The ACS Statistical Analyzer

INTRODUCTION

The American Community Survey (ACS) annually collects socio-economic and commuting data from a sample of housing units that is much sm[...] long-form survey during the decennial census. Estimates from the ACS may be used individually for indicating the condition of a geographic ar[...] population in the area. They also may be used jointly for indicating differences in the conditions between different geographic areas or differen[...] groups or for indicating changes over time in the condition of a given geographic area or for a given sub-population.

Estimates from all surveys include some amount of error due to sampling, and the amount of error in estimates from the ACS is significantly gr[...] estimates from the traditional long-form survey. In "A Compass for Understanding and Using American Community Survey Data: What Genera[...] Need to Know, October 2008," the U.S. Census Bureau has the following guidance to using estimates from the ACS for both of the above purp[...]

> "As the ACS estimates are based on a sample survey of the U.S. population, information about the sampling error associated
> with the estimates must be taken into account when analyzing individual estimates or comparing pairs of estimates across areas,
> population subgroups, or time periods."

This *ACS Statistical Analyzer* helps users of ACS estimates follow this guidance of the U.S. Census Bureau. ACS estimates here include not [...] estimates in the published ACS tables at American FactFinder, but also those estimates from the Census Transportation Planning Products (C[...] derived from these published estimates or CTPP estimates, and those derived from any ACS Public Use Microdata Sample (PUMS).

Although the *ACS Statistical Analyzer* focuses on ACS estimates, it also deals with Census 2000 estimates. Users of ACS estimates often wa[...] current conditions as reflected in ACS estimates with the conditions in 2000, as reflected in Census 2000 estimates. Census 2000 estimates a[...] only those in the published tables at American FactFinder, but also those from CTPP tables, those derived from the published tables or CTPP t[...] derived from a 2000 PUMS.

FUNCTIONS

The *ACS Statistical Analyzer* serves 4 functions (A, B, C, and D) and 15 sub-functions to derive measures of precision for these estimates and [...] them:

A. To derive other precision measures for published ACS estimates at American FactFinder or ACS estimates in the Census
   Transportation Planning Products (CTPP). Estimates from these two sources come with a margin of error (MOE):
   01 - For up to 200 ACS estimates from the same table (**A01 - ACS**)

B. To derive the precision measures for individual estimates that do not already have an MOE. These include published Census
   2000 estimates, CTPP 2000 estimates, individual user-derived estimates from an ACS PUMS, and user-derived estimates from
   a Census 2000 PUMS.
   02 - For frequencies, totals, averages, or medians from an ACS PUMS using replicate estimates (**B02 - ACS Direct**)
   03 - For averages from Census 2000 or a PUMS using a distribution table (**B03 - Average**)
   04 - For medians from Census 2000 or a PUMS using a distribution table (**B04 - Median**)
   05 - For frequencies from Census 2000 or a PUMS using design factors (**B05 - Frequency**)
   06 - For percentages from 2000 Census or a PUMS using design factors (**B06 - Percentage**)

C. To derive the precision measures of new estimates obtained from two or more original estimates that already have an MOE.
   These estimates can be published ACS estimates, CTPP estimates, estimates whose precision measures are derived using
   Function B, or estimates whose precision measures are derived using another sub-function of this function. This function
   covers estimates derived with one of the following six operations:
   07 - Sum of up to 200 estimates (**C07 - Sum**)
   08 - Difference of two estimates (**C08 - Diff**)
   09 - Percent difference of two estimates (**C09 - %Diff**)
   10 - Ratio of one estimate over another (**C10 - Ratio**)
   11 - Percentage of one estimate in another (**C11 - Percentage**)
   12 - Product of two estimates (**C12 - Product**)

<u>Joint and Alternative Uses</u>. More than one sub-function may need to be used for some analyses, and some sub-functions may be used to serve a purpose other than the original one. For details on these joint and alternative uses, double-click the icon to the right:

<u>Concepts</u>. The precision measures for any estimate include its MOE, relative reliability, and confidence interval. For users who want to know how they may be used or who are not familiar with the basic statistical concepts used, double-click the icon to the right:

<u>Applicability</u>. These functions and sub-functions do not apply to certain estimates, including place of work characteristics, totals and total-based percentages, certain estimates to be compared. For details, double-click the icon to the right:

<u>Data Needs</u>. The data needs for each sub-function are listed at the top of each worksheet for that sub-function. Most of these data needs are self-explanatory. Double-click the icon to the right for details about some of these data needs.

