Using American Community Survey Estimates and Margins of Error

April 18th, 2018

Sirius Fuller
Decennial Statistical Studies Division
U.S. Census Bureau

United States Census Bureau
U.S. Department of Commerce
Economics and Statistics Administration
U.S. CENSUS BUREAU
census.gov

Outline

- ACS Estimates
- What is the Margin of Error (MOE)
- Why do MOEs Matter
- Statistical Testing Using the MOE
- Special Cases
- Approximating the MOE
- Available Resources
- Questions

Outline

- **ACS Estimates**
- What is the Margin of Error (MOE)
- Why do MOEs Matter
- Statistical Testing Using the MOE
- Special Cases
- Approximating the MOE
- Available Resources
- Questions

ACS Estimates

- Every year, over 3.5 million housing unit addresses are contacted to participate in the ACS
- ACS estimates are based on a sample of the population
  - Creates uncertainty in the data
- For more information on ACS Design and Methodology, please visit:

https://census.gov/programs-surveys/acs/methodology.html

Availability of ACS Data Products

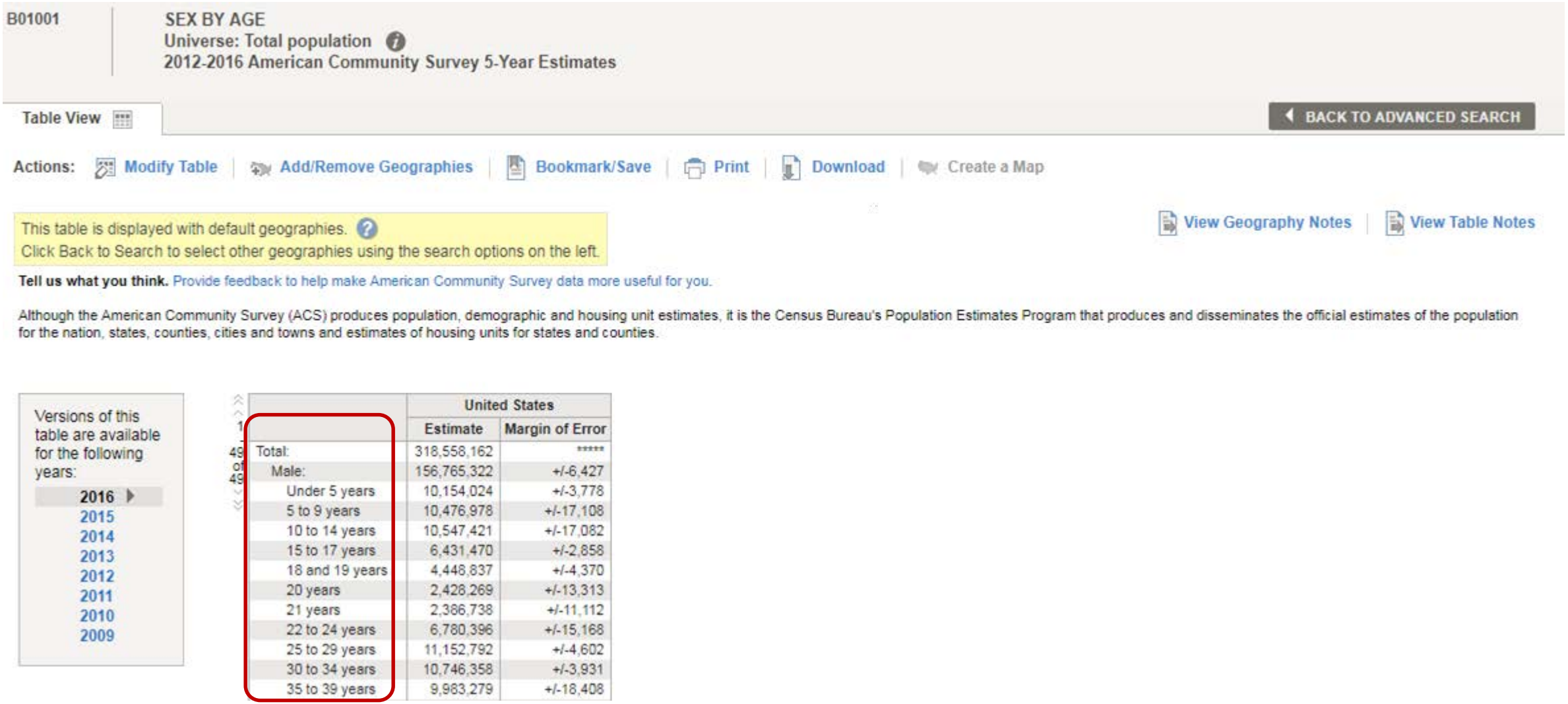
Estimated Population of Geographic Area	1-Year Estimates	1-Year Supplemental Estimates	5-Year Estimates
65,000 or more	X	X	X
20,000 to 64,999		X	X
Less than 20,000			X
Planned Release Date	September	October	December

https://census.gov/programs-surveys/acs/news/data-releases.html

Outline

- ACS Estimates
- **What is the Margin of Error (MOE)**
- Why do MOEs Matter
- Statistical Testing Using the MOE
- Special Cases
- Approximating the MOE
- Available Resources
- Questions

What is the Margin of Error?



B01001

SEX BY AGE
Universe: Total population
2012-2016 American Community Survey 5-Year Estimates

Table View

BACK TO ADVANCED SEARCH

Actions: Modify Table | Add/Remove Geographies | Bookmark/Save | Print | Download | Create a Map

This table is displayed with default geographies.
Click Back to Search to select other geographies using the search options on the left.

View Geography Notes | View Table Notes

Tell us what you think. Provide feedback to help make American Community Survey data more useful for you.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

Versions of this table are available for the following years:

- 2016
- 2015
- 2014
- 2013
- 2012
- 2011
- 2010
- 2009

	United States	
	Estimate	Margin of Error
Total:	318,558,162	*****
Male:	156,765,322	+/-6,427
Under 5 years	10,154,024	+/-3,778
5 to 9 years	10,476,978	+/-17,108
10 to 14 years	10,547,421	+/-17,082
15 to 17 years	6,431,470	+/-2,858
18 and 19 years	4,448,837	+/-4,370
20 years	2,428,269	+/-13,313
21 years	2,386,738	+/-11,112
22 to 24 years	6,780,396	+/-15,168
25 to 29 years	11,152,792	+/-4,602
30 to 34 years	10,746,358	+/-3,931
35 to 39 years	9,983,279	+/-18,408

What is the Margin of Error?

B01001

SEX BY AGE
Universe: Total population
2012-2016 American Community Survey 5-Year Estimates

Table View | BACK TO ADVANCED SEARCH

Actions: Modify Table | Add/Remove Geographies | Bookmark/Save | Print | Download | Create a Map

This table is displayed with default geographies.
Click Back to Search to select other geographies using the search options on the left.

View Geography Notes | View Table Notes

Tell us what you think. Provide feedback to help make American Community Survey data more useful for you.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

Versions of this table are available for the following years:

- 2016
- 2015
- 2014
- 2013
- 2012
- 2011
- 2010
- 2009

1 - 49 of 49

	United States	
	Estimate	Margin of Error
Total:	318,558,162	*****
Male:	156,765,322	+/-6,427
Under 5 years	10,154,024	+/-3,778
5 to 9 years	10,476,978	+/-17,108
10 to 14 years	10,547,421	+/-17,082
15 to 17 years	6,431,470	+/-2,858
18 and 19 years	4,448,837	+/-4,370
20 years	2,428,269	+/-13,313
21 years	2,386,738	+/-11,112
22 to 24 years	6,780,396	+/-15,168
25 to 29 years	11,152,792	+/-4,602
30 to 34 years	10,746,358	+/-3,931
35 to 39 years	9,983,279	+/-18,408

What is the Margin of Error?

B01001

SEX BY AGE
Universe: Total population
2012-2016 American Community Survey 5-Year Estimates

Table View | BACK TO ADVANCED SEARCH

Actions: Modify Table | Add/Remove Geographies | Bookmark/Save | Print | Download | Create a Map

This table is displayed with default geographies.
Click Back to Search to select other geographies using the search options on the left.

View Geography Notes | View Table Notes

Tell us what you think. Provide feedback to help make American Community Survey data more useful for you.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

Versions of this table are available for the following years:

- 2016
- 2015
- 2014
- 2013
- 2012
- 2011
- 2010
- 2009

1 - 49 of 49

	United States	
	Estimate	Margin of Error
Total:	318,558,162	*****
Male:	156,765,322	+/-6,427
Under 5 years	10,154,024	+/-3,778
5 to 9 years	10,476,978	+/-17,108
10 to 14 years	10,547,421	+/-17,082
15 to 17 years	6,431,470	+/-2,858
18 and 19 years	4,448,837	+/-4,370
20 years	2,428,269	+/-13,313
21 years	2,386,738	+/-11,112
22 to 24 years	6,780,396	+/-15,168
25 to 29 years	11,152,792	+/-4,602
30 to 34 years	10,746,358	+/-3,931
35 to 39 years	9,983,279	+/-18,408

What is the Margin of Error?

- **Definition:** An MOE is a measure of the possible variation of the estimate around the population value
- At a given confidence level, the estimate and the actual population value will differ by no more than the value of the MOE
  - 90% confidence level is the Census Bureau Standard
- ACS MOEs are provided in the same units as their respective estimates

What is the Margin of Error?

B01001

SEX BY AGE
Universe: Total population
2012-2016 American Community Survey 5-Year Estimates

Table View | BACK TO ADVANCED SEARCH

Actions: Modify Table | Add/Remove Geographies | Bookmark/Save | Print | Download | Create a Map

This table is displayed with default geographies.
Click Back to Search to select other geographies using the search options on the left.

