

American Community Survey

You are here: [Census.gov](#) > [American Community Survey](#) > Methodology: [Sample Size and Data Quality](#) > Sample Size - Data

[Main](#)
[About the Survey](#) ▼

[Guidance for Data Users](#) ▼

[Data & Documentation](#) ▼

[Methodology](#)
[Library](#)
[Methodology Main](#)
[Sample Size and Data Quality](#)
[Sample Size - Data](#)
[Sample Size - Definitions](#)
[Response Rates - Data](#)
[Coverage Rates - Data](#)
[Item Allocation Rates - Data](#)
[2006 Content Test](#)
[Questionnaire Archive](#)
[Special Data Studies](#)

Sample Size - Data



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Hawaii

Initial Addresses and Sample Selected and Final Interviews

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Year	Housing Units		Group Quarters People	
	Initial Addresses Selected	Final Interviews	Initial Sample Selected	Final Interviews
2010	12,177	7,537	1,019	497
2009	11,822	7,417	983	477
2008	11,721	7,303	918	590
2007	11,924	7,473	807	457
2006	12,054	7,629	833	598
2005	12,295	7,627	N/A	N/A
2004	6,560	4,304	N/A	N/A
2003	6,466	4,230	N/A	N/A
2002	5,808	3,968	N/A	N/A
2001	6,556	4,489	N/A	N/A
2000	6,587	4,119	N/A	N/A

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American Community Survey

You are here: [Census.gov](#) > [American Community Survey](#) > Methodology: [Sample Size and Data Quality](#) > [Sample Size - Data](#) > [Sample Size - Definitions](#)

[Main](#)
[About the Survey](#) ▼
[Guidance for Data Users](#) ▼
[Data & Documentation](#) ▼
[Methodology](#)
[Library](#) ▼

Methodology Main

Sample Size and Data Quality

Sample Size - Data

Sample Size - Definitions

Response Rates - Data

Coverage Rates - Data

Item Allocation Rates - Data

2006 Content Test

Questionnaire Archive

Special Data Studies

Sample Size - Definitions

[Print](#) |
 [Share this page](#) |
 [+ Connect with us](#)

1. How large is the sample?

The full implementation of the ACS, which began in 2005, samples approximately 2.9 million housing unit addresses annually stateside. The PRCS samples approximately 36,000 housing unit addresses each year in Puerto Rico.

The full implementation of the ACS and PRCS Group Quarters data collection began in 2006 and samples approximately 200,000 people living in group quarters annually.

The ACS sampled between 740,000 and 900,000 housing unit addresses annually in 2000 through 2004.

2. What is sampling error?

The ACS estimates are based on data from a sample of housing units and people in the population, not the full populations. For this reason, ACS estimates have a degree of uncertainty associated with them, called sampling error. In general, the larger the sample, the smaller the level of sampling error.

3. Why is it important to measure sampling error?

The estimates produced by the ACS are not exact because they are based on a sample. The sampling error measures the degree of uncertainty associated with the estimates. If the degree of uncertainty is too large, users should be cautious in how the estimates are used.

4. How does the ACS measure sampling error

The ACS calculates standard errors for each estimate produced and publishes the 90 percent confidence level margins of error (the Census Bureau standard). You can be 90 percent confident that the interval within the margin of error from the estimate includes the true value. See [Accuracy of the Data](#) for more details on how margin of error and confidence intervals are calculated and interpreted.

5. What other numbers provide important information on the reliability of ACS estimates?

Housing Units Initial Addresses Selected - The number of addresses in each state and for the nation that were selected for the ACS sample for a particular year. Each year's sample is systematically divided into 12 monthly samples for ACS interviewing. This initial number includes addresses later determined to be commercial or nonexistent, as well as housing units that are not interviewed due to subsampling for personal visit follow-up, refusals or other reasons.

Housing Units Final Interviews - The final number of interviews across all three modes of data collection for the ACS in a given year for the nation and by state. This number includes occupied and vacant housing units that were interviewed by mail, telephone, or personal visit methods between January 1 - December 31. It excludes addresses determined to be nonexistent or commercial, and addresses not selected in the subsample for personal visit follow-up, and addresses that are not interviewed due to refusals or other reasons.

Group Quarters People Initial Sample Selected - The number of people living in GQs that could be contacted for ACS interviewing in a given year for the nation and by state. Each year's sample is systematically divided into 12 monthly samples for ACS interviewing. This initial number includes people thought to be in group quarters that were later determined to be out of scope or nonexistent, as well as people not interviewed due to the group quarter refusing entry, the person refusing to respond, or other reasons.

Group Quarters People Final Interviews - The final number of person interviews for the ACS for those living in group quarters in a given year for the nation and by state.

6. Are these numbers used to calculate the survey response rate?

These numbers by themselves are not used to measure the response to the request to participate in the ACS. See Survey [Response Rates - Definitions](#) for more information.

