



**UNITED STATES DEPARTMENT OF COMMERCE**  
**Economics and Statistics Administration**  
**U.S. Census Bureau**  
Washington, DC 20233-0001

**MASTER FILE**

December 30, 2002

DSSD A.C.E. REVISION II MEMORANDUM SERIES #PP-56

MEMORANDUM FOR

Donna L. Kostanich  
Chair, A.C.E. Revision II Planning Group

From:

Michael Beaghen *M.B.*  
Chair, A.C.E. Revision II Missing Data Subgroup

Prepared By:

Michael Ikeda  
Statistical Research Division

Subject:

A.C.E. Revision II - Results from the Noninterview Adjustment

This memorandum summarizes results from the A.C.E. Revision II noninterview adjustment. Contact Michael Ikeda at [Michael.M.Ikeda@census.gov](mailto:Michael.M.Ikeda@census.gov) or at 301-457-4864 if you have any questions or comments.

# A.C.E. Revision II: Results from the Noninterview Adjustment

---

Michael Ikeda  
Statistical Research  
Division

U S C E N S U S B U R E A U

*Helping You Make Informed Decisions*

## ***Introduction***

This memorandum summarizes results from the A.C.E. Revision II noninterview adjustment. Background information can be found in "*A.C.E. Revision II - Specification for the Noninterview Adjustment*," DSSD A.C.E. REVISION II MEMORANDUM SERIES #PP-21 and "*Accuracy and Coverage Evaluation: Specifications for the Missing Data Procedures; Revision of Q-25*," DSSD Census 2000 Procedures and Operations Memorandum Q-62. Results comparable to this memorandum from production A.C.E. can be found in "*Accuracy and Coverage Evaluation: Missing Data Results*," DSSD Census 2000 Procedures and Operations Memorandum Series B-7\*. In this document, the terms "production" and "production A.C.E." refer to the original operations, data, or results that went into the March 2001 estimates.

Noninterview adjustment is performed only on the P Sample. A.C.E. interviewers ask questions to determine who currently lives in the household and who lived in the household on Census Day. Two rosters are created for each household--one for Census Day and another for Interview Day. Because of the use of Mover Procedure C estimation, there are two noninterview adjustments--one based on housing-unit status as of Census Day (i.e., the Census Day roster), and the other based on housing-unit status as of the day of the A.C.E. interview (i.e., the A.C.E. Interview Day roster). Housing-unit status for A.C.E. interview day is the same as in production. Housing-unit status for Census Day reflects the results of the Revision II coding (please note that the A.C.E. Revision II sample that is used to correct for measurement error is known as the Revision II sample and the results of the coding are known as the Revision II coding).

Revision II weighted interview rates were very high. Among occupied units, the weighted rates were 96.9 percent for Census Day and 99.0 percent for A.C.E. Interview Day. This compares to production interview rates of 97.1 percent for Census Day and 98.8 percent for A.C.E. Interview Day. Most units in the Revision II sample had the same Census Day housing unit status as in production, although there was a net flow of just under 500,000 weighted housing units from interviews to noninterviews.

Each of the two noninterview adjustments generally spreads the weights of noninterviewed units over interviewed units in the same noninterview adjustment cell. For the A.C.E. Interview Day noninterview adjustment the cells are defined the same way as in production: block cluster crossed with the type of basic address. For purposes of this adjustment, the type of basic address is grouped by single-family units, units with multiple residences--such as apartments and condominiums--and all others.

For the Census Day noninterview adjustment, the cells are defined differently than in production, although they are still defined within block clusters. A new within-cluster cell has been defined for the A.C.E. Revision II Census Day noninterview adjustment. The new cell contains two types of housing units. First, it contains new noninterviews (interviews in production but noninterviews in Revision II coding) due to whole households of persons determined by the Revision II coding to have moved in after Census Day or moved out before Census Day. Second,

it contains housing units that contain at least one person who the production followup determined was potentially fictitious or potentially lived elsewhere on Census Day. Units in this second group are mostly interviews, although they can also be noninterviews.

Summing over all Revision II sample block clusters, the new Census Day noninterview adjustment cell contained just over two million weighted housing units. Just over 400,000 of these housing units were noninterviews, of which roughly 127,000 were new noninterviews due to movers.

Units which are not in the new Census Day cell are placed in one of two within-cluster cells. These cells are a grouping of the type of basic address. The first cell contains single-family units, while the second cell contains all other units.