View Geography Notes | View Table Notes

Tell us what you think. Provide feedback to help make American Community Survey data more useful for you.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

Versions of this table are available for the following years:

- 2016
- 2015
- 2014
- 2013
- 2012
- 2011
- 2010
- 2009

1 - 49 of 49

	United States	
	Estimate	Margin of Error
Total:	318,558,162	*****
Male:	156,765,322	+/-6,427
Under 5 years	10,154,024	+/-3,778
5 to 9 years	10,476,376	+/-17,188
10 to 14 years	10,547,421	+/-17,082
15 to 17 years	6,431,470	+/-2,858
18 and 19 years	4,448,837	+/-4,370
20 years	2,428,269	+/-13,313
21 years	2,386,738	+/-11,112
22 to 24 years	6,780,396	+/-15,168
25 to 29 years	11,152,792	+/-4,602
30 to 34 years	10,746,358	+/-3,931
35 to 39 years	9,983,279	+/-18,408

Measures of Sampling Variability

Variance

(Calculated with estimate)

Standard Error

$$\mathrm{SE} = \sqrt{\mathrm{Variance}}$$

Margin of Error

$$\mathrm{MOE} = 1.645 \times \mathrm{SE}$$

(Census Bureau Standard: 90 percent Confidence Level)

Alternate Confidence Levels

Confidence Level	Margin of Error (MOE)
90%	1.645 x SE
95%	1.96 x SE
99%	2.58 x SE

Converting MOE to different confidence level:

$$\text{MOE}_{95\%\text{ confidence level}} = \frac{1.96}{1.645} \times \text{MOE}_{90\%\text{ confidence level}}$$

$$= 1.96 \times \frac{\text{MOE}_{90\%\text{ confidence level}}}{1.645}$$

Alternate Confidence Levels

B01001	SEX BY AGE Universe: Total Population 2012-2016 American Community Survey 5-Year Estimates	
	United States	
	Estimate	Margin of Error
Under 5 years	10,154,024	+/-3,778

$$\text{MOE}_{95\%\text{ confidence level}} = \frac{1.96}{1.645} \times 3{,}778$$

$$= +/- 4{,}501$$

Alternate Confidence Levels

B01001	SEX BY AGE Universe: Total Population 2012-2016 American Community Survey 5-Year Estimates	
	United States	
	Estimate	Margin of Error
Under 5 years	10,154,024	+/-3,778

$$\text{MOE}_{95\% \text{ confidence level}} = \frac{1.96}{1.645} \times 3{,}778$$

$$= +/- \ 4{,}501$$

Confidence Level	Margin of Error (MOE)	MOE for Example Estimate
90%	1.645 x SE	+/- 3,778
95%	1.96 x SE	+/- 4,501
99%	2.58 x SE	+/- 5,925

Outline

- ACS Estimates
- What is the Margin of Error (MOE)
- **Why do MOEs Matter**
- Statistical Testing Using the MOE
- Special Cases
- Approximating the MOE
- Available Resources
- Questions

Confidence Intervals

Confidence Interval: (Estimate - MOE, Estimate + MOE)

Geography	Median Household Income ($)	MOE ($)
Block Group 1	37,284	+/- 20,922

$$\text{Upper Bound} = \$37{,}284 + 20{,}922 = \$58{,}206$$

$$\text{Lower Bound} = \$37{,}284 - 20{,}922 = \$16{,}362$$

Confidence Interval $_{90\%}$: $(\$16{,}362, \$58{,}206)$

Why MOEs Matter

Geography	Median Household Income ($)	MOE ($)
Block Group 1	37,284	
Block Group 2	42,797	
Block Group 3	56,875	
Block Group 4	66,725	
Block Group 5	76,850	

Why MOEs Matter

Geography	Median Household Income ($)	MOE ($)
Block Group 1	37,284	+/-20,922
Block Group 2	42,797	+/-21,305
Block Group 3	56,875	+/-20,956
Block Group 4	66,725	+/-32,137
Block Group 5	76,850	+/-47,200

Outline

- ACS Estimates
- What is the Margin of Error (MOE)
- Why do MOEs Matter
- **Statistical Testing Using the MOE**
- Special Cases
- Approximating the MOE
- Available Resources
- Questions

What is Statistical Testing

- **Definition** : A test to determine if a difference is unlikely to occur by chance
- To be “statistically different”, there must be statistical evidence that there is a difference between two estimates
- Testing should be conducted for all comparisons, both implicit and explicit

Statistical Testing

Generic Z-score formula:

$$\frac{|Est_1 - Est_2|}{\sqrt{MOE_{est1}{}^2 + MOE_{est2}{}^2}}$$

Statistical Testing

S0201	SELECTED POPULATION PROFILE IN THE UNITED STATES 2016 American Community Survey 1-Year Estimates			
Subject	United States		New York	
	Total Population		Total Population	
	Estimate	Margin of Error	Estimate	Margin of Error
25 to 34 years	13.7%	+/-0.1	14.6%	+/-0.1
35 to 44 years	12.6%	+/-0.1	12.5%	+/-0.1
45 to 54 years	13.2%	+/-0.1	13.7%	+/-0.1
55 to 64 years	12.8%	+/-0.1	13.0%	+/-0.1
65 to 74 years	8.9%	+/-0.1	8.7%	+/-0.1
75 years and over	6.4%	+/-0.1	6.7%	+/-0.1
Median age (years)	37.9	+/-0.1	38.4	+/-0.1
18 years and over	77.2%	+/-0.1	78.8%	+/-0.1
21 years and over	73.1%	+/-0.1	74.7%	+/-0.1

Statistical Testing

Subject	United States		New York	
	Total Population		Total Population	
	Estimate	Margin of Error	Estimate	Margin of Error
Median age (years)	37.9	+/-0.1	38.4	+/-0.1

Step	Process	Result
1	Take the difference of the estimates	$37.9 - 38.4 = -0.5$
2	Take the absolute value of step 1	$\lvert -0.5 \rvert = \text{abs}(-0.5) = 0.5$
3	Square the MOEs	$0.1^2 = 0.01$ $0.1^2 = 0.01$
4	Add the squared MOEs together	$0.01 + 0.01 = 0.02$

Statistical Testing

Step	Process	Result
5	Take the square root of the sum	$\sqrt{0.02} \approx 0.141$
6	Divide step 2 by step 5	$0.5 \,/\, 0.141 = 3.55$
7	Compare result to 1.0	$3.55 > 1.0$

If the result is greater than 1.0,
then the estimates are statistically different
at the 90% confidence level

Statistical Testing

Generic Z-score formula:

$$\frac{|Est_1 - Est_2|}{\sqrt{MOE_{est1}{}^2 + MOE_{est2}{}^2}}$$

Example:

$$\frac{|37.9 - 38.4|}{\sqrt{(0.1)^2 + (0.1)^2}} = 3.55$$

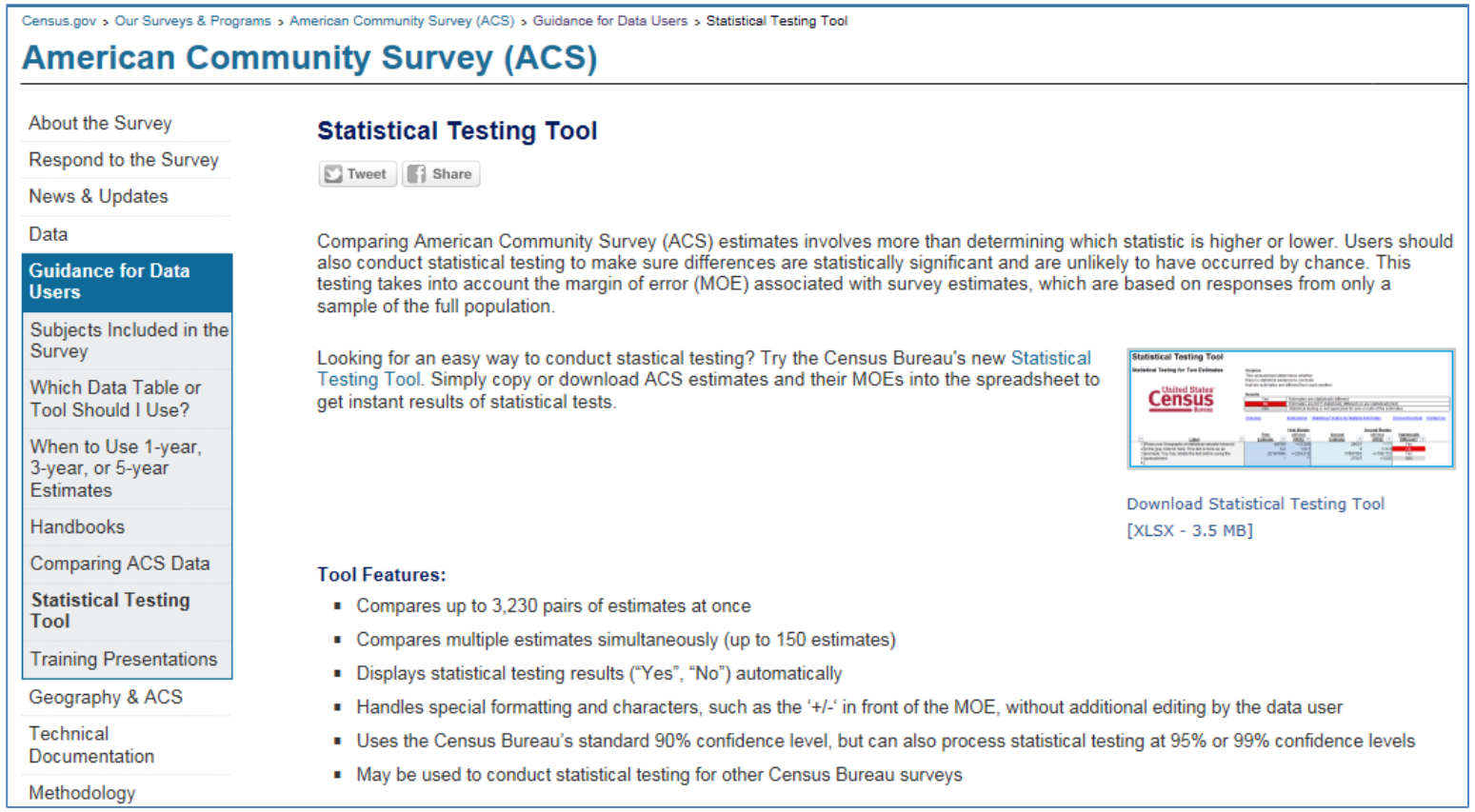
Statistical Testing

This method is used for:

- Any type of estimate (count, percent, median, rate, etc.)
- Between years
  - Not between single-year and multi-year estimates
- Between non-overlapping multi-year periods
- Across geographic areas
- Between surveys (e.g. ACS vs Census)
  - To check ACS/ Census compatibility, visit:

https://www.census.gov/programs-surveys/acs/guidance/comparing-acs-data.html

Statistical Testing Tool



Census.gov › Our Surveys & Programs › American Community Survey (ACS) › Guidance for Data Users › Statistical Testing Tool

American Community Survey (ACS)

- About the Survey
- Respond to the Survey
- News & Updates
- Data
- **Guidance for Data Users**
  - Subjects Included in the Survey
  - Which Data Table or Tool Should I Use?
  - When to Use 1-year, 3-year, or 5-year Estimates
  - Handbooks
  - Comparing ACS Data
  - **Statistical Testing Tool**
  - Training Presentations
- Geography & ACS
- Technical Documentation
- Methodology

Statistical Testing Tool

Tweet Share

Comparing American Community Survey (ACS) estimates involves more than determining which statistic is higher or lower. Users should also conduct statistical testing to make sure differences are statistically significant and are unlikely to have occurred by chance. This testing takes into account the margin of error (MOE) associated with survey estimates, which are based on responses from only a sample of the full population.

Looking for an easy way to conduct stastical testing? Try the Census Bureau's new Statistical Testing Tool. Simply copy or download ACS estimates and their MOEs into the spreadsheet to get instant results of statistical tests.