7. How does the ACS calculate these four measures of sample size?

Housing Units Initial Addresses Selected (state x, year y) =	the sum of the 12 monthly address samples selected from the Master Address File for state x in year y.
Housing Units Final Interviews (state x, year y) =	the sum of all interviews successfully conducted by mail, telephone, or personal visit between January 1 and December 31 of year y, for state x.
Group Quarters People Initial Sample Selected (state x, year y) =	the sum of people living in group quarters that we did contact and those we expected to contact over the 12 months for state x in year y.
Group Quarter People Final Interviews (state x, year y) =	the sum of all interviews successfully conducted by personal visit between January 1 and December 31 of year y, in state x.

American Community Survey

You are here: [Census.gov](#) > [American Community Survey](#) > Methodology: [Sample Size and Data Quality](#) > Response Rates - Data

- [Main](#)
- [About the Survey](#) ▼
- [Guidance for Data Users](#) ▼
- [Data & Documentation](#) ▼
- [Methodology](#)
- [Library](#) ▼

Methodology Main

Sample Size and Data Quality

[Sample Size - Data](#)

Response Rates - Data

[Response Rates - Definitions](#)

[Coverage Rates - Data](#)

[Item Allocation Rates - Data](#)

2006 Content Test

Questionnaire Archive

Special Data Studies

Response Rates - Data

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Response Rates and Reasons for Noninterviews (in percent) — Housing Units

Year	Housing Unit Response Rate	Reasons for Noninterviews						
		Refusal	Unable to Locate	No One Home	Temporarily Absent	Language Problem	Insufficient Data	Other
2010	97.5	1.1	0.0	0.6	0.1	0.0	0.2	0.4
2009	98.0	0.8	0.0	0.6	0.1	0.0	0.2	0.3
2008	97.9	0.8	0.0	0.6	0.1	0.0	0.2	0.3
2007	97.7	0.9	0.2	0.5	0.1	0.0	0.4	0.2
2006	97.5	1.0	0.3	0.5	0.1	0.0	0.4	0.3
2005	97.3	1.0	0.4	0.5	0.1	0.0	0.3	0.3
2004	93.1	1.0	0.3	0.5	0.1	0.0	0.4	4.7
2003	96.7	1.7	0.3	0.6	0.1	0.0	0.3	0.2
2002	97.7	1.0	0.0	0.5	0.1	0.0	0.4	0.2
2001	96.7	1.3	0.0	0.7	0.1	0.0	0.7	0.4
2000	95.1	1.7	0.0	1.1	0.2	0.1	1.0	0.8

Response Rates and Reasons for Noninterviews (in percent) — Group Quarters

Year	Group Quarters (Person) Response Rate	Reasons for Noninterviews							
		GQ Person Refusal	Unable to Locate GQ Person	Resident Temporarily Absent	Language Problem	Insufficient Data	GQ Person Other	Whole GQ Refusal	Whole GQ Other
2010	97.6	0.9	0.2	0.1	0.0	0.2	0.4	0.1	0.5
2009	98.0	0.9	0.1	0.1	0.0	0.1	0.4	0.1	0.3
2008	98.0	0.5	0.1	0.1	0.0	0.1	1.0	0.2	0.0
2007	97.8	0.4	0.2	0.1	0.0	0.0	1.2	0.3	0.0
2006	97.4	0.8	0.2	0.1	0.0	0.1	0.6	0.5	0.2

Note: As a result of a reduction in funding in 2004, ACS dropped the telephone and personal visit followup operations for the January 2004 panel, thus only allowing mail respondents to contribute to the overall response for that panel. Dropping the nonresponse followup operations for that single panel month reduced the annual response rate by about four percentage points. If we exclude the January panel from the calculation, the annual response rate rises to 97.3% The Census Bureau revised the methodology for calculation of the response rate in 2004 and although a similar cost reduction measure was taken in 2002 the response rates provided for 2002 do not reflect this new method.

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American Community Survey

You are here: [Census.gov](#) › [American Community Survey](#) › Methodology: [Sample Size and Data Quality](#) › [Response Rates - Data](#) › Response Rates - Definitions

[Main](#)
[About the Survey](#) ▼

[Guidance for Data Users](#) ▼

[Data & Documentation](#) ▼

[Methodology](#)
[Library](#) ▼

Methodology Main

Sample Size and Data Quality

[Sample Size - Data](#)
[Response Rates - Data](#)
[Response Rates - Definitions](#)
[Coverage Rates - Data](#)
[Item Allocation Rates - Data](#)

2006 Content Test

Questionnaire Archive

Special Data Studies

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1. What is Unit Nonresponse?

Unit nonresponse is the failure to obtain the minimum required information from an eligible housing unit or group quarters (GQ) person in the sample. For the ACS, response rates are subtracted from 100 percent to measure unit nonresponse.

Unit nonresponse occurs when respondents are unable or unwilling to participate, interviewers are unable to locate addresses or respondents, or when other barriers exist to completing the interview.

