example, we calculated the proportion of Census people in A.C.E. blocks who are of the Black or African American race, and the proportion of Census people in non-A.C.E. blocks who are of the Black or African American race. We subtracted the proportion for non-A.C.E. blocks from the proportion for A.C.E. blocks and did a t-test on this difference to see if it was significantly different from zero. We calculated proportions for a number of different variables (listed in Appendix B), and calculated one set of t-statistics by the 36 evaluation poststrata, and the other sets of t-statistics by region and TEA. We are also calculated the t-statistics by the 16 preliminary evaluation poststrata (defined in Appendix C). These results are located in Appendices D, E, and F.

2.1.1 A.C.E. and non-A.C.E. block clusters definitions for the quantitative analyzes

For the WGA and Shadow Block Analysis, A.C.E. and non-A.C.E. block clusters were broken into the following three groups:

- A.C.E. block clusters (A-group) - blocks that remained in the A.C.E. sample after A.C.E. sample reduction. Blocks subsampled out during small block subsampling, and housing units subsampled out after E-sample subsampling received a weight of zero. These

blocks were listed during A.C.E. Independent Listing and interviewed during the A.C.E. Person Interview.

- Initial but not final A.C.E. block clusters (B-group) - blocks that were sampled for the initial A.C.E. sample, but did not remain in the A.C.E. sample after A.C.E. Sample Reduction. These blocks were listed during A.C.E. Independent Listing, but weren't interviewed.
- Non-A.C.E. block clusters (C-group) - blocks not sampled for the initial A.C.E. sample.

2.1.2 A.C.E. and non-A.C.E. block clusters for the Whole Group Analysis

The Whole Group Analysis has two parts. The first part of the WGA examines the influence of A.C.E. Independent Listing and the A.C.E. Person Interview on Census data collected in A.C.E. block clusters by comparing A-group blocks to C-group blocks (A vs C). The second part examines the influence of A.C.E. Independent Listing on Census data collected in A.C.E. block clusters by comparing B-group blocks to C-group blocks (B vs C) (Bench and Pearson, 2001). The same proportions are computed for the A vs C comparison as the B vs C comparison. The exception to this is the first fundamental indicator of contamination, $N_{c,ace}/N_c$, which was only computed for the A vs C comparison.

The B vs C comparison does not consist of all B-group blocks or all C-group blocks. To make the B vs C comparison possible, we eliminated groups of blocks in the C-group that have no representatives in the B-group. We also eliminated groups of blocks within states with weights large enough to cause unfavorable variance increases (Bench and Pearson, 2001).

The following blocks were removed from the C-group for the B vs C comparison because the B-group does not contain such blocks.

1. All Florida and Puerto Rico blocks
2. Small block clusters and American Indian Reservation block clusters in all states
3. Minority blocks in the following 14 states: Illinois, Virginia, Ohio, Pennsylvania, Massachusetts, Michigan, Missouri, Indiana, Washington, Wisconsin, Minnesota, Vermont, New Hampshire, Maine.

The following blocks were removed from the B-group and C-group for the B vs C comparison because the weights would have increased the variance more than desired.

1. Minority blocks from the following states: New Jersey, Georgia, North Carolina
2. Non-minority blocks from the following states: Wisconsin, Pennsylvania, Indiana, Michigan, Illinois, Ohio.

2.1.3 A.C.E. and non-A.C.E. block clusters for the Shadow Block Analysis

As shown in the results section, the Whole Group Analysis did not find global evidence of

contamination. So, we performed an additional analysis called the Shadow Block Analysis to further examine the potential existence of contamination. For the Shadow Block Analysis, 51 state block files consisting of all blocks in the state were sorted so that all block cluster records in the initial A.C.E. sample were preceded and followed by neighboring non-A.C.E. block clusters. These non-A.C.E. clusters are known as the shadow block clusters. We considered a shadow block cluster to match the initial A.C.E. block cluster it precedes or follows as long as the shadow block cluster falls within the same A.C.E. sampling stratum as the initial A.C.E. block cluster. Shadow block clusters were obtained for all initial A.C.E. block clusters. There are approximately twice the number of shadow block clusters as initial A.C.E. block clusters. We compared Census data obtained in the initial A.C.E. block clusters to Census data obtained in the shadow block clusters to detect any differences. We compared A.C.E. block clusters to shadow block clusters because we believed that A.C.E. and shadow block clusters should be more alike than A.C.E. and non-A.C.E. block clusters.

The Shadow Block Analysis is basically the same as the WGA except for one distinct difference. The difference is the A.C.E. and non-A.C.E. block clusters involved in the analysis. The A.C.E. block clusters for the Shadow Block Analysis consist of all the block clusters sampled for the initial A.C.E. sample (A-group and B-group). The non-A.C.E. block clusters consist of only the non-A.C.E. block clusters preceding or following one of the initial A.C.E. block clusters on the Universe File. The WGA split the initial A.C.E. block clusters into two groups – A-group blocks and B-group blocks. The non-A.C.E. block clusters in the WGA included all C-group blocks.

The Shadow Block Analysis examines the same statistics for A.C.E. and non-A.C.E. block clusters as the Whole Group Analysis except for the first fundamental indicator of contamination. These are described in the Planning, Research, and Evaluation Division TXE/2010 Memorandum Series: CM-CON-S-1, “A.C.E. Evaluation N1: Contamination of Census Data Collected in A.C.E. Clusters - Specifications for Calculation of Estimates for the Whole Group Analysis,” dated February 1, 2001.

2.1.4 Estimation of variances

We used VPLX (Fay, 1998) and a stratified jackknife estimation to calculate the t-statistics. However, for the WGA, we did not calculate standard errors for the proportions from non-A.C.E. blocks. Since the non-A.C.E. blocks are close to the whole population, the standard errors for these proportions would have been very close to zero. So, we treated these proportions as constants. For the Shadow Block Analysis, we did calculate variances for proportions from non-A.C.E. shadow block clusters.

Design based estimation procedures underestimate the variances for small proportions, and therefore, result in too many significant differences. When the proportions were close to the end points, that is zero or one, we suspected that their standard errors and hence the associated t-statistics were unreliable. T-statistics based on such proportions are not considered when we draw conclusions. We considered proportions within 0.015 of zero or one (proportions smaller than 0.015 or bigger than 0.985) to be too small or too big.

2.2 Variables tested with t-tests for the difference between two proportions

We performed t-tests on a number of different variables to test for significant differences between proportions in A.C.E. block clusters and proportions in non-A.C.E. block clusters. The proportions calculated for these variables were broken out by the 36 evaluation poststrata, state, region, and region and TEA. This section describes the multiple comparison procedure used to determine which t-statistics were significant, and which variables we calculated proportions for by the 36 evaluation poststrata, region, and region and TEA during the WGA A vs C comparison, WGA B vs C comparison, and the Shadow Block Analysis.

2.2.1 Multiple comparison procedure

We used the False Discovery Rate (FDR) multiple comparison procedure. The FDR procedure controls for the proportion of errors committed by falsely rejecting the null hypothesis. The FDR has some advantages for our study over other procedures such as the familywise error rate and Bonferroni procedures. For instance, when more of the hypotheses are not true, the potential for increase in power is larger for the FDR procedure, and the power of the FDR procedure is uniformly larger than that of the other methods (Bench, Kearney, Petroni, 2000; Benjamini and Hochberg, 1995).

This paper has two levels of multiple comparisons to be concerned about. The first level is the number of variables we calculated proportions for. The second level is the number of proportions we calculated for each variable. For each variable, we calculated proportions for the 36 evaluation poststrata, each state, or four TEA levels.

We took the second level of multiple comparison into account by using the FDR procedure. For statistics calculated by the 36 evaluation poststrata, state, or TEA, we tested each variable separately for significance. For example, we calculated a t-statistic for four TEA to test the difference between the proportion of people between 18 and 29 years old in A.C.E. blocks, and the proportion of people between 18 and 29 years old in non-A.C.E. blocks for significance. The TEA are mailout mailback, update leave, update enumerate, and list enumerate. To test the t-statistics for the four TEA for significance, we applied the FDR procedure to these four t-statistics. However, for statistics calculated by region but collapsed across TEA, we divided the variables into nine different variable groups, and applied the FDR procedure separately within each variable group to determine significant results.

We took into account the first level of multiple comparisons by expecting significant results to number ten percent of the number of variables tested for statistics calculated by the 36 evaluation poststrata, each state, or TEA. For statistics calculated by region but collapsed across TEA, we expected the number of significant results to number ten percent of the number of variable groups.

2.2.2 T-tests calculated by the 36 evaluation poststrata, and states

For the t-tests calculated by the 36 evaluation poststrata and state during the WGA A vs C

comparison, we performed t-tests for 37 variables (Bench, 2001). We calculated a separate t-statistic for each of the 36 evaluation poststrata for 34 of these variables. The remaining three variables had a t-statistic calculated for each state. Table 1 shows the number of variables tested and how many comparisons were made for each variable.

Table 1. Number of comparisons for the WGA A vs C comparisons

<u>Number of Variables</u>	<u>Number of Comparisons</u>
34	36
3	51

For the WGA B vs C comparison and the Shadow Block Analysis, we performed t-tests for all except the ratio $N_{c,ace}/N_c$.

2.2.3 Puerto Rico t-tests calculated by the nine evaluation poststrata, and Puerto Rico

For the WGA of Puerto Rico, we performed t-tests for each of the nine evaluation poststrata (defined in Appendix G) for 30 variables. A t-test for average housing units per block was calculated for Puerto Rico as a whole.

The WGA A vs C comparison and the Shadow Block Analysis were done for Puerto Rico. Puerto Rico does not have any B-group blocks; it did not have an A.C.E. sample reduction. So, the Puerto Rico WGA consists of only the A vs C comparison. In addition, Puerto Rico has only one TEA, so we did not compute t-statistics for the proportion of people in Mailout Mailback, Update Leave, Update Enumerate, or List Enumerate TEAs.

2.2.4 T-tests calculated by region but collapsed across TEA

T-tests calculated for demographic, geographic, and response related indicators by region, but collapsed across TEA looked for significant differences in A.C.E. and non-A.C.E. blocks for 29 variables. We divided these 29 variables into nine variable groups, and applied the FDR procedure separately within each variable group to determine significant results. The nine variable groups are as follows:

1. Average number of persons per occupied housing unit (NP)
2. Proportion of housing units in Nonresponse Followup (NRU)
3. Proportion of housing units in Coverage Improvement Followup (CIU)
4. Proportion of housing units in Coverage Edit Followup (CEU)
5. Proportion of the following items edited or imputed: Hispanic origin (Hispanic origin Edited), sex (Sex Edited), race (Race Edited), tenure (Tenure Edited), and relationship (Relationship Edited)
6. Proportion non-relative (Non-relative), proportion other relative (Other Relative), proportion male (Male), proportion renter (Renter), proportion Hispanic (Hispanic), proportion African American or Black (Black), proportion Asian (Asian), proportion Native American (Native American), proportion Native Hawaiian or other Pacific

Islander (Pacific Islander)

7. Average number of data defined persons per occupied housing unit (DDP), proportion long form (Long Form), proportion be counted form (Be Counted Form)
8. Proportion of the following number of units at the basic street address: 1 (1 UBSA), 2 (2 UBSA), 3 to 10 (3 to 10 UBSA), and 11 or more (11+ UBSA)
9. Proportion of people in the following age groups: 0 - 17 years of age (Age group 1), 18 to 29 years of age (Age group 2), 30 to 49 years of age (Age group 3), 50 plus years of age (Age group 4)

We did not compute t-statistics by region collapsed across TEA for eight variables. The eight excluded variables are:

- Ratio of $N_{c,ace}/N_c$.
- Housing units per block.
- Persons per block.
- Proportion of people in each evaluation poststrata.
- Proportion of people in Mailout Mailback TEA, Update Leave TEA, List Enumerate TEA, and Update Enumerate TEA.

2.2.5 T-tests calculated for Puerto Rico but collapsed across TEA

This section describes the methods used for t-tests calculated for Puerto Rico as a whole. Puerto Rico has only one TEA, so results were not broken out by TEA. These t-tests, look for significant differences in A.C.E. and non-A.C.E. blocks for 29 variables. We divided these 29 variables into nine variable groups, and applied the FDR procedure separately within each variable group to determine significant results. The 29 variables and nine variable groups are the same as those listed in section 2.2.4.

2.2.6 T-tests calculated by region and TEA

This section describes the methods used for t-tests calculated for demographic, geographic, and response related indicators by region and TEA. For the t-tests calculated for the Nation by TEA, we performed t-tests for the following 69 variables.

- The 29 variables mentioned in section 2.2.6
- Proportion of people in the Mailout Mailback TEAs
- Proportion of people in the Update Leave TEAs
- Proportion of people in the List Enumerate TEAs
- Proportion of people in the Update Enumerate TEAs
- Proportion of people in each of the 36 evaluation poststrata.

For the t-tests calculated by the four regions and TEA, we performed t-tests for 33 variables. These 33 variables are the same tested at the national and TEA level, except for the proportion of people in the 36 evaluation poststrata.

2.3 Debriefing Analysis Methods

The debriefing analysis collected data through debriefing sessions and a debriefing questionnaire. The Field division conducted debriefings of field staff after A.C.E. Independent Listing, and the A.C.E. Person Interview (PI). We added questions pertaining to independence (i.e. contamination) between the Census and the A.C.E. to these debriefing sessions. We also designed and distributed to some A.C.E. PI interviewers a questionnaire containing questions pertaining to independence (Bench and Pearson, 2002).

The questions pertaining to independence were based on the A.C.E. Independence Rules (Blass, *Revised Accuracy and Coverage Evaluation Independence Rules*, 1999). These rules attempted to maintain independence between Census 2000 and the A.C.E., and therefore avoid contamination. The following sections give further details on the debriefing sessions and the debriefing questionnaire (Bench and Pearson, 2002).

2.3.1 A.C.E. Independent Listing and Person Interview debriefing sessions

The Field Division conducted the A.C.E. Independent Listing and the A.C.E. Person Interview debriefing sessions similarly, but separately (Blass, *Accuracy and Coverage Evaluation Listing Debriefing Plans*, 1999; Blass, *Accuracy and Coverage Evaluation Person Interview Debriefing Plans*, 2000). Each A.C.E. regional office (ACERO) selected a group of listers, interviewers, crew leaders, or field office supervisors (FOSs) representing all skill levels and different areas in the region to participate in a debriefing session. Each group generally consisted of eight to twelve participants.

The Field Division conducted the last set of Independent Listing debriefing sessions in December 1999, near the end of A.C.E. Independent Listing. They debriefed listers in one set of sessions and crew leaders in another set.

The Field Division conducted the A.C.E. Person Interview debriefing sessions in August and September 2000, near the end of the PI. They debriefed interviewers in one set of sessions, crew leaders and FOSs in another set, and ACERO managers and assistant managers in yet another set.

The ACERO manager (or designee) led the debriefing sessions. We provided the leaders of these sessions with supplemental debriefing guides, which included sets of questions relevant to independence. The leader recorded a summary of the participants' comments. The questions on the A.C.E. Independent Listing and Person Interview debriefing guides pertaining to independence are in the following appendices.

- Appendix H - A.C.E. Lister Debriefing Addendum
- Appendix I - A.C.E. Crew Leader Debriefing - Listing Operation Addendum
- Appendix J - Accuracy and Coverage Evaluation Person Interview, Person Interview Quality Assurance (QA), Targeted Extended Search Debriefing Questions; Interviewers and QA checkers
- Appendix K - Accuracy and Coverage Evaluation Person Interview, Person Interview

QA, Targeted Extended Search Debriefing Questions; Crew Leaders, QA Crew Leaders, FOSs, and QA FOSs

The Planning, Research, and Evaluation Division (PRED) developed the questions in appendices H and I, and the two divisions contributed to the final two debriefing guides in attachments J and K. It should be noted that appendices J and K do not contain the full set of debriefing questions. They only contain the questions relating to independence.

2.3.2 Analysis of A.C.E. Independent Listing and Person Interviewing debriefing sessions

We analyzed the A.C.E. Independent Listing debriefings and the A.C.E. PI debriefings separately. The results are presented at the national level. Each analysis includes both general comments that were reiterated in several of the regional office summaries and specific comments from the ACEROs.

We designed some of the debriefing questions to indicate if the A.C.E. contaminated the Census, and others to indicate if the Census contaminated the A.C.E. The results for these two sets of questions are presented separately. The results for questions indicating if the A.C.E. contaminated the Census are in sections 7.1 and 7.2, and the results for questions indicating if the Census contaminated the A.C.E. are in sections 8.1 and 8.2.

2.3.3 Distribution, collection, and keying of the A.C.E. Person Interview interviewer questionnaires

In addition to the debriefing sessions, PRED sent a questionnaire to all A.C.E. PI interviewers in one Local Census Office (LCO) per ACERO. We sent fifteen questionnaire packages, each including a questionnaire (see Appendix L), an envelope, and an interviewer cover memorandum to each ACERO (Bench, ACERO: *Distribution of the Accuracy and Coverage Evaluation Person Interview Interviewer Debriefing Questionnaire and Crew Leader and FOS Instructions*, 2000). Each ACERO then distributed the packages to the Person Interview crew leaders at the selected LCO. The crew leaders then distributed these packages to each interviewer as soon as possible, but toward the end of the interviewer's assignment. We asked each interviewer to fill out the questionnaire, seal it inside the provided envelope, and return it to their crew leader. We allowed interviewers to charge 30 minutes to complete the questionnaire (Bench, *Accuracy and Coverage Evaluation Person Interview Interviewers: Completion of Debriefing Questionnaire*, 2000).

Crew leaders collected the completed questionnaires, maintained a debriefing questionnaire log to track who had responded, and returned them to PRED (Bench, *Accuracy and Coverage Evaluation Person Interview Crew Leaders: Completion of the Debriefing Questionnaire*, 2000).

Additionally, we sent a memorandum to ACERO managers and FOSs to explain the process (Bench, ACERO: *Distribution of the Accuracy and Coverage Evaluation Person Interview Interviewer Debriefing Questionnaire and Crew Leader and FOS Instructions*, 2000; Bench,

Census 2000 A.C.E. Person Interview FOSs: Overview of Person Interview Debriefing Questionnaire Purpose and Procedures, 2000). In all correspondence, staff was reminded that this was not for any other purpose than to evaluate the Census Bureau's ability to keep the Census and A.C.E. separate. To protect the confidentiality of the interviewers, under no circumstances were crew leaders, FOSs, or any ACERO staff allowed to see the questionnaires.

Upon receipt of the completed questionnaires, PRED staff keyed the returned questionnaires into an Excel spreadsheet, adding to each questionnaire a unique identification number (Bench, *A.C.E. Evaluation N1: Keying of A.C.E. Person Interview Debriefing Questionnaire*, 2000).

2.3.4 Resolution of A.C.E. Person Interview interviewer questionnaire data

In some cases, the responses from the questionnaires needed to be slightly modified, so they conformed with the requested form of response. This is due to interviewers misunderstanding instructions (such as when to skip parts of questions).

Many questions on the questionnaire have multiple parts. Answering "No" to the first part of most of these questions allowed the interviewer to skip to the next question, while answering "Yes" to the first part of most of these questions required the interviewer to complete more parts to the current question before proceeding to the next question. For the questions with multiple parts, some interviewers did not understand the structure. We resolved the three resulting problematic scenarios as follows.

- If the interviewer answered "Yes" but did not complete the subsequent question parts, we did nothing and treated it as missing data.
- If the interviewer answered "No" but answered the question parts he or she was instructed to skip, we ignored the responses to the parts the interviewer should have skipped.¹
- If the interviewer did not answer the first part of a question, but did answer the subsequent parts, we assumed the interviewer intended to mark "Yes" for the first part of the question.

We did not include questionnaires that showed obvious evidence of error, or that were completed by a crew leader.

2.3.5 Analysis of A.C.E. Person Interview interviewer questionnaire

We designed some of the questions on the questionnaire to indicate if the A.C.E. contaminated the Census, and others to indicate if the Census contaminated the A.C.E. The results for these two sets of questions are presented separately. The analysis of the questions indicating if the A.C.E. contaminated the Census are in sections 7.3.2 through 7.3.6, and the analysis of the questions indicating if the Census contaminated the A.C.E. are in sections 8.3.1 through 8.3.7.