Download Statistical Testing Tool
[XLSX - 3.5 MB]

Tool Features:

- Compares up to 3,230 pairs of estimates at once
- Compares multiple estimates simultaneously (up to 150 estimates)
- Displays statistical testing results ("Yes", "No") automatically
- Handles special formatting and characters, such as the '+/-' in front of the MOE, without additional editing by the data user
- Uses the Census Bureau's standard 90% confidence level, but can also process statistical testing at 95% or 99% confidence levels
- May be used to conduct statistical testing for other Census Bureau surveys

https://www.census.gov/programs-surveys/acs/guidance/statistical-testing-tool.html

Statistical Testing Tool

Statistical Testing Tool

Statistical Testing for Two Estimates

United States Census Bureau

Purpose

This spreadsheet determines whether there is statistical evidence to conclude that two estimates are different from each another.

Results

Yes	Estimates are statistically different.
No	Estimates are NOT statistically different (or are statistically tied).
N/A	Statistical testing is not applicable for one or both of the estimates.

Overview | Instructions | Statistical Testing for Multiple Estimates | Worked Example | Contact Us

	Label	First Estimate	First Margin of Error (MOE)	Second Estimate	Second Margin of Error (MOE)	Statistically Different?
1	Median age (years)	37.9	+/-0.1	38.4	+/-0.1	Yes
2						
3	Median Household Income (block groups)	37284	20922	76850	47200	No
4						
5						

https://www.census.gov/programs-surveys/acs/guidance/statistical-testing-tool.html

Statistical Testing Tool

Statistical Testing Tool

Statistical Testing for Two Estimates

United States Census Bureau

Purpose

This spreadsheet determines whether there is statistical evidence to conclude that two estimates are different from each another.

Results

Yes	Estimates are statistically different.
No	Estimates are NOT statistically different (or are statistically tied).
N/A	Statistical testing is not applicable for one or both of the estimates.

Overview | Instructions | Statistical Testing for Multiple Estimates | Worked Example | Contact Us

	Label	First Estimate	First Margin of Error (MOE)	Second Estimate	Second Margin of Error (MOE)	Statistically Different?
1	Median age (years)	37.9	+/-0.1	38.4	+/-0.1	Yes
2						
3	Median Household Income (block groups)	37284	20922	76850	47200	No
4						
5						

https://www.census.gov/programs-surveys/acs/guidance/statistical-testing-tool.html

Statistical Testing Tool

Statistical Testing Tool

Statistical Testing for Two Estimates

United States Census Bureau

Purpose

This spreadsheet determines whether there is statistical evidence to conclude that two estimates are different from each another.

Results

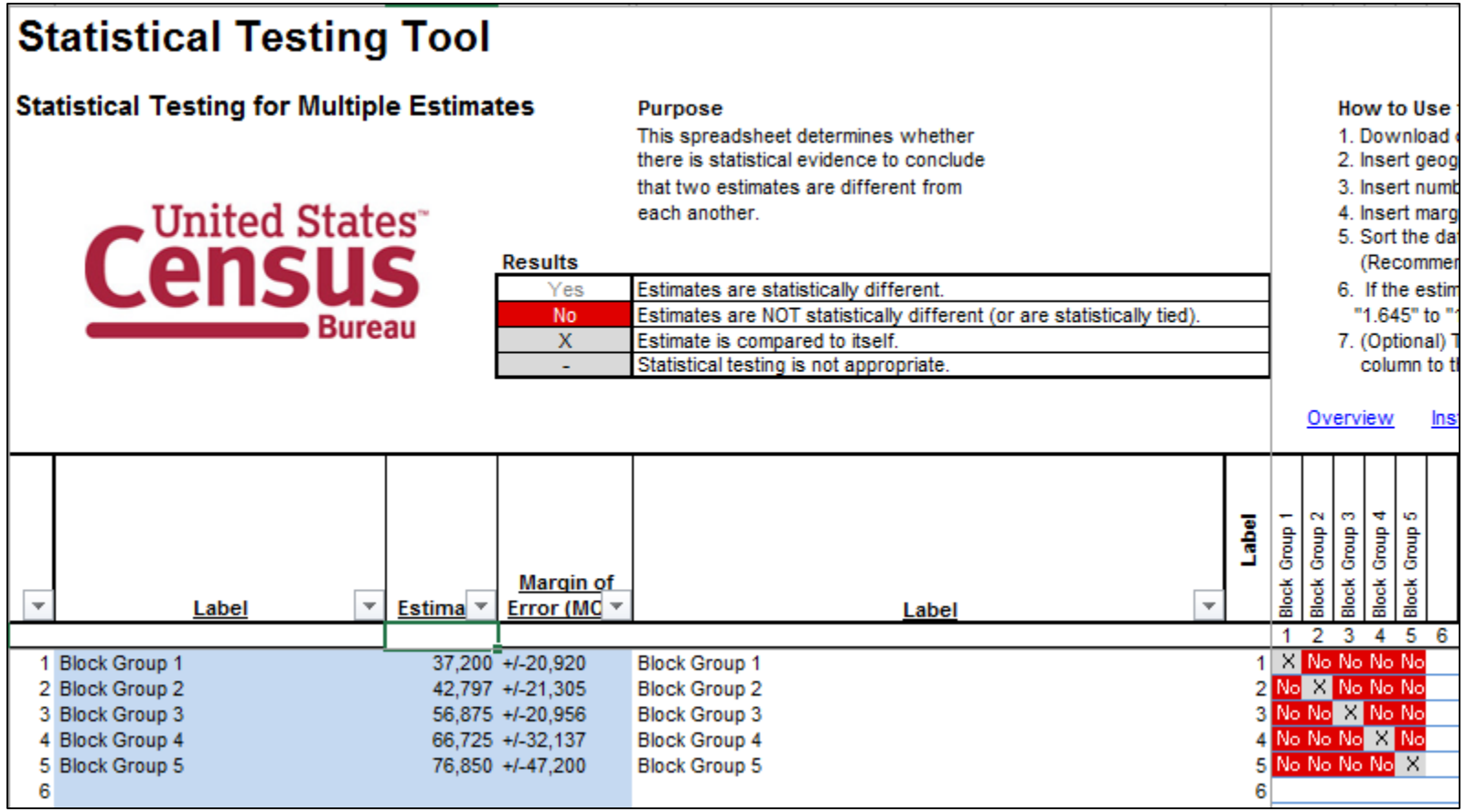
Yes	Estimates are statistically different.
No	Estimates are NOT statistically different (or are statistically tied).
N/A	Statistical testing is not applicable for one or both of the estimates.

Overview | Instructions | Statistical Testing for Multiple Estimates | Worked Example | Contact Us

	Label	First Estimate	First Margin of Error (MOE)	Second Estimate	Second Margin of Error (MOE)	Statistically Different?
1	Median age (years)	37.9	+/-0.1	38.4	+/-0.1	Yes
2						
3	Median Household Income (block groups)	37284	20922	76850	47200	No
4						
5						

https://www.census.gov/programs-surveys/acs/guidance/statistical-testing-tool.html

Statistical Testing Tool



Statistical Testing Tool

Statistical Testing for Multiple Estimates

United States Census Bureau

Purpose

This spreadsheet determines whether there is statistical evidence to conclude that two estimates are different from each another.

Results

Yes	Estimates are statistically different.
No	Estimates are NOT statistically different (or are statistically tied).
X	Estimate is compared to itself.
-	Statistical testing is not appropriate.

How to Use

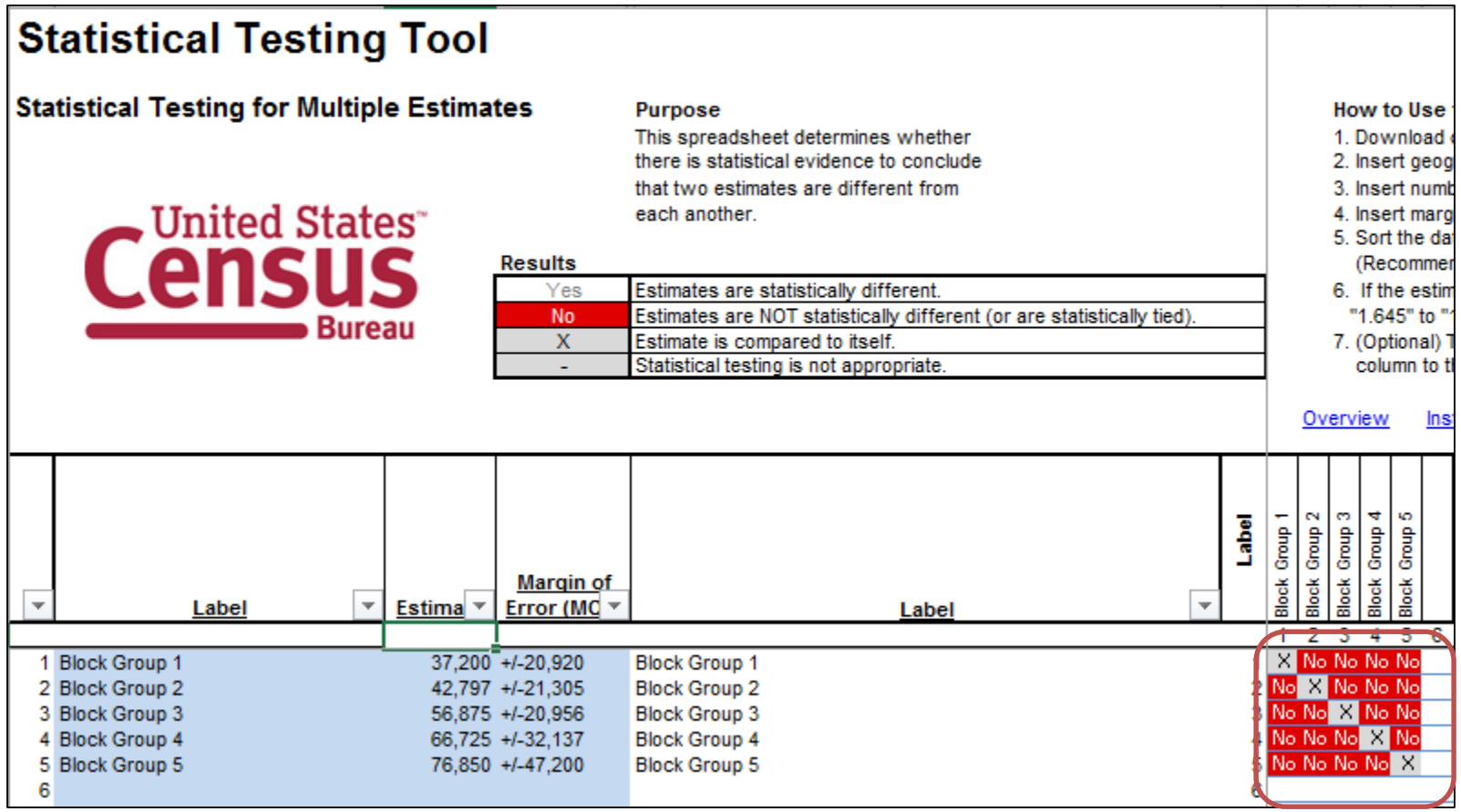
1. Download
2. Insert geog
3. Insert numb
4. Insert marg
5. Sort the da
(Recommer
6. If the estim
"1.645" to "
7. (Optional) T
column to t

Overview Ins

	Label	Estima	Margin of Error (MC	Label	Label	Block Group 1	Block Group 2	Block Group 3	Block Group 4	Block Group 5	
						1	2	3	4	5	6
1	Block Group 1	37,200	+/-20,920	Block Group 1	1	X	No	No	No	No	
2	Block Group 2	42,797	+/-21,305	Block Group 2	2	No	X	No	No	No	
3	Block Group 3	56,875	+/-20,956	Block Group 3	3	No	No	X	No	No	
4	Block Group 4	66,725	+/-32,137	Block Group 4	4	No	No	No	X	No	
5	Block Group 5	76,850	+/-47,200	Block Group 5	5	No	No	No	No	X	
6					6						

https://www.census.gov/programs-surveys/acs/guidance/statistical-testing-tool.html

Statistical Testing Tool



Statistical Testing Tool

Statistical Testing for Multiple Estimates

United States Census Bureau

Purpose

This spreadsheet determines whether there is statistical evidence to conclude that two estimates are different from each another.