2. How does the ACS adjust for unit nonresponse?

The ACS uses noninterview adjustment methods to give a higher weight to interviewed units and interviewed GQ persons. See [Accuracy of the Data](#) for more information on how the noninterview adjustment is calculated.

3. Why is it important to measure unit nonresponse?

We measure it because it has a direct effect on the quality of the data. If the rate of unit nonresponse is high, it increases the chance that the final survey estimates may reflect bias. Estimates may reflect bias if the characteristics of nonresponding units differ from the characteristics of responding units.

4. How does the ACS measure unit nonresponse?

The Census Bureau calculates survey response rates to measure unit nonresponse in the ACS. The **survey response rate** is the ratio of the estimate of units interviewed after data collection is complete to the estimate of all units that should have been interviewed. Separate rates are calculated for housing unit response and GQ person response. For housing units, this means all interviews after mail, telephone and personal visit follow-up. For GQ persons, this means all interviews after the personal visit. **Interviews** include complete and partial interviews with enough information to be processed.

To accurately measure unit nonresponse the ACS must estimate the universe of cases eligible to be interviewed and the survey noninterviews; that is, all eligible units in personal visit follow-up are given the appropriate weight as are all the noninterviews.

5. What are the primary reasons for unit nonresponse in the ACS?

The Census Bureau classifies all final noninterviews by one of the following **Reasons for Noninterviews** to understand why unit nonresponse occurred:

- **Refusal:** Even though the ACS is a mandatory survey and households whose addresses are selected and GQ persons who are selected for the survey are required to answer the survey questions, a few may feel reluctant to cooperate and refuse to participate.
- **Unable to Locate:** If the interviewer cannot find the sample address after using all possible sources, they consider it "unable to locate". For GQ persons, the individual could not be located.

- **No One Home:** Interviewers assign this code if they could not find anyone at the housing unit during the entire month's interview period. There is no equivalent rate for GQ persons.
- **Temporarily Absent:** The interviewers confirm that all household members or the GQ person are away during the entire month's interview period on vacation, a business trip, or caring for sick relatives.
- **Language Problem:** The interviewer could not conduct an interview because of language barriers, was not able to get an interpreter who could translate, and the supervisor or regional office could not help complete this case.
- **Insufficient Data:** To be considered an interviewed unit in ACS, a household or GQ person's response had to have a minimum amount of data. Occupied housing units and GQ persons not meeting this minimum are treated as noninterviews in the estimation process. Responses for vacant housing units are not subject to a minimum data requirement
- **Other:** Unique situations when the reason for noninterview does not fit into one of the classifications described above. Possible reasons include "death in the family", "household quarantined", or "roads impassable".
- **Whole GQ Refusal:** Some group quarters refuse to allow the ACS to interview any of their residents, citing legal or other reasons.
- **Whole GQ Other:** These account for other situations where no one in the GQ was interviewed due to reasons other than refusals.

6. Why does the Census Bureau weight the survey response rate?

Weighting is used because not all housing units or GQ persons have the same probability of selection. The ACS sample design includes differential sampling and subsampling rates. (Refer to the [Accuracy of the Data](#) for more information about the use of differential sampling and subsampling in the ACS.) Weighting accounts for the different probabilities of selection as a result of sampling and subsampling.

7. How are survey response rates calculated?

$$\text{Survey Response Rate (state x, year y)} = \left(\frac{\text{Initially weighted estimate of interviews in state x in year y}}{\text{Initially weighted estimate of cases eligible to be interviewed in state x for year y}} \right) * 100$$

$$\text{Reason A for Noninterviews} = \left(\frac{\text{Initially weighted estimate of cases not interviewed for reason A in state x in year y}}{\text{Initially weighted estimate of cases eligible to be interviewed in state x for year y}} \right) * 100$$

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American Community Survey

You are here: [Census.gov](#) > [American Community Survey](#) > Methodology: [Sample Size and Data Quality](#) > Coverage Rates - Data

[Main](#) |
 [About the Survey](#) ▼ |
 [Guidance for Data Users](#) ▼ |
 [Data & Documentation](#) ▼ |
 [Methodology](#) |
 [Library](#) ▼

Methodology Main

Sample Size and Data Quality

[Sample Size - Data](#)

[Response Rates - Data](#)

Coverage Rates - Data

[Coverage Rates - Definitions](#)

[Item Allocation Rates - Data](#)

2006 Content Test

Questionnaire Archive

Special Data Studies

Coverage Rates - Data

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Coverage Rates (in percent)

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Year	Housing Units	Group Quarters Population	Total Population ¹			Coverage Rates for Total Population by Race (in percent)
	Total	Total	Total	Male	Female	
2010	99.1	81.0	94.6	94.0	95.3	
2009	98.9	79.1	94.2	93.0	95.3	
2008	98.7	80.8	93.8	92.6	95.0	
2007	98.5	79.6	94.2	93.2	95.2	
2006	98.7	76.2	94.4	93.4	95.3	
2005	98.5	N/A	95.1	93.9	96.2	
2004	97.9	N/A	94.4	93.2	95.6	
2003	97.9	N/A	94.1	92.9	95.2	
2002	97.2	N/A	93.5	92.3	94.6	
2001	97.6	N/A	94.1	93.2	94.9	
2000	99.6	N/A	96.8	96.1	97.6	

