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★ Sample Size Pick List:

Select a State

Hawaii Sample Size- Initial Addresses Selected and Final Interviews

	Year	Initial Addresses Selected	Final Interviews
Hawaii	2004	006,560	004,304
Hawaii	2003	006,466	004,230
Hawaii	2002	005,808	003,968
Hawaii	2001	006,556	004,489
Hawaii	2000	006,587	004,119

Source: U.S. Census Bureau
American Community Survey Office
Last revised: Thursday August 25, 2005

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★ Coverage Rates Pick List:

Select a State **Hawaii** Coverage Rates (in percent)

	Year	Total Population	Male	Female
Hawaii	2004	93.0	92.4	93.6
Hawaii	2003	91.0	89.8	92.1
Hawaii	2002	96.1	96.5	95.6
Hawaii	2001	97.8	96.8	98.8
Hawaii	2000	94.9	94.2	95.6

*Source: U.S. Census Bureau
American Community Survey Office
Last revised: Monday August 29, 2005*

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★ Response Rates Pick List:

Select a State **Hawaii****Response Rates and Reasons for Noninterviews** (in percent)

		Reason for Noninterviews							
	Year	Response Rate ¹	Refusal	Unable to Locate	No One Home	Temporarily Absent	Language Problem	Insufficient Data	Other
Hawaii	2004	92.8	1.0	0.1	0.1	0.2	0.0	0.7	5.1
Hawaii	2003	95.7	2.4	0.1	0.4	0.2	0.0	0.3	0.8
Hawaii	2002	98.1	1.1	0.0	0.0	0.1	0.0	0.5	0.3
Hawaii	2001	97.5	1.1	0.1	0.2	0.1	0.0	0.6	0.3
Hawaii	2000	94.9	1.3	0.0	0.7	0.1	0.1	1.2	1.6

¹ 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.

**Source: U.S. Census Bureau
American Community Survey Office
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★ Item Allocation Pick List:

Select a State **Hawaii****Item Allocation Rates****Housing:** [Occupancy & Structural Characteristics](#) | [Utilities](#) | [Special Programs](#) | [Mortgage Status and Costs](#) | [Other Financial Characteristics](#)**Population:** [Basic Demographics](#) | [Origin and Language](#) | [Education](#) | [Mobility and Migration](#) | [Disabilities](#) | [Grandparents and Fertility](#) | [Military](#) | [Labor Force](#) | [Journey to Work](#) | [Industry and Occupation](#) | [Income](#)**Housing: Physical Characteristics****Percent Allocated**

Item	2004	2003	2002	2001	2000
Vacancy Status all vacant units	1.5	0.4	5.6	6.3	2.7
Tenure all occupied units	0.7	1.0	0.8	0.8	1.1
Units in Structure all occupied and vacant units	2.5	1.4	2.1	1.4	1.6
Year moved in all occupied units	3.8	3.9	3.3	3.5	3.8
Month moved in occupied units into which households moved in the last two years	1.0	0.9	1.0	0.9	0.8
Year built all occupied and vacant units	12.7	12.3	15.7	15.2	15.6
Lot size occupied and vacant single family and mobile homes	3.1	3.9	3.3	4.3	3.9
Agricultural sales occupied and vacant single family and mobile homes with lot size greater than or equal to 1 acre	3.8	4.5	6.4	8.4	7.8
Business on property occupied and vacant single family and mobile homes	1.8	2.3	6.8	8.0	11.8
Number of rooms all occupied and vacant units	11.8	5.2	4.6	5.0	5.1
Number of bedrooms all occupied and vacant units	3.1	12.9	12.9	12.7	13.1
Complete plumbing all occupied and vacant units	1.0	0.8	0.8	0.9	0.8
Complete kitchen all occupied and vacant units	1.0	0.7	1.0	1.0	0.9
Telephone all occupied units	0.5	0.6	0.3	0.5	0.7
Number of vehicles all occupied units	0.8	1.4	0.8	1.0	1.1