Results

Yes	Estimates are statistically different.
No	Estimates are NOT statistically different (or are statistically tied).
X	Estimate is compared to itself.
-	Statistical testing is not appropriate.

How to Use

1. Download
2. Insert geog
3. Insert numb
4. Insert marg
5. Sort the da
(Recommer
6. If the estim
"1.645" to "
7. (Optional) T
column to t

Overview Ins

	Label	Estima	Margin of Error (MC	Label
1	Block Group 1	37,200	+/-20,920	Block Group 1
2	Block Group 2	42,797	+/-21,305	Block Group 2
3	Block Group 3	56,875	+/-20,956	Block Group 3
4	Block Group 4	66,725	+/-32,137	Block Group 4
5	Block Group 5	76,850	+/-47,200	Block Group 5
6				

Label	Block Group 1	Block Group 2	Block Group 3	Block Group 4	Block Group 5	
	1	2	3	4	5	6
1	X	No	No	No	No	
2	No	X	No	No	No	
3	No	No	X	No	No	
4	No	No	No	X	No	
5	No	No	No	No	X	
6						

https://www.census.gov/programs-surveys/acs/guidance/statistical-testing-tool.html

ACS Comparison Profile

Year to Year Change

CP02 | COMPARATIVE SOCIAL CHARACTERISTICS IN THE UNITED STATES
2012-2016 American Community Survey 5-Year Estimates

Table View | BACK TO ADVANCED SEARCH

Actions: Modify Table | Add/Remove Geographies | Bookmark/Save | Print | Download | Create a Map

This table is displayed with default geographies.
Click Back to Search to select other geographies using the search options on the left.

View Geography Notes | View Table Notes

Tell us what you think. Provide feedback to help make American Community Survey data more useful for you.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

Since the 5-year data do not benefit from data quality filtering, comparisons are only made for populations of 5,000 or more.

Versions of this table are available for the following years:
2016
2015

1 - 152 of 152

Subject	United States		
	2012-2016 Estimates	2007-2011 Estimates	Statistical Significance
HOUSEHOLDS BY TYPE			
Total households	117,716,237	114,761,359	*
Family households (families)	65.9%	66.7%	*
With own children of the householder under 18 years	28.5%	30.3%	*
Married-couple family	48.2%	49.3%	*
With own children of the householder under 18 years	19.2%	20.7%	*
Male householder, no wife present, family	4.8%	4.6%	*
With own children of the householder under 18 years	2.3%	2.2%	*
Female householder, no husband present, family	12.9%	12.7%	*
With own children of the householder under 18 years	7.0%	7.3%	*
Nonfamily households	34.1%	33.3%	*
Householder living alone	27.7%	27.3%	*
65 years and over	10.4%	9.5%	*

ACS Ranking Tables

R0205

PERCENT OF THE TOTAL POPULATION WHO ARE NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER ALONE - United States -- States; and Puerto Rico
Universe: Total population
2016 American Community Survey 1-Year Estimates

Table View

BACK TO ADVANCED SEARCH

Actions: Modify Table | Add/Remove Geographies | Bookmark/Save | Print | Download | Create a Map | With Statistical Significance

This table is displayed with default geographies.
Click Back to Search to select other geographies using the search options on the left.

View Geography Notes | View Table Notes

Tell us what you think. Provide feedback to help make American Community Survey data more useful for you.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

To view this table with statistical significance, select With Statistical Significance in the Action menu.
A # next to a geography indicates when an estimate is not statistically significant from the estimate for the selected geography.
The ## indicates the selected geography.

Versions of this table are available for the following years:

- 2016
- 2015
- 2014
- 2013
- 2012
- 2011
- 2010
- 2009
- 2008
- 2007

Geography: United States

1 - 53 of 53

Rank	Geographical Area	Percent	Margin of Error
	United States	0.2	+/-0.1
1	Hawaii	10.1	+/-0.5
2	Alaska	1.3	+/-0.1
3	Utah	1.0	+/-0.1
4	Nevada	0.7	+/-0.1
4	Washington	0.7	+/-0.1
6	California	0.4	+/-0.1
6	Oregon	0.4	+/-0.1
8	Arkansas	0.3	+/-0.1
9	Arizona	0.2	+/-0.1
9	Colorado	0.2	+/-0.1
9	Delaware	0.2	+/-0.2
9	Missouri	0.2	+/-0.1
9	Oklahoma	0.2	+/-0.1

ACS Ranking Tables

R0205

PERCENT OF THE TOTAL POPULATION WHO ARE NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER ALONE - United States -- States; and Puerto Rico
Universe: Total population
2016 American Community Survey 1-Year Estimates

Table View | BACK TO ADVANCED SEARCH

Actions: Modify Table | Add/Remove Geographies | Bookmark/Save | Print | Download | Create a Map | Without Statistical Significance

This table is displayed with default geographies.
Click Back to Search to select other geographies using the search options on the left.

View Geography Notes | View Table Notes

Tell us what you think. Provide feedback to help make American Community Survey data more useful for you.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

To view this table with statistical significance, select With Statistical Significance in the Action menu.
A # next to a geography indicates when an estimate is not statistically significant from the estimate for the selected geography.
The ## indicates the selected geography.

Versions of this table are available for the following years:

- 2016
- 2015
- 2014
- 2013
- 2012
- 2011
- 2010
- 2009
- 2008
- 2007
- 2006

Geography: United States

Stat Sig: Geographical Area: United States

1 - 53 of 53

Rank	Geographical Area	Stat Sig?	Percent	Margin of Error
	United States	##	0.2	+/-0.1
1	Hawaii		10.1	+/-0.5
2	Alaska		1.3	+/-0.1
3	Utah		1.0	+/-0.1
4	Nevada		0.7	+/-0.1
4	Washington		0.7	+/-0.1
6	California		0.4	+/-0.1
6	Oregon		0.4	+/-0.1
8	Arkansas		0.3	+/-0.1
9	Arizona	#	0.2	+/-0.1
9	Colorado	#	0.2	+/-0.1
9	Delaware	#	0.2	+/-0.2
9	Missouri	#	0.2	+/-0.1
9	Oklahoma	#	0.2	+/-0.1

ACS Ranking Tables

R0205

PERCENT OF THE TOTAL POPULATION WHO ARE NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER ALONE - United States -- States; and Puerto Rico
Universe: Total population
2016 American Community Survey 1-Year Estimates

Table View | BACK TO ADVANCED SEARCH

Actions: Modify Table | Add/Remove Geographies | Bookmark/Save | Print | Download | Create a Map | Without Statistical Significance

This table is displayed with default geographies.
Click Back to Search to select other geographies using the search options on the left.

View Geography Notes | View Table Notes

Tell us what you think. Provide feedback to help make American Community Survey data more useful for you.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

To view this table with statistical significance, select With Statistical Significance in the Action menu.
A # next to a geography indicates when an estimate is not statistically significant from the estimate for the selected geography.
The ## indicates the selected geography.

Versions of this table are available for the following years:

- 2016
- 2015
- 2014
- 2013
- 2012
- 2011
- 2010
- 2009
- 2008
- 2007
- 2006

Geography: United States

Stat Sig: Geographical Area: United States

1 - 53 of 53

Rank	Geographical Area	Stat Sig?	Percent	Margin of Error
	United States	##	0.2	+/-0.1
1	Hawaii		10.1	+/-0.5
2	Alaska		1.3	+/-0.1
3	Utah		1.0	+/-0.1
4	Nevada		0.7	+/-0.1
4	Washington		0.7	+/-0.1
6	California		0.4	+/-0.1
6	Oregon		0.4	+/-0.1
8	Arkansas		0.3	+/-0.1
9	Arizona	#	0.2	+/-0.1
9	Colorado	#	0.2	+/-0.1
9	Delaware	#	0.2	+/-0.2
9	Missouri	#	0.2	+/-0.1
9	Oklahoma	#	0.2	+/-0.1

Outline

- ACS Estimates
- What is the Margin of Error (MOE)
- Why do MOEs Matter
- Statistical Testing Using the MOE
- **Special Cases**
- Approximating the MOE
- Available Resources
- Questions

Special Case

Controlled Estimates

- MOE = ***** (5 asterisks)
- Set MOE = 0 for statistical testing

B01001	SEX BY AGE Universe: Total Population 2012-2016 American Community Survey 5-Year Estimates	
	United States	
	Estimate	Margin of Error
Total:	318,558,162	*****
Male:	156,765,322	+/-6,427
Under 5 years	10,154,024	+/-3,778
5 to 9 years	10,476,978	+/-17,108
10 to 14 years	10,547,421	+/-17,082
15 to 17 years	6,431,470	+/-2,858

Special Case

Zero Estimate MOEs

- Zero estimates will have an MOE

B01001E	SEX BY AGE (NATIVE HAWAIIAN AND OTHER PACIFIC ISLANDER ALONE) Universe: People who are Native Hawaiian and Other Pacific Islander alone 2012-2016 American Community Survey 5-Year Estimates							
	Maine		New Hampshire		Rhode Island		Vermont	
	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
Total:	211	+/-72	229	+/-92	575	+/-245	206	+/-107
Male:	84	+/-48	103	+/-65	338	+/153	69	+/-47
Under 5 years	0	+/-23	0	+/-26	0	+/-29	0	+/-20
5 to 9 years	0	+/-23	0	+/-26	55	+/-52	0	+/-20
10 to 14 years	11	+/-9	0	+/-26	39	+/-36	10	+/-15
15 to 17 years	0	+/-23	0	+/-26	15	+/-21	0	+/-20
18 and 19 years	0	+/-23	0	+/-26	0	+/-29	0	+/-20
20 to 24 years	0	+/-23	15	+/-23	110	+/-81	0	+/-20
25 to 29 years	30	+/-42	0	+/-26	0	+/-29	0	+/-20