Year	White Non-Hispanic	Black Non-Hispanic	American Indian and Alaska Native Non-Hispanic	Asian Non-Hispanic	Native Hawaiian and Other Pacific Islander Non-Hispanic	Hispanic
Year	Total	Total	Total	Total	Total	Total
2010	95.9	90.8	97.9	94.3	88.7	92.5
2009	94.9	90.3	97.9	96.7	93.9	93.2
2008	94.7	89.7	96.2	96.9	85.8	92.5
2007	95.4	89.1	96.8	95.6	96.1	92.8
2006	95.6	89.6	98.0	93.4	93.0	92.9
2005	96.3	90.7	97.9	94.5	84.0	93.6
2004	96.2	89.3	100.9	92.4	89.7	90.7
2003	95.7	89.2	97.9	92.0	86.2	91.3
2002	94.9	89.0	102.7	92.7	90.0	89.7
2001	95.2	90.1	102.6	92.8	89.7	91.8
2000	97.1	93.5	121.6	96.7	100.2	96.4

¹ The 2000-2005 population coverage rates exclude the group quarters population since that population was not added to the ACS until 2006.

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

American Community Survey

You are here: [Census.gov](#) > [American Community Survey](#) > Methodology: [Sample Size and Data Quality](#) > [Coverage Rates - Data](#) > Coverage Rates - Definitions

Main | About the Survey ▼ | Guidance for Data Users ▼ | Data & Documentation ▼ | Methodology | Library ▼

Methodology Main

Sample Size and Data Quality

[Sample Size - Data](#)

[Response Rates - Data](#)

Coverage Rates - Data

Coverage Rates - Definitions

[Item Allocation Rates - Data](#)

[2006 Content Test](#)

[Questionnaire Archive](#)

[Special Data Studies](#)

Coverage Rates - Definitions

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1. What is coverage error?

There are two kinds of coverage error: under-coverage and over-coverage.

Under-coverage exists when housing units or people do not have a chance of being selected in the sample.

Over-coverage exists when housing units or people have more than one chance of selection in the sample, or are included in the sample when they should not have been.

2. How does the ACS reduce coverage error?

The final ACS population estimates are adjusted for coverage error by controlling specific survey estimates to independent population controls by sex, age, race, and Hispanic origin.

The final PRCS population estimates are adjusted for coverage error by controlling specific survey estimates to independent population control by sex and age.

The ACS housing unit estimates are adjusted for coverage error by controlling the survey estimates to the independent housing unit controls for total housing units. Because of subsequent steps in the housing unit weighting process, the final ACS housing unit estimates will not agree with the independent housing unit controls.

Refer to [Accuracy of the Data](#) to learn more about this weighting procedure.

3. Why is it important to measure coverage error?

If the characteristics of under-covered or over-covered housing units or individuals differ from those that are selected, the ACS may not provide an accurate picture of the population.

4. How does the ACS measure coverage error?

The Census Bureau calculates coverage rates to measure coverage error in the ACS. The coverage rate is the ratio of the ACS population or housing estimate of an area or group to the independent estimate for that area or group, times 100.

Coverage rates for the total resident population are calculated by sex at the national, state, and Puerto Rico levels, and at the national level only for total Hispanics, and non-Hispanics crossed by the five major race categories: White, Black, American Indian and Alaska Native, Asian, and Native Hawaiian and Other Pacific Islander. The total resident population includes persons in both housing units and group quarters. In addition, a coverage rate that includes only the group quarters population is calculated at the national level. Coverage rates for housing units are calculated at the national and state level, except for Puerto Rico because independent housing unit estimates are not available.

These rates are weighted to reflect the probability of selection into the sample, the subsampling for personal visit follow-up, and non-response. As the coverage rate drops below 100 percent, the weights of the people in the survey need greater adjustment in the final weighting procedure to reach the independent estimate. If the rate is greater than 100 percent, the ACS population estimates are downweighted to match the independent estimates.

The coverage rates for the total resident population are for the data from 2006 or later only. The 2000-2005 rates are for the comparable universes excluding the group quarters population since that population was not added to the ACS until 2006.

5. What is the independent population estimate?

The Census Bureau uses independent data on housing, births, deaths, immigration, etc. to produce official estimates of the population and housing units each year. The base for these independent estimates is the decennial census counts. The ACS, like all other household surveys, controls some of its most basic estimates to these official estimates to correct for potential over- or under-coverage.