The Census Day housing-unit status for P-Sample units is used to compute the Census Day noninterview adjustment, which is then applied (at the appropriate level) to the person weights of nonmovers and outmovers. Similarly, A.C.E. Interview Day housing-unit status is used to compute the A.C.E. Interview Day noninterview adjustment, which is then applied to the person weights of in-movers.

### ***Results for Noninterview Adjustment***

Tables 1a through 1d summarize components of Revision II sample interview rates and allow comparison between Census Day and A.C.E. Interview Day. These tables show the total number of housing units in the P Sample, the number of P-Sample housing units in each of the four interview status categories (Interviews, Noninterviews, Vacants, and Deletes) and the Interview Rate. Definitions of the four interview status categories and the interview rate are as follows:

*Interview:* A unit is an interview (for the given reference date) if there is at least one person (who had a name and at least two demographic characteristics) who possibly or definitely was a resident of the housing unit on the given reference date.

*Noninterview:* An occupied housing unit (as of the given reference date) that is not an interview is a noninterview.

*Vacant:* A housing unit is vacant if no one is living in it at the time of enumeration, unless the occupants are only temporarily absent. Units temporarily occupied at the time of enumeration entirely by individuals who have a usual residence elsewhere are classified as vacant.

*Delete:* This category is for an address that no longer qualifies as a living quarters.

*Interview rate:* The weighted interview rate is the weighted number of interviews divided by the weighted sum of interviews and noninterviews. *Note that, according to the design*

of the Revision II sample, we subsampled production interviews within clusters but generally did not subsample production noninterviews. Therefore the unweighted interview rate will generally not provide useful information.

Table 1a shows the weighted Revision II household interview status for Census Day for the United States. Unweighted counts are also included, for information on sample size. According to the A.C.E., approximately 114.2 million housing units existed in the U.S. on Census Day (U.S. Total minus 'Deletes' in Table 1a below).

For Revision II, 85.6 percent (weighted) of the *addresses*, and 96.9 percent of *Census Day occupied households* are Census Day interviews. This compares to rates of 85.7 percent of addresses and 97.1 percent of occupied households that were Census Day interviews in production A.C.E. (from Memorandum B-7\*).

**Table 1a. A.C.E. Revision II Status of A.C.E. Household Interviews for Census Day (2000)**

	Unweighted	Weighted	
	Number	Number	Percent
U.S. Total (Addresses)	29,500	117,479,815	100.0
Interviews <sup>1</sup>	17,240	100,553,541	85.6
Noninterviews	2,279	3,264,389	2.8
Vacants	7,333	10,408,959	8.9
Deletes	2,648	3,252,926	2.8
Interview rate <sup>2</sup>	N/A	0.97	N/A

Table 1b shows detailed information regarding A.C.E. household interview status for Census Day by final outcome codes. The table contains weighted counts and percentages in the different final outcome code categories. Unweighted counts are also included for information on sample size. The numbers are generally similar to the corresponding production A.C.E. numbers in Memorandum B-7\*. Among Census Day interviews, about 92.5 percent were completed interviews with a household member. Noninterviews were distributed fairly evenly across the three types of noninterview categories.

The memorandum "*A.C.E. Revision II - Specifications for Creating A.C.E. Revision II Final Outcome Codes and A.C.E. Revision II Interview Status Codes*," DSSD A.C.E. REVISION II MEMORANDUM SERIES #PP-20 contains information on Census Day final outcome codes for A.C.E. Revision II. Necessary background information for #PP-20 can be found in "*Accuracy and Coverage Evaluation Survey: Specifications for Creating A.C.E. Final Outcome Codes and*

<sup>1</sup> The A.C.E. household is an interview (for Census Day or A.C.E. Interview Day) if there is at least one person (with name and at least two demographic characteristics) who possibly or definitely was a resident of the housing unit on Census Day or A.C.E. Interview Day.

<sup>2</sup> The weighted interview rate is the weighted number of interviews divided by the weighted sum of interviews and noninterviews.

A.C.E. Interview Status Codes," DSSD Census 2000 Procedures and Operations Memorandum Series Q-16.