Special Case

Medians and Aggregates

B06011	MEDIAN INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS) BY PLACE OF BIRTH IN THE UNITED STATES Universe: Population 15 years and over in the United States with income 2012-2016 American Community Survey 5-Year Estimates		
		Adak city, Alaska	
		Estimate	Margin of Error
Median income in the past 12 months --			
Total:		24,063	+/-6,521
Born in state of residence		19,375	+/-14,024
Born in other state of the United States		56,667	+/-14,001
Native; born outside the United States		-	**
Foreign born		2,500-	***

- Median and Aggregates with too few observations
  - Estimate = "-", MOE = "**"
- Medians in lower or upper categories:
  - Estimate = "$2,500-", MOE = "***"
  - Estimate = "$250,000+", MOE = "***"

Statistical testing **NOT** possible

Special Case

Medians and Aggregates

B06011	MEDIAN INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS) BY PLACE OF BIRTH IN THE UNITED STATES Universe: Population 15 years and over in the United States with income 2012-2016 American Community Survey 5-Year Estimates	
	Adak city, Alaska	
	Estimate	Margin of Error
Median income in the past 12 months --		
Total:	24,063	+/-6,521
Born in state of residence	19,375	+/-14,024
Born in other state of the United States	56,667	+/-14,001
Native; born outside the United States	-	**
Foreign born	2,500-	***

- Median and Aggregates with too few observations
- Percents and Ratios with a denominator of zero (0)
  - Estimate = "-", MOE = "**"
- Medians in lower or upper categories:
  - Estimate = "$2,500-", MOE = "***"
  - Estimate = "$250,000+", MOE = "***"

Statistical testing **NOT** possible

Special Case

Medians and Aggregates

B06011	MEDIAN INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS) BY PLACE OF BIRTH IN THE UNITED STATES Universe: Population 15 years and over in the United States with income 2012-2016 American Community Survey 5-Year Estimates	
	Adak city, Alaska	
	Estimate	Margin of Error
Median income in the past 12 months --		
Total:	24,063	+/-6,521
Born in state of residence	19,375	+/-14,024
Born in other state of the United States	56,667	+/-14,001
Native; born outside the United States	-	**
Foreign born	2,500-	***

- Median and Aggregates with too few observations
  - Estimate = "-", MOE = "**"
- Medians in lower or upper categories:
  - Estimate = "$2,500-", MOE = "***"
  - Estimate = "$250,000+", MOE = "***"

Statistical testing **NOT** possible

Special Case

Medians and Aggregates

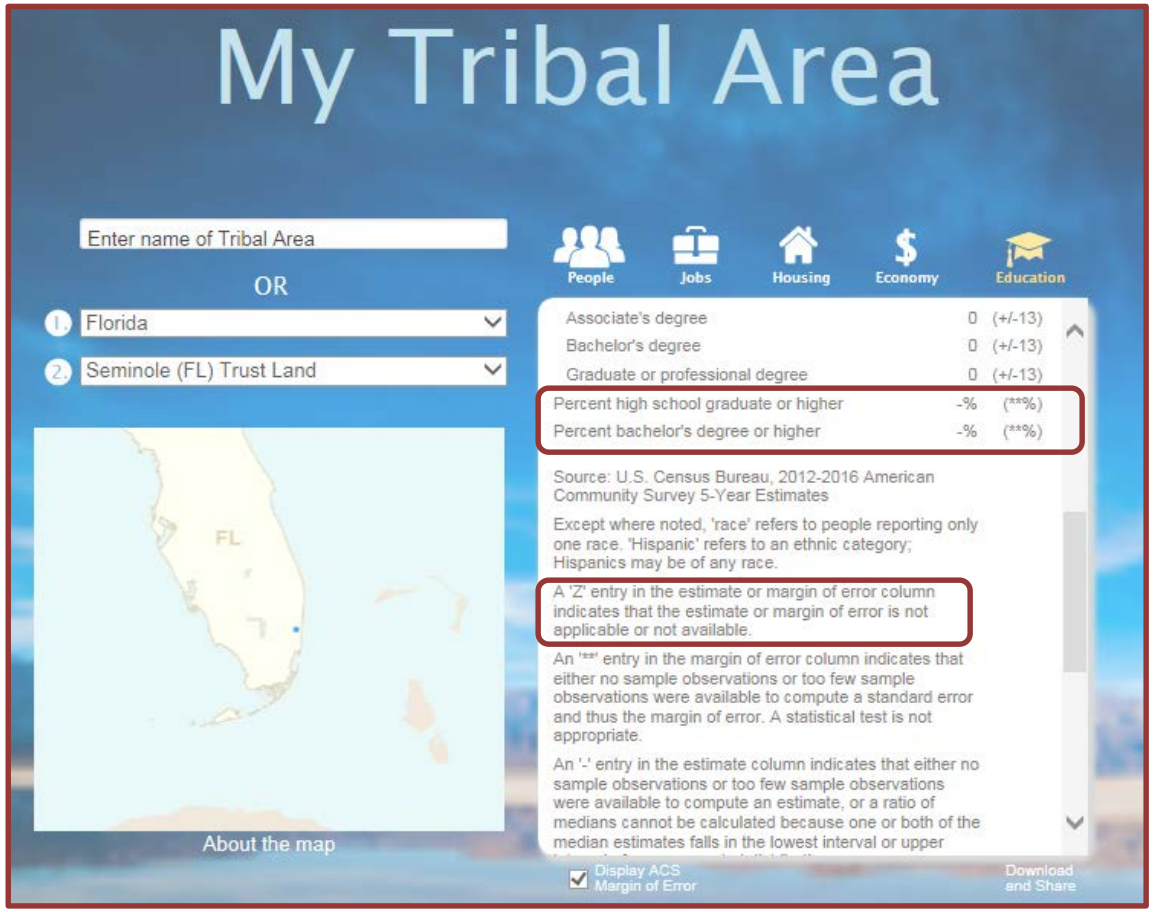
B06011	MEDIAN INCOME IN THE PAST 12 MONTHS (IN 2016 INFLATION-ADJUSTED DOLLARS) BY PLACE OF BIRTH IN THE UNITED STATES Universe: Population 15 years and over in the United States with income 2012-2016 American Community Survey 5-Year Estimates	
	Adak city, Alaska	
	Estimate	Margin of Error
Median income in the past 12 months --		
Total:	24,063	+/-6,521
Born in state of residence	19,375	+/-14,024
Born in other state of the United States	56,667	+/-14,001
Native; born outside the United States	-	**
Foreign born	2,500-	***

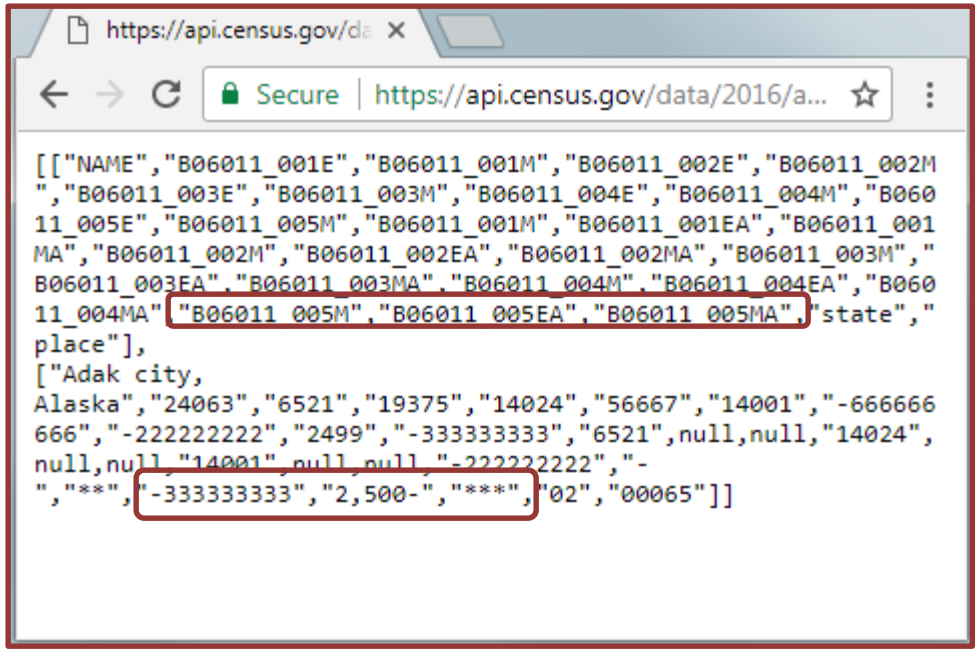
- Median and Aggregates with too few observations
  - Estimate = "-", MOE = "**"
- Medians in lower or upper categories:
  - Estimate = "$2,500-", MOE = "***"
  - Estimate = "$250,000+", MOE = "***"

Statistical testing **NOT** possible

Special Case

Special Cases displayed in apps and the API





Estimates with Large MOEs

B17001

POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE
Universe: Population for whom poverty status is determined
2012-2016 American Community Survey 5-Year Estimates

Table View | BACK TO ADVANCED SEARCH

Actions: Modify Table | Add/Remove Geographies | Bookmark/Save | Print | Download | Create a Map

View Geography Notes | View Table Notes

Tell us what you think. Provide feedback to help make American Community Survey data more useful for you.

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces and disseminates the official estimates of the population for the nation, states, counties, cities and towns and estimates of housing units for states and counties.

Versions of this table are available for the following years:
2016
2015
2014
2013
2012
2011
2010
2009