6. What effect does the GQ coverage rate have on the quality of the ACS data?

As an example, the national GQ coverage rate for 2006 was 76.2 percent. The estimates could be biased if the 23.8 percent of the GQ population that is not covered by the survey differs from the population that was interviewed. One of the reasons for the low coverage rate is the data collection methodology. Data collection in college / university housing is conducted during the entire year. The number of people in college / university housing during the months of May through August is much lower than the other months because less students attend summer sessions. The population control used in the GQ weighting methodology, however, is based on the Census 2000 reference date of April 1 when most students are attending. One-third of the ACS yearly sample is allocated to these four months of May - August. An examination of the data collected during this period revealed that the population of the GQs visited in these months is not representative of the college / university housing population control. Thus, the ACS coverage rate for the summer months is artificially lower than the other eight months and as a result the overall coverage is too low. Note that if we use the eight non-summer months for college / university housing and standardize it to reflect the full-year population (weighting it up by 1.5 to account for the four summer months), the national GQ coverage rate for 2006 increases to 81.8 percent.

7. How are coverage rates calculated?

$$\text{HU Coverage Rate (state x, year y)} = \left(\frac{\text{uncontrolled ACS estimate of total HUs for state x in year y}}{\text{official estimate of total HUs in state x for year y}} \right) * 100$$

$$\text{GQ Population Coverage Rate (year y)} = \left(\frac{\text{uncontrolled ACS estimate of total GQ persons in year y}}{\text{official estimate of total GQ persons in year y}} \right) * 100$$

Population Coverage rate for group A (state x, year y) =

$$\left(\frac{\text{uncontrolled ACS estimate of total persons for group A for state x in year y}}{\text{official estimate of total persons for group A in state x in year y}} \right) * 100$$

U.S. Census Bureau

[People](#) | [Business](#) | [Geography](#) | [Newsroom](#) | [Subjects A to Z](#) | [Search@Census](#)

American Community Survey

You are here: [Census.gov](#) > [American Community Survey](#) > Methodology: [Sample Size and Data Quality](#) > Item Allocation Rates - Data

[Main](#)
[About the Survey](#) ▼
[Guidance for Data Users](#) ▼
[Data & Documentation](#) ▼
[Methodology](#)
[Library](#) ▼

Methodology Main

Sample Size and Data Quality

[Sample Size - Data](#)

[Response Rates - Data](#)

[Coverage Rates - Data](#)

Item Allocation Rates - Data

[Item Allocation Rates - Definitions](#)

2006 Content Test

Questionnaire Archive

Special Data Studies

Item Allocation Rates - Data

[Print](#) | [Share this page](#) | [Connect with us](#)

United States

Select a State

[Download Allocation Rates](#) 

2006 through 2010

2000 through 2005

Housing: [Overall](#) | [Physical Characteristics](#) | [Utilities](#) | [Special Programs](#) | [Mortgage Items](#) | [Other Financial Characteristics](#)

Population: [Overall](#) | [Basic Demographics](#) | [Origin and Language](#) | [Education](#) | [Mobility and Migration](#) | [Health Insurance](#) | [Disability](#) | [Grandparents and Fertility](#) | [Military](#) | [Labor Force](#) | [Journey to Work](#) | [Industry and Occupation](#) | [Income](#)

Item Allocation Rates 2005 through 2010 for United States

Overall	Percent Allocated				
	Item	2010	2009	2008	2007
Overall housing allocation rate occupied and vacant housing units	5.2	4.5	4.8	5.0	5.0
Overall person allocation rate total population	5.8	4.9	6.2	4.4	4.2

[Back to the top](#)

Housing: Physical Characteristics

Item	Percent Allocated				
	2010	2009	2008	2007	2006
Vacancy status vacant housing units	2.9	2.5	2.5	2.2	4.1
Tenure occupied housing units	1.2	0.7	0.8	0.6	0.6
Units in structure occupied and vacant housing units	1.5	1.2	1.3	1.2	1.3
Year moved in occupied housing units	3.4	2.4	1.9	2.8	2.9
Month moved in occupied housing units into which households move in the last two years	0.7	0.6	0.8	0.8	0.8
Year built occupied and vacant housing units	16.2	15.4	15.7	15.7	15.1
Lot size occupied and vacant single family and mobile homes	4.2	3.8	4.6	3.0	2.8

Agricultural sales occupied and vacant single family and mobile homes with lot size greater than or equal to 1 acre	4.4	3.8	4.5	3.2	3.2
Business on property occupied and vacant single family and mobile homes	3.0	2.7	3.3	2.1	1.9
Number of rooms occupied and vacant housing units	5.2	4.4	4.7	6.6	6.2
Number of bedrooms occupied and vacant housing units	4.3	3.7	0.9	3.3	3.1
Complete plumbing occupied and vacant housing units	** —	** —	** —	1.4	1.4
Complete kitchen occupied and vacant housing units	** —	** —	** —	1.6	1.5
Running water occupied and vacant housing units	2.0	1.6	1.7	** —	** —
Flush toilet occupied and vacant housing units	2.0	1.6	1.7	** —	** —
Bathtub or shower occupied and vacant housing units	2.0	1.6	1.8	** —	** —
Sink with a faucet occupied and vacant housing units	2.0	1.6	1.8	** —	** —
Stove or range occupied and vacant housing units	2.5	2.1	2.2	** —	** —
Refrigerator occupied and vacant housing units	2.7	2.3	3.2	** —	** —
Telephone occupied housing units	1.1	0.8	1.7	0.5	0.5
Number of vehicles occupied housing units	1.3	0.9	0.9	0.8	0.7