¹In most of these cases, the interviewer would include comments indicating that the "No" was correct and the responses to the other question parts invalid.

We present the results at the national level. If you are interested in the results for each ACERO, see the Planning, Research, and Evaluation Division TXE/2010 Memorandum Series: CM-CON-F-02, "Debriefing Analysis Methods and A.C.E. Person Interview Interviewer Debriefing Questionnaire Results for each ACERO," dated June 12, 2002.

2.4 Applying quality assurance procedures

We applied quality assurance procedures throughout the creation of this report. They encompassed how we determined evaluation methods, created specifications for project procedures and software, designed and reviewed computer systems, developed clerical and computer procedures, analyzed data, and prepared this report. For a description of these procedures, see the binder "Census 2000 Evaluation Program Quality Assurance Process."

3. LIMITS

We designed debriefing questions to provide an overview, and not specific details of situations where the independence assumption might have failed in the field. Because of this, we can not offer many details on the issues brought up during the debriefings.

3.1 Debriefing session limitations

A.C.E. Independent Listing field work was staged in three waves. Debriefing sessions were conducted at all twelve ACEROs following completion of listing field work. However, PRED did not have additional questions incorporated into the debriefing sessions until the third wave of listing. By this time, much of the field work was done and field staff released. So, it was possible for staff from only four ACEROs (Seattle, Charlotte, Los Angeles, and New York) to answer the questions about contamination. Therefore, special care must be taken when generalizing the results of the A.C.E. Independent Listing debriefing sessions.

3.2 Questionnaire limitations

There are two main limitations of the A.C.E. PI interviewer questionnaire. The first is that only one LCO per ACERO received the questionnaire. The second is interviewer oversight and misunderstanding while completing the questionnaire. These two limitations are discussed below.

3.2.1 Only one LCO per ACERO

The A.C.E. PI interviewer questionnaires were distributed to only one LCO per ACERO. So care must be taken in generalizing conclusions. The best example of this is the type of enumeration area (TEA). We chose the twelve LCOs to have a mix of TEAs, but the majority of each LCO usually has only one TEA. Therefore, only one TEA is represented in each ACERO. This problem is present with other factors of the chosen LCOs, such as demographic makeup and economic prosperity.

3.2.2 Interviewer oversight and misunderstanding

In some cases, an interviewer's completed questionnaires include obvious mistakes. These mistakes are most likely due to interviewer oversight or misunderstanding. The several cases in which we handled missing data or obviously inaccurate data are outlined in section 2.3.4. While these procedures corrected most problematic data, some outliers remain. Possible explanations for the inaccurate data on questionnaires include differences between LCOs, interviewers not understanding the questions, and respondents referring to their work on decennial operations and not the A.C.E. PI when answering questions.

4. WHOLE GROUP ANALYSIS A VS C COMPARISON RESULTS

A small portion of the t-tests results obtained through the Whole Group Analysis A vs C comparison are given in this section. The first sub-section presents the significant results of tests calculated by the 36 evaluation poststrata, and by state. The second sub-section presents the significant results of tests calculated by region. The third sub-section presents the significant results of tests calculated by region and TEA.

4.1 Significant results for t-tests calculated for the nation, 36 evaluation poststrata, and states

Sections 4.1.1, 4.1.2, 4.1.3, and 4.1.4 contain the significant results of t-tests used to detect contamination at the 36 evaluation poststrata level, and state level.

4.1.1 T-tests to see if $N_{c,ace}/N_c$ differs from one

We computed the ratio of $N_{c,ace}/N_c$ fundamental indicator at the national level, and for each of the 36 evaluation poststrata. The t-test for the National level ratio was not significant, and neither were the t-tests for the 36 evaluation poststrata ratios. Since no t-statistics were significant, I did not include these numbers in this report.

4.1.2 T-tests for the average number of persons per block

We computed the average number of persons per block to help determine if the A.C.E. affected the Census count in A.C.E. blocks. We calculated this average for A.C.E. and non-A.C.E. blocks at the 36 evaluation poststrata level, but not at the National level. None of the t-tests for 36 evaluation poststrata were significant. Since none of the differences between the average for A.C.E. blocks and the average for non-A.C.E. blocks were significant, I did not include these numbers.

4.1.3 T-tests for the average number of housing units per block

We computed the average number of housing units per block where there is at least one housing unit in the block to help determine if the A.C.E. affected the Census count in A.C.E. blocks. We

calculated this average for A.C.E. and non-A.C.E. blocks at the state level, but not at the National level. Table 2 shows the A.C.E. and non-A.C.E. averages that are significantly different. Table 3 contains the significant differences.

Table 2. WGA A vs C: significantly different average number of housing units per block for a specific evaluation poststrata

Variable	State	A.C.E. Proportion/ Average ^B	Non-A.C.E. Proportion/ Average ^B
Avg. Housing Units per Block	Florida	24.39683	30.00550
	West Virginia	57.05223	17.21393

B - Base totals for these proportions/averages are in Table M-1 of Appendix M.

Table 3. WGA A vs C: significant differences for average number of housing units per block for a specific evaluation poststrata

Variable	State	Significant Difference	Standard Error	P-value	Critical P-value
Avg. Housing Units per Block	Florida	-5.60867	1.74212	0.00128	0.00392
	West Virginia	39.83830	1.71669	0.00067	0.00196

Tables 2 and 3 show that two states have significantly different A.C.E. and non-A.C.E. housing units per block averages. These two significant differences suggest some evidence of contamination.

4.1.4 T-tests for the difference between A.C.E. proportions and non-A.C.E. proportions

Tables 4 and 5 below display the results of the t-tests calculated for the demographic, geographic, and response related indicators by the 36 evaluation poststrata and state. Table 4 shows, for each variable tested by the 36 evaluation poststrata or state, the A.C.E. and non-A.C.E. proportions that are significantly different. Table 5 contains the significant differences for each variable in Table 4 whose proportions were not close to zero or one.

Table 4. WGA A vs C: variables with significantly different proportions or averages for a specific evaluation poststrata or state

Variable	Evaluation Poststrata	A.C.E. Proportion/ Average^B	Non-A.C.E. Proportion/ Average^B
Age group 4 (50+)	28	0.16562	0.18372
Black	3	^N 0.00019	^N 0.00074
	25	0.98240	0.97830
Pacific Islander	2	^N 0.00023	^N 0.00059
	14	^N 0.00002	^N 0.00010
	23	^N 0.00005	^N 0.00050
	34	0.02839	0.03687
Asian	5	^N 0.00057	^N 0.00120
	6	^N 0.00087	^N 0.00185
	34	0.96646	0.95747
Be Counted	7	^N 0.00016	^N 0.00087
	17	^N 0.00053	^N 0.00107
1 UBSA	9	0.96350	0.94473
	11	^N 0.98710	^N 0.98073
	32	0.11826	0.16743
2 UBSA	28	0.02459	0.03619
3 to 10 UBSA	11	^N 0.00152	^N 0.00381
	30	^N 0.00544	^N 0.01009
11+ UBSA	9	0.01628	0.03194
	11	^N 0.00022	^N 0.00115
Proportion People in an Evaluation	25	^N 0.02978	^N 0.03367
Poststratum	36	^N 0.00686	^N 0.00771
Update Enumerate	24	^N 0.00047	^N 0.00341
	35	^N 0.00012	^N 0.00039

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions/averages are in Table M-1 of Appendix M.

Table 4 shows that the FDR procedure yielded eight significant results. There are more than eight proportions/averages with significant differences listed in the last two columns of the table, but we are not considering t-statistics for the proportions marked with “N” as significantly different. These proportions are either very close to zero or very close to one, so we are suspicious of the t-statistics.

Table 5. WGA A vs C: variables with significant differences for a specific evaluation poststrata or state

Variable	Evaluation Poststrata	Significant Difference	Standard Error	P-value	Critical P-value
Age Group 4 (50+)	28	-0.01810	0.00439	0.00004	0.00278
Black	25	0.00410	0.00146	0.00516	0.00556
Pacific Islander	34	-0.00848	0.00275	0.00208	0.01111
Asian	34	0.00899	0.00317	0.00459	0.00833
1 UBSA	9	0.01877	0.00633	0.00302	0.00556
11+ UBSA	9	-0.01567	0.00486	0.00127	0.00556
2 UBSA	28	-0.01160	0.00283	0.00004	0.00278
1 UBSA	32	-0.04918	0.01673	0.00329	0.00833

Table 5 shows the same results as Table 4, but lists the significant difference and critical p-values instead of the proportions/averages. This table only lists significant differences for variables that had A.C.E. and non-A.C.E. proportions bigger than 1.5 percent or smaller than 98.5 percent.

In conclusion, table 5 shows eight significant differences, but no systematic error was detected, although the number of significant results were somewhat above chance levels. Three of the eight significant differences are less than one percent, and on their A.C.E. and non-A.C.E. proportions are on the border of being considered too close to zero or one. An additional two variables also have A.C.E. and non-A.C.E. proportions on the border of being considered too close to zero or one. The variables Black, Pacific Islander, and Asian all have the significant differences less than one percent, and proportions on the border of being considered too close to zero or one. The variables 2 UBSA and 11+ UBSA both have proportions on the border of being considered too close to zero or one. In addition, the variables 1 UBSA and 11+ UBSA are from the same distribution, and both significant for evaluation poststrata nine. They are measuring different aspects of the same thing, and could probably be considered as one significant result. This means that we are only totally confident in three of the eight significant differences (Age group 4, UBSA1 for two evaluation poststrata).

4.2 Significant results for t-tests calculated by region but collapsed across TEA

This section contains the significant results for t-tests calculated for demographic, geographic, and response related indicators by region, but collapsed across TEA. Tables 6 and 7 display the results of the t-tests performed at the National and regional level collapsed across TEA. Table 6 shows which variables have significantly different A.C.E. and non-A.C.E. proportions. The proportions close to zero or one are indicated with “N”. Table 7 contains the significant differences for each variable in Table 6 whose proportions are not marked with “N”.

Table 6. WGA A vs C: variables with significantly different proportions collapsed across TEA for a specific region

Region	Variable	A.C.E. Proportions ^B	Non-A.C.E. Proportions ^B
National	Relationship Edited	0.03637	0.03788
	Pacific Islander	^N 0.00187	^N 0.00217
	Other Relative	0.05552	0.05731
	Native American	^N 0.01030	^N 0.01143
	Age group 1 (0-17)	0.25990	0.26299
South	Black	0.17676	0.18824
	Other Relative	0.05705	0.05990
	Hispanic	0.10284	0.11660
	Pacific Islander	^N 0.00050	^N 0.00079
West	Native American	0.02014	0.02247

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions are in Table M-2 of Appendix M.

Table 7. WGA A vs C: variables with significant differences collapsed across TEA for a specific region

Region	Variable	Significant Difference	Standard Error	P-value	Critical P-value
National	Relationship Edited	-0.00151	0.00058	0.00941	0.02000
	Other Relative	-0.00180	0.00069	0.00914	0.02222
	Age group 1 (0-17)	-0.00309	0.00136	0.02298	0.02500
South	Black	-0.01148	0.00568	0.04318	0.04444
	Other Relative	-0.00285	0.00112	0.01120	0.03333
	Hispanic	-0.01375	0.00479	0.00405	0.02222
West	Native American	-0.00233	0.00084	0.00538	0.01111

The results in tables 6 and 7 do not show much evidence of contamination. Only two out of the four regions have any significant results. The West has only one significant difference and it is less than 0.01. The South has three significant differences which are all from the same variable group. Since we used the FDR procedure to test separately for significance in each variable group, three out of nine variables with significant results is a concern. However, the difference for Other Relative is less than 0.01, and the difference for Black is barely significant. This p-value might have been slightly bigger and hence not significant if we had calculated the small standard errors for non-A.C.E. estimates. At the National level Other Relative, Relationship Edited, and Age group 1 have significant results which are all less than 0.01. Furthermore, out of these three variables only Other Relative has a significant result in one of the four regions. That region is the South. When we consider the significant differences that are small and barely significant, the significant difference for Hispanic in the South is the only significant result that we are concerned with, so there does not seem to be much evidence of contamination for the Nation and regions collapsed across TEA.

4.3 Significant results for t-tests calculated by region and TEA

Sections 4.3.1 through 4.3.5 contain the significant results of t-tests calculated for demographic, geographic, and response related indicators by region and TEA.

4.3.1 T-tests for the difference between two proportions at the National and TEA level

Tables 8 and 9 display the results of the t-tests performed at the National and TEA level. Table 8 shows which variables have significantly different A.C.E. and non-A.C.E. proportions. The proportions close to zero or one are indicated with “N”. Table 9 contains the significant differences for each variable in Table 8 whose proportions are not marked with “N”.

Table 8. WGA A vs C: National - variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion^B	Non-A.C.E. Proportion^B
Relationship Edited	Mailout Mailback	0.03657	0.03826
Other Relative	Mailout Mailback	0.05840	0.06008
	List Enumerate	0.02270	0.03207
Black	Update Enumerate	^N 0.00633	^N 0.01640
Native American	Mailout Mailback	^N 0.00778	^N 0.00858
	List Enumerate	0.01656	0.02822
Pacific Islander	Mailout Mailback	^N 0.00208	^N 0.00234
	Update Leave	^N 0.00097	^N 0.00145
	Update Enumerate	^N 0.00032	^N 0.00074
1 UBSA	Update Enumerate	0.94053	0.89200
3 to 10 UBSA	Update Enumerate	0.02126	0.03770
11+ UBSA	Update Enumerate	0.01519	0.04547
People in evaluation poststratum 4	Mailout Mailback	0.03247	0.03703
People in evaluation poststratum 11	Update Leave	0.19183	0.21736
People in evaluation poststratum 24	Update Enumerate	^N 0.00119	^N 0.01026
People in evaluation poststratum 25	Mailout Mailback	0.03678	0.04132
People in evaluation poststratum 31	Mailout Mailback	0.04378	0.04815
People in evaluation poststratum 35	Update Enumerate	^N 0.00027	^N 0.00096
People in evaluation poststratum 36	List Enumerate	0.01280	0.02360
	Mailout Mailback	^N 0.00408	^N 0.00457

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions are in Table M-3 of Appendix M.

Table 9. WGA A vs C: National - variables with significant differences for a specific TEA

Variable	TEA	Significant Difference	Standard Error	P-value	Critical P-value
Relationship Edited	Mailout Mailback	-0.00169	0.00063	0.00723	0.02500
Other Relative	Mailout Mailback	-0.00168	0.00080	0.03531	0.05000
	List Enumerate	-0.00937	0.00390	0.01632	0.02500
Native American	List Enumerate	-0.01166	0.00516	0.02382	0.05000
1 UBSA	Update Enumerate	0.04854	0.01488	0.00111	0.02500
3 to 10 UBSA	Update Enumerate	-0.01644	0.00591	0.00539	0.02500
11+ UBSA	Update Enumerate	-0.03028	0.01013	0.00279	0.02500
People in evaluation poststratum 4	Mailout Mailback	-0.00456	0.00199	0.02202	0.02500
People in evaluation poststratum 11	Update Leave	-0.02554	0.01051	0.01515	0.02500
People in evaluation poststratum 25	Mailout Mailback	-0.00454	0.00164	0.00562	0.02500
People in evaluation poststratum 31	Mailout Mailback	-0.00436	0.00189	0.02094	0.02500
People in evaluation poststratum 36	List Enumerate	-0.01080	0.00476	0.02329	0.05000

There are 12 significant differences at the National and TEA levels. However, six of these are less than 0.01, and an additional three are from the same distribution. 1 Unit at Basic Street Address (UBSA), 3 to 10 UBSA, and 11+ UBSA in the Update Enumerate TEA are all significant. These come from the same distribution of UBSA. They are measuring different aspects of the same thing, and could probably be considered one significant result. When we consider the six small significant differences and the UBSA variables as a group, we have four significant results that concern us. Although the number of significant results were somewhat above chance levels, no systematic error was detected. We are not concerned about contamination at the National and TEA level.

4.3.2 T-tests for the difference between two proportions for the Northeast by TEA

Tables 10 and 11 display the results of the t-tests performed for the Northeast at the TEA level. Table 10 shows which variables have significantly different A.C.E. and non-A.C.E. proportions. The proportions close to zero or one are indicated with “N”. Table 11 contains the significant differences for each variable in Table 10 whose proportions are not marked with “N”.

Table 10. WGA A vs C: Northeast - variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion ^B	Non-A.C.E. Proportion ^B
Housing Unit (HU) in NRU	Update Leave	0.32308	0.35039
Hispanic	Update Leave	0.01348	0.02001
Black	Update Leave	^N 0.00793	^N 0.01291
	Update Enumerate	0.00404	0.03020
Native American	Mailout Mailback	^N 0.00395	^N 0.00471
	List Enumerate	^N 0.00606	^N 0.01211
Be Counted	Update Enumerate	^N 0.00058	^N 0.00280
1 UBSA	Update Enumerate	0.98894	0.92972
2 UBSA	Update Enumerate	0.00545	0.02701
3 to 10 UBSA	Update Enumerate	0.00561	0.02899

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions are in Table M-4 of Appendix M.

Table 11. WGA A vs C: Northeast - variables with significant differences for a specific TEA

Variable	TEA	Significant Difference	Standard Error	P-value	Critical P-value
HU in NRU	Update Leave	-0.02731	0.01111	0.01397	0.02500
Hispanic	Update Leave	-0.00653	0.00255	0.01039	0.02500
Black	Update Enumerate	-0.02615	0.00319	0.00000	0.02500
1 UBSA	Update Enumerate	0.05922	0.00580	0.00000	0.02500
2 UBSA	Update Enumerate	-0.02156	0.00404	0.00000	0.02500
3 to 10 UBSA	Update Enumerate	-0.02338	0.00374	0.00000	0.02500

There are six significant differences at the Northeast and TEA levels. However, the difference for Hispanic is less than 0.01, and 1 UBSA, 2 UBSA, and 3 to 10 UBSA are related. These three variables are from the same distribution, and measure different aspects of the same thing. They could easily be grouped and considered as one significant result. In addition, the A.C.E. proportions for Black, 2 UBSA, and 3 to 10 UBSA are all less than 0.01, but they are included in Table 9 because their non-A.C.E. proportions are all around 0.03, and the differences between the A.C.E. and non-A.C.E. proportions are all between 0.02615 and 0.02156. However, since we assumed standard errors were zero for the non-A.C.E. proportions, and the A.C.E. proportions are all small, the t-statistics may still be unreliable. Considering these facts, there are only two or three significant results that we are concerned with, and no systematic error was detected, although the number of significant results were somewhat above chance levels in the Northeast.

4.3.3 T-tests for the difference between two proportions for the Midwest by TEA

Tables 12 and 13 display the results of the t-tests performed for the Midwest at the TEA level. Table 12 shows which variables have significantly different A.C.E. and non-A.C.E. proportions. The proportions close to zero or one are indicated with “N”. Table 13 contains the significant differences for each variable in Table 12 whose proportions are not marked with “N”.

Table 12. WGA A vs C: Midwest - variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion ^B	Non-A.C.E. Proportion ^B
Hispanic Origin Edited	Update Enumerate	0.04624	0.07053
Other Relative	List Enumerate	0.00378	0.01918
Native American	List Enumerate	0.00378	0.02874
Pacific Islander	Update Leave	^N 0.00010	^N 0.00035
Be Counted Form	Update Leave	^N 0.00067	^N 0.00137
Long Form	List Enumerate	0.52841	0.41413

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions are in Table M-5 of Appendix M.