1 - 18 of 2,296

1 - 59 of 59

	Census Tract 9601, Acadia Parish, Louisiana		Census Tract 9602, Acadia Parish, Louisiana		Census Tract 9603, Acadia Parish, Louisiana		Census Tract 9604, Acadia Parish, Louisiana		Census Tract 9605, Acadia Parish, Louisiana		Census Tract 9606, Acadia Parish, Louisiana		Census Tract 9607, Acadia Parish, Louisiana		Census Tract 9608, Acadia Parish, Louisiana		Census Tract 9609, Acadia Parish, Louisiana	
	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error	Estimate	Margin of Error
Total:	6,168	+/-565	5,950	+/-497	3,661	+/-331	6,665	+/-505	6,528	+/-639	5,864	+/-472	4,333	+/-436	4,439	+/-444	4,882	+/-455
Income in the past 12 months below poverty level:	1,981	+/-606	300	+/-181	436	+/-185	738	+/-297	1,107	+/-400	832	+/-320	1,263	+/-347	1,372	+/-503	1,580	+/-417
Male:	743	+/-322	135	+/-106	149	+/-90	275	+/-111	504	+/-279	77	+/-64	474	+/-190	576	+/-196	536	+/-180
Under 5 years	56	+/-53	0	+/-17	38	+/-42	15	+/-18	60	+/-75	37	+/-33	70	+/-52	129	+/-82	70	+/-53
5 years	17	+/-27	0	+/-17	0	+/-12	0	+/-17	0	+/-17	0	+/-17	10	+/-16	51	+/-75	0	+/-17
6 to 11 years	206	+/-176	14	+/-23	0	+/-12	17	+/-19	28	+/-44	0	+/-17	53	+/-59	52	+/-65	155	+/-95
12 to 14 years	81	+/-104	13	+/-23	0	+/-12	9	+/-16	60	+/-88	0	+/-17	35	+/-32	12	+/-20	37	+/-40
15 years	61	+/-70	0	+/-17	0	+/-12	0	+/-17	0	+/-17	0	+/-17	0	+/-12	11	+/-18	0	+/-17
16 and 17 years	38	+/-56	12	+/-22	19	+/-32	13	+/-21	0	+/-17	0	+/-17	22	+/-23	24	+/-36	1	+/-2
18 to 24 years	0	+/-17	0	+/-17	0	+/-12	0	+/-17	0	+/-17	0	+/-17	52	+/-46	66	+/-65	30	+/-39
25 to 34 years	0	+/-17	13	+/-22	15	+/-32	31	+/-29	51	+/-73	0	+/-17	67	+/-99	101	+/-77	54	+/-55
35 to 44 years	100	+/-111	0	+/-17	0	+/-12	24	+/-38	26	+/-42	0	+/-17	0	+/-12	0	+/-12	41	+/-50
45 to 54 years	93	+/-60	11	+/-18	0	+/-12	0	+/-17	105	+/-112	40	+/-62	9	+/-14	60	+/-71	57	+/-41
55 to 64 years	59	+/-54	58	+/-56	70	+/-62	82	+/-71	69	+/-64	0	+/-17	39	+/-50	70	+/-79	68	+/-56
65 to 74 years	0	+/-17	14	+/-23	0	+/-12	0	+/-17	105	+/-85	0	+/-17	67	+/-40	0	+/-12	6	+/-9

Estimates with Large MOEs

- Exercise Caution
  - Questionable Reliability
  - Small Sample Size
- Possible Solutions:
  - Use a larger geography
  - Combine estimates across characteristics, geographies or both

Outline

- ACS Estimates
- What is the Margin of Error (MOE)
- Why do MOEs Matter
- Statistical Testing Using the MOE
- Special Cases
- **Approximating the MOE**
- Available Resources
- Questions

Deriving New Estimates

Must approximate the MOE

B01001

SEX BY AGE
Universe: Total population
2012-2016 American Community Survey 5-Year Estimates

Versions of this table are available for the following years:

- 2016
- 2015
- 2014
- 2013
- 2012
- 2011
- 2010
- 2009

1 - 49 of 49

	United States	
	Estimate	Margin of Error
Total:	318,558,162	*****
Male:	156,785,322	+/-3,427
Under 5 years	10,154,024	+/-3,778
5 to 9 years	10,476,878	+/-17,168
10 to 14 years	10,547,421	+/-17,082
15 to 17 years	6,431,470	+/-2,858
18 and 19 years	4,448,837	+/-4,370
20 years	2,428,269	+/-13,313
21 years	2,386,738	+/-11,112
22 to 24 years	6,780,396	+/-15,168
25 to 29 years	11,152,792	+/-4,602
30 to 34 years	10,746,358	+/-3,931
35 to 39 years	9,983,279	+/-18,408
40 to 44 years	10,199,413	+/-19,541
45 to 49 years	10,442,250	+/-3,654
50 to 54 years	10,972,766	+/-3,047
55 to 59 years	10,318,312	+/-14,123
60 and 61 years	3,817,221	+/-10,919
62 to 64 years	5,174,670	+/-12,283
65 and 66 years	3,203,247	+/-10,818
67 to 69 years	4,032,545	+/-8,491
70 to 74 years	5,084,251	+/-10,460
75 to 79 years	3,516,057	+/-9,458
80 to 84 years	2,408,616	+/-8,277
85 years and over	2,059,412	+/-7,865
Female:	161,772,840	+/-3,422
Under 5 years	9,712,936	+/-3,911
5 to 9 years	10,031,385	+/-17,933

Approximating the MOE

To calculate total number of children under the age of 5 years old:

1. Sum the estimates for males and females

2. Approximate the MOE:

$$MOE(Sum) = \sqrt{MOE_{est1}{}^2 + MOE_{est2}{}^2 \ldots}$$

Approximating the MOE

Characteristics	Estimate	MOE
Under 5 years, Males	10,154,024	+/-3,778
Under 5 years, Females	9,712,936	+/-3,911

$$\text{Estimate of the Sum} = 10{,}154{,}024 + 9{,}712{,}936 = 19{,}866{,}960$$

$$MOE(Sum) = \sqrt{3{,}778^2 + 3{,}911^2} \approx 5{,}438$$

Approximating the MOE

Characteristics (Native Hawaiian and Other Pacific Islander alone)	Estimate	MOE
Under 5 years old (Maine)	0	+/-22
5 to 9 years old (Maine)	0	+/-22
Under 5 years old (Rhode Island)	0	+/-29
5 to 9 years old (Rhode Island)	41	+/-37
TOTAL	41	+/-47

When approximating a sum,
use only the largest zero estimate MOE, once:

$$MOE(Sum) = \sqrt{37^2 + 29^2} \approx 47$$

Variance Replicate Tables

American Community Survey (ACS)

- About the Survey
- Respond to the Survey
- News & Updates
- Data
- Guidance for Data Users
- Geography & ACS
- **Technical Documentation**
  - Code Lists, Definitions, and Accuracy
  - User Notes
  - Errata
  - Data Suppression
  - Table & Geography Changes
  - Table Shells
  - Summary File Documentation
  - PUMS Documentation
  - **Variance Replicate Tables Documentation**

Variance Replicate Tables Documentation

Variance Replicate Estimate Tables include estimates, margins of error, and 80 variance replicates for selected American Community Survey 5-year Detailed Tables. The tables are intended for advanced users who are adding ACS data within a table or between geographies. Users can calculate margins of error for aggregated data by using the variance replicates. Unlike available approximation formulas, this method results in an exact margin of error by using the covariance term.

To access the tables, please visit the Variance Replicate Tables data page.

2016 | 2015 | 2014

Technical Documentation

Contains worked examples and instructions to calculate margins of error for aggregated estimates, percentages, and ratios.

- 2012-2016 Variance Replicate Tables Documentation [<1.0 MB]
- 2012-2016 Appendix A: Average Weights and k-Values [<1.0 MB]
- 2012-2016 Appendix A: Average Weights and k-Values [<1.0 MB]

Table and Geography List

Contains a list of tables and types of geographic areas that have variance replicate estimates

- 2012-2016 Variance Replicate Estimates Table and Geography List [<1.0 MB]

Related Information

Tell Us What You Think!

https://www.census.gov/programs-surveys/acs/technical-documentation/variance-tables.html

Collapsed Tables

Detailed Table

B01001B SEX BY AGE (BLACK OR AFRICAN AMERICAN ALONE)
Universe: People who are Black or African American alone
2016 American Community Survey 1-Year Estimates

	United States	
	Estimate	Margin of Error
Total:	40,893,369	+/-64,285
Male:	19,537,758	+/-35,962
Under 5 years	1,380,640	+/-11,878
5 to 9 years	1,483,840	+/-17,452
10 to 14 years	1,446,747	+/-20,544
15 to 17 years	926,684	+/-8,558
18 and 19 years	663,421	+/-11,769
20 to 24 years	1,698,590	+/-15,132
25 to 29 years	1,593,848	+/-12,072
30 to 34 years	1,364,171	+/-11,673
35 to 44 years	2,490,670	+/-16,197
45 to 54 years	2,514,128	+/-12,777
55 to 64 years	2,178,776	+/-8,608
65 to 74 years	1,194,391	+/-8,472

Collapsed Table

C01001B SEX BY AGE (BLACK OR AFRICAN AMERICAN ALONE)
Universe: People who are Black or African American alone
2016 American Community Survey 1-Year Estimates

	United States	
	Estimate	Margin of Error
Total:	40,893,369	+/-64,285
Male:	19,537,758	+/-35,962
Under 18 years	5,237,911	+/-26,401
18 to 64 years	12,503,604	+/-21,639
65 years and over	1,796,243	+/-8,533
Female:	21,355,611	+/-43,641
Under 18 years	5,081,189	+/-29,343
18 to 64 years	13,609,249	+/-23,107
65 years and over	2,665,173	+/-8,109

Outline

- ACS Estimates
- What is the Margin of Error (MOE)
- Why do MOEs Matter
- Statistical Testing Using the MOE
- Special Cases
- Approximating the MOE
- **Available Resources**
- Questions

Resources

American Community Survey (ACS)

- About the Survey
- Respond to the Survey
- News & Updates
- Data
- Guidance for Data Users
- Geography & ACS
- Technical Documentation
- Methodology
- Library
- Operations and Administration
- Contact Us

Respond to the ACS
Learn how

The American Community Survey (ACS) helps local officials, community leaders, and businesses understand the changes taking place in their communities. It is the premier source for detailed population and housing information about our nation.

Latest

Data | News | Events | Library

2016 Data Release
Learn more about ACS data releases, including the January 18th release of 2012-2016 ACS 5-Year Public Use Microdata Sample files and Variance Replicate Tables.

New Preview of County Profiles on data.census.gov
Search for your county on data.census.gov to explore a visual snapshot of statistics and provide feedback on this preview of the data dissemination platform.

https://www.census.gov/programs-surveys/acs/

ACS Documentation

American Community Survey (ACS)

- About the Survey
- Respond to the Survey
- News & Updates
- Data
- Guidance for Data Users
- Geography & ACS
- **Technical Documentation**
  - **Code Lists, Definitions, and Accuracy**
  - User Notes
  - Errata
  - Data Suppression
  - Table & Geography Changes
  - Table Shells
  - Summary File Documentation
  - PUMS Documentation
  - Variance Replicate Tables Documentation
  - Race/Ethnicity and American Indian & Alaska Native Documentation
- Methodology
- Library
- Operations and

Code Lists, Definitions, and Accuracy

View the detailed codes and definitions for variables, statistical testing, and an explanation of sample design, methodology, and accuracy for the American Community Survey.

2016 | 2015 | 2014 | 2013 | 2012 | ▶

Code Lists

Detailed codes for variables that contain a large number of coded responses, such as ancestry and occupation

2016 Code Lists [1.2 MB]

Subject Definitions

Definitions of population and housing variables to help you understand the results of the American Community Survey

2016 Subject Definitions [7.9 MB]

Group Quarters Definitions

Definitions for classifying group living situations according to the type of housing and/or services provided

2016 Group Quarters Definitions [1.1 MB]

Comparison Guidance

2016

Learn more about comparing the 2016 ACS with Census 2000, 2010 Census, and 5-year to 5-year estimates.