[Back to the top](#)

Housing: Utilities		Percent Allocated				
Item	2010	2009	2008	2007	2006	
Heating fuel occupied housing units	3.3	2.8	3.2	1.8	1.4	
Monthly electricity cost occupied housing units	7.3	6.1	6.7	6.2	6.0	
Monthly gas cost occupied housing units	9.8	8.8	10.3	8.6	8.9	
Yearly water and sewer cost occupied housing units	8.1	6.9	7.9	6.8	7.8	
Yearly other fuel cost occupied housing units	10.6	9.9	11.8	8.3	9.9	

[Back to the top](#)

Housing: Special Programs		Percent Allocated				
Item	2010	2009	2008	2007	2006	
Yearly food stamp reciprocity - household occupied housing units	1.3	0.9	1.0	2.0	2.1	

[Back to the top](#)

Housing: Mortgage Items		Percent Allocated				
Item	2010	2009	2008	2007	2006	
Yearly real estate taxes owner-occupied housing units	16.3	14.4	15.9	18.1	18.0	

Yearly property insurance owner-occupied housing units	23.2	20.8	22.1	22.8	22.2
Mortgage status owner-occupied housing units	2.1	1.4	1.7	1.1	1.1
Monthly mortgage payment owner-occupied housing units with a mortgage	10.7	8.5	8.9	7.8	7.5
Mortgage payment incl. real estate taxes owner-occupied housing units with a mortgage	9.8	8.5	4.5	4.1	3.9
Mortgage payment incl. insurance owner-occupied housing units with a mortgage	11.1	9.7	10.4	9.7	9.7
Second mortgage owner-occupied housing units	3.4	2.3	2.7	2.2	2.1
Home equity loan owner-occupied housing units	4.2	3.0	3.5	3.0	2.9
Other monthly mortgage payment (s) owner-occupied housing units with second mortgage or home equity loan	17.9	15.2	16.1	16.1	17.1

[Back to the top](#)

Housing: Other Financial Characteristics	Percent Allocated				
Item	2010	2009	2008	2007	2006
Property value owner-occupied housing units and vacant housing units for sale	12.3	10.2	11.6	8.8	8.7
Mobile Home Loan occupied mobile homes and other units	** —	** —	** —	** —	** —
Yearly mobile home costs occupied mobile homes and other units	19.9	18.4	21.3	19.3	21.0
Monthly condominium fee owner-occupied housing units	0.7	0.7	0.7	0.7	0.6
Monthly rent occupied housing units rented for cash rent and vacant housing units for rent	9.3	8.0	8.5	8.1	7.9
Meals included in rent occupied housing units rented for cash rent and vacant housing units for rent	2.0	1.6	1.8	1.5	1.8

[Back to the top](#)

Population: Basic Demographics ¹	Percent Allocated				
Item	2010	2009	2008	2007	2006
Race total population	1.5	1.4	1.7	1.6	1.6
Hispanic origin total population	1.8	1.6	2.4	1.5	1.5
Sex total population	0.1	0.1	0.2	0.3	0.2
Age total population	1.3	1.2	1.3	0.8	0.8
Relationship total household population	1.2	1.0	1.1	0.9	0.9

Marital status total population 15 years and over	3.0	2.4	2.9	1.3	1.2
Married past 12 months total population 15 years and over, except those never married	4.7	3.9	5.9	** —	** —
Widowed past 12 months total population 15 years and over, except those never married	4.5	3.7	5.8	** —	** —
Divorced past 12 months total population 15 years and over, except those never married	4.5	3.7	5.8	** —	** —
Times married total population 15 years and over, except those never married	5.1	4.0	6.0	** —	** —
Year last married total population 15 years and over, except those never married	11.4	9.9	12.0	** —	** —

[Back to the top](#)

Population: Origin and Language ¹	Percent Allocated				
Item	2010	2009	2008	2007	2006
Place of birth total population	6.5	5.7	7.0	5.5	4.8
Citizenship total population	2.7	2.0	2.5	1.8	1.6
Year of naturalization total population naturalized citizens	16.6	14.7	18.2	** —	** —
Year of entry total population not born in US	10.3	9.1	10.4	8.5	7.9
Speaks another language at home total population 5 years and over	3.4	2.6	3.1	2.2	2.0
Language spoken total population 5 years and over who speak another language at home	5.7	4.8	5.3	4.4	4.2
English ability total population 5 years and over who speak another language at home	4.0	3.2	3.9	3.1	2.8

[Back to the top](#)