Table 13. WGA A vs C: Midwest - variables with significant differences for a specific TEA

Variable	TEA	Significant Difference	Standard Error	P-value	Critical P-value
Hispanic Origin Edited	Update Enumerate	-0.02429	0.01029	0.01829	0.02500
Other Relative	List Enumerate	-0.01540	0.00416	0.00021	0.02500
Native American	List Enumerate	-0.02495	0.00415	0.00000	0.02500
Long Form	List Enumerate	0.11428	0.03932	0.00366	0.02500

The Midwest has only four significant differences. The A.C.E. proportions for Other Relative and Native American are less than 0.01, but they are included in Table 13 because the non-A.C.E. proportions for these variables are 0.01918 and 0.02874, and their differences are -0.01540 and -0.02495. However, since we assumed standard errors were zero for the non-A.C.E. proportions, and the A.C.E. proportions are all small, the t-statistics may be unreliable. So, there seems to be no evidence of contamination in the Midwest.

4.3.4 T-tests for the difference between two proportions for the South by TEA

Tables 14 and 15 display the results of the t-tests performed for the South at the TEA level. Table 14 shows which variables have significantly different A.C.E. and non-A.C.E. proportions. The proportions close to zero or one are indicated with “N”. Table 15 contains the significant differences for each variable in Table 14 whose proportions are not marked with “N”.

Table 14. WGA A vs C: South - variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion ^B	Non-A.C.E. Proportion ^B
Renter	List Enumerate	0.15362	0.25765
Non Relative	Update Leave	0.03140	0.03446
Asian	Update Enumerate	^N 0.00053	^N 0.00340
Pacific Islander	Mailout Mailback	^N 0.00060	^N 0.00091
	Update Leave	^N 0.00026	^N 0.00048
1 UBSA	Update Enumerate	0.95942	0.83145
3 to 10 UBSA	Update Enumerate	0.02027	0.05473

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions are in Table M-6 of Appendix M.

Table 15. WGA A vs C: South - variables with significant differences for a specific TEA

Variable	TEA	Significant Difference	Standard Error	P-value	Critical P-value
Renter	List Enumerate	-0.10403	0.01325	0.00000	0.02500
Non-relative	Update Leave	-0.00306	0.00116	0.00852	0.02500
1 UBSA	Update Enumerate	0.12797	0.01682	0.00000	0.02500
3 to 10 UBSA	Update Enumerate	-0.03446	0.01470	0.01908	0.02500

The South has only four significant differences. The difference for Non-relative is less than 0.01. In addition, 1 UBSA and 3 to 10 UBSA are from the same distribution. They are measuring different aspects of the same thing, and could probably be grouped and considered as one significant result. Based on these significant results, there seems to be no evidence of contamination in the South.

4.3.5 T-tests for the difference between two proportions for the West by TEA

Tables 16 and 17 display the results of the t-tests performed for the West at the TEA level. Table 16 shows which variables have significantly different A.C.E. and non-A.C.E. proportions. The proportions close to zero or one are indicated with “N”. Table 17 contains the significant differences for each variable in Table 16 whose proportions are not marked with “N”.

Table 16. WGA A vs C: West - variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion ^B	Non-A.C.E. Proportion ^B
Other Relative	List Enumerate	0.02005	0.03679
Hispanic	Update Enumerate	0.07672	0.11151
Native American	Mailout Mailback	^N 0.01394	^N 0.01525
	List Enumerate	0.02751	0.04845
Be Counted Form	Update Enumerate	^N 0.00146	^N 0.00348

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions are in Table M-7 of Appendix M.

Table 17. WGA A vs C: West - variables with significant differences for a specific TEA

Variable	TEA	Significant Difference	Standard Error	P-value	Critical P-value
Other Relative	List Enumerate	-0.01674	0.00629	0.00774	0.02500
Hispanic	Update Enumerate	-0.03479	0.01362	0.01062	0.02500
Native American	List Enumerate	-0.02095	0.00671	0.00181	0.02500

The West has only three significant differences, which yields no evidence of contamination in the West.

5. WHOLE GROUP ANALYSIS B VS C COMPARISON RESULTS

A small portion of the t-tests results obtained through the Whole Group Analysis B vs C comparison are given in this section. The first sub-section presents the significant results of tests calculated by the 36 evaluation poststrata, and by state. The second sub-section presents the significant results of tests calculated by region. The third sub-section presents the significant results of tests calculated by region and TEA.

5.1 Significant results for t-tests calculated for the 36 evaluation poststrata and states

Sections 5.1.1 through 5.1.3 contain the significant results of t-tests used to detect contamination at the 36 evaluation poststrata level, and state level.

5.1.1 T-tests for the average number of persons per block

We computed the average number of persons per block to help determine if the A.C.E. affected the Census count in A.C.E. blocks. We calculated this average for A.C.E. and non-A.C.E. blocks at the 36 evaluation poststrata, but not at the National level. None of the 36 evaluation poststrata had significant t-tests. Since none of the differences between the average for A.C.E. blocks and the average for non-A.C.E. blocks were significant, I did not include these numbers.

5.1.2 T-tests for the average number of housing units per block

We computed the average number of housing units per block to help determine if the A.C.E. affected the Census count in A.C.E. blocks. We calculated this average for A.C.E. and non-A.C.E. blocks at the state level, but not at the National level. None of the states had significant t-tests. Since none of the differences between the average for A.C.E. blocks and the average for non-A.C.E. blocks were significant, I did not include these numbers.

5.1.3 T-tests for the difference between A.C.E. proportions and non-A.C.E. proportions

Tables 18 and 19 on the following page display the results of the t-tests calculated for the demographic, geographic, and response related indicators by the 36 evaluation poststrata and state. Table 18 shows, for each variable tested by the 36 evaluation poststrata or state, the A.C.E. and non-A.C.E. proportions that are significantly different. Table 19 contains the significant differences for each variable in Table 18 whose proportions were not close to zero or one.

Table 18. WGA B vs C: variables with significantly different proportions or averages for a specific evaluation poststrata or state

Variable	Evaluation Poststrata	A.C.E. Proportion/Average^B	Non-A.C.E. Proportion/Average^B
Non Relative	18	0.12127	0.13723
Age Group 4 (50+)	17	0.17126	0.18783
	24	0.27943	0.25944
Relationship Edited	10	0.02226	0.02885
Sex Edited	10	0.01894	0.02423
	21	0.02673	0.03185
Race Edited	10	0.02207	0.02843
Black	6	^N 0.00005	^N 0.00015
	7	^N 0.00008	^N 0.00026
	8	^N 0.00002	^N 0.00010
	11	^N 0.00002	^N 0.00006
	12	^N 0.00003	^N 0.00007
	16	^N 0.00060	^N 0.00133
	20	^N 0.00019	^N 0.00044
	24	^N 0.99102	^N 0.98734
Pacific Islander	6	^N 0.00001	^N 0.00012
	8	^N 0.00003	^N 0.00010
	11	^N 0.00002	^N 0.00007
	13	^N 0.00013	^N 0.00027
	19	^N 0.00024	^N 0.00047
	22	^N 0.00010	^N 0.00035
Asian	9	^N 0.00124	^N 0.00188
	10	^N 0.00114	^N 0.00193
	14	^N 0.00031	^N 0.00056
	25	^N 0.00156	^N 0.00226
	36	^N 0.00018	^N 0.00054
Hispanic Origin	36	^N 0.00389	^N 0.00782
Be Counted Form	5	^N 0.00027	^N 0.00078
	8	^N 0.00053	^N 0.00102
	13	^N 0.00112	^N 0.00184
	14	^N 0.00095	^N 0.00166
	29	^N 0.00079	^N 0.00358
	36	^N 0.00146	^N 0.00266
1 UBSA	10	0.94633	0.91936
2 UBSA	18	0.06266	0.08692
11+ UBSA	10	0.01570	0.03832
	22	0.02215	0.03009
	24	^N 0.00557	^N 0.01057
List Enumerate	27	^N 0.00008	^N 0.00060
	30	^N 0.00240	^N 0.00713
	33	^N 0.00177	^N 0.00480
	34	^N 0.00015	^N 0.00033

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions/averages are in Table -1 of Appendix N.

Table 18 shows that the FDR procedure yielded 11 significant results. There are more than 11 proportions/averages with significant differences listed in the last two columns of the table, but we are not considering t-statistics for the proportions marked with “N” as significantly different. These proportions are either very close to zero or very close to one, so we are suspicious of the t-statistics.

Table 19. WGA B vs C: variables with significant differences for a specific evaluation poststrata or state

Variable	Evaluation Poststrata	Significant Difference	Standard Error	P-value	Critical P-value
Non Relative	18	-0.01596	0.00510	0.00175	0.00278
Age Group 4 (50+)	17	-0.01657	0.00581	0.00436	0.00556
	24	0.01999	0.00673	0.00298	0.00278
Relationship Edited	10	-0.00659	0.00149	0.00001	0.00278
Sex Edited	10	-0.00530	0.00129	0.00004	0.00278
	21	-0.00511	0.00159	0.00126	0.00556
Race Edited	10	-0.00636	0.00160	0.00007	0.00278
1 UBSA	10	0.02697	0.00470	0.00000	0.00278
11+ UBSA	10	-0.02262	0.00263	0.00000	0.00278
2 UBSA	18	-0.02426	0.00804	0.00256	0.00278
11+ UBSA	22	-0.00794	0.00298	0.00771	0.00833

Table 19 shows the same results as Table 18, but lists the significant difference and critical p-values instead of the proportions/averages. This table only lists significant differences for variables that had A.C.E. and non-A.C.E. proportions bigger than 1.5 percent or smaller than 98.5 percent.

In conclusion, table 19 shows 11 significant differences, and little evidence of contamination although significant results were somewhat above chance levels. Five of the 11 significant differences (Relationship Edited, Sex Edited for both poststrata, Race Edited, and 11+ UBSA for poststrata 22) are less than one percent, and have A.C.E. and non-A.C.E. proportions on the border of being considered too close to zero or one. An additional variable (11+ UBSA for poststrata 10) also has A.C.E. and non-A.C.E. proportions on the border of being considered too close to zero or one. In addition, the variables 1UBSA and 11+UBSA are from the same distribution, and both significant for poststrata ten. They are measuring different aspects of the same thing and could probably be considered as one significant result. This means that we are only totally confident in 5 of the 11 significant differences (Non Relative, 1 UBSA, 2 UBSA, and Age group 4 for both poststrata).

5.2 Significant results for t-tests calculated by region but collapsed across TEA

This section contains the significant results for t-tests calculated for demographic, geographic, and response related indicators by region, but collapsed across TEA. Tables 20 and 21 display the results of the t-tests performed at the National and regional level collapsed across TEA. Table 20 shows which variables have significantly different A.C.E. and non-A.C.E. proportions. The proportions close to zero or one are indicated with “N”. Table 21 contains the significant differences for each variable in Table 20 whose proportions are not marked with “N”.

Table 20. WGA B vs C: variables with significantly different proportions collapsed across TEA for a specific region

Region	Variable	A.C.E. Proportions ^B	Non-A.C.E. Proportions ^B
National	HU in CEU	0.02368	0.02277
	Other Relative	0.06018	0.05823
Northeast	HU in CIU	0.04249	0.04686
	Be Counted Form	^N 0.00157	^N 0.00204
Midwest	HU in NRU	0.27840	0.29240
	Be Counted Form	^N 0.00067	^N 0.00103
South	HU in CEU	0.02008	0.01924

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions are in Table –2 of Appendix N.

Table 21. WGA B vs C: variables with significant differences collapsed across TEA for a specific region

Region	Variable	Significant Difference	Standard Error	P-value	Critical P-value
National	HU in CEU	0.00092	0.00038	0.01585	0.10000
	Other Relative	0.00195	0.00070	0.00547	0.01111
Northeast	HU in CIU	-0.00437	0.00149	0.00334	0.10000
Midwest	HU in NRU	-0.01400	0.00578	0.01547	0.10000
South	HU in CEU	0.00085	0.00046	0.06335	0.10000

The results in tables 20 and 21 do not show evidence of contamination. Only three out of the four regions have any significant results. The Northeast and the South both have only one significant difference and they are less than 0.01. At the National level Other Relative and HU in CEU have significant results which are both less than 0.01. The Midwest is the only region with a significant difference greater than 0.01. When we consider the significant differences that are small, the significant difference for HU in NRU in the Midwest is the only significant result that we are concerned with, so there is not evidence of contamination for the Nation and regions collapsed across TEA.

5.3 Significant results for t-tests calculated by region and TEA

Sections 5.3.1 through 5.3.5 contain the significant results of t-tests calculated for demographic, geographic, and response related indicators by region and TEA.

5.3.1 T-tests for the difference between two proportions at the National and TEA level

Tables 22 and 23 display the results of the t-tests performed at the National and TEA level. Table 22 shows which variables have significantly different A.C.E. and non-A.C.E. proportions. The proportions close to zero or one are indicated with “N”. Table 23 contains the significant differences for each variable in Table 22 whose proportions are not marked with “N”.

Table 22. WGA B vs C: National - variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion^B	Non-A.C.E. Proportion^B
Other Relative	Mailout Mailback	0.06430	0.06202
	Update Enumerate	0.05327	0.06852
	List Enumerate	0.01537	0.03060
Pacific Islander	List Enumerate	^N 0.00008	^N 0.00093
Hispanic Origin	Mailout Mailback	0.17084	0.16274
	List Enumerate	0.02531	0.07509
Be Counted Form	Update Leave	^N 0.00139	^N 0.00172
	List Enumerate	^N 0.00050	^N 0.00367
People in evaluation poststratum 27	List Enumerate	^N 0.00038	^N 0.00283
People in evaluation poststratum 30	List Enumerate	0.01732	0.05188
People in evaluation poststratum 33	List Enumerate	^N 0.00799	0.02318
People in evaluation poststratum 34	List Enumerate	^N 0.00146	^N 0.00325

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions are in Table –3 of Appendix N.

Table 23. WGA B vs C: National - variables with significant differences for a specific TEA

Variable	TEA	Significant Difference	Standard Error	P-value	Critical P-value
Other Relative	Mailout Mailback	0.00228	0.00084	0.00678	0.05000
	Update Enumerate	-0.01525	0.00684	0.02576	0.07500
	List Enumerate	-0.01522	0.00548	0.00545	0.02500
Hispanic Origin	Mailout Mailback	0.00809	0.00384	0.03490	0.05000
	List Enumerate	-0.04979	0.01069	0.00000	0.02500
People in evaluation poststratum 30	List Enumerate	-0.03456	0.00805	0.00002	0.02500

There are six significant differences at the National and TEA levels. However, two of these (Other Relative and Hispanic Origin for Mailout Mailback areas) are less than 0.01, and an additional two (Other Relative in Update Enumerate and List Enumerate areas) have A.C.E. and non-A.C.E. proportions on the border of being considered too close to zero or one. When we consider the two small significant differences (Other Relative and Hispanic for Mailout Mailback areas), we have four significant results that concern us. So, although the number of significant results were somewhat above chance levels, we are not concerned with contamination at the National and TEA levels.

5.3.2 T-tests for the difference between two proportions for the Northeast by TEA

Tables 24 and 25 display the results of the t-tests performed for the Northeast at the TEA level. Table 24 shows which variables have significantly different A.C.E. and non-A.C.E. proportions. The proportions close to zero or one are indicated with “N”. Table 25 contains the significant differences for each variable in Table 24 whose proportions are not marked with “N”.

Table 24. WGA B vs C: Northeast - variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion ^B	Non-A.C.E. Proportion ^B
HU in CIU	Mailout Mailback	0.03729	0.04195
Age Group 2 (18 - 29)	Update Enumerate	0.05439	0.09138
Other Relative	Update Enumerate	^N 0.00213	0.03325
Hispanic Origin	Update Enumerate	^N 0.01030	0.03947
Black	Update Leave	^N 0.00621	^N 0.01153
Asian	Update Leave	^N 0.00522	^N 0.00915
Be Counted Form	Mailout Mailback	^N 0.00168	^N 0.00217
	Update Leave	^N 0.00047	^N 0.00111
Long Form	Update Enumerate	0.44143	0.20218
	List Enumerate	0.49079	0.44285
2 UBSA	List Enumerate	0.06069	0.03628
11+ UBSA	Update Leave	^N 0.01485	0.02745
Proportion of People	Mailout Mailback	0.88709	0.87275
	Update Leave	0.10274	0.11646
	Update Enumerate	^N 0.00149	^N 0.00320

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions are in Table –4 of Appendix N.

Table 25. WGA B vs C: Northeast - variables with significant differences for a specific TEA

Variable	TEA	Significant Difference	Standard Error	P-value	Critical P-value
HU in CIU	Mailout Mailback	-0.00465	0.00149	0.00184	0.02500
Age Group 2 (18 - 29)	Update Enumerate	-0.03699	0.01220	0.00244	0.02500
Long Form	Update Enumerate	0.23925	0.08038	0.00291	0.05000
	List Enumerate	0.04793	0.01456	0.00099	0.02500
2 UBSA	List Enumerate	0.02440	0.00925	0.00836	0.02500
Proportion of People	Mailout Mailback	0.01433	0.00761	0.05982	0.07500
	Update Leave	-0.01373	0.00689	0.04622	0.05000

There are seven significant differences at the Northeast and TEA levels. However, the difference for HU in CIU is less than 0.01. Considering this fact, there are six significant results that concern us. One is the proportion of Long Form in Update Enumerate areas. This variable has a significant difference of 0.23925. These six significant results indicate some evidence of contamination in the Northeast.

5.3.3 T-tests for the difference between two proportions for the Midwest by TEA

Tables 26 and 27 display the results of the t-tests performed for the Midwest at the TEA level. Table 26 shows which variables have significantly different A.C.E. and non-A.C.E. proportions. The proportions close to zero or one are indicated with “N”. Table 27 contains the significant differences for each variable in Table 26 whose proportions are not marked with “N”.

Table 26. WGA B vs C: Midwest - variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion ^B	Non-A.C.E. Proportion ^B
Other Relative	Update Enumerate	^N 0.00385	0.02459
Tenure Edited	List Enumerate	0.02232	0.06437
Relationship Edited	Update Enumerate	0.01933	0.03277
Sex Edited	Update Enumerate	^N 0.00948	0.02765
Native American	Update Enumerate	^N 0.01154	0.09801
Pacific Islander	Update Leave	^N 0.00011	^N 0.00037
	Update Enumerate	^N 0.00039	^N 0.00190
Hispanic Origin	Update Enumerate	^N 0.00020	^N 0.00934
Be Counted Form	Update Leave	^N 0.00033	^N 0.00087
2 UBSA	Update Leave	^N 0.00893	^N 0.01449

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions are in Table –5 of Appendix N.

Table 27. WGA B vs C: Midwest - variables with significant differences for a specific TEA

Variable	TEA	Significant Difference	Standard Error	P-value	Critical P-value
Tenure Edited	List Enumerate	-0.04206	0.01202	0.00047	0.02500
Relationship Edited	Update Enumerate	-0.01344	0.00547	0.01405	0.02500

The Midwest has only two significant differences, which yields no evidence of contamination.

5.3.4 T-tests for the difference between two proportions for the South by TEA

Tables 28 and 29 display the results of the t-tests performed for the South at the TEA level.

Table 28 shows which variables have significantly different A.C.E. and non-A.C.E. proportions.

The proportions close to zero or one are indicated with “N”. Table 29 contains the significant differences for each variable in Table 28 whose proportions are not marked with “N”.

Table 28. WGA B vs C: South - variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion ^B	Non-A.C.E. Proportion ^B
HU in CEU	Update Leave	0.01960	0.01774
Asian	Update Leave	^N 0.00355	^N 0.00493
1 UBSA	Update Enumerate	0.94327	0.87976
11+ UBSA	Update Leave	^N 0.00779	0.01520
	Update Enumerate	^N 0.00653	0.06030
Proportion of People	List Enumerate	^N 0.00001	^N 0.00035

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions are in Table –6 of Appendix N.

Table 29. WGA B vs C: South - variables with significant differences for a specific TEA

Variable	TEA	Significant Difference	Standard Error	P-value	Critical P-value
HU in CEU	Update Leave	0.00186	0.00077	0.01543	0.02500
1 UBSA	Update Enumerate	0.06350	0.02715	0.01934	0.02500

The South has only two significant differences. The difference for HU in CEU is less than 0.01, and its A.C.E. and non-A.C.E. proportions are on the border of being considered too close to zero or one. Based on these results, there is no evidence of contamination in the South.