Instructions for Applying Statistical Testing

Basic instructions for obtaining the ACS standard errors needed to do manual statistical testing

2016 Instructions for Applying Statistical Testing to ACS 1-year Data [<1.0 MB]

2012-2016 Instructions for Applying Statistical Testing to ACS 5-year Data [<1.0 MB]

Statistical Testing Tool

Spreadsheet to quickly test whether ACS estimates are statistically different from one another

Statistical Testing Tool

Accuracy of the Data

A basic explanation of the sample design, estimation methodology, and accuracy of the data

2012-2016 ACS Multiyear Accuracy (US) [<1 MB]

2012-2016 PRCS Multiyear Accuracy (Puerto Rico) [<1 MB]

2016 ACS 1-year Accuracy of the Data (US) [<1 MB]

2016 PRCS 1-year Accuracy of the Data (Puerto Rico) [<1 MB]

Related Information

Tell Us What You Think!

https://www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html

ACS Documentation

American Community Survey (ACS)

- About the Survey
- Respond to the Survey
- News & Updates
- Data
- Guidance for Data Users
- Geography & ACS
- **Technical Documentation**
  - **Code Lists, Definitions, and Accuracy**
  - User Notes
  - Errata
  - Data Suppression
  - Table & Geography Changes
  - Table Shells
  - Summary File Documentation
  - PUMS Documentation
  - Variance Replicate Tables Documentation
  - Race/Ethnicity and American Indian & Alaska Native Documentation
- Methodology
- Library
- Operations and

Code Lists, Definitions, and Accuracy

View the detailed codes and definitions for variables, statistical testing, and an explanation of sample design, methodology, and accuracy for the American Community Survey.

2016 | 2015 | 2014 | 2013 | 2012 | ▶

Code Lists

Detailed codes for variables that contain a large number of coded responses, such as ancestry and occupation

2016 Code Lists [1.2 MB]

Subject Definitions

Definitions of population and housing variables to help you understand the results of the American Community Survey

2016 Subject Definitions [7.9 MB]

Group Quarters Definitions

Definitions for classifying group living situations according to the type of housing and/or services provided

2016 Group Quarters Definitions [1.1 MB]

Comparison Guidance

2016

Learn more about comparing the 2016 ACS with Census 2000, 2010 Census, and 5-year to 5-year estimates.

Instructions for Applying Statistical Testing

Basic instructions for obtaining the ACS standard errors needed to do manual statistical testing

2016 Instructions for Applying Statistical Testing to ACS 1-year Data [<1.0 MB]

2012-2016 Instructions for Applying Statistical Testing to ACS 5-year Data [<1.0 MB]

Statistical Testing Tool

Spreadsheet to quickly test whether ACS estimates are statistically different from one another

Statistical Testing Tool

Accuracy of the Data

A basic explanation of the sample design, estimation methodology, and accuracy of the data

2012-2016 ACS Multiyear Accuracy (US) [<1 MB]

2012-2016 PRCS Multiyear Accuracy (Puerto Rico) [<1 MB]

2016 ACS 1-year Accuracy of the Data (US) [<1 MB]

2016 PRCS 1-year Accuracy of the Data (Puerto Rico) [<1 MB]

Related Information

Tell Us What You Think!

https://www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html

ACS Documentation

American Community Survey (ACS)

- About the Survey
- Respond to the Survey
- News & Updates
- Data
- Guidance for Data Users
- Geography & ACS
- **Technical Documentation**
  - **Code Lists, Definitions, and Accuracy**
  - User Notes
  - Errata
  - Data Suppression
  - Table & Geography Changes
  - Table Shells
  - Summary File Documentation
  - PUMS Documentation
  - Variance Replicate Tables Documentation
  - Race/Ethnicity and American Indian & Alaska Native Documentation
- Methodology
- Library
- Operations and

Code Lists, Definitions, and Accuracy

View the detailed codes and definitions for variables, statistical testing, and an explanation of sample design, methodology, and accuracy for the American Community Survey.

2016 | 2015 | 2014 | 2013 | 2012 | ▶

Code Lists

Detailed codes for variables that contain a large number of coded responses, such as ancestry and occupation

2016 Code Lists [1.2 MB]

Subject Definitions

Definitions of population and housing variables to help you understand the results of the American Community Survey

2016 Subject Definitions [7.9 MB]

Group Quarters Definitions

Definitions for classifying group living situations according to the type of housing and/or services provided

2016 Group Quarters Definitions [1.1 MB]

Comparison Guidance

2016

Learn more about comparing the 2016 ACS with Census 2000, 2010 Census, and 5-year to 5-year estimates.

Instructions for Applying Statistical Testing

Basic instructions for obtaining the ACS standard errors needed to do manual statistical testing

2016 Instructions for Applying Statistical Testing to ACS 1-year Data [<1.0 MB]

2012-2016 Instructions for Applying Statistical Testing to ACS 5-year Data [<1.0 MB]

Statistical Testing Tool

Spreadsheet to quickly test whether ACS estimates are statistically different from one another

Statistical Testing Tool

Accuracy of the Data

A basic explanation of the sample design, estimation methodology, and accuracy of the data

2012-2016 ACS Multiyear Accuracy (US) [<1 MB]

2012-2016 PRCS Multiyear Accuracy (Puerto Rico) [<1 MB]

2016 ACS 1-year Accuracy of the Data (US) [<1 MB]

2016 PRCS 1-year Accuracy of the Data (Puerto Rico) [<1 MB]

Related Information

Tell Us What You Think!

https://www.census.gov/programs-surveys/acs/technical-documentation/code-lists.html

Compass Handbooks

American Community Survey (ACS)

Respond to the ACS
Learn how

Handbooks for Data Users

You can use American Community Survey (ACS) data in different ways and for different reasons. Each one of our downloadable PDF Compass handbooks helps a particular group with specific how-to instructions and/or case studies.

For an introduction to ACS data, we recommend the compass handbook for General Data Users.

What Congress Needs to Know
November 2008
This handbook helps congressional staff use ACS data to respond to constituent inquiries, draft floor/press statements, conduct legislative research, and more.

What Federal Agencies Need to Know
December 2008
This handbook helps federal agencies use ACS data for eligibility determinations, allocation of funds, program parameters, and more.

What General Data Users Need to Know
October 2008
This handbook helps general data users learn how to access and use ACS data and provide concrete examples of how ACS data can answer real-world questions.

What High School Teachers Need to Know
December 2008
This handbook helps teachers learn more about how to help students grasp statistical ideas with ACS data and how to incorporate data into lesson plans.

What Public Use Microdata Sample Data Users Need to Know
February 2009
This handbook helps PUMS data users learn how to access PUMS files, create PUMS tables, and measure accuracy, margin of error, and confidence intervals.

https://www.census.gov/programs-surveys/acs/guidance/handbooks.html

Training Presentations

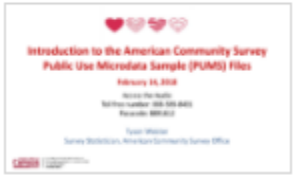
American Community Survey (ACS)

- About the Survey
- Respond to the Survey
- News & Updates
- Data
- **Guidance for Data Users**
  - Subjects Included in the Survey
  - Which Data Table or Tool Should I Use?
  - When to Use 1-year, 3-year, or 5-year Estimates
  - Handbooks
  - Comparing ACS Data
  - Statistical Testing Tool
  - **Training Presentations**
- Geography & ACS

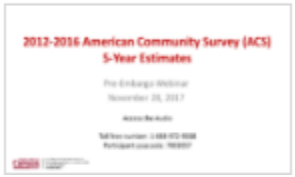
Training Presentations

Want to learn more about American Community Survey (ACS) data and data products? Need to train others how to understand the data? These training presentations can help.

Using American Community Survey Summary File Data
February 2018
Learn more about the ACS Summary File, including website resources and tools to access the data.



Introduction to the Public Use Microdata Sample (PUMS) File
February 2018
Discover foundational aspects of working with the Public Use Microdata Sample (PUMS) Files and its organization, confidentiality, and geographic availability.



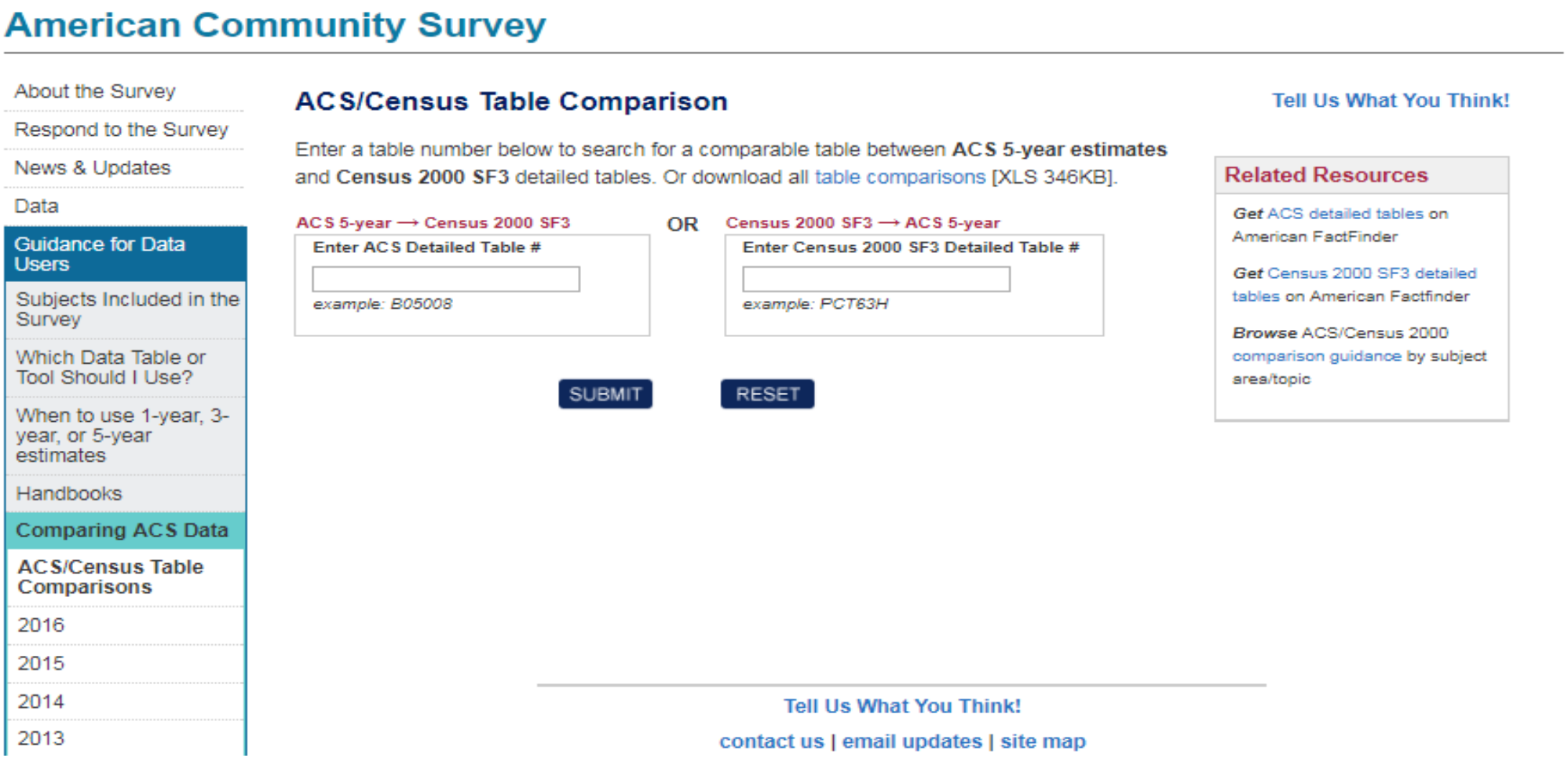
2012-2016 American Community Survey (ACS) 5-Year Pre-Release Webinar
November 2017
Learn more about the latest ACS 5-year data release with background information, changes for this release, and new information on the ACS website.