Population: Education ¹	Percent Allocated				
Item	2010	2009	2008	2007	2006
School enrollment total population 3 years and over	3.7	2.9	3.6	2.4	2.3
Grade level attending total population 3 years and over enrolled	6.0	4.6	5.3	4.5	4.3
Educational attainment total population 3 years and over	5.6	4.6	5.3	3.6	3.5
Field of degree total population 25 years and over with a bachelor's degree or higher	9.8	9.1	** —	** —	** —

[Back to the top](#)

Population: Mobility and Migration ¹	Percent Allocated				
Item	2010	2009	2008	2007	2006
Mobility status	4.0	3.2	3.7	2.3	2.2

total population 1 years and over					
Migration state/foreign county total population 1 years and over movers	7.1	6.3	7.6	4.8	4.4
Migration county total population 1 years and over movers within US	8.3	7.4	8.8	5.6	5.1
Migration minor civil division total population 1 years and over movers within US	8.4	7.5	8.8	5.7	5.3
Migration place total population 1 years and over movers within US	8.8	7.9	9.3	6.1	5.6

[Back to the top](#)

Population: Health Insurance ¹	Percent Allocated				
Item	2010	2009	2008	2007	2006
Health insurance thru employer/union total population	6.2	5.3	7.3	** —	** —
Health insurance purchased directly total population	6.9	6.0	8.1	** —	** —
Health insurance through Medicare total population	5.2	4.3	6.4	** —	** —
Health insurance through Medicaid total population	7.9	7.1	9.1	** —	** —
Health insurance through TRICARE total population	8.1	7.3	9.4	** —	** —
Health insurance through VA ² total population	8.1	7.2	9.4	** —	** —
Health ins. thru Indian Health Service ² total population	8.5	7.7	9.8	** —	** —

[Back to the top](#)

Population: Disability ¹	Percent Allocated				
Item	2010	2009	2008	2007	2006
Visual or hearing difficulty ² total population 5 years and over	** —	** —	** —	2.9	2.7
Visual difficulty ² total population	3.4	2.7	4.3	** —	** —
Hearing difficulty ² total population	3.2	2.4	4.0	** —	** —
Physical difficulty ² total population 5 years and over	3.5	2.7	4.7	3.3	3.2
Difficulty remembering ² total population 5 years and over	3.5	2.6	4.6	2.6	2.4
Difficulty dressing ² total population 5 years and over	3.5	2.6	4.6	2.7	2.5
Difficulty going out total population 16 years and over	3.4	2.7	4.7	2.6	2.5
Difficulty working at a job total population 16 years and over	** —	** —	** —	3.1	3.1

[Back to the top](#)

Population: Grandparents and Fertility ¹	Percent Allocated				
	2010	2009	2008	2007	2006
Item					
Grandchildren living in home noninstitutionalized population 30 years and over	0.9	0.8	0.8	0.4	0.4
Responsibility for grandchildren noninstitutionalized population 30 years and over who are grandparents with grandchildren in the home	12.0	10.8	11.1	9.9	9.5
Months responsible for grandchildren noninstitutionalized population 30 years and over who are grandparents with grandchildren in the home that have responsibility	14.9	14.1	13.9	12.6	12.1
Fertility status female total population 15-50	3.7	2.9	3.3	2.5	2.2

[Back to the top](#)

Population: Military ¹	Percent Allocated				
	2010	2009	2008	2007	2006
Item					
Veteran status total population 17 years and over	3.8	3.0	3.7	2.6	2.5
Periods of military service total population 17 years and over on active duty now or previously	6.3	5.3	6.3	4.9	4.7
Years of active duty total population 17 years and over on active duty now or previously	** —	** —	** —	4.1	4.0
Service-connected disability rating total population 17 years and over, except those who never served in the Armed Forces	3.9	3.1	4.1	** —	** —
Service-connected disability rating value total population 17 years and over with a service-connected disability	0.7	0.7	0.6	** —	** —

[Back to the top](#)

Population: Labor Force ¹	Percent Allocated				
	2010	2009	2008	2007	2006
Item					
Employment status recode noninstitutionalized population 16 years and over	5.1	4.2	5.3	2.7	2.7
When last worked noninstitutionalized population 16 years and over	5.7	4.7	5.9	3.8	3.7
Weeks worked in the past 12 months noninstitutionalized population 16 years and over who worked in the past 12 months	6.9	5.7	6.5	6.8	6.7
Hours worked per week noninstitutionalized population 16 years and over who worked in the past 12 months	7.7	6.4	7.2	6.3	6.5
Place of work state/foreign county noninstitutionalized population 16 years and over at work last week	6.3	5.5	6.1	4.4	4.2