5.3.5 T-tests for the difference between two proportions for the West by TEA

Tables 30 and 31 display the results of the t-tests performed for the West at the TEA level. Table 30 shows which variables have significantly different A.C.E. and non-A.C.E. proportions. The proportions close to zero or one are indicated with “N”. Table 31 contains the significant differences for each variable in Table 30 whose proportions are not marked with “N”.

Table 30. WGA B vs C: West - variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion ^B	Non-A.C.E. Proportion ^B
HU in CEU	Update Leave	0.01889	0.02159
Other Relative	Mailout Mailback	0.07619	0.07252
	Update Enumerate	0.02928	0.04479
Black	List Enumerate	^N 0.01353	0.03443
	Update Leave	^N 0.00827	^N 0.01116
	Update Enumerate	^N 0.00423	^N 0.00977
Asian	List Enumerate	^N 0.00304	^N 0.00733
	List Enumerate	^N 0.00318	^N 0.00776
Pacific Islander	List Enumerate	^N 0.00022	^N 0.00186
Native American	Update Leave	0.02167	0.02696
	List Enumerate	^N 0.00806	0.02700
Hispanic Origin	List Enumerate	0.06174	0.09749
Be Counted Form	List Enumerate	^N 0.00140	^N 0.00683
11+ UBSA	List Enumerate	^N 0.00234	0.02224

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions are in Table –7 of Appendix N.

Table 31. WGA B vs C: West - variables with significant differences for a specific TEA

Variable	TEA	Significant Difference	Standard Error	P-value	Critical P-value
HU in CEU	Update Leave	-0.00270	0.00103	0.00893	0.02500
Other Relative	Mailout Mailback	0.00366	0.00144	0.01101	0.07500
	Update Enumerate	-0.01551	0.00558	0.00546	0.05000
Native American	Update Leave	-0.00529	0.00189	0.00513	0.05000
Hispanic Origin	List Enumerate	-0.03575	0.00899	0.00007	0.02500

The West has five significant differences. The variables HU in CEU, Native American, and Other Relative in Mailout Mailback areas all have significant differences less than 0.01. In addition, two of these variables, HU in CEU and Native American, along with Other Relative in Update Enumerate areas are on the border of being considered too close to zero or one. This means that we are only confident in one or two of the five significant differences. So, although the number of significant results were somewhat above chance levels, we are not concerned with contamination in the West.

6. SHADOW BLOCK ANALYSIS RESULTS

A small portion of the t-tests results obtained through the Shadow Block Analysis are given in this section. The first sub-section presents the significant results of tests calculated by the 36 evaluation poststrata and by state. The second sub-section presents the significant results of tests calculated by region. The third sub-section presents the significant results of tests calculated by region and TEA.

6.1 Significant results for t-tests calculated for the 36 evaluation poststrata and states

Sections 6.1.1 through 6.1.3 contain the significant results of t-tests used to detect contamination at the 36 evaluation poststrata level and state level.

6.1.1 T-test for the average number of persons per block

We computed the average number of persons per block to help determine if the A.C.E. affected the Census count in A.C.E. blocks. We calculated this average for A.C.E. and non-A.C.E. shadow blocks at the 36 evaluation poststrata level, but not at the National level. None of the 36 evaluation poststrata had significant t-tests. Since none of the differences between the average number of persons per block for A.C.E. blocks and the average for non-A.C.E. shadow blocks were significant, I did not include these numbers.

6.1.2 T-test for the average number of housing units per block

We computed the average number of housing units per block to help determine if the A.C.E. affected the Census count in A.C.E. blocks. We calculated this average for A.C.E. and non-A.C.E. shadow blocks at the state level, but not at the National level. None of the states had significant t-tests. Since none of the differences between the average for A.C.E. blocks and the average for non-A.C.E. shadow blocks were significant, I did not include these numbers.

6.1.3 T-tests for the difference between A.C.E. proportions and non-A.C.E. proportions

Tables 32 displays the results of the t-tests calculated for the demographic, geographic, and response related indicators by the 36 evaluation poststrata and state. Table 32 shows, for each variable tested by the 36 evaluation poststrata or state, the A.C.E. and non-A.C.E. proportions that are significantly different.

Table 32. Shadow Block Analysis: variables with significantly different proportions or averages for a specific evaluation poststrata or state

Variable	Evaluation Poststrata	A.C.E. Proportion/ Average ^B	Non-A.C.E. Proportion/ Average ^B
Asian	7	^N 0.00461	^N 0.00640

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions are in Table O-1 of Appendix O.

Table 32 shows that the FDR procedure yielded one significant result. So, there is no evidence of contamination. Furthermore, we are not considering the t-statistic for the proportions marked with “N” as significantly different. These proportions are very close to zero, so we are suspicious of the t-statistics. So, there is no evidence of contamination at the 36 evaluation poststrata level.

6.2 Significant results for t-tests calculated by region but collapsed across TEA

This section contains the significant results for t-tests calculated for demographic, geographic, and response related indicators by region, but collapsed across TEA. Tables 33 and 34 display the results of the t-tests performed at the National and regional level collapsed across TEA. Table 33 shows which variables have significantly different A.C.E. and non-A.C.E. proportions. The proportions close to zero or one are indicated with “N”. Table 34 contains the significant differences for each variable in Table 33 whose proportions are not marked with “N”.

Table 33. Shadow Block Analysis: variables with significantly different proportions collapsed across TEA for a specific region

Region	Variable	A.C.E. Proportions ^B	Non-A.C.E. Proportions ^B
National	Native American	^N 0.01091	^N 0.01156
	Pacific Islander	^N 0.00200	^N 0.00218
Northeast	Long Form	0.16850	0.16417
Midwest	Other Relative	0.03953	0.04268
	Be Counted Form	^N 0.00168	^N 0.00213
	11+ UBSA	0.11326	0.09542
South	HU in CEU	0.02008	0.01903

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions are in Table O-2 of Appendix O.

Table 34. Shadow Block Analysis: variables with significant differences collapsed across TEA for a specific region

Region	Variable	Significant Difference	Standard Error	P-value	Critical P-value
Northeast	Long Form	0.00433	0.00139	0.00185	0.03333
Midwest	Other Relative	-0.00315	0.00085	0.00023	0.01111
	11+ UBSA	0.01784	0.00712	0.01215	0.02500
South	HU in CEU	0.00105	0.00037	0.00454	0.10000

The results in tables 33 and 34 do not show evidence of contamination. Only three out of the four regions have any significant results. The Northeast and the South both have only one significant difference and they are less than 0.01. The Midwest has two significant differences, but one of them (Other Relative) is less than 0.01. There is not evidence of contamination for the Nation and regions collapsed across TEA.

6.3 Significant results for t-tests calculated by region and TEA

Sections 6.3.1 through 6.3.5 contain the significant results of t-tests calculated for demographic, geographic, and response related indicators by region and TEA.

6.3.1 T-test for the difference between two proportions at the National and TEA level

Tables 35 and 36 display the results of the t-tests performed at the National and TEA level. Table 35 shows which variables have significantly different A.C.E. and non-A.C.E. proportions. The proportions close to zero or one are indicated with “N”. Table 36 contains the significant differences for each variable in Table 35 whose proportions are not marked with “N”.

Table 35. Shadow Block Analysis: National - variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion ^B	Non-A.C.E. Proportion ^B
Tenure Edited	Mailout Mailback	0.04790	0.04676
Native American	Update Leave	^N 0.01352	0.01575
People in evaluation poststratum 5	Mailout Mailback	0.08238	0.07763
People in evaluation poststratum 23	Mailout Mailback	^N 0.01161	^N 0.01312

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions are in Table O-3 of Appendix O.

Table 36. Shadow Block Analysis: National - variables with significant differences for a specific TEA

Variable	TEA	Significant Difference	Standard Error	P-value	Critical P-value
Tenure Edited	Mailout Mailback	0.00114	0.00049	0.01960	0.02500
People in evaluation poststratum 5	Mailout Mailback	0.00474	0.00206	0.02146	0.02500

There are only two significant differences at the National and TEA levels. So, there is not evidence of contamination at the National and TEA levels.

6.3.2 T-test for the difference between two proportions for the Northeast by TEA

Tables 37 and 38 display the results of the t-tests performed for the Northeast at the TEA level. Table 37 shows which variables have significantly different A.C.E. and non-A.C.E. proportions. The proportions close to zero or one are indicated with “N”. Table 38 contains the significant differences for each variable in Table 37 whose proportions are not marked with “N”.

Table 37. Shadow Block Analysis: Northeast - variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion ^B	Non-A.C.E. Proportion ^B
Tenure Edited	Update Leave	0.05686	0.05014
Age Group 1 (0 - 17)	Update Enumerate	0.20695	0.26005
	List Enumerate	0.24998	0.22519
Pacific Islander	Mailout Mailback	^N 0.00067	^N 0.00088
Long Form	Update Leave	0.29146	0.27525
	Update Enumerate	0.34789	0.26368

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions are in Table O-4 of Appendix O.

Table 38. Shadow Block Analysis: Northeast - variables with significant differences for a specific TEA

Variable	TEA	Significant Difference	Standard Error	P-value	Critical P-value
Tenure Edited	Update Leave	0.00672	0.00268	0.01228	0.02500
Age Group 1 (0 - 17)	Update Enumerate	-0.05309	0.02488	0.03282	0.05000
	List Enumerate	0.02479	0.01116	0.02639	0.02500
Long Form	Update Leave	0.01620	0.00679	0.01694	0.02500
	Update Enumerate	0.08421	0.03853	0.02883	0.05000

There are five significant differences at the Northeast and TEA levels. However, the difference for Tenure Edited is less than 0.01. Considering this fact, there are four significant results that concern us. Although the number of significant results were somewhat above chance levels, we are not concerned with contamination in the Northeast.

6.3.3 T-test for the difference between two proportions for the Midwest by TEA

Tables 39 and 40 display the results of the t-tests performed for the Midwest at the TEA level. Table 39 shows which variables have significantly different A.C.E. and non-A.C.E. proportions. The proportions close to zero or one are indicated with “N”. Table 40 contains the significant differences for each variable in Table 39 whose proportions are not marked with “N”.

Table 39. Shadow Block Analysis: Midwest - variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion ^B	Non-A.C.E. Proportion ^B
Avg. Persons per HU	Update Leave	2.55602	2.61133
Avg. Data Defined Persons	Update Leave	2.52496	2.57692
Age Group 1 (0 - 17)	Update Leave	0.26291	0.27487
Tenure Edited	Mailout Mailback	0.04422	0.04162
Other Relative	Mailout Mailback	0.04224	0.04558
	Update Leave	0.02323	0.02622
Pacific Islander	Update Leave	^N 0.00010	^N 0.00043
11+ UBSA	Mailout Mailback	0.12854	0.11093
	Update Leave	0.03652	0.01959
	Update Enumerate	^N 0.00000	^N 0.01111

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions are in Table O-5 of Appendix O.

Table 40. Shadow Block Analysis: Midwest - variables with significant differences for a specific TEA

Variable	TEA	Significant Difference	Standard Error	P-value	Critical P-value
Avg Persons Per HU	Update Leave	-0.05532	0.02317	0.01698	0.02500
Avg Data Defined Persons	Update Leave	-0.05197	0.02293	0.02344	0.02500
Age Group 1 (0 - 17)	Update Leave	-0.01195	0.00405	0.00315	0.02500
Tenure Edited	Mailout Mailback	0.00260	0.00103	0.01200	0.02500
Other Relative	Mailout Mailback	-0.00334	0.00098	0.04225	0.05000
	Update Leave	-0.00299	0.00147	0.00063	0.02500
11+ UBSA	Mailout Mailback	0.01761	0.00835	0.03493	0.02500
	Update Leave	0.01694	0.00825	0.04001	0.05000

The Midwest has eight significant differences. However, the variables Tenure Edited, and Other Relative for Mailout Mailback and Update Leave areas have significant differences less than 0.01. This leaves five significant differences that concern us. Four of these significant differences are in Update Leave areas. So, there seems to be some evidence of contamination in the Midwest, especially for Update Leave areas.

6.3.4 T-test for the difference between two proportions for the South by TEA

Tables 41 and 42 display the results of the t-tests performed for the South at the TEA level. Table 41 shows which variables have significantly different A.C.E. and non-A.C.E. proportions. The proportions close to zero or one are indicated with “N”. Table 42 contains the significant differences for each variable in Table 41 whose proportions are not marked with “N”.

Table 41. Shadow Block Analysis: South - variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion ^B	Non-A.C.E. Proportion ^B
HU in CEU	Update Leave	0.02019	0.01829
Age Group 2 (18 - 29)	List Enumerate	0.04700	0.11770

B - Base totals for these proportions are in Table O-6 of Appendix O.

Table 42. Shadow Block Analysis: South - variables with significant differences for a specific TEA

Variable	TEA	Significant Difference	Standard Error	P-value	Critical P-value
HU in CEU	Update Leave	0.00190	0.00066	0.00414	0.02500
Age Group 2 (18 - 29)	List Enumerate	-0.07070	0.02648	0.00759	0.02500

The South has only two significant differences. So, there is no evidence of contamination in the South.

6.3.5 T-test for the difference between two proportions for the West by TEA

Tables 43 and 44 display the results of the t-tests performed for the West at the TEA level. Table 43 shows which variables have significantly different A.C.E. and non-A.C.E. proportions. The proportions close to zero or one are indicated with “N”. Table 44 contains the significant differences for each variable in Table 43 whose proportions are not marked with “N”.

Table 43. Shadow Block Analysis: West - variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion ^B	Non-A.C.E. Proportion ^B
Other Relative	Update Leave	0.04375	0.04763
	Update Enumerate	0.08455	0.09838
	List Enumerate	0.01875	0.03027
Black	Mailout Mailback	0.05505	0.05830
Native American	Update Leave	0.02300	0.02807
Pacific Islander	Update Leave	^N 0.00676	^N 0.00938

N - We are not considering these proportions as significantly different because they are close to zero or one. Under these circumstances, we regard the t-statistics as unreliable.

B - Base totals for these proportions are in Table O-7 of Appendix O.

Table 44. Shadow Block Analysis: West - variables with significant differences for a specific TEA

Variable	TEA	Significant Difference	Standard Error	P-value	Critical P-value
Other Relative	Update Leave	-0.00388	0.00195	0.04623	0.07500
	Update Enumerate	-0.01384	0.00607	0.02253	0.02500
	List Enumerate	-0.01152	0.00547	0.03531	0.05000
Black	Mailout Mailback	-0.00325	0.00143	0.02296	0.02500
Native American	Update Leave	-0.00508	0.00211	0.01636	0.02500

The West has five significant differences. The variables Other Relative in Update Leave areas, Black, and Native American all have significant differences less than 0.01. This means that we are only confident of two of the five significant differences. So, although the number of significant differences were somewhat above chance levels, we are not concerned with contamination in the West.

7. DEBRIEFING RESULTS - A.C.E. CONTAMINATION OF THE CENSUS

This sections describes the results from the A.C.E. Independent Listing debriefing sessions, A.C.E. PI debriefing sessions, and the A.C.E. PI interviewer questionnaire that indicate whether or not the A.C.E. contaminated the Census. The results describing whether or not the Census contaminated the A.C.E. are presented in section 8.

7.1 A.C.E. Independent Listing debriefing session results

This section contains the results from the A.C.E. Independent Listing debriefing sessions with listers, and crew leaders and FOSs (including listers, crew leaders, and FOSs who did QA). This

report includes comments made in 13 debriefing sessions at four ACEROs. Table 45, below, shows a summary of the A.C.E. Independent Listing debriefing sessions used in this report.

Table 45. Listing operation debriefings, by ACERO

ACERO	Lister Debriefings	Crew Leader and FOS Debriefings
Charlotte	2	0
Los Angeles	2	1
New York	1	1
Seattle	3	3

The debriefing guide addenda (see Appendix H and Appendix I) divide the questions into four categories: questions regarding the listing, interaction with non-A.C.E. Census staff, questions regarding independence, and security in the LCO. From the debriefings, we found:

- Listers handled inquiries about the Census well; no contamination is indicated by respondent inquiries.
- Interaction with non-A.C.E. Census staff was minimal. No listers reported any work-related interaction, and crew leaders reported interaction with LCO staff only during training and for administrative issues. The A.C.E. sample was not discussed during such interactions. There is hence a low possibility of contamination from such interaction.
- All debriefing sessions except one indicated that they understood the A.C.E. “Independence Rules”, and gave examples of how they applied the rules to their job. The exception was at the Los Angeles ACERO where the debriefing session leader reported that “most listers were unclear about the ‘Independence Rules’. Others were aware of the need to not talk with anyone outside of A.C.E. about their work.” Although the information at the LA ACERO is vague, the information tells that staff at the LA ACERO were aware of the need to not talk about their assignment area with non-A.C.E. Census staff. These answers show no indication of contamination.
- There was no breach of security or possible breach of security involving the LCO or A.C.E. sample related materials reported in the debriefing sessions. Thus, we believe lack of security was not a source of contamination.

7.2 A.C.E. Person Interview debriefing session results

This section contains the results from the A.C.E. PI debriefing sessions with interviewers, crew leaders, FOSs, and ACERO staff (including QA checkers and Targeted Extended Search (TES) interviewers) from debriefings at all twelve ACEROs.

Debriefing questions (see Appendix J and Appendix K) indicating whether the A.C.E. contaminated the Census are divided into four categories: questions regarding the interviewing, interaction with non-A.C.E. Census staff, questions regarding independence, and security in the LCO and ACERO. The interviewer, crew leader, FOS, and ACERO staff comments on

questions pertaining to A.C.E. contamination of the Census are summarized below.

- There were very few reported cases of an A.C.E. interviewer becoming involved with a respondent's Census questionnaire or of a Census questionnaire being sent to the ACERO. While an interviewer from Detroit helped a respondent with the Census questionnaire, he immediately notified ACERO staff and provided the number of the questionnaire. An interviewer from Atlanta accepted a Census questionnaire and forwarded it to management. Interviewers from New York and Denver avoided involvement with Census questionnaires, though respondents made Census questionnaire related requests.
- Interviewers and crew leaders at seven ACEROs reported some minor interaction with non-A.C.E. Census staff. The interviewers and crew leaders who did interact with non-A.C.E. Census workers were careful not to discuss work related items. However, interviewers from Los Angeles noted that "sometimes they met [decennial interviewers] in large apartment complexes, but they had little if any exchange." Seattle and Philadelphia reported similar comments.
- Crew leaders from four ACEROs remarked that they were aware of some interviewer interaction with non-A.C.E. Census staff. Crew leaders from Kansas City noted that an "A.C.E. employee met a Decennial employee on the street." Crew leaders from the Seattle ACERO made a similar comment.
- The interviewer and crew leader debriefing sessions reported that overall the "Independence Rules" were covered and distributed. Only interviewers and crew leaders from the Atlanta ACERO reported otherwise. In the Atlanta interviewer debriefing session it was reported that "there were a few interviewers who did not recall the independence rules having been covered during training." In the Atlanta crew leader debriefing it was reported that "several did not remember receiving material explaining the independence rules for their position, but did recall being briefed several times." It should be noted that interviewers from the Philadelphia, Kansas City, and Charlotte ACEROs did not respond to this question.
- When considering independence, an overwhelming majority of the field staff recalled the A.C.E. "Independence Rules" from training and received a written copy. Only the Atlanta ACERO reported problems, but most of the field staff were still exposed to the rules one way or the other.
- There were no reported breaches of security involving A.C.E. sample related materials. All of the responding ACEROs (11 out of 12) said that the ACERO was secure from non-A.C.E. staff. Crew leaders reported that they seldom kept A.C.E. materials at the LCO, and the A.C.E. space was generally secured with alarm systems, door locks, and cabinet locks. However, crew leaders from four regions (Detroit, Kansas City, Dallas, and Denver) did indicate a few isolated incidents with the security of A.C.E. space at an LCO. However, no sensitive A.C.E. sample related materials were on the premises at the

time of the potential security incidents. So, no A.C.E. sample related materials were exposed.