Related Information

Tell Us What You Think!

https://www.census.gov/programs-surveys/acs/guidance/training-presentations.html

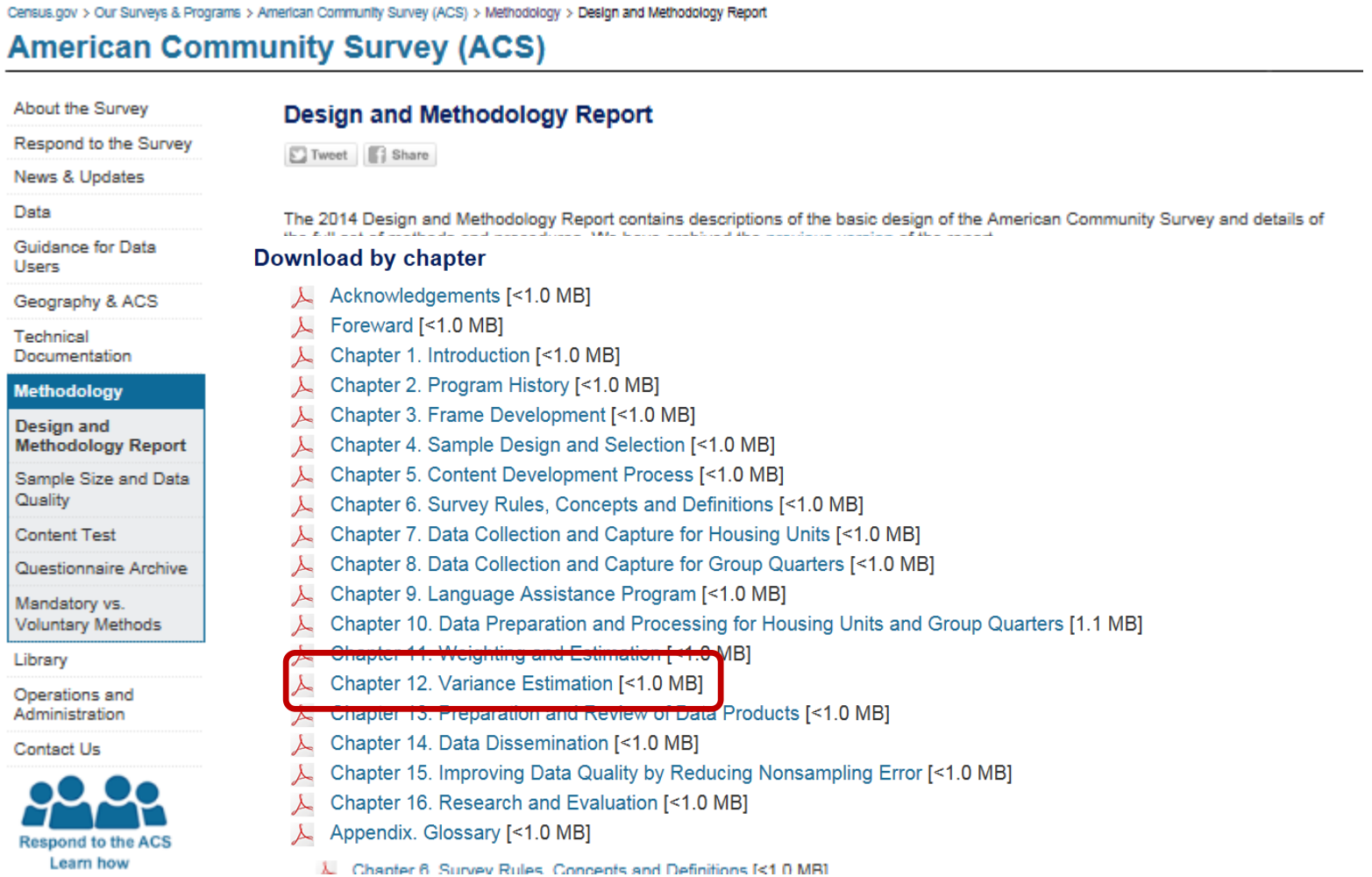
Crosswalk



https://www.census.gov/acs/www/guidance/comparing-acs-data/acscensus-table-lookup

Design and Methodology

https://www.census.gov/programs-surveys/acs/methodology/design-and-methodology.html



Census.gov > Our Surveys & Programs > American Community Survey (ACS) > Methodology > Design and Methodology Report

American Community Survey (ACS)

- About the Survey
- Respond to the Survey
- News & Updates
- Data
- Guidance for Data Users
- Geography & ACS
- Technical Documentation
- **Methodology**
  - **Design and Methodology Report**
  - Sample Size and Data Quality
  - Content Test
  - Questionnaire Archive
  - Mandatory vs. Voluntary Methods
- Library
- Operations and Administration
- Contact Us

Respond to the ACS
Learn how

Design and Methodology Report

Tweet Share

The 2014 Design and Methodology Report contains descriptions of the basic design of the American Community Survey and details of

Download by chapter

- Acknowledgements [<1.0 MB]
- Foreward [<1.0 MB]
- Chapter 1. Introduction [<1.0 MB]
- Chapter 2. Program History [<1.0 MB]
- Chapter 3. Frame Development [<1.0 MB]
- Chapter 4. Sample Design and Selection [<1.0 MB]
- Chapter 5. Content Development Process [<1.0 MB]
- Chapter 6. Survey Rules, Concepts and Definitions [<1.0 MB]
- Chapter 7. Data Collection and Capture for Housing Units [<1.0 MB]
- Chapter 8. Data Collection and Capture for Group Quarters [<1.0 MB]
- Chapter 9. Language Assistance Program [<1.0 MB]
- Chapter 10. Data Preparation and Processing for Housing Units and Group Quarters [1.1 MB]
- Chapter 11. Weighting and Estimation [<1.0 MB]
- Chapter 12. Variance Estimation [<1.0 MB]
- Chapter 13. Preparation and Review of Data Products [<1.0 MB]
- Chapter 14. Data Dissemination [<1.0 MB]
- Chapter 15. Improving Data Quality by Reducing Nonsampling Error [<1.0 MB]
- Chapter 16. Research and Evaluation [<1.0 MB]
- Appendix. Glossary [<1.0 MB]

Chapter 6. Survey Rules, Concepts and Definitions [<1.0 MB]

Source Us!

U.S. Census Bureau's *[YYYY-YYYY]* American Community Survey *[1/5]*-year *[estimates/statistics/data release]*

College Destinations: How We Rank Them
American Institute for Economic Research - Apr 7, 2014
Sources: **U.S. Census Bureau**; **American Community Survey**, **2011 American Community Survey 1-Year Estimates**, Table B01003; using ...

NMSU Valencia County Extension providing youth develo…
New Mexico State University NewsCenter - Apr 14, 2015
... Mexico and $53,046 for the United States, according to the **U.S. Census Bureau's 2009-2013 American Community Survey 5-Year Estimate**.

Census Estimates Show Progress Toward ACA Coverag…
Health Affairs (blog) - Sep 28, 2015
Source: **U.S. Census Bureau**, 2013 and **2014 American Community Survey 1-year estimates** from Table S2701 in American Fact Finder.

Continue the Conversation #ACSdata

Sign up for and manage alerts at
https://public.govdelivery.com/accounts/USCENSUS/subscriber/new

More information online:
https://www.census.gov/acs

1-800-923-8282

acso.users.support@census.gov

Social media: @uscensusbureau

AMERICAN COMMUNITY SURVEY DATA USERS GROUP

- Purpose:
  - Improve understanding of the value and utility of ACS data.
  - Promote information sharing among data users about key ACS data issues and applications
- Membership is free and open to all interested ACS data users
- Presentations and recordings from past conferences available
- Webinars and special sessions at professional meetings planned
- Users group website and online community

acsdatacommunity.prb.org

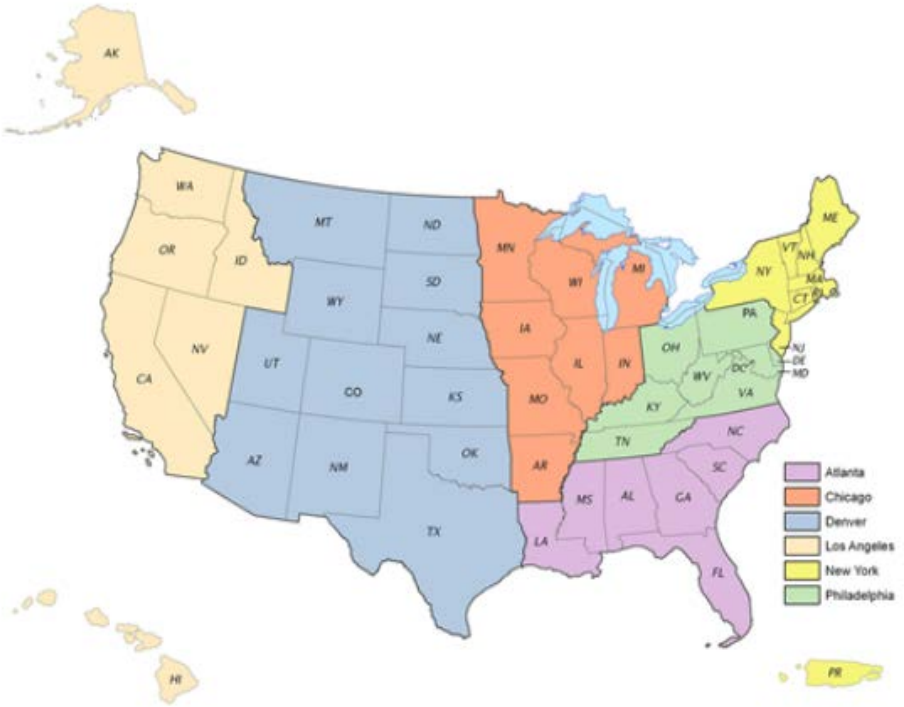
Need Local Stats?

- Assistance Near You!
  Our regional data staff can help you access local statistics from the ACS or offer training to help build your skills.
- Contact us at:

  1-844-ASK-DATA

  (1-844-275-3282)

  census.askdata@census.gov



Outline

- ACS Estimates
- What is the Margin of Error (MOE)
- Why do MOEs Matter
- Statistical Testing Using the MOE
- Special Cases
- Approximating the MOE
- Available Resources
- **Questions**

Questions?