[Back to the top](#)**Housing: Utilities****Percent Allocated**

Item	2004	2003	2002	2001	2000
------	------	------	------	------	------

Heating fuel all occupied units	0.7	0.6	0.9	0.8	1.1
Monthly electricity cost all occupied units	4.7	4.7	3.6	4.6	5.4
Monthly gas cost all occupied units	7.3	7.5	7.4	9.5	10.9
Yearly water and sewer cost all occupied units	5.7	5.1	3.9	5.2	6.1
Yearly other fuel cost all occupied units	6.3	6.4	6.9	8.1	9.8

[Back to the top](#)**Housing: Special Programs**

Item	Percent Allocated				
	2004	2003	2002	2001	2000
Yearly food stamp reciprocity/amount all occupied units	2.1	2.3	2.6	2.0	2.6

[Back to the top](#)**Housing: Mortgage Items**

Item	Percent Allocated				
	2004	2003	2002	2001	2000
Yearly real estate taxes owner-occupied units	26.5	26.7	24.3	26.8	27.6
Yearly property insurance owner-occupied units	31.8	32.0	32.0	33.2	34.1
Mortgage status owner-occupied units	1.2	1.6	1.6	1.4	2.2
Monthly mortgage payment owner-occupied units with a mortgage	6.7	8.0	6.6	7.6	8.7
Mortgage payment includes real estate taxes owner-occupied units with a mortgage	3.6	4.9	3.4	4.2	5.1
Mortgage payment includes insurance owner-occupied units with a mortgage	9.2	15.5	12.0	12.3	12.6
Second mortgage owner-occupied units	1.9	3.6	2.8	2.8	3.7
Home equity loan owner-occupied units	2.6	3.3	2.6	3.4	4.8
Other monthly mortgage payment(s) owner-occupied units with second mortgage or home equity loan	21.5	25.1	16.9	11.5	19.5

[Back to the top](#)**Housing: Other Financial Characteristics**

Item	Percent Allocated				
	2004	2003	2002	2001	2000
Property value owner-occupied units and vacant units for sale	7.1	8.1	7.2	7.3	8.6
Mobile home loan occupied mobile homes and other units	**	**	0.0	9.5	0.0
Yearly mobile home costs occupied mobile homes and other units	100.0	69.2	63.1	76.0	100.0
Monthly condominium fee owner-occupied units	1.9	2.0	1.9	2.3	2.2
Monthly rent occupied units rented for cash rent and vacant units for rent	6.4	7.4	6.9	6.9	8.0
Meals included in rent occupied units rented for cash rent and vacant units for rent	1.5	1.5	3.6	2.9	4.6

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Item	Percent Allocated				
	2004	2003	2002	2001	2000

Race	2.6	2.3	2.8	1.7	1.3
all household population					
Hispanic origin	2.7	2.6	2.8	2.5	5.4
all household population					
Sex	0.5	0.5	0.6	0.3	1.1
all household population					
Age	1.6	1.5	1.4	1.4	3.9
all household population					
Relationship	1.9	1.3	1.9	1.2	3.4
all household population					
Marital status	0.9	1.9	1.9	1.6	3.5
household population age 15+					

[Back to the top](#)**Population: Origin and Language**

Item	Percent Allocated				
	2004	2003	2002	2001	2000
Place of birth	11.1	11.6	4.5	3.9	6.9
all household population					
Citizenship	0.6	1.1	0.9	0.5	1.1
all household population					
Year of entry	7.7	8.3	6.9	7.3	11.5
all household population not born in US					
Speaks another language at home	2.2	2.3	2.7	2.7	5.4
household population age 5+					
Other language spoken	5.0	6.7	7.5	6.8	12.1
household population 5+ who speak another language at home					
English ability	3.4	4.6	4.2	4.3	8.6
household population 5+ who speak another language at home					

[Back to the top](#)**Population: Education**

Item	Percent Allocated				
	2004	2003	2002	2001	2000
School enrollment	3.1	3.3	3.0	2.9	5.0
household population age 3+					
Grade level attending	7.4	6.4	5.2	3.9	5.4
household population age 3+ enrolled					
Educational attainment	3.9	4.7	4.2	3.7	6.1
household population age 3+					