7.3 A.C.E. Person Interview interviewer questionnaire results

This section presents a summary of the responses to the questions on the A.C.E. Person Interview Interviewer Questionnaire (see Appendix L) pertaining to A.C.E. contamination of the Census. There are five such questions. First, we will examine the questionnaire response rate. Then, we will analyze the five questions pertaining to A.C.E. contamination of the Census.

7.3.1 Questionnaire response rate

Approximately 86.1 percent (142 out of 165) of all interviewers employed at the twelve LCOs returned the questionnaire.² Table 46 shows response rates for the selected LCOs.

Table 46. Questionnaire response rate, by LCO

ACERO	LCO	Total Interviewers	Number Responding	Response Rate
Boston	2118	5	4	80.0
New York	2247	10	8	80.0
Philadelphia	2314	13	13	100.0
Detroit	2412	8	8	100.0
Chicago	2548	5	3	60.0
Kansas City	2618	9	9	100.0
Seattle	2730	10	7	70.0
Charlotte	2846	11	10	90.9
Atlanta	2927	3	3	100.0
Dallas	3044	13	10	76.9
Denver	3118	71	60	84.5
Los Angeles	3211	7	7	100.0
National		165	142	86.1

7.3.2 Discussion of A.C.E. Person Interview assignment location with non-A.C.E. Census staff

All 142 interviewers answered question 3a, “Did you discuss your A.C.E. Person Interview assignment location with non-A.C.E. Census staff?” Only two interviewers nationwide, about one point four percent, discussed their PI assignment location with non-A.C.E. Census staff.

Question 3 parts b, c, and d ask the interviewers about the details of these discussions. One of the interviewers who responded “yes” to question 3a, reported such discussion occurring one to five times with decennial staff after work hours. The other interviewer did not respond to parts b, c, and d.

²Five of the LCOs returned questionnaires in excess of the number of interviewers employed. We regard these as 100 percent response rates and assume that related staff such as crew leaders or QA interviewers returned the additional questionnaires.

It should be noted that we don't have any information about the details of these interactions. We don't know what jobs the non-A.C.E. Census staff with whom the interactions took place had. So, we don't know if these discussions would have caused contamination. Also, we do not know the scope of the conversations.

7.3.3 Assistance with respondents' Census questionnaires

All 142 interviewers responded to question 6a, "Did you ever help a respondent fill in a Census questionnaire?" About 13.4 percent (19 out of 142) of interviewers responded yes nationwide. In particular, 16 of the interviewers who responded "yes" to this question were from the LCO in Denver (16 out of 60). The remaining three were from the LCOs in Detroit, Chicago, and Kansas City.

Approximately 94.7 percent (18 out of 19) of interviewers who helped a respondent fill out a Census questionnaire responded to part b, which asked how often the interviewer helped a respondent fill in a Census questionnaire. The interviewers responded as follows:

- 1 Time - 4 (22.2 percent)
- 2 Times - 2 (11.1 percent)
- 3 Times - 3 (16.7 percent)
- 4 or More Times - 9 (50.0 percent)

We can see from these data that interviewers generally did not help respondents with their Census forms, except a few isolated incidents. There is a much larger concentration of this from the LCO in the Denver ACERO, where more than one quarter of the interviewers helped respondents with their Census questionnaires. This may be evidence of misunderstanding the question. For instance, 14 out of the 19 interviewers responding "yes" worked on either Update Enumerate or List Enumerate. During these operations, the interviewers would have helped a respondent fill in a questionnaire. So, those who responded "yes" may have helped a respondent fill in a Census questionnaire during a Census operation, and not the A.C.E. Person Interview. Furthermore, even if these Census questionnaires were filled in during the A.C.E., we don't know what was done with the questionnaires once they were filled out. Therefore, this does not necessarily imply any contamination at the national level.

7.3.4 Return of a Census questionnaire for a respondent

Approximately 99.3 percent of interviewers (141 out of 142) responded to question 7a, "Did you ever return a Census questionnaire for any respondents?" About 7.1 percent (10 out of 141) of interviewers responding to question 7a responded "yes." All ten were from the LCO in the Denver ACERO.

All ten then responded to part b, which asked how often the interviewer returned a Census questionnaire. The interviewers responded as follows:

- 3 Times - 1 (10.0 percent)
- 4 or More Times - 9 (90.0 percent)

Again, this could be evidence of misunderstanding the question. All ten of the interviewers who responded “yes” worked on either Update Enumerate or List Enumerate. These interviewers could have been referring to their work during Update Enumerate or List Enumerate, and not the A.C.E. Person Interview. This does not necessarily imply any contamination at the national level.

7.3.5 Request of a Census questionnaire for a respondent

All 142 interviewers responded to question 8a, “Did you ever request a Census questionnaire for a respondent?” Only about 7.7 percent (11 out of 142) of interviewers nationwide responded “yes.” Six interviewers from the LCO in Denver requested Census questionnaires for respondents.

All 11 then responded to part b, which asked how often the interviewer requested a Census questionnaire. The interviewers responded as follows:

- 1 Time - 5 (45.5 percent)
- 2 Times - 2 (18.2 percent)
- 4 or More Times - 4 (36.7 percent; all from Denver)

Again, this may be more evidence of misunderstanding the question asked, but does not necessarily imply any contamination at the national level.

7.3.6 Coverage of A.C.E. Independence Rules

Approximately 96.5 percent (137 out of 142) of interviewers responded to question 10a, “Were the ‘Independence Rules’ covered in your training?” About 93.7 percent (133 out of 142) of interviewers responded to question 10b, “Did you receive written materials explaining the ‘Independence Rules’ for your position?” Ninety point five percent (124 out of 137) of interviewers responding to question 10a covered the rules in training, and 85.0 percent (113 out of 133) of interviewers responding to question 10b to received written materials. Of those who responded, 92.1 percent said they were exposed to the rules in at least one of these two ways.

8. DEBRIEFING RESULTS - CENSUS CONTAMINATION OF THE A.C.E.

This sections describes the results from the A.C.E. Independent Listing debriefing sessions, A.C.E. PI debriefing sessions, and the A.C.E. PI interviewer questionnaire that indicate whether or not the Census contaminated the A.C.E.

8.1 A.C.E. Independent Listing debriefing session results

This section contains the results from the A.C.E. Independent Listing debriefing sessions with listers, and crew leaders and FOSs (including listers, crew leaders, and FOSs who did QA). This report includes comments made in 13 debriefing sessions at four ACEROs concerning contamination of the A.C.E. by the Census. Table 43 in section 7.1 shows what A.C.E. Independent Listing results we used in this report.

The debriefing guide addenda (see Appendix H and Appendix I) divide the questions into four categories: questions regarding the listing, interaction with non-A.C.E. Census staff, questions regarding independence, and security in the LCO. From the debriefings, we found:

- One instance using non-A.C.E. Census materials to help complete listing was reported. One crew leader from Los Angeles reported using Census materials for the listing. The crew leader did not specify what these materials were, but could have easily meant Census Bureau A.C.E. materials. No listers or other crew leaders reported any such activity.
- All debriefing sessions except one indicated that no listing staff worked in their assignment areas before. The exception was a lister from Charlotte who reported working on prior non-A.C.E. listing operations, but did not specify if they worked in the same areas. There is not enough information about this situations to indicate whether contamination resulted or not. However, the vague information we do have suggests that contamination probably didn't result.

8.2 A.C.E. Person Interview debriefing session results

This section contains the results from the A.C.E. PI debriefing sessions with interviewers, crew leaders, FOSs, and ACERO staff (including QA checkers and Targeted Extended Search (TES) interviewers) from debriefings at all 12 ACEROs. The interviewer, crew leader, FOS, and ACERO staff comments for debriefing questions (see Appendix J and Appendix K) indicating if the Census contaminated the A.C.E. are summarized below.

- Interviewers from all 12 ACEROs reported that respondents asked about or commented on the Census. Interviewers from the Dallas ACERO reported that “some wanted to know why they had not received a Census questionnaire.” Additionally, interviewers from the Seattle ACERO found that some respondent questions came up when Decennial workers and A.C.E. workers were working in the same area at the same time. During the Los Angeles debriefing, interviewers stated that “many respondents felt overwhelmed by numerous visits by the Census.” Almost all the debriefing session summaries contained similar comments. Interviewers in most regions agreed that some people were reluctant and unhappy with multiple Census Bureau visits. Most initial refusals, however, did cooperate.

- Some interviewers and crew leaders in two regions reported usage of non-A.C.E. Census maps. In Philadelphia, one interviewer “used a tract map to help them locate a cluster which they could not identify on a locator map.” Detroit crew leaders reported that “Tiger maps were obtained through the ACERO and utilized.”
- Most interviewers and crew leaders reported that respondents did ask about Census details. Only interviewers from the Charlotte, Kansas City, and Boston ACEROs and crew leaders from the Atlanta ACERO said the respondents did not inquire about Census details. Interviewers and crew leaders handled respondent inquiries by answering questions as thorough as possible without giving too many specifics.
- All 12 regions had refusals citing they had already filled out their Census surveys. Interviewers from New York stated that “initially, many respondents did not wish to answer A.C.E. questions because they had previously answered Census questions.” Interviewers from most other regions made similar comments. Crew leaders from Detroit noted, however, that “interviewers were able to overcome objections and convert a substantial percentage.” Again, crew leaders in most other regions concurred.
- Interviewers and crew leaders from more than half of the 12 regions reported previously working on the Census Nonresponse Followup (NRFU) operation. Only Seattle, Kansas City, and Philadelphia reported interviewers who worked in the same areas and only Los Angeles and Atlanta reported crew leaders who worked in the same areas. In most circumstances, there was minimal overlap. An interviewer from the Kansas City ACERO worked the “same areas but not same houses.”

8.3 A.C.E. Person Interview interviewer questionnaire results

This section presents a summary of the responses to the questions on the A.C.E. Person Interview interviewer questionnaire (see Appendix L) pertaining to Census contamination of the A.C.E. There are seven such questions. We analyze the seven questions pertaining to Census contamination of the A.C.E.

8.3.1 Unusual reactions regarding Census 2000

Approximately 99.3 percent (141 out of 142) of the interviewers responded to question 2a, “Did you get any unusual reactions from respondents regarding Census 2000?” About 66.0 percent (93 out of 141) of interviewers responding to question 2a reported respondents having unusual reactions regarding Census 2000.

Approximately 97.8 percent (91 out of 93) of the interviewers who reported unusual reactions regarding Census 2000 answered part b, “how often did you get unusual reactions from respondents regarding Census 2000?” The interviewers responded as follows:

- Once in a While - 49 (53.8 percent)
- Frequently - 32 (35.2 percent)
- Almost Always - 10 (11.0 percent)

Approximately 87.1 percent (81 out of 93) of the interviewers who reported unusual reactions regarding Census 2000 answered part c, “What were the reactions?” All but one of these interviewers indicated that respondents reacted negatively to the A.C.E. Respondents were often confused about the purpose and legitimacy of the A.C.E., frustrated with numerous Census visits, or worried about being counted twice. Respondents often mentioned that they had already filled out and sent in a Census 2000 form.

8.3.2 Respondent inquiries about non-A.C.E. Census issues

Approximately 98.6 percent (140 out of 142) of the interviewers answered question 4a, “Did respondents ask you about Census issues other than questions about the A.C.E.?” More than one third (52 out of 140) of interviewers responding to question 4a reported respondents asking about non-A.C.E. Census issues. Question 4 parts b and c ask the interviewers about the details of these inquiries.

All 52 interviewers who indicated that respondents asked about the Census responded to part b, “How often did respondents ask you about Census issues other than question about the A.C.E.?” The interviewers responded as follows:

- 1 - 5 Times- 32 (61.5 percent)
- 6 - 10 Times - 12 (23.1 percent)
- 11 - 20 Times - 5 (9.6 percent)
- 20 or more Times - 3 (5.8 percent)

Approximately 88.5 percent (46 out of 52) of the interviewers that indicated respondent inquiries about non-A.C.E. Census issues responded to part c, “what specific questions did respondents ask? How did you respond?” Some common respondent questions included:

- Why am I still questioned by the Census Bureau?
- Why is the Census Bureau doing A.C.E.?
- How much longer is this going on?

Some common interviewer responses included:

- We need to check our figures and interviewers.
- We need to make sure everyone is counted correctly.
- We may visit a few more times.

The comments tend to indicate respondent frustration and curiosity, but little contamination. The interviewers usually responded by explaining the difference between decennial and A.C.E., or by avoiding decennial specific questions.

8.3.3 *Census influence upon A.C.E. participation*

Approximately 98.6 percent (140 out of 142) of the interviewers answered question 5a, “Do you think the Census influenced whether or not the respondents participated in the A.C.E.?” Forty-eight point six percent (68 out of 140) of interviewers responding to question 5a thought that the Census affected A.C.E. participation.

Approximately 94.1 percent (64 out of 68) of the interviewers that thought the Census affected A.C.E. participation responded to part b, “How do you think the Census influenced whether or not the respondents participated in the A.C.E.?” While some interviewers commented that the Census affected the A.C.E. positively, most interviewers commented that the Census affected the A.C.E. negatively. Interviewers often found that people didn’t want to participate in more than one Census Bureau interview. This did not, however, have a large effect on the response rate for the A.C.E.

All 68 interviewers who thought the Census affected A.C.E. participation responded to parts c and d. Question 5 part c asked, “How often do you think the Census influenced whether or not the respondents participated in the A.C.E.?” The interviewers responded as follows:

- Don’t Know - 9 (13.3 percent)
- Once in a While - 27 (39.7 percent)
- Frequently - 25 (36.8 percent)
- Almost Always - 7 (10.3 percent)

Question 5 part d asked, “How much more or less likely do you think respondents were to cooperate with the A.C.E. based on their involvement with the Census?” The interviewers responded as follows:

- Don’t Know - 15 (22.1 percent)
- A lot less likely - 8 (11.8 percent)
- Less likely - 30 (44.1 percent)
- More likely - 12 (17.6 percent)
- A lot more likely - 3 (4.4 percent)

8.3.4 *Use of non-A.C.E. Census maps*

All 142 interviewers responded to question 9a, “Did you ever use non-A.C.E. maps that were produced for Census operations other than the A.C.E.?” About 19.7 percent (28 out of 142) of interviewers nationwide responded “yes”. Nineteen of these responses came from interviewers in the LCO in the Denver ACERO.

All 28 of the interviewers responding “yes” then responded to part b, which asked how often the interviewer used a non-A.C.E. Census map. The interviewers responded as follows:

- Once in a While - 17 (60.7 percent)
- Frequently - 7 (25 percent)
- Almost Always - 4 (14.3 percent)

We have no further information on what non-A.C.E. Census maps might have been used. We can only speculate. For instance, 20 out of the 28 interviewers who responded that they used non-A.C.E. Census maps produced for Census operations other than the A.C.E. also worked on decennial operations. These 20 interviewers could have meant that while working on other non-A.C.E. Census operations they used maps produced for that non-A.C.E. Census operation. Therefore, we can not determine if the use of such maps caused contamination.

8.3.5 *Work on Census operations*

Approximately 97.9 percent (139 out of 142) of interviewers responded to question 11a, “Did you work on Census operations (other than A.C.E. operations)?” Sixty point four percent (84 out of 139) of interviewers responding to question 11a did work on other Census operations. All but four of the interviewers who indicated working on a Census operation responded to part b, which asks the interviewer to specify on which Census operations he or she worked. Table 47 lists what percentage of responding interviewers worked on each particular operation nationwide.

Table 47. Response to item 11b: Census operations worked by interviewers, nationwide

Operation	Percent	N
Address Listing	51.3	80
Block Canvassing	35.0	80
NRFU	8.8	80
Coverage Improvement	6.3	80
Follow-up (CIFU)		
Special Place Advanced Visit	3.8	80
Remote Alaska Enumeration	1.3	80
Update/Leave	5.0	80
Urban Update/Leave	1.3	80
List/Enumerate	31.3	80
Update Enumerate	38.8	80

8.3.6 *Work on other A.C.E. operations*

Approximately 99.3 percent (141 out of 142) of interviewers responded to question 12a, “Did you work on an A.C.E. operation other than the Person Interview?” Forty-four percent (62 out of 141) of interviewers responding to question 12a reported working on other A.C.E. operations. All but two of the interviewers who indicated working on another A.C.E. operation responded to part b, which asks the interviewer to specify on which A.C.E. operations he or she worked. Table 48 lists what percentage of responding interviewers worked on each particular A.C.E. operation nationwide.

Table 48. Response to item 12b: Other A.C.E. operations worked by interviewers, nationwide

Operation	Percent	N
Listing	65.0	60
Relisting	23.3	60
Housing Unit Follow-up	83.3	60
Targeted Extended Search	3.3	60
Person Interview QA	21.7	60

8.3.7 Work in the same geographical area on multiple operations

Approximately 96.5 percent (137 out of 142) of interviewers responded to question 13a, “Did you work in the same geographical area on one or more Census or A.C.E. operations?” Twenty-nine point nine percent (41 out of 137) of interviewers responding to question 13a worked in their assignment areas on a previous Census or A.C.E. operation.

All 41 interviewers who reported working in the same area on a previous operation responded to part b of question 13, which asked the interviewer to identify the operations and explain the situation. Thirty-five of the 41 people who reported working in the same geographical areas on one or more Census or A.C.E. operations were not in violation of any “Independence Rules”. It was fine for them to be working in the same area for the two or more operations they worked on. The remaining interviewers who responded “yes” to working in the same geographical area on one or more Census or A.C.E. operations did not provide enough explanation of the situations to determine if the “Independence Rules” were violated or not. So, we can’t conclude that any contamination was caused by working in the same geographical areas.

9. PUERTO RICO WHOLE GROUP ANALYSIS A VS C RESULTS

A small portion of the t-tests results obtained through the Whole Group Analysis for Puerto Rico are given in this section. The first sub-section presents the significant results of tests calculated by the nine evaluation poststrata (see Appendix G). The second sub-section presents the significant results for all of Puerto Rico

9.1 Significant results for t–tests calculated for the nine evaluation poststrata and Puerto Rico

Sections 9.1.1 thru 9.1.4 contain the significant results of the t-tests calculated for the three fundamental indicators, and the demographic, geographic, and response related indicators by the nine evaluation poststrata.

9.1.1 T-test to see if $N_{c,ace}/N_c$ differs from one

We computed the ratio of $N_{c,ace}/N_c$ for Puerto Rico, and for each of the nine evaluation poststrata. The t-test for Puerto Rico was not significant, but one of the t-tests for the nine evaluation

poststrata was significant. Table 49 below contains the significant ratio, standard error, associated p-value, and critical p-value.

Table 49. Puerto Rico WGA: evaluation poststrata with $N_{c,ace}/N_c$ significantly different from one

Evaluation Poststrata	$N_{c,ace}/N_c$	Standard Error	P-value	Critical P-value
8	0.68	0.09000	0.00039	0.01111

This significant result is a possible indication of some contamination in Puerto Rico.

9.1.2 T-tests for average number of persons per block

We computed the average number of persons per block to help determine if the A.C.E. affected the Census count in A.C.E. blocks. We calculated this average for A.C.E. and non-A.C.E. blocks for the nine evaluation poststrata. None of the nine evaluation poststrata had significant t-tests. Since none of the differences were significant, I did not include these numbers.

9.1.3 T-test for average number of housing units per block

We computed the average number of housing units per block to help determine if the A.C.E. affected the Census count in A.C.E. blocks. We calculated one average for all of Puerto Rico. The t-test was not significant. Since the difference was not significant, I did not include these numbers.

9.1.4 T-tests for the difference between A.C.E. proportions and non-A.C.E. proportions

Tables 50 through 51 below display the results of the t-tests calculated by the nine evaluation poststrata. Table 50 shows, for each variable tested by the nine evaluation poststrata, the A.C.E. and non-A.C.E. proportions that are significantly different. Table 51 contains the significant differences for each variable in Tables 50 whose proportions were not close to zero or one.