**Table 1b. A.C.E. Revision II Final Outcome Codes for P-Sample Housing Units on Census Day (2000)**

Final Outcome code	Housing units (unweighted)	Housing units (weighted)	Percent (weighted)
<b>Total</b>	<b>29,500</b>	<b>117,479,815</b>	<b>100.0%</b>
<b>Interviews</b>	<b>17,240</b>	<b>100,543,541</b>	<b>85.6%</b>
Complete interview with a household member (1)	13,769	92,995,996	79.2%
Complete interview with a proxy respondent (2)	3,009	6,593,230	5.6%
Partial interview (3)	462	964,315	0.8%
<b>Noninterviews</b>	<b>2,279</b>	<b>3,264,389</b>	<b>2.8%</b>
No Census Day residents - household converted to noninterview (4)	860	1,398,233	1.2%
Field noninterview (6)	745	998,119	0.8%
All people have insufficient information for matching and follow-up (9)	674	868,037	0.7%
<b>Vacants</b>	<b>7,333</b>	<b>10,408,959</b>	<b>8.9%</b>
No Census Day residents - vacant (10)	1,102	1,844,005	1.6%
Vacant on Census Day (11)	6,231	8,564,954	7.3%
<b>Deletes - Not a housing unit on Census Day (12)</b>	<b>2,648</b>	<b>3,252,926</b>	<b>2.8%</b>

Table 1c shows the weighted Revision II household interview status for A.C.E. Interview Day for the United States. Unweighted counts are also included for information on sample size. Remember that A.C.E. Interview Day interview status is defined to be the same in A.C.E. Revision II and production A.C.E. Based on the Revision II sample, as shown in Table 1c, approximately 116.2 million housing units existed in the U.S. on A.C.E. Interview Day. This estimate is larger for A.C.E. Interview Day than for Census Day because on the latter there were approximately 2½ times the number of deleted housing units. (Compare with Table 1a.). Note that, in both A.C.E. Revision II and production A.C.E., a majority (both weighted and unweighted) of Census Day deletes were classified as Interview Day vacants.

For Revision II coding, about 89.1 percent (weighted) of the addresses, and about 99.0 percent of Interview Day occupied households were Interview Day interviews. The interview rate for occupied households is about 2 percent higher than for Census Day. This is not surprising as

interviewers more often speak with the current housing-unit residents for A.C.E. Interview Day; therefore, we expect a better chance of obtaining an interview.

The comparable weighted numbers from production A.C.E. (from Memorandum B-7\*) are 88.8 percent of the addresses and 98.8 percent of occupied households that are Interview Day interviews. Note that any differences between the production and Revision II weighted numbers are solely due to sampling variation.

**Table 1c. A.C.E. Revision II Status of A.C.E. Household Interviews<sup>3</sup> for A.C.E. Interview Day (2000)**

	Unweighted	Weighted	
	Number	Number	Percent
U.S. Total (Housing Units)	29,500	117,479,815	100.0%
Interviews	20,344	104,716,567	89.1
Noninterviews	799	1,086,996	0.9
Vacants	7,352	10,356,306	8.8
Deletes	1,005	1,319,946	1.1
Interview rate <sup>4</sup>	N/A	0.99	N/A

Table 1d shows detailed information regarding A.C.E. household interview status for A.C.E. Interview Day by final outcome codes. The table contains weighted counts and percentages in the different final outcome code categories. Unweighted counts are also included for information on sample size. The numbers are generally similar to the corresponding production A.C.E. numbers in Memorandum B-7\*. Note that any differences from the production A.C.E. weighted numbers are solely due to sampling variation.

Among Interview Day interviews, about 95 percent (weighted) of interviews were complete interviews with a household member. For noninterviews, the percent of housing units containing only people with insufficient information for matching is similar to Census Day. However, this category makes up a much higher percentage of the noninterviews for A.C.E. Interview Day.

The memorandum "A.C.E. Revision II - Specifications for Creating A.C.E. Revision II Final Outcome Codes and A.C.E. Revision II Interview Status Codes," DSSD A.C.E. REVISION II MEMORANDUM SERIES #PP-20 contains information on Interview Day final outcome codes

---

<sup>3</sup> The A.C.E. household is an interview (for Census Day or A.C.E. Interview Day) if there is at least one person (with name and at least two demographic characteristics) who possibly or definitely was a resident of the housing unit on Census Day or A.C.E. Interview Day.

<sup>4</sup> The weighted interview rate is the weighted number of interviews divided by the weighted sum of interviews and noninterviews.

for A.C.E. Revision II. Necessary background information for #PP-20 can be found in "Accuracy and Coverage Evaluation Survey: Specifications for Creating A.C.E. Final Outcome Codes and A.C.E. Interview Status Codes," DSSD Census 2000 Procedures and Operations Memorandum Series Q-16.