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Item	Percent Allocated				
	2004	2003	2002	2001	2000
Mobility status	3.2	3.2	3.0	2.5	5.2
household population age 1+					
Migration state/foreign country	5.4	6.1	5.6	6.7	18.0
household population age 1+ movers					
Migration county	6.1	7.4	7.0	7.0	18.4
household population age 1+ movers within US					
Migration minor civil division	6.1	7.4	7.0	7.0	18.7
household population age 1+ movers within US					
Migration place	6.9	8.5	7.8	7.5	19.4
household population age 1+ movers within US					

[Back to the top](#)**Population: Disabilities**

Item	Percent Allocated				
	2004	2003	2002	2001	2000
Vision or hearing difficulty	3.5	3.1	3.2	3.4	5.8
household population age 5+					

Physical difficulty household population age 5+	4.6	4.0	3.6	3.7	6.0
Difficulty remembering household population age 5+	3.1	3.0	3.3	3.3	6.1
Difficulty dressing household population age 5+	3.2	3.1	3.3	3.3	6.1
Difficulty going out household population age 16+	2.6	3.5	3.8	3.8	7.2
Difficulty working at a job household population age 16+	3.1	4.1	4.1	4.1	7.5

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Item	Percent Allocated				
	2004	2003	2002	2001	2000
Grandchildren living in home household population age 30+	0.7	0.8	4.5	4.5	7.8
Responsibility for grandchildren household population age 30+ who are grandparents with grandchildren in the home	9.0	10.6	14.2	12.5	16.7
Months responsible for grandchildren household population age 30+ who are grandparents with grandchildren in the home that have responsibility	11.0	18.1	20.1	19.0	26.5
Fertility female household population age 15-50	2.0	3.2	3.3	3.0	5.6

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Item	Percent Allocated				
	2004	2003	2002	2001	2000
Veteran Status household population age 17+	2.5	3.9	3.6	3.6	6.5
Periods of military service household population age 17+ on active duty now or previously	4.9	7.6	9.7	9.2	12.6
Years of active duty household population age 17+ on active duty now or previously	4.1	5.5	5.3	5.4	7.6

[Back to the top](#)**Population: Labor Forces**

Item	Percent Allocated				
	2004	2003	2002	2001	2000
Employment Status Recode household population age 16+	3.3	4.6	4.4	4.4	8.0
When last worked household population age 16+	3.4	5.0	4.5	4.4	8.1
Weeks worked in the past 12 months household population age 16+ who worked in the past 12 months	7.2	7.8	8.1	7.6	11.1
Hours worked per week household population age 16+ who worked in the past 12 months	6.6	7.4	7.1	7.2	10.7
Place of work state/foreign country household population age 16+ at work last week	3.7	4.2	3.7	3.5	7.6
Place of work county household population age 16+ at work last week	4.1	4.7	4.0	3.8	7.9
Place of work minor civil division household population age 16+ at work last week	0.0	0.0	0.0	0.0	0.0
Place of work place household population age 16+ at work last week	4.5	5.6	4.6	4.3	8.5

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Item	Percent Allocated				
	2004	2003	2002	2001	2000

Transportation to work household population age 16+ at work last week	3.0	3.8	3.6	3.2	6.6
Carpool size household population age 16+ at work last week who drive to work	4.4	4.9	4.1	4.0	7.6
Time of departure household population age 16+ at work last week who don't work at home	8.1	8.7	8.0	7.5	10.6
Commuting Time household population age 16+ at work last week who don't work at home	6.2	6.9	6.1	5.7	9.4

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Item	Percent Allocated				
	2004	2003	2002	2001	2000
Class of worker household population age 16+ who worked in the last 5 years	4.9	6.4	5.4	5.8	9.5
Industry household population age 16+ who worked in the last 5 years	6.7	7.2	5.8	6.4	10.7
Occupation household population age 16+ who worked in the last 5 years	7.1	7.7	6.5	6.6	10.6