Place of work county noninstitutionalized population 16 years and over at work last week	7.0	6.1	6.7	5.1	4.9
Place of work minor civil division noninstitutionalized population 16 years and over at work last week	2.1	1.8	2.0	1.6	1.5
Place of work place noninstitutionalized population 16 years and over at work last week	7.6	6.7	7.4	5.6	5.4
Back to the top					
Population: Journey to Work ¹	Percent Allocated				
Item	2010	2009	2008	2007	2006
Transportation to work noninstitutionalized population 16 years and over at work last week	5.7	5.1	5.5	4.0	3.8
Carpool size noninstitutionalized population 16 years and over at work last week who drive to work	6.8	6.0	6.6	4.8	4.7
Time of departure noninstitutionalized population 16 years and over at work last week who don't work at home	12.8	11.0	11.6	9.6	9.4
Commuting time noninstitutionalized population 16 years and over at work last week who don't work at home	9.7	8.5	9.2	7.6	7.5
Back to the top					
Population: Industry and Occupation ¹	Percent Allocated				
Item	2010	2009	2008	2007	2006
Class of worker total population 16 years and over who worked in the last 5 years	7.2	6.1	7.2	5.6	5.3
Industry total population 16 years and over who worked in the last 5 years	7.8	6.5	7.6	6.0	6.1
Occupation total population 16 years and over who worked in the last 5 years	8.1	6.8	7.9	6.3	6.4
Back to the top					
Population: Income ¹	Percent Allocated				
Item	2010	2009	2008	2007	2006
Wages/salary income total population 15 years and over	16.0	14.0	15.6	13.6	13.3
Self-employment income total population 15 years and over	5.9	4.8	5.9	4.1	3.9
Interest, dividends, etc. income total population 15 years and over	8.8	7.5	9.0	8.1	7.8
Social security or railroad retirement total population 15 years and over	8.9	7.4	8.5	7.7	7.3
Supplemental security income total population 15 years and over	6.7	5.5	6.7	5.8	5.5
Public assistance total population 15 years and over	6.8	5.5	6.8	5.8	5.5
Retirement income	7.5	6.1	7.4	6.5	6.2

	total population 15 years and over					
	Other income	7.4	6.0	7.1	6.1	5.8
	total population 15 years and over					
	Some or all income allocated	22.4	19.9	23.1	20.0	19.5
	total population 15 years and over					
	Back to the top					

¹ The 2000-2005 rates are for the comparable universe excluding the group quarters population, since that population was added to the ACS in 2006.

² Major changes were made to the disability questions beginning with the 2008 ACS questionnaire. Comparisons of rates between years 2008 or later and years 2007 or earlier should not be made for these characteristics.

** This item was not asked in this year.

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You are here: [Census.gov](#) > [American Community Survey](#) > Methodology: [Sample Size and Data Quality](#) > [Item Allocation Rates - Data](#) > Item Allocation Rates - Definitions

Main | About the Survey ▼ | Guidance for Data Users ▼ | Data & Documentation ▼ | Methodology | Library ▼

Methodology Main

Sample Size and Data Quality

[Sample Size - Data](#)

[Response Rates - Data](#)

[Coverage Rates - Data](#)

[Item Allocation Rates - Data](#)

[Item Allocation Rates - Definitions](#)

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1. What is item nonresponse?

Missing data for a particular question or item is called item nonresponse. It occurs when a respondent fails to provide an answer to a required item. The ACS also considers invalid answers as item nonresponse.

2. How does the ACS correct for item nonresponse?

The Census Bureau uses imputation methods that either use rules to determine acceptable answers or use answers from similar housing units or people who provided the item information. The first of these two methods is known as "assignment," while the second is referred to as "allocation."

Assignment involves logical imputation where a response to one question implies the value for a missing response to another question. For example, first name can often be used to assign a value to sex.

Allocation, on the other hand, involves using statistical procedures, such as within-household or nearest neighbor matrices populated by donors, to impute for missing values.

3. Why is it important to measure item nonresponse?

Item nonresponse measures allow data users to judge the completeness of the data in which the survey estimates are based. Final estimates can be adversely impacted when item nonresponse is high and bias can be introduced if the characteristics of the nonrespondents differ from those reported by respondents. Item nonresponse and unit nonresponse both contribute to potential bias in the estimates.

4. How does the ACS measure item nonresponse?

Item nonresponse is measured through the calculation of allocation rates which are published with the survey estimates. The Census Bureau calculates measures of item nonresponse for two distinct universes. The American Factfinder (AFF) includes allocation tables specific to the tabulation universes. This Quality Measures Web page includes allocation rates for the universe that was eligible for editing and imputation. In some instances these will be the same, but in many instances they will differ. For example, we edit and impute data collected for educational attainment for the total population 3 years and over, so that is the universe referenced to calculate the allocation rates shown on the Quality Measures Web page. However, the tables for educational attainment in the AFF are restricted to the population age 25+ and therefore the imputation tables on AFF are restricted to this universe. The specific universe associated with each of these Quality Measures are shown in the tables, displayed below the title of each item.

The 2000-2005 item allocation rates are for the housing unit population only. The item allocation rates for 2006 and thereafter are for the total population which includes the housing unit and group quarters populations.

5. How are item allocation rates calculated?

$$\text{Allocation rate for item A (state x, year y)} = \left(\frac{\text{total number of responses allocated for item A in state x for year y}}{\text{total number of responses to item A required in state x for year y}} \right) * 100$$

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