**Table 1d. A.C.E. Revision II Final Outcome Codes for P-Sample Housing Units on A.C.E. Interview Day (2000)**

Outcome code	Housing units (unweighted)	Housing units (weighted)	Percent (weighted)
<b>Total</b>	<b>29,500</b>	<b>117,479,815</b>	<b>100.0%</b>
<b>Interviews</b>	<b>20,344</b>	<b>104,716,567</b>	<b>89.1%</b>
Complete interview with a household member (1)	18,038	99,580,832	84.8%
Complete interview with a proxy respondent (2)	1,944	4,384,037	3.7%
Partial interview (3)	362	751,698	0.6%
<b>Noninterviews</b>	<b>799</b>	<b>1,086,996</b>	<b>0.9%</b>
<i>Field noninterview (sum of codes 5, 7, 8)</i>	94	115,572	0.1%
Refusal (5)	53	61,474	0.1%
Unable to contact knowledgeable respondent (7)	41	54,098	0.0%
Language problems (8)	0	0	0.0%
All people have insufficient information for matching and follow-up (9)	578	762,020	0.6%
No A.C.E. Interview Day residents - household converted to noninterview (10)	127	209,404	0.2%
<b>Vacants - Vacant on A.C.E. Interview Day (11)</b>	<b>7,352</b>	<b>10,356,306</b>	<b>8.8%</b>
<b>Deletes - Not a housing unit on A.C.E. Interview Day (12)</b>	<b>1,005</b>	<b>1,319,946</b>	<b>1.1%</b>

Table 2 shows the unweighted distribution of noninterview adjustment factors for Census Day and A.C.E. Interview Day.

Due to the high response in Revision II, most noninterview adjustment factors are close to 1.0. Of the 17,240 interviewed housing units on Census Day, 42.1 percent had a noninterview adjustment factor of 1.0, indicating that all housing units in the initial noninterview cell were interviewed. About 70 percent of the interviewed housing units had a noninterview adjustment factor less than 1.05, and about 86 percent had a factor less than 1.1.

Only five housing units had a noninterview adjustment factor of 3.0, and nineteen had one greater than 3.0. The largest factor was 8.16. This could happen because the subsampling within



the cluster was at three different rates: certainty, one in five, and one in seven. If, for example, a noninterview with a weight of seven was in the same cell as an interview with a certainty weight, a large noninterview adjustment factor would result.

For A.C.E. Interview Day, 63.6 percent of the 20,344 interviewed housing units had a noninterview adjustment factor of 1. More than 92 percent of the interviewed housing units had a noninterview adjustment factor less than 1.05. Almost 98 percent of interviewed housing units had noninterview adjustment factors less than 1.1. The largest noninterview adjustment factor for A.C.E. Interview Day was 2.0.

**Table 2. A.C.E. Revision II: Distribution of Noninterview Adjustment Factors for Census Day and A.C.E. Interview Day**

	Number of housing units with corresponding noninterview adjustment factor (unweighted)									Number of interviewed housing units
	1	(1, 1.02)	[1.02, 1.05)	[1.05, 1.10)	[1.10, 1.20)	[1.20, 1.50)	[1.50,3)	3	>3	
Census Day	7,264	1,533	3,296	2,675	1,519	622	307	5	19	17,240
Percent	42.1%	8.9%	19.1%	15.5%	8.8%	3.6%	1.8%	0.0%	0.1%	100.0%
A.C.E. Interview Day	12,930	2,796	3,036	1,107	362	99	14	0	0	20,344
Percent	63.6%	13.7%	14.9%	5.4%	1.8%	0.5%	0.1%	0.0%	0.0%	100.0%

Table 3 gives the corresponding distribution of the noninterview adjustment factors for production A.C.E. We can see that there are more large noninterview adjustment factors in Revision II. Part of this is due to the greater variability of weights in the Revision II sample due to within-cluster sampling. For the Census Day adjustment there is another factor. The new cell defined for the Census Day adjustment in A.C.E. Revision II has a relatively high proportion of noninterviews and therefore the noninterview adjustment factors in this cell will tend to be larger.