Table 50. Puerto Rico WGA: variables with significantly different proportions for a specific evaluation poststrata

Variable	Evaluation Poststrata	A.C.E. Proportion ^B	Non-A.C.E. Proportion ^B
Black	4	0.02899	0.06635
Native American	2	^N 0.00248	^N 0.00521
Asian	1	^N 0.00097	^N 0.00246
Hispanic	4	^N 0.99695	^N 0.99168
Be Counted	7	^N 0.00077	^N 0.00285
1 UBSA	8	0.70215	0.52249
3 to 10 UBSA	1	0.01743	0.03197
	6	0.12865	0.18125
	8	0.08374	0.15298
	9	0.05358	0.13244
11+ UBSA	8	0.05085	0.17866
Proportion People in an Evaluation Poststratum	8	0.03662	0.05354

N - We are disregarding these proportions because they are close to zero. Therefore, we regard the t-statistics as suspicious.

B - Base totals for these proportions are in Table P-1 of Appendix P.

Table 51. Puerto Rico WGA: variables with significant differences for a specific evaluation poststrata

Variable	Evaluation Poststratum	Significant Difference	Standard Error	P-value	Critical P-value
Black	4	-0.03736	0.00667	0.00000	0.01111
1 UBSA	8	0.17965	0.04947	0.00028	0.01111
3 to 10 UBSA	1	-0.01453	0.00390	0.00020	0.01111
	6	-0.05261	0.02497	0.03511	0.04444
	8	-0.06923	0.02646	0.00888	0.03333
	9	-0.07886	0.02469	0.00140	0.02222
11+ UBSA	8	-0.12781	0.03968	0.00128	0.01111
Proportion People in an Evaluation Poststratum	8	-0.01692	0.00504	0.00078	0.01111

Table 51 shows eight significant differences for the evaluation poststrata. The variables 1 UBSA, 3 to 10 UBSA, and 11+ UBSA are from the same distribution, and all significant for A.C.E. poststrata groups 8. They are measuring different aspects of the same thing, and could probably be considered as one significant result. This leaves six significant differences that concern us. This indicates some evidence of contamination, especially in evaluation poststratum 8.

9.2 Significant results for t-tests for Puerto Rico

This section contains the significant results for demographic, geographic, and response related indicators for Puerto Rico as a whole. Puerto Rico has only one TEA, so results are not broken out by TEA.

Table 52 shows which variables have significantly different A.C.E. and non-A.C.E. proportions. The proportions close to zero are indicated with “N”.

Table 52. Puerto Rico WGA: variables with significantly different proportions

Variable	A.C.E. Proportions^B	Non-A.C.E. Proportions^B
Be Counted	^N 0.00034	^N 0.000732

N - We are disregarding these proportions because they are close to zero. Therefore, we regard the t-statistic as suspicious.

B- Base totals for these proportions are in Table P-2 of Appendix P.

Since the only significant result for Puerto Rico as a whole has proportions close to zero, there is no evidence of contamination for Puerto Rico as a whole.

10. PUERTO RICO SHADOW BLOCK ANALYSIS RESULTS

A small portion of the results obtained through the Shadow Block Analysis for Puerto Rico are given in this section. The first sub-section presents the significant results of tests calculated by the nine evaluation poststrata (defined in Appendix G). The second sub-section presents the significant results of tests for all of Puerto Rico.

10.1 Significant results for t–tests calculated by the nine evaluation poststrata and Puerto Rico

Sections 10.1.1 through 10.1.3 contain the significant results for the three fundamental indicators, and the demographic, geographic, and response related indicators by the nine evaluation poststrata.

10.1.1 T-test for average number of persons per block

We computed the average number of persons per block to help determine if the A.C.E. affected the Census count in A.C.E. blocks. We calculated this average for A.C.E. and non-A.C.E. shadow blocks for the nine evaluation poststrata. None of the nine evaluation poststrata had significant t-tests. Since none of the differences were significant, I did not include these numbers.

10.1.2 T-test for average number of housing units per block

We computed the average number of housing units per block to help determine if the A.C.E. affected the Census count in A.C.E. blocks. We calculated one average for all of Puerto Rico. The t-test was not significant. Since the difference was not significant, I did not include these numbers.

10.1.3 T-tests for the difference between A.C.E. proportions and non-A.C.E. proportions

Tables 53 and 54 below display the results of the t-tests calculated by the nine evaluation poststrata. Table 53 shows, for each variable tested by the nine evaluation poststrata, the A.C.E. and non-A.C.E. proportions that are significantly different. Table 54 contains the significant differences for each variable in Table 53 whose proportions were not close to zero or one.

Table 53. Puerto Rico Shadow Block Analysis: variables with significantly different proportions for a specific evaluation poststrata

Variable	Evaluation Poststrata	A.C.E. Proportion ^B	Non-A.C.E. Proportion ^B
Age Group 4 (50+)	8	0.15752	0.11821

B - Base totals for these proportions are in Table Q-1 of Appendix Q.

Table 54. Puerto Rico Shadow Block Analysis: variables with significant differences for a specific evaluation poststrata

Variable	Evaluation Poststratum	Significant Difference	Standard Error	P-value	Critical P-value
Age Group 4 (50+)	8	0.03931	0.01255	0.00173	0.00625

For the nine evaluation poststrata in Puerto Rico, there is only one significant result. So, there is no evidence of contamination.

10.2 Significant results for t-tests for Puerto Rico

This section contains the significant results for t-tests calculated for demographic, geographic, and response related indicators for Puerto Rico as a whole. Puerto Rico has only one TEA, so results are not broken out by TEA.

Table 55 and 56 display the results of the t-tests performed for Puerto Rico as a whole. Table 55 shows which variables have significantly different A.C.E. and non-A.C.E. proportions. Table 56 contains the significant differences for each variable in Tables 55 whose proportions were not close to zero or one.

Table 55. Puerto Rico Shadow Block Analysis: Variables with significantly different proportions

Variable	A.C.E. Proportions ^B	Non-A.C.E. Proportions ^B
HU in NRU	0.50049	0.48325
3 to 10 UBSA	0.06227	0.07991

B - Base totals for these proportions are in Table Q-2 of Appendix Q.

Table 56. Puerto Rico Shadow Block Analysis: variables with significant differences

Variable	Significant Difference	Standard Error	P-value	Critical P-value
HU in NRU	0.01724	0.01021	0.09119	0.10000
3 to 10 UBSA	-0.01765	0.00779	0.02347	0.02500

For Puerto Rico as a whole there are two significant results. The two significant results are from two different variable groups. HU in NRU is in variable group two, and 3 to 10 UBSA is in variable group eight. In addition, they are both borderline on being significant. The p-value HU in NRU is 0.09119 while its critical p-value is 0.10. The p-value for 3 to 10 UBSA is 0.02347 while its critical p-value is 0.025. So, although the number of significant results were somewhat above chance levels, we are not concerned with contamination in Puerto Rico.

11. PUERTO RICO A.C.E. PERSON INTERVIEW DEBRIEFING RESULTS

This section contains the results from the A.C.E. PI debriefing sessions with interviewers, crew leaders, FOSs, and ACERO staff (including QA checkers and Targeted Extended Search (TES) interviewers) from debriefings in Puerto Rico.³ We did not send an A.C.E. PI questionnaire to interviewers in Puerto Rico, or include questions relating to independence with the A.C.E. Independent Listing debriefing guides. So, the only debriefing information we have for Puerto Rico came from the A.C.E. PI debriefing sessions.

The debriefing questions (see Appendix J and Appendix K) pertaining to contamination are divided into four categories: questions regarding interviewing, interaction with non-A.C.E. Census staff, questions regarding independence, and security in the LCO and ACERO. The interviewer, crew leader, FOS, and ACERO staff comments pertaining to A.C.E. contamination of the are in section 11.1. The comments pertaining to the Census contamination of the A.C.E. are in section 11.2.

11.1 A.C.E. contamination of the Census

This section summarizes the A.C.E. PI debriefing session questions that indicate whether or not the A.C.E. contaminated the Census. From the debriefings, we found:

- No interviewers from Puerto Rico helped a respondent with their census form during the A.C.E.
- There were no reports of inappropriate interactions with non-A.C.E. Census staff in Puerto Rico.
- Interviewers and crew leaders in Puerto Rico reported that the A.C.E. “Independence Rules” were covered in training, and specified on written materials.

³Puerto Rico is usually considered part of the Boston ACERO, but was debriefed separately.

- There were no reported breaches of security involving A.C.E. sample related materials at the LCOs and regional offices. Puerto Rico said that the ACERO was secure from non-A.C.E. staff.

11.2 Census contamination of the A.C.E.

This section summarizes the A.C.E. PI debriefing sessions questions that indicate whether or not the Census contaminated the A.C.E. From the debriefings, we found:

- Interviewers from Puerto Rico reported that respondents asked about or commented on the Census. Respondents were angry about being visited so many times, and reluctant to give information, but were willing to give information once the purpose of the A.C.E. was explained to them.
- Puerto Rico reported using no non-A.C.E. maps produced for census operations other than the A.C.E.
- Interviewers and crew leaders reported that respondents did ask about Census details. Many respondents did not understand the difference between the Census and the A.C.E. Interviewers and crew leaders handled respondent inquiries by explaining the difference and purpose of the A.C.E. and the Census.
- Puerto Rico reported that many people initially refused to cooperate because they had already filled out their Census forms, but many would cooperate after the purpose of the A.C.E. was explained to them.
- No interviewers or crew leaders reported previously working on the Census NRFU operation.

12. CONCLUSIONS

This study attempted to answer if the A.C.E. contaminated Census 2000 data collected in A.C.E. block clusters, or more specifically:

- Does the A.C.E. influence how people respond to the Census?
- How much (if anything) does contamination contribute to total error?

Sections 12.1 and 12.2 present the answers to these two questions for the United States and Puerto Rico. This is done by presenting an overall conclusion for the results shown in sections 4 through 8 for the United States, and sections 9 through 11 for Puerto Rico. Section 12.1 contains the conclusions for the United States, and section 12.2 contains the conclusions for Puerto Rico.

12.1 Conclusions for the United States

The evidence obtained through the Whole Group Analysis, Shadow Block Analysis, and the Debriefing Analysis suggests that contamination bias is not a problem for Census 2000 in the United States. That is, there is no strong evidence that A.C.E. Independent Listing alone or A.C.E. Independent Listing and the A.C.E. Person Interview influenced how people responded to Census 2000. So, contamination does not appear to contribute to total error. This finding is consistent with the earlier assumption that contamination bias would not be a problem for Census 2000.

The following three sections give a few more details on the Whole Group Analysis, Shadow Block Analysis, and Debriefing Analysis conclusions.

12.1.1 Whole Group Analysis and Shadow Block Analysis conclusions

The evidence suggests that contamination bias is not a problem. Globally, we did not find evidence of contamination bias for high-level proportions and averages for both the WGA and the Shadow Block Analysis. For the WGA A vs C comparison, we computed a t-statistic to see if the ratio $N_{c,ace}/N_c$ was significantly different from one for the Nation and the 36 evaluation poststrata. None of these t-tests were significant. In addition, the t-tests used to detect significant differences between A.C.E. and non-A.C.E. proportions for the second (average number of persons per block) and third (average number of housing units per block) fundamental indicators yielded little to no evidence of contamination for the WGA and the Shadow Block Analysis.

The study also broke the data down to very detailed cells. These cells were demographic, geographic, and response related indicators of contamination broken down by the 36 evaluation poststrata, and region and Type of Enumeration Area (TEA). Overall, the WGA yielded more significant results than the Shadow Block Analysis, but we found little to no evidence of contamination in the both of these analyses. For the most part, no systematic error was detected in these cells, although the number of significant results were somewhat above chance levels. An exception to this was found during the Shadow Block Analysis in Midwest Update Leave areas. In these areas, we found five significant results that concerned us with four of the five significant results from Update Leave areas. We also found a little evidence of contamination during the WGA B vs C comparison where there are five concerning significant results calculated by the 36 evaluation poststrata, and six concerning significant results calculated for the Northeast by TEA. Even though we found some indication of contamination in Shadow Block Analysis Midwest Update Leave areas, WGA B vs C 36 evaluation poststrata results, and WGA B vs C Northeast TEA results, we did not find global evidence of contamination.

Many of the significant results were not considered as significant when we drew conclusions. This happened under two circumstances. First, there were several proportions that were close to zero or one. We regarded t-tests that used these small or large proportions to be unreliable because design based estimation procedures underestimate the variances for small proportions. Second, some of the differences between A.C.E. and non-A.C.E. proportions were extremely

small. So, while these difference were mathematically significant they were not practically significant.

12.1.2 Debriefing Analysis conclusions - A.C.E. contamination of the Census

The debriefing results also show little evidence that the A.C.E. contaminated Census 2000. Most comments from the debriefing sessions, and the questionnaire data analysis support this conclusion. The field staff reported in debriefing sessions and on the debriefing questionnaires that interactions with non-A.C.E. census staff were minimal, that A.C.E. sample related materials were secure, and that helping a respondent with a Census questionnaire during the A.C.E. rarely occurred. While there were two interviewers who reported discussing their assignment area with non-A.C.E. Census staff, and around twenty who reported assisting respondents with Census questionnaires, there is no reason to believe that any loss of quality in the Census data resulted.

12.1.3 Debriefing Analysis conclusions - Census contamination of the A.C.E.

The results in sections 8.1 through 8.3 indicate little evidence that the Census contaminated the A.C.E. Most comments from the debriefing sessions, and the questionnaire data analysis support this conclusion. The field staff reported in debriefing sessions and on the debriefing questionnaires that respondents were often overwhelmed and frustrated with the number of visits they were receiving from the Census Bureau. This frustration often led respondents to initially refuse to participate in the A.C.E. Person Interview. However, after interviewers explained the purpose of the A.C.E. most respondents were cooperative. This may have resulted in a slightly lower response rate, but the Census probably did not have a big effect on the response rate. In addition, there were a few reports of interviewers or crew leaders using non-A.C.E. Census maps that were produced for operations other than the A.C.E. to complete their jobs. However, there is no reason to believe that any loss of quality in the A.C.E. data resulted.

12.2 Conclusions for Puerto Rico

The evidence obtained through the Whole Group Analysis, Shadow Block Analysis, and the Debriefing Analysis suggest that contamination bias is not a problem for Census 2000 in Puerto Rico. That is, A.C.E. Independent Listing and the A.C.E. Person Interview did not unduly influence how people responded to Census 2000. So, contamination does not appear to contribute to total error in Puerto Rico.

The following two sections give a few more details on the Whole Group Analysis, Shadow Block Analysis, and Debriefing Analysis conclusions.

12.2.1 Whole Group Analysis and Shadow Block Analysis conclusions

The evidence suggests that contamination bias is not a problem. Globally, we did not find evidence of contamination bias for high-level proportions and averages for both the WGA and the Shadow Block Analysis. For the WGA A vs C comparison, we computed a t-statistic to see if the ratio $N_{c,ace}/N_c$ was significantly different from one for the Nation and the nine evaluation

poststrata. The t-test for evaluation poststrata eight was the only significant result. In addition, the t-tests used to detect significant differences between A.C.E. and non-A.C.E. proportions for the second and third fundamental indicators yielded no evidence of contamination for the WGA and the Shadow Block Analysis.

The study also broke the data down to very detailed cells. These cells were demographic, geographic, and response related indicators of contamination broken down by the nine evaluation poststrata, and collapsed across the nine evaluation poststrata. We found little to no evidence of contamination in the WGA and no evidence of contamination in the Shadow Block Analysis. For both analyses, t-tests found no evidence of contamination when we collapsed across the nine evaluation poststrata. However, when we broke the indicators down by the nine evaluation poststrata the WGA found evidence of contamination for evaluation poststrata eight while the Shadow Block Analysis did not find evidence of contamination. For WGA results calculated by the nine evaluation poststrata, we found six significant results that concerned us, and two of them were from evaluation poststrata eight. Even though we found some indication of contamination in evaluation poststrata eight, we did not find global evidence of contamination.

Many of the significant results were not considered as significant when we drew conclusions. This happened under two circumstances. First, there were several proportions that were close to zero or one. We regarded t-tests that used these small or large proportions to be unreliable because design based estimation procedures underestimate the variances for small proportions. Second, some of the differences between A.C.E. and non-A.C.E. proportions were extremely small. So, while these difference were mathematically significant they were not practically significant.

12.2.2 Debriefing Analysis conclusions

The results suggest that neither the A.C.E. or the Census were contaminated in Puerto Rico. Most comments from the debriefing sessions support this conclusion. The field staff reported in debriefing sessions that there were no inappropriate interactions with non-A.C.E. census staff, no security problems, no use of non-A.C.E. Census maps produced for other operations, and no interviewers helped a respondent with a Census questionnaire. They did report that respondents were frustrated with the repeated visits by the Census Bureau, but would cooperate once the purpose of the A.C.E. had been explained. This frustration over the number of visits by the Census Bureau could have resulted in a lower response rate for the A.C.E., but we have no strict evidence of that. Therefore, there is no reason to believe any loss of quality in the Census or A.C.E. data resulted.

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Appendix A

Table A-1. Census 2000 A.C.E. - 36 evaluation poststratum groups

Race/Hispanic Origin Domain Number*	Tenure	Metropolitan Statistical Area (MSA)/TEA	High Return Rate				Low Return Rate			
			N	M	S	W	N	M	S	W
Domain 7 (Non-Hispanic White or "Some other race")	Owner	Large MSA MO/MB	1		2		3		4	
		Medium MSA MO/MB	5	6	7					
		Small MSA & Non-MSA MO/MB	8		9		10			
		All Other TEAs	11		12		13 part		14	1
	Non-owner	Large MSA MO/MB	15				16			
		Medium MSA MO/MB	17				18			
		Small MSA & Non-MSA MO/MB	19				20			
		All Other TEAs	21							
Domain 4 (Non-Hispanic Black)	Owner	Large MSA MO/MB	22				23			
		Medium MSA MO/MB								
		Small MSA & Non-MSA MO/MB	24							
		All Other TEAs								
	Non-owner	Large MSA MO/MB	25				26			
		Medium MSA MO/MB								
		Small MSA & Non-MSA MO/MB	27							
		All Other TEAs								
Domain 3 (Hispanic)	Owner	Large MSA MO/MB	28				29			
		Medium MSA MO/MB								
		Small MSA & Non-MSA MO/MB	30							
		All Other TEAs								
	Non-owner	Large MSA MO/MB	31				32			
		Medium MSA MO/MB								
		Small MSA & Non-MSA MO/MB	33							
		All Other TEAs								
Domain 5 (Native Hawaiian or Pacific Islander)	Owner	34 part								
	Non-owner	35 part								
Domain 6 (Non-Hispanic Asian)	Owner	34 part								
	Non-owner	35 part								
American Indian or Alaska Native	Domain 1 (On Reservation)	Owner	36							
		Non-owner								
	Domain 2 (Off Reservation)	Owner								
		Non-owner								