[Back to the top](#)**Population: Income**

Item	Percent Allocated				
	2004	2003	2002	2001	2000
Wages/salary income household population age 15+	13.0	13.1	12.7	13.1	15.9
Self-employment income household population age 15+	3.7	5.0	4.4	4.3	7.4
Interest, dividends, etc. income household population age 15+	8.0	9.3	9.4	10.4	13.5
Social Security or Railroad Retirement household population age 15+	6.7	7.6	7.6	8.6	12.3
Supplemental Security Income household population age 15+	5.2	6.7	6.6	7.4	10.8
Public Assistance household population age 15+	5.4	6.8	7.3	7.9	11.1
Retirement income household population age 15+	5.8	7.4	7.3	8.2	11.5
Other income household population age 15+	5.4	7.0	7.2	7.7	11.0
Some or all income allocated household population age 15+	19.1	19.1	18.8	19.8	22.6

[Back to the top](#)**** This variable was not recorded in 2003 and 2004**

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Sample Size -- Definitions

1. How large is the ACS sample?

The ACS sampled between 800,000 and 900,000 addresses annually in 2000 through 2003.

2. What is sampling error?

ACS estimates are based on data from a sample rather than from all units in the population. 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 estimate. 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 upper and lower bound of 90 percent confidence intervals (the Census Bureau standard). You can be 90 percent confident that the interval defined by the upper and lower bounds includes the true value. See [Accuracy of Data](#) and [Understanding Change Profiles](#) under the section "Using the Data" for more details on how confidence intervals are calculated and interpreted.

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

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.

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 1 in 3 subsample for personal visit follow-up, and addresses that are not interviewed due to refusals or other reasons.

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 two measures of sample size?

**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.

**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.

*Source: U.S. Census Bureau
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Coverage Rates -- Definitions

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 ACS estimates of housing units are controlled to independent estimates of total housing.

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 estimate of an area or group to the independent estimated for that area or group, times 100.

Coverage rates are calculated by sex at the national and state levels, for Hispanics at the national level, and by the five major race categories for non-Hispanics—White, Black, American Indian and Alaska Native, Asian, and Native Hawaiian and Other Pacific Islander—at the national level. These rates are weighted to reflect the probability of selection into the sample and subsampling for personal visit follow-up. 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.

5. What is the independent population estimate?

The Census Bureau uses independent data on births, deaths, immigration, etc. to produce official estimates of the population 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. How are Coverage Rates calculated?

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

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

**Source: U.S. Census Bureau
American Community Survey Office
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Response Rates and Reasons for Noninterviews -- Definitions

1. What is Unit Nonresponse?

Unit nonresponse is the failure to obtain the minimum required information from a housing unit 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. Higher weights are given to units at the tract-level for a given sample month. 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 contain bias. This will happen 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 housing units interviewed after data collection is complete to the estimate of all units that should have been interviewed. For the ACS, this means all interviews after mail, telephone and personal visit follow-up. **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 six **Reasons for Noninterviews** to understand why unit nonresponse occurred:

- **Refusal:** Even though the ACS is a mandatory survey and households whose addresses are selected for the survey are required to answer the survey questions, there will still be a few households that are 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".
- **No One Home:** Interviewers assign this code if they could not find anyone at the

housing unit during the entire month's interview period.

- **Temporarily Absent:** The interviewers confirm that all household members 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.
- **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".
- **Insufficient Data:** To be considered an interviewed unit in ACS, a household's response record had to have an "acceptability index" of at least 2.5. The index is computed by counting the number of basic survey items with answers, with a computable age counting as two, and dividing this total by the number of people in the household. Occupied housing units not meeting this minimum are treated as noninterviews in the estimation process. Response records for vacant housing units are not subject to a minimum data requirement.

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

Weighting is used because not all housing units have the same probability of selection. Differential sampling (4 different rates) and subsampling for personal visit follow-up (2 different rates) is used in this survey design. Weighting is used to account for the probability of sampling and subsampling.

7. How are survey response rates calculated?

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

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

**Source: U.S. Census Bureau
American Community Survey Office
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Using the Data: Quality Measures

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Item Allocation Rates -- Definitions

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.

1. 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 people or housing units for which the item information was correctly provided. 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?

So data users can 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 should both be considered.

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.

5. How are item allocation rates calculated?

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

*Source: U.S. Census Bureau
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