**Table 3. Production A.C.E.: Distribution of Noninterview Adjustment Factors for Census Day and A.C.E. Interview Day**

	Number of housing units with corresponding noninterview adjustment factor (unweighted)									Number of interviewed housing units
	1	(1, 1.02)	[1.02, 1.05)	[1.05, 1.10)	[1.10, 1.20)	[1.20, 1.50)	[1.50,3)	3	>3	
Census Day	132,828	23,173	46,328	32,382	14,089	4,582	791	2	0	254,175
Percent	52.3%	9.1%	18.2%	12.7%	5.5%	1.8%	0.3%	0.0%	0.0%	100.0%
A.C.E. Interview Day	194,430	19,776	32,179	12,965	3,713	908	132	0	0	264,103
Percent	73.6%	7.5%	12.2%	4.9%	1.4%	0.3%	0.0%	0.0%	0.0%	100.0%

***Changes in Census Day Interview Status Between the Production A.C.E. and the A.C.E. Revision II***

Most units in the Revision II sample had the same Census Day interview status that they did in production. Based on weighted totals, 99.9 percent of the Revision II A.C.E. Census Day interviews, 81.9 percent of the Revision II Census Day noninterviews, and 97.8 percent of the Revision II Census Day vacant/delete units had the same Census Day interview status in production.

Note that, because of the data collection and coding procedures in Revision II, most of those Revision II units that were production Census Day vacants or deletes, and a majority of those Revision II units that were production Census Day noninterviews automatically had the same Census Day interview status in Revision II.

More details on changes in Census Day interview status are given below and in Table 4. The most important change appears to be a net flow of units from Census Day interviews to Census Day noninterviews. The "production" estimates in Table 4 differ from corresponding estimates in Memorandum B-7\* because the estimates in Table 4 are based solely on the units in the A.C.E. Revision II sample.

1) Revision II Census Day Interviews: There are 100,543,541 weighted Census Day interviews (17,240 unweighted) in Revision II. Of these, 105,551 (81 unweighted) were production noninterviews and 45,134 (29 unweighted) were production vacants or deletes.

2) Revision II Census Day Noninterviews: There are 3,264,389 weighted Census Day noninterviews (2,279 unweighted) in Revision II. Of these, 581,140 (282 unweighted) were production interviews and 9,014 (10 unweighted) were production vacants or deletes.

3) Revision II Census Day vacants/deletes: There are 13,661,885 weighted Census Day vacants or deletes (9,981 unweighted) in Revision II. Of these, 250,460 (121 unweighted) were production interviews, and 52,120 (33 unweighted) were production noninterviews.

**Table 4. Census Day Interview Status in A.C.E. Production and the Revision II (unweighted counts in parentheses)**

Production Status	A.C.E. Revision II Status			Total
	Interview	Noninterview	Vacant or Delete	
Interview	100,402,857 (17,130)	581,140 (282)	250,460 (121)	101,234,456 (17,533)
Noninterview	105,551 (81)	2,674,235 (1,987)	52,120 (33)	2,831,906 (2,101)
Vacant or Delete	45,134 (29)	9,014 (10)	13,359,306 (9,827)	13,413,453 (9,866)
Total	100,543,541 (17,240)	3,264,389 (2,279)	13,661,885 (9,981)	117,479,815 (29,500)

### *New Census Day Noninterview Adjustment Cell*

A new within-cluster noninterview adjustment cell was defined for the Revision II Census Day noninterview adjustment. Details on the new cell can be found in "A.C.E. Revision II - Specification for the Noninterview Adjustment," DSSD A.C.E. REVISION II MEMORANDUM SERIES #PP-21. The new cell contains two types of housing units. First, it contains new noninterviews (interviews in production but noninterviews in the Revision II coding) due to whole households of persons determined by Revision II coding to have moved in after Census Day or moved out before Census Day. Second, it contains housing units that contain at least one person who the production followup determined was potentially fictitious or potentially lived elsewhere on Census Day. Units in this second group are mostly interviews, although they can also be noninterviews.

Summing over all clusters, there were 2,084,359 weighted housing units (1,416 unweighted) in the new cell in Revision II. Of these, 1,677,029 (1,146 unweighted) were Census Day interviews and 407,330 (270 unweighted) were Census Day noninterviews. Of the noninterviews, 127,279 (50 unweighted) were new noninterviews due to mover status.

The weighted noninterview rate for units in the new cell is 19.5 percent. This is substantially higher than the overall weighted noninterview rate of 3.1 percent. As a consequence, the noninterview adjustment factors tend to be higher for interviewed units in the new cell. About 55 percent (unweighted) of the interviewed units in the new cell have a noninterview adjustment factor less than 1.1 (compared to about 86 percent of overall interviews) and about 17 percent of

the interviewed units in the new cell have a noninterview adjustment factor of 1.5 or greater (compared to less than 2 percent of overall interviews).