Appendix B

Table B-1. Variables tested and at what levels

Variables Tested	Tested at What Levels
Average number of persons per occupied housing unit (NP)	state, region and TEA
Average number of data defined persons per occupied housing unit (DDP)	state, region and TEA
Average number of housing units per block where there is at least one housing unit in the block (Avg. Housing Units per Block)	state
Average number of persons per block (Avg. Persons per Block)	evaluation poststrata
Proportion of housing units in Nonresponse Followup (NRU)	evaluation poststrata, region and TEA
Proportion of housing units in Coverage Edit Followup (CEU)	evaluation poststrata, region and TEA
Proportion of housing units in Coverage Improvement Followup (CIU)	evaluation poststrata, region and TEA
Proportion Renters (Renter)	evaluation poststrata, region and TEA
Proportion of data defined persons on a Be Counted Form (Be Counted Form)	evaluation poststrata, region and TEA
Proportion of data defined persons on a Long Form (Long Form)	evaluation poststrata, region and TEA
Proportion other relative including brother/sister and mother/father (Other Relative)	evaluation poststrata, region and TEA
Proportion nonrelative (Nonrelative)	evaluation poststrata, region and TEA
Proportion male (Male)	evaluation poststrata, region and TEA
Proportion Hispanic (Hispanic)	evaluation poststrata, region and TEA
Proportion Black or African American (Black)	evaluation poststrata, region and TEA
Proportion American Indian/Alaska Native (Native American)	evaluation poststrata, region and TEA
Proportion Asian (Asian)	evaluation poststrata, region and TEA
Proportion Native Hawaiian or Other Pacific Islander (Pacific Islander)	evaluation poststrata, region and TEA
Proportion Tenure Edited or Imputed (Tenure Edited)	evaluation poststrata, region and TEA
Proportion Relationship Edited or Imputed (Relationship Edited)	evaluation poststrata, region and TEA
Proportion Sex Edited or Imputed (Sex Edited)	evaluation poststrata, region and TEA
Proportion Hispanic Origin Edited or Imputed (Hispanic Origin Edited)	evaluation poststrata, region and TEA
Proportion Race Edited or Imputed (Race Edited)	evaluation poststrata, region and TEA
Proportion of 1 unit at basic street address (1UBSA)	evaluation poststrata, region and TEA
Proportion of 2 units at basic street address (2 UBSA)	evaluation poststrata, region and TEA
Proportion of 3 to 10 units at basic street address (3 to 10 UBSA)	evaluation poststrata, region and TEA
Proportion of 11 or more units at basic street address (11+ UBSA)	evaluation poststrata, region and TEA
Proportion of people 0-17 years of age (Age group 1)	evaluation poststrata, region and TEA
Proportion of people 18-29 years of age (Age group 2)	evaluation poststrata, region and TEA
Proportion of people 30-49 years of age (Age group 3)	evaluation poststrata, region and TEA
Proportion of people 50 or more years of age (Age group 4)	evaluation poststrata, region and TEA
Proportion of people in TEA 1 and 6 (Mailout Mailback)	evaluation poststrata, region and TEA
Proportion of people in TEAs 2, 7, and 9 (Update Leave)	evaluation poststrata, region and TEA
Proportion of people in TEAs 3 and 4 (List Enumerate)	evaluation poststrata, region and TEA
Proportion of people in TEAs 5 and 8 (Update Enumerate)	evaluation poststrata, region and TEA
Proportion of people in each evaluation poststratum	collapsed over TEA and TEA

Appendix C

Table C-1. Census 2000 A.C.E. - 16 preliminary evaluation poststratum groups

Race/Hispanic Origin Domain Number*	Tenure	MSA/TEA	High Return Rate				Low Return Rate			
			N	M	S	W	N	M	S	W
Domain 7 (Non-Hispanic White or "Some other race")	Owner	Large MSA MO/MB	1		2		3		4	
		Medium MSA MO/MB								
		Small MSA & Non-MSA MO/MB	5				6			
		All Other TEAs	7							
	Non-owner	Large MSA MO/MB	8				9			
		Medium MSA MO/MB								
		Small MSA & Non-MSA MO/MB	10							
		All Other TEAs								
Domain 4 (Non-Hispanic Black)	Owner	Large MSA MO/MB	11 part				12 part			
		Medium MSA MO/MB								
		Small MSA & Non-MSA MO/MB	13 part							
		All Other TEAs								
	Non-owner	Large MSA MO/MB	14 part				15 part			
		Medium MSA MO/MB								
		Small MSA & Non-MSA MO/MB	16 part							
		All Other TEAs								
Domain 3 (Hispanic)	Owner	Large MSA MO/MB	11 part				12 part			
		Medium MSA MO/MB								
		Small MSA & Non-MSA MO/MB	13 part							
		All Other TEAs								
	Non-owner	Large MSA MO/MB	14 part				15 part			
		Medium MSA MO/MB								
		Small MSA & Non-MSA MO/MB	16 part							
		All Other TEAs								
Domain 5 (Native Hawaiian or Pacific Islander)	Owner	11 part								
	Non-owner	14 part								
Domain 6 (Non-Hispanic Asian)	Owner	11 part								
	Non-owner	14 part								
American Indian or Alaska Native	Domain 1 (On Reservation)	Owner	16 part							
		Non-owner								
	Domain 2 (Off Reservation)	Owner								
		Non-owner								

Appendix D

WGA A vs C: Preliminary Evaluation Poststrata Results

Table D-1. WGA A vs C: variables with significantly different proportions for a specific preliminary evaluation poststrata

Variable	Preliminary Evaluation Poststrata	TEA (if applicable)	A.C.E. Proportion	Non-A.C.E. Proportion
Male	8		0.48988	0.48173
Black	3		^N 0.00019	^N 0.00074
2 UBSA	1		0.01864	0.02278
	11		0.02327	0.03076
11+ UBSA	7		^N 0.00103	^N 0.00235
Update Enumerate	14		^N 0.00002	^N 0.00007
Proportion People in an Evaluation	14		^N 0.00356	^N 0.00428
Poststratum	4	Mailout Mailback	0.03247	0.03703
	14	Mailout Mailback	0.09850	0.10786
	14	Update Enumerate	^N 0.00027	^N 0.00096

N - We are not considering these proportions as significantly different because they are close to 0 or 1. Under these circumstances, we regard the t-statistics as unreliable.

Table D-2. WGA A vs C: variables with significant differences for a specific preliminary evaluation poststrata

Variable	Preliminary Evaluation Poststrata	TEA (if applicable)	Significant Difference	Standard Error	P-value	Critical P-value
Male	8		0.00815	0.00291	0.00512	0.00625
2 UBSA	1		-0.00414	0.00162	0.01080	0.01250
	11		-0.00749	0.00187	0.00006	0.00625
People in an Evaluation	4	Mailout Mailback	-0.00456	0.00199	0.02202	0.02500
Poststratum	14	Mailout Mailback	-0.00936	0.00297	0.00161	0.05000

Table D-3. WGA A vs C: base totals for variables with significantly different proportions for a specific preliminary evaluation poststrata

Variable	Preliminary Evaluation Poststrata	TEA (if applicable)	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
Male Base	8		19166412.2887	19995449.1493
Race Base	3		4912583.38567	5372788.3005
UBSA Base	1		36342320.6292	35533948.373
	7		35500274.3654	34636048.0921
	11		23931922.5246	24587933.8972
TEA Base	14		21877859.3492	24168033.078
Avg. Persons per Block Base	4		843.21068	821.4823
	14		649.72872	649.34381
People in Evaluation			272555864.927	273637212.31
Poststrata Base		Mailout Mailback	220732111.424	223017069.664
		Update Enumerate	1412361.25864	1731146.49891

Appendix E

WGA B vs C: Preliminary Evaluation Poststrata Results

Table E-1. WGA B vs C: variables with significantly different proportions for a specific preliminary evaluation poststrata

Variable	Preliminary Evaluation Poststrata	TEA (if applicable)	A.C.E. Proportion	Non-A.C.E. Proportion
Age Group 4 (50+)	13		0.22968	0.21594
Relationship Edited	6		0.02226	0.02885
Sex Edited	6		0.01894	0.02423
Race Edited	6		0.02207	0.02843
Black	9		^N 0.00076	^N 0.00131
Asian	5		^N 0.00119	^N 0.00159
	6		^N 0.00114	^N 0.00193
	14		0.16697	0.18645
Pacific Islander	5		^N 0.00012	^N 0.00021
	14		^N 0.01096	^N 0.01289
Be Counted Form	5		^N 0.00084	^N 0.00136
	7		^N 0.00096	^N 0.00143
1 UBSA	6		0.94633	0.91936
11+ UBSA	6		0.01570	0.03832
List Enumerate	11		^N 0.00004	^N 0.00010
	13		^N 0.00142	^N 0.00390
	16		^N 0.00130	^N 0.00309
Proportion People in an Evaluation Poststratum	11	List Enumerate	^N 0.00146	^N 0.00325
	13	List Enumerate	0.01920	0.05366
	16	Update Enumerate	0.08221	0.11110
	16	List Enumerate	^N 0.01495	0.03682

N - We are not considering these proportions as significantly different because they are close to 0 or 1. Under these circumstances, we regard the t-statistics as unreliable.

Table E-2. WGA B vs C: variables with significant differences for a specific preliminary evaluation poststrata

Variable	Preliminary Evaluation Poststrata	TEA (if applicable)	Significant Difference	Standard Error	P-value	Critical P-value
Age Group 4 (50+)	13		0.01374	0.00492	0.00527	0.00625
Relationship Edited	6		-0.00659	0.00149	0.00001	0.00625
Sex Edited	6		-0.00530	0.00129	0.00004	0.00625
Race Edited	6		-0.00636	0.00160	0.00007	0.00625
Asian	14		-0.01948	0.00764	0.01077	0.01250
1 UBSA	6		0.02697	0.00470	0.00000	0.00625
11+ UBSA	6		-0.02262	0.00263	0.00000	0.00625
People in Evaluation Poststratum	13	List Enumerate	-0.03446	0.00896	0.00012	0.02500
	16	Update Enumerate	-0.02889	0.01438	0.04456	0.05000

Table E-3. WGA B vs C: base totals for variables with significantly different proportions for a specific preliminary evaluation poststrata

Variable	Preliminary Evaluation Poststrata	TEA (if applicable)	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
Age Group Base	13		7106214.3612	7451232.97131
Relationship Edited Base	6		4364681.98222	4808467.65075
Sex Edited Base	6		4364681.98222	4808467.65075
Race Edited Base	6		4364681.98222	4808467.65075
Race Base	5		13193930.8676	13905628.7045
	6		4364681.98222	4808467.65075
	9		5203967.50325	5135697.46157
	14		17854277.0522	17857116.9822
Form Base	5		13079487.5117	13787732.4161
	7		25330764.3554	27242834.731
UBSA Base	6		4364681.98222	4808467.65075
TEA Base	11	List Enumerate	17594573.2973	17928604.2125
	13	List Enumerate	7106214.3612	7451232.9712
	16	List Enumerate	6026284.22195	6456064.35783
People in a Poststratum Base		Update Enumerate	678134.33836	802234.23525
		List Enumerate	523570.70486	542121.58084

Appendix F

Shadow Block Analysis: Preliminary Evaluation Poststrata Results

Table F-1. Shadow Block Analysis: variables with significantly different proportions for a specific preliminary evaluation poststrata

Variable	Preliminary Evaluation Poststrata	A.C.E. Proportion	Non-A.C.E. Proportion
Black	12	0.51086	0.55150
Asian	2	^N 0.00397	^N 0.00482
Long Form	14	0.13886	0.13406

N - We are not considering these proportions as significantly different because they are close to 0 or 1. Under these circumstances, we regard the t-statistics as unreliable.

Table F-2. Shadow Block Analysis: variables with significant differences for a specific Preliminary evaluation poststrata

Variable	Preliminary Evaluation Poststrata	Significant Difference	Standard Error	P-value	Critical P-value
Black	12	-0.04064	0.01425	0.00435	0.00625
Long Form	14	0.00479	0.00161	0.00294	0.00625

Table F-3. Shadow Block Analysis: base totals for variables with significantly different proportions for a specific preliminary evaluation poststrata

Variable	Preliminary Evaluation Poststrata	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
Race Base	2	30634048.1873	31354645.7124
	12	5060030.913	5353888.1539
Form Base	14	22122033.8739	22917744.6423

Appendix G

Table G-1. Nine evaluation poststrata for Puerto Rico

Tenure	MSA	High Return Rate	Low Return Rate
Owner	San Juan Consolidated Metropolitan Statistical Area (CMSA)	1	2
	Other MSA	3	4
	Non-MSA	5	
Non-Owner	San Juan CMSA	6	7
	Other MSA	8	
	Non-MSA	9	

Appendix H

United States Census 2000 A.C.E. Lister Debriefing (ADDENDUM)

Questions Regarding the Listing:

Did you ever use non-A.C.E. Census materials (e.g. Census maps, Census address lists, etc.) to help you complete the listing?

Did respondents inquire about Census details? How did you respond?

Interaction with non-A.C.E. Census Staff:

Did you ever interact with non-A.C.E. Census staff? If so, what type of interaction did you have with non-A.C.E. Census staff? Did you ever discuss with non-A.C.E. Census staff the work you were doing?

If you had interaction, what specific listing issues did you discuss with non-A.C.E. Census staff? What operations did the non-A.C.E. Census staff work on? When did the interaction occur?

Questions regarding Independence:

Did you work on any non-A.C.E. Census listing operations? If so, did you list any of the same areas during A.C.E. listing?

Did your crew leader or anyone explain to you or give you written material explaining the “Independence Rules” for your position? That is, the rules for independence between the Census and the A.C.E..

Take a minute to think about the “Independence Rules”. Could you please tell me how you incorporated the “Independence Rules” into your work?

Appendix I

United States Census 2000 A.C.E. Crew Leader Debriefing - Listing Operation (ADDENDUM)

Questions Regarding the Listing:

Did the listers ever use Census materials (e.g. Census maps, Census address lists, etc.) to help them with the A.C.E. listing?

Did respondents inquire about Census details? How did listers respond?

Interaction with non-A.C.E. Census Staff:

Did you ever interact with non-A.C.E. Census staff? If so, what type of interaction did you have with non-A.C.E. Census staff? Did you ever discuss with non-A.C.E. Census staff the work you were doing?

If you had interaction, what specific listing issues did you discuss with the non-A.C.E. Census staff? What operations did the non-A.C.E. Census staff work on? When did the interaction occur?

Were you aware of any interaction between listers and non-A.C.E. Census staff? If you were aware of interaction, what listing issues did they discuss with the non-A.C.E. Census staff? What operations did the non-A.C.E. Census staff work on? When did the interaction occur?

Questions regarding Independence:

Did you work on any non-A.C.E. Census listing operations? If so, did you list any of the same areas during A.C.E. listing?

Did the ACERO staff, your F.O.S., or anyone explain to you or give you written material explaining the “Independence Rules” for you and your crews’ positions? That is, the rules for independence between the Census and the A.C.E..

Take a minute to think about the “Independence Rules”. Could you please tell me how you incorporated the “Independence Rules” into your work?

Questions Regarding Security in the LCO:

Was the A.C.E. space in the LCO secure from non-A.C.E. staff except for designated public areas in the A.C.E. space?

Were A.C.E. materials (ex. ILBs, A.C.E. maps - including wall maps) confined to restricted A.C.E. areas within the LCO?

How did you secure the office and sample related materials at night or anytime A.C.E. staff was not present?

Appendix J

UNITED STATES CENSUS 2000 ACCURACY AND COVERAGE EVALUATION

PERSON INTERVIEW PERSON INTERVIEW QA TARGETED EXTENDED SEARCH

DEBRIEFING QUESTIONS

INTERVIEWERS & QA CHECKERS

Date of debriefing _____ ACERO Name _____

Debriefed Name _____ Position _____

Participants: No. of Interviewers _____ No. of QA Checkers _____

Other Field Staff: Position _____ No. _____

8. RESPONDENT COOPERATION/INTERACTION

*In general, how receptive were respondents to being interviewed? How about in QA?
What techniques did you use successfully to gain cooperation?*

Did respondents seem interested in the fact that the interviews were done on a laptop?

How often did respondents watch the screen during the interview? Was it helpful when they did?

What were the most common reasons given for

refusing? _____

Did respondents ask you questions that you couldn't answer, or would like to have been able to answer better? What questions? How did you answer?

Were you able to explain the purpose of A.C.E. to respondents? Any suggestions for how we can prepare interviewers better to explain the survey?

9. INDEPENDENCE

Did any respondents ask you about the Census during your A.C.E. interviewing? Do you think the Census affected how they responded to the A.C.E.? If so, in what ways?

Did you ever use non-A.C.E. maps that were produced for census operations other than the A.C.E.? If so, where did you obtain the map from?

Did respondents inquire about Census details? How did you respond?

How often did any respondents refuse to participate in the A.C.E. because they had already filled out their Census form?

Did you work on the Census Nonresponse Followup operation? If so, did you interview in any of the same areas during A.C.E. Person Interviewing? Do not include areas where you did only a very small number of nonresponse cases.

Did you interact with non-A.C.E. Census staff during the Person Interview operation? If so, what type of interaction did you have with non-A.C.E. Census Staff? Did you discuss with non-A.C.E. Census staff the work you were doing?

If you had interaction, what kinds of things did you talk about with non-A.C.E. Census staff? What operations did the non-A.C.E. Census staff work on? When did the interaction occur?

Were independence rules covered in your training -- that is, the rules for independence between the census and the A.C.E.? Did you receive written materials explaining the independence rules for your position?

Appendix K

**UNITED STATES CENSUS 2000
ACCURACY AND COVERAGE EVALUATION**

**PERSON INTERVIEW
PERSON INTERVIEW QA
TARGETED EXTENDED SEARCH**

DEBRIEFING QUESTIONS

CREW LEADERS, QA CREW LEADERS, FOSs, & QA FOSs

Date of debriefing _____ ACERO Name _____

Debriefing Name _____ Position _____

Participants: No. of Crew Leaders _____ No. of QA Crew Leaders _____

No. of FOSs _____ No. of QA FOSs _____

Other Field Staff: Position _____ No. _____

10. RESPONDENT COOPERATION/INTERACTION

In general, how receptive were respondents to being interviewed? How about in QA?

What techniques did you and interviewers use successfully to gain cooperation? Did they have any negative effects? What techniques did you and interviewers use successfully during Type A followup?

Did respondents seem interested in the fact that the interviews were done on a laptop?

How often did respondents watch the screen during the interview? Was it helpful when they did?

What were the most common reasons given for refusing?

Do you know if respondents asked questions that the interviewers couldn't answer, or couldn't answer well? What questions? How did they answer? Did respondents ask you questions you couldn't answer, or couldn't answer well? What questions?

Were interviewers able to explain the purpose of A.C.E. to respondents? Were you? Any suggestions for how we can prepare interviewers and you to explain the survey?

11. INDEPENDENCE

Did the interviewers ever use non-A.C.E. maps that were produced – by the census bureau – for operations other than the A.C.E.? If so, where did the interviewers obtain the maps?

Did respondents inquire about Census details? How did interviewers respond?

How often did any respondents refuse to participate in the A.C.E. because they had already filled out their Census form?

Did you work on the Nonresponse Followup operation? If so, did you work in any of the same areas during A.C.E. Person Interviewing? Do not include areas where you did only a very little Nonresponse Followup work.

Were independence rules covered in your training -- that is, the rules for independence between the census and the A.C.E.? Did you receive written materials explaining the independence rules for your position?

Take a minute to think about the "Independence Rules". How did you incorporate the "Independence Rules" into your work?

Did you interact with non-A.C.E. Census staff during this operation? If so, what type of interaction did you have with non-A.C.E. Census staff? Did you discuss with non-A.C.E. Census staff the work you were doing?

If you had interaction, what kinds of things did you talk about with the non-A.C.E. Census staff? What operations did the non-A.C.E. Census staff work on? When did the interaction occur?

Were you aware of interactions between A.C.E. interviewers and non-A.C.E. Census staff during the Person Interview operation?

If you were aware of interactions, what issues did they discuss with the non-A.C.E. Census staff?

Do you know if the A.C.E. space in the LCO was secure from non-A.C.E. staff except for designated public areas in the A.C.E. space? If not, explain.

Do you know if A.C.E materials (e.g., A.C.E. maps for interviewer assignments, or other A.C.E. sample related materials) were confined to restricted A.C.E. areas within the LCO?

Were you involved in securing the A.C.E. area in the LCO? If so, how did you secure the area and any A.C.E. sample-related materials at night or anytime A.C.E. staff was not present?

Appendix L

ACERO:	
U.S. Department of Commerce Bureau of the Census	
United States Census 2000 Accuracy and Coverage Evaluation Person Interview Interviewer Debriefing Questionnaire	
Instructions: Please answer all questions. Use item 15 to provide additional comments.	
Purpose: In order to evaluate our ability to keep the Census and the A.C.E. separate, we need your input on the items in this questionnaire. Please note that all your responses to these questions are confidential. Your responses will not be shown to your crew leader, FOS, or anyone at the ACERO.	
1. Approximately how many A.C.E. interviews did you do?	
2a. Did you get any unusual reactions from respondents regarding Census 2000? For example did respondents ever become overly suspicious of you since they already returned their Census forms?	<input type="checkbox"/> No, skip to item 3a <input type="checkbox"/> Yes, continue with item 2b
2b. How often did you get unusual reactions from respondents regarding Census 2000?	<input type="checkbox"/> Once in a While <input type="checkbox"/> Frequently <input type="checkbox"/> Almost Always
2c. What were the reactions? (Use Item 15 on page 3 if more space is needed.)	
3a. Did you discuss your A.C.E. Person Interview assignment location with non-A.C.E. Census staff?	<input type="checkbox"/> No, skip to item 4a <input type="checkbox"/> Yes, continue with item 3b
3b. How often did you discuss your A.C.E. Person Interview assignment with non-A.C.E. Census staff?	<input type="checkbox"/> 1 - 5 Times <input type="checkbox"/> 6 - 10 Times <input type="checkbox"/> 11 - 20 Times <input type="checkbox"/> 20 or More Times
3c. Please specify what operations the non-A.C.E. Census staff worked on. (Use Item 15 on page 3 if more space is needed.)	
3d. Where and when did the discussions with non-A.C.E. Census staff occur? (Use Item 15 on page 3 if more space is needed.)	<input type="checkbox"/> After work hours <input type="checkbox"/> During work hours and not in the LCO <input type="checkbox"/> During work hours and in the LCO <input type="checkbox"/> Other, Please Specify:
4a. Did respondents ask you about Census issues other than questions about the A.C.E.?	<input type="checkbox"/> No, skip to item 5a <input type="checkbox"/> Yes, continue with item 4b

4b. How often did respondents ask you about Census issues other than questions about the A.C.E.?	<input type="checkbox"/> 1 - 5 Times <input type="checkbox"/> 6 - 10 Times <input type="checkbox"/> 11 - 20 Times <input type="checkbox"/> 20 or More Times
4c. What specific questions did respondents ask? How did you respond?	
5a. Do you think the Census influenced whether or not the respondents participated in the A.C.E.?	<input type="checkbox"/> No, skip to item 6a <input type="checkbox"/> Yes, continue with item 5b
5b. How do you think the Census influenced whether or not the respondents participated in the A.C.E.?	
5c. How often do you think the Census influenced whether or not the respondents participated in the A.C.E. ?	<input type="checkbox"/> Don't Know <input type="checkbox"/> Once in a While <input type="checkbox"/> Frequently <input type="checkbox"/> Almost Always
5d. How much more or less likely do you think respondents were to cooperate with the A.C.E. based on their involvement with the Census?	<input type="checkbox"/> Don't Know <input type="checkbox"/> A Lot Less Likely <input type="checkbox"/> Less Likely <input type="checkbox"/> More Likely <input type="checkbox"/> A Lot More Likely
6a. Did you ever help a respondent fill in a Census questionnaire?	<input type="checkbox"/> No, skip to item 7a <input type="checkbox"/> Yes, continue with item 6b
6b. How often did you help a respondent fill in a Census questionnaire?	<input type="checkbox"/> 1 Time <input type="checkbox"/> 2 Times <input type="checkbox"/> 3 Times <input type="checkbox"/> 4 or More Times
7a. Did you ever return a Census questionnaire for any respondents?	<input type="checkbox"/> No, skip to item 8a <input type="checkbox"/> Yes, continue with item 7b
7b. How often did you return a Census questionnaire for a respondent?	<input type="checkbox"/> 1 Time <input type="checkbox"/> 2 Times <input type="checkbox"/> 3 Times <input type="checkbox"/> 4 or More Times
8a. Did you ever request a Census questionnaire for any respondents?	<input type="checkbox"/> No, skip to item 9a <input type="checkbox"/> Yes, continue with item 8b
8b. How often did you request a Census questionnaire for a respondent?	<input type="checkbox"/> 1 Time <input type="checkbox"/> 2 Times <input type="checkbox"/> 3 Times <input type="checkbox"/> 4 or More Times
9a. Did you ever use non-A.C.E. maps that were produced for Census operations other than the A.C.E.?	<input type="checkbox"/> No, skip to item 10 <input type="checkbox"/> Yes, continue with item 9b

<p>9b. How often did you use non-A.C.E. maps that were produced for Census operations other than the A.C.E.?</p>	<p>1 <input type="checkbox"/> Once in a While 2 <input type="checkbox"/> Frequently 3 <input type="checkbox"/> Almost Always</p>
<p>10a. Were the “Independence Rules” covered in your training? That is, the rules for independence between the Census and the A.C.E..</p>	<p>1 <input type="checkbox"/> No 2 <input type="checkbox"/> Yes</p>
<p>10b. Did you receive written materials explaining the “Independence Rules” for your position?</p>	<p>1 <input type="checkbox"/> No 2 <input type="checkbox"/> Yes</p>
<p>11a. Did you work on Census operations (other than A.C.E. operations)?</p>	<p>1 <input type="checkbox"/> No, skip to item 12a 2 <input type="checkbox"/> Yes, continue with item 11b</p>
<p>11b. Which Census operations did you work on? (Check all that apply.)</p>	<p>1 <input type="checkbox"/> Address Listing 2 <input type="checkbox"/> Block Canvassing 3 <input type="checkbox"/> Non Response Followup 4 <input type="checkbox"/> Coverage Improvement Followup 5 <input type="checkbox"/> Special Place Advanced Visit 6 <input type="checkbox"/> Remote Alaska Enumeration 7 <input type="checkbox"/> Update/Leave 8 <input type="checkbox"/> Urban Update/Leave 9 <input type="checkbox"/> List/Enumerate 10 <input type="checkbox"/> Update/Enumerate</p>
<p>12a. Did you work on an A.C.E. operation other than the Person Interview?</p>	<p>1 <input type="checkbox"/> No, skip to item 13 2 <input type="checkbox"/> Yes, continue with item 12b</p>
<p>12b. Which A.C.E. operations did you work on? (Check all that apply.)</p>	<p>1 <input type="checkbox"/> Listing 2 <input type="checkbox"/> Relisting 3 <input type="checkbox"/> Housing Unit Followup 4 <input type="checkbox"/> Targeted Extended Search 5 <input type="checkbox"/> Person Interview QA</p>
<p>13a. Did you work in the same area on one or more Census or A.C.E. operation?</p>	<p>1 <input type="checkbox"/> No, skip to item 14 2 <input type="checkbox"/> Yes, continue with item 13b.</p>
<p>13b. Which operations? Please explain. (Use Item 15 if more space is needed.)</p>	
<p>14. Thank you for your cooperation. Please return your completed questionnaire in the envelope provided.</p>	
<p>15. Comments:</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p> <p>.....</p>	

Appendix M

WGA A vs C: Base Totals

Table M–1. WGA A vs C: base totals for variables with significantly different proportions for a specific evaluation poststrata

Variable	Evaluation Poststrata	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
Age Group Base	28	9004484.71439	9752661.51154
Race Base	2	11518446.1431	11149819.7722
	3	4912583.38567	5372788.3005
	5	17572707.0937	17296840.5935
	6	12543116.9157	11874843.9771
	14	13099546.9901	11926154.5464
	23	2587192.95233	2853323.49296
	25	8117528.83663	9214643.17332
	34	6469379.16767	6344773.78435
Be Counted Form Base	7	8842843.89477	8149192.19926
	17	10465113.9219	11246189.0541
UBSA Base	9	11880961.8728	11447308.0391
	11	10038009.7737	11036582.793
	28	9004484.71439	9752661.51104
	30	4291247.19316	4569109.65102
	32	4170648.25894	3777208.77541
TEA Base	24	5190234.77192	5206738.48877
	35	4095773.89489	4215665.90026
People in Evaluation Poststrata Base	1 - 36	272555864.927	273637212.31

Table M–2. WGA A vs C: base totals for variables with significantly different proportions collapsed across TEA for a specific region

Region	Variable	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
National	Relationship Edited Base	272555864.927	273637212.31
	Race Base	272555864.927	273637212.31
	Other Relative Base	272555864.927	273637212.31
	Age Group Base	272555864.927	273637212.30
South	Race Base	98607503.5527	97401581.3395
	Other Relative Base	98607503.5527	97401581.3395
	Hispanic Origin Base	98607503.5527	97401581.3395
West	Race Base	61269971.3581	61715054.1679

Table M-3. WGA A vs C: National - base totals for variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
Relationship Edited Base	Mailout Mailback	220732111.424	223017069.664
Other Relative Base	Mailout Mailback	220732111.424	223017069.664
	List Enumerate	704392.2013	605129.43202
Race Base	Mailout Mailback	220732111.424	223017069.664
	Update Leave	49707000.0427	48283866.7154
	List Enumerate	704392.2013	605129.43202
	Update Enumerate	1412361.25864	1731146.49891
UBSA Base	Update Enumerate	759541.44617	959154.81921
People in Evaluation Poststrata Base	Mailout Mailback	220732111.424	223017069.664
	Update Leave	49707000.0427	48283866.7154
	List Enumerate	704392.2013	605129.43202
	Update Enumerate	1412361.25864	1731146.49891

Table M-4. WGA A vs C: Northeast - base totals for variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
HU in NRU Base	Update Leave	2774173.40784	2992882.64938
Hispanic Origin Base	Update Leave	6164890.75322	6477690.16893
Race Base	Mailout Mailback	44851238.0672	44916394.9168
	Update Leave	6164890.75322	6477690.16893
	List Enumerate	308299.81682	292070.51233
	Update Enumerate	180574.79058	233411.17986
Be Counted Form Base	Update Enumerate	173825.47132	222446.50262
UBSA Base	Update Enumerate	194485.76257	215693.27965

Table M-5. WGA A vs C: Midwest - base totals for variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
Hispanic Origin Edited Base	Update Enumerate	195844.39193	249187.03038
Other Relative Base	List Enumerate	17470.73152	21667.17003
Race Base	Update Leave	8830831.80395	9775018.61438
	List Enumerate	17470.73152	21667.17003
Be Counted & Long Form Base	Update Leave	8727928.08672	9650774.74239
	List Enumerate	16716.94559	20163.55033

Table M-6. WGA A vs C: South - base totals for variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
Renter Base	List Enumerate	9237.99495	10878.35433
Non Relative Base	Update Leave	28249704.954	25698193.2383
Race Base	Mailout Mailback	69928277.8318	71186916.0083
	Update Leave	28249704.954	25698193.2383
UBSA Base	Update Enumerate	404808.5013	486437.29224
	Update Enumerate	163501.77797	227642.53137

Table M-7. WGA A vs C: West - base totals for variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
Other Relative Base	List Enumerate	353909.38732	261356.94894
Hispanic Origin Base	Update Enumerate	631133.57484	762110.99643
Race Base	Mailout Mailback	53823355.8644	54358621.5286
	List Enumerate	353909.38732	261356.94894
Be Counted Form Base	Update Enumerate	599365.82267	715969.51134

Appendix N

WGA B vs C: Base Totals

Table –1. WGA B vs C: base totals for variables with significantly different proportions for a specific evaluation poststrata

Variable	Evaluation Poststrata	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
Non Relative Base	18	2248483.84599	2100291.2751
Age Group Base	17	6888044.34072	7602514.74507
	24	3328101.77336	3505728.95176
Relationship Edited Base	10	4364681.98222	4808467.65075
Sex Edited Base	10	4364681.98222	4808467.65075
	21	3477476.82801	3859712.56949
Race Edited Base	10	4364681.98222	4808467.65075
Race Base	6	7055439.62534	8033693.83659
	7	7501472.86702	8198063.36714
	8	4514741.66941	4608852.15891
	9	8679189.19821	9296776.54554
	10	4364681.98222	4808467.65075
	11	5819365.41595	6556711.88582
	12	6220024.27923	6387121.70844
	13	3619773.48779	3960433.24678
	14	10063892.9015	10765929.2379
	16	2955483.65726	3035406.18648
	19	5442693.29006	5943545.50833
	20	3615416.32481	3789655.26818
	22	4631954.63092	4845327.39412
	24	3328101.77336	3505728.9517
	25	5553768.56613	5466163.47879
Hispanic Origin Base	36	1192850.83491	1292664.89737
Form Base	36	1192850.83491	1292664.89737
	5	6949551.83655	7426595.16491
	8	4482379.34602	4578905.04196
	13	3547738.24177	3877473.75899
	14	9912512.6383	10598407.2244
	29	1535349.56118	1597434.58005
	36	1165374.116	1259898.64095
UBSA Base	10	4364681.98222	4808467.65075
	18	2248483.84599	2100291.2751
	22	4631954.63092	4845327.39412
	24	3328101.77336	3505728.9517
TEA Base	27	2472667.68088	2543248.70954
	30	3778112.58784	3945504.01965
	33	2360765.70616	2620150.75099
	34	5063405.08828	5340564.06367

Table –2. WGA B vs C: base totals for variables with significantly different proportions collapsed across TEA for a specific region

Region	Variable	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
National	HU in CEU	75278233.8874	80123508.5241
	Other Relative Base	180709088.814	191500640.968
Northeast	HU in CIU Base	14444109.9352	15491234.8296
	Be Counted Base	34222966.0693	36599099.6502
Midwest	HU in NRU Base	7034925.05885	7780865.91713
	Form Base	16116014.4345	17502195.11
South	HU in CEU Base	30887881.5308	32636196.9536

Table –3. WGA B vs C: National - base totals for variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
Other Relative Base	Mailout Mailback	143863836.126	151488715.427
	Update Enumerate	678134.33836	802234.23525
	List Enumerate	523570.70486	542121.58084
Race Base	Mailout Mailback	143863836.126	151488715.427
	Update Leave	35643547.6455	38667569.7255
	List Enumerate	523570.70486	542121.58084
Form Base	Update Leave	35003125.7258	37954178.9484
	List Enumerate	485251.98219	495615.53227
	List Enumerate	523570.70486	542121.58084

Table –4. WGA B vs C: Northeast - base totals for variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
HU in CIU Base	Mailout Mailback	12784842.0009	13460275.4743
Age Group Base	Update Enumerate	52082.06852	120035.85914
Other Relative Base	Update Enumerate	52082.06852	120035.85914
Race Base	Update Leave	3596403.06985	4366020.91321
Hispanic Origin Base	Update Enumerate	52082.06852	120035.85914
Form Base	Mailout Mailback	30342456.4332	31916408.3779
	Update Leave	3541527.36863	4300971.2888
	Update Enumerate	51155.42493	116854.22664
	List Enumerate	287826.84253	264865.75686
UBSA Base	Update Leave	1674731.6121	2053353.61012
	List Enumerate	252939.17143	208739.0128
TEA Base		35005917.1919	37488559.2643

Table –5. WGA B vs C: Midwest - base totals for variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
Other Relative Base	Update Enumerate	35391.9173	21814.52305
Tenure Edited Base	List Enumerate	15761.6639	9737.27031
Relationship Edited Base	Update Enumerate	35391.9173	21814.52305
Sex Edited Base	Update Enumerate	35391.9173	21814.52305
Race Base	Update Leave	5015634.79181	5538026.49916
	Update Enumerate	35391.9173	21814.52305
Hispanic Origin Base	Update Enumerate	35391.9173	21814.52305
Form Base	Update Leave	4956719.97401	5479455.93665
UBSA Base	Update Leave	2201857.63134	2511920.22993

Table –6. WGA B vs C: South - base totals for variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
HU in CEU	Update Leave	9421848.40906	10138692.1771
Race Base	Update Leave	21253136.5056	22575265.054
UBSA Base	Update Leave	9421848.4090	10138692.1771
	Update Enumerate	129564.55494	161420.94952
TEA Base		72055105.1064	76014165.3259

Table –7. WGA B vs C: West - base totals for variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
HU in CEU Base	Update Leave	2703078.83734	2856579.71401
Other Relative Base	Mailout Mailback	51163591.5448	53650197.489
	Update Enumerate	228013.73104	253937.77914
	List Enumerate	195363.86354	213361.145
Race Base	Update Leave	5778373.27824	6188257.25917
	Update Enumerate	228013.73104	253937.77914
	List Enumerate	195363.86354	213361.145
Hispanic Origin Base	List Enumerate	195363.86354	213361.145
Form Base	List Enumerate	174908.57619	192317.31447
UBSA Base	List Enumerate	120556.9561	118113.98148

Appendix O

Shadow Block Analysis: Base Totals

Table O-1. Shadow Block Analysis: base totals for variables with significantly different proportions for a specific evaluation poststrata

Variable	Evaluation Poststrata	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
Race Base	7	8118363.1786	8292910.8006

Table O-2. Shadow Block Analysis: base totals for variables with significantly different proportions collapsed across TEA for a specific region

Region	Variable	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
National	Race Base	268974709.367	271883515.244
Northeast	Form Base	50376947.3494	51382218.2409
Midwest	Relative Base	61750366.4474	61806193.4249
	Form Base	60794779.7759	60852302.6145
	UBSA Base	26439406.1	26480254.9986
South	HU in CEU Base	41451713.2949	42134803.5052

Table O-3. Shadow Block Analysis: National - base totals for variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
Tenure Edited Base	Mailout Mailback	91305254.3614	92172216.6766
Race Base	Update Leave	47029982.9335	47838453.5807
People in Evaluation Poststrata Base	Mailout Mailback	219778234.48	221813514.113

Table O-4. Shadow Block Analysis: Northeast - base totals for variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
Tenure Edited Base	Update Leave	2880523.6067	2904206.8313
Age Base	Update Enumerate	167521.922	213783.9728
	List Enumerate	291954.699	276254.8591
Form Base	Update Leave	6216796.9456	6199987.7747
	Update Enumerate	161104.9875	205417.4783

Table O-5. Shadow Block Analysis: Midwest - base totals for variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
Avg. Persons per HU Base	Update Leave	3511793.387	3611904.1231
Avg. Data Defined Persons Base	Update Leave	3511793.387	3611904.1231
Age Base	Update Leave	8976201.9962	9431886.3558
Tenure Edited Base	Mailout Mailback	22108038.8669	21997546.2495
Relative Base	Mailout Mailback	52531348.2319	52089998.9459
	Update Leave	8976201.9962	9431886.3558
Race Base	Update Leave	8976201.9962	9431886.3558
UBSA Base	Mailout Mailback	22108038.8669	21997546.2495
	Update Leave	4182310.7803	4323486.9848
	Update Enumerate	132493.6343	140873.0419

Table O-6. Shadow Block Analysis: South - base totals for variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
HU in CEU	Update Leave	11177077.9323	11576104.2901
Age Base	List Enumerate	13669.0333	20897.6057

Table O-7. Shadow Block Analysis: West - base totals for variables with significantly different proportions for a specific TEA

Variable	TEA	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
Relative Base	Update Leave	6575344.1465	6208071.1016
	Update Enumerate	709541.9998	736525.7846
	List Enumerate	331541.1296	232676.5854
Race Base	Mailout Mailback	53233436.9349	54344944.9809
	Update Leave	6575344.1465	6208071.1016

Appendix P

Puerto Rico WGA: Base Totals

Table P-1. Puerto Rico WGA: base totals for variables with significantly different proportions for a specific evaluation poststrata

Variable	Evaluation Poststrata	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
N _{c,ace} /N _c Base	8	NA*	196787.00000
Race Base	1	1221755.68560	1188520.10480
	2	561091.82740	573094.81820
	4	134641.35120	131231.63170
Hispanic Origin Base	4	134641.35120	131231.63170
Form Base	7	241878.73890	189671.85830
UBSA Base	1	1221755.68560	1188520.10480
	6	383946.24330	453805.64200
	8	133851.07960	201194.86470
	9	123603.20340	150515.45650
People in a Poststratum Base	NA	3655234.71050	3757895.76540

* NA - Not Applicable

Table P-2. Puerto Rico WGA: base totals for variables with significantly different proportions

Variable	A.C.E. Proportions Base	Non-A.C.E. Proportions Base
Form Base	3556191.12320	3669299.73490

Appendix Q

Puerto Rico Shadow Block Analysis: Base Totals

Table Q-1. Puerto Rico Shadow Block Analysis: base totals for variables with significantly different proportions for a specific evaluation poststrata

Variable	Evaluation Poststrata	A.C.E. Proportion Base	Non-A.C.E. Proportions Base
Age Base	8	161509.22000	210254.81780

Table Q-2. Puerto Rico Shadow Block Analysis: base totals for variables with significantly different proportions

Variable	A.C.E. Proportions Base	Non-A.C.E. Proportions Base
HU in NRU Base	1429091.68910	1423443.88240
UBSA Base	1429091.68910	1423443.88240