<u>Formulas</u>. For users who are interested in the statistical procedures and formulas used in each of these functions and sub-functions, double-click the icon to the right:

<u>Sources and Forms of Estimates</u>. The following table summarizes the sources and forms of estimates that are applicable for each sub-function

Sub-Functions	ACS Estimates					Census 200	
	Obtained from American FactFinder	Obtained from CTPP	Derived from a PUMS - Using Replicate Estimates	Derived from a PUMS - Using a Design Factor	Derived from Function B or C	Obtained from American FactFinder	Obtained from CTPP
A01	All Forms	All Forms					
B02			Frequencies Totals Averages Medians				
B03				Averages		Averages	Averages
B04				Medians		Medians	Medians
B05				Frequencies		Frequencies	Frequencies
B06				Percentages		Percentages	Percentages
C07	All Forms	All Forms	All Forms	All Forms	All Forms	All Forms	All Forms
C08	All Forms	All Forms	All Forms	All Forms	All Forms	All Forms	All Forms
C09	All Forms	All Forms	All Forms	All Forms	All Forms	All Forms	All Forms
C10	All Forms	All Forms	All Forms	All Forms	All Forms	All Forms	All Forms
C11	All Forms	All Forms	All Forms	All Forms	All Forms	All Forms	All Forms
C12	All Forms	All Forms	All Forms	All Forms	All Forms	All Forms	All Forms
D13	All Forms	All Forms	All Forms	All Forms	All Forms		
D14	All Forms	All Forms	All Forms	All Forms	All Forms	All Forms	All Forms
D15	All Forms	All Forms	All Forms	All Forms	All Forms	All Forms	All Forms

ORGANIZATION

This template consists of this cover worksheet, one worksheet for each of the 15 sub-functions, and one worksheet containing design factors for These sub-function worksheets are named as in the parentheses for each sub-function described above. Different colors are used to code the functions across different functions. The tabs for the sub-functions under the same function are coded with the same color. The tabs also are same way as the sub-functions are numbered above. The worksheet for 2000 design factors is named as 2000 DF.

Cells in each worksheet are protected except those for input data. The user cannot see the formulas used in the protected cells. Nor can they in the protected cells. However, the user can still format these cells, columns, and rows.

CREDITS

Xuehao Chu of the Center for Urban Transportation Research developed the *ACS Statistical Analyzer.* It is based on Excel 2003 and on the st
procedures and formulas presented in the insert is cell K52. The development was funded by the Florida Department of Transportation (FDOT
National Center for Transit Research. Daniel Harris was the FDOT Project Manager. For more information, contact Xuehao Chu at (813) 974-
xchu@cutr.usf.edu or Daniel Harris at (850) 414-4532, daniel.harris@dot.state.fl.us.

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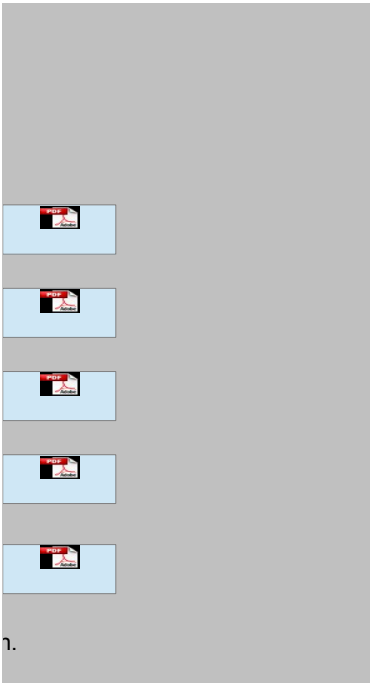
0 Estimates	
Derived from a PUMS - Using a Design Factor	**Derived from Function B or C**
Averages	
Medians	
Frequencies	
Percentages	
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Individual Published ACS Estimates

INTRODUCTION

USAGE *For each of up to 200 ACS estimates from the same table from American FactFi*
- To determine its relative reliability.
- To derive its confidence interval at the 90% confidence level.
- To derive its MOE at an alternative confidence level (i.e., other than 90%).
- To derive its confidence interval at the alternative confidence level.

DATA NEEDS *Enter the following data items into the white cells under* **INPUT AND ANALYSIS**
- Desired alternative confidence for all estimates in cell **E64**.
  + Keep the cell blank if no alternative confidence
  + Enter 95 rather than 0.95 for 95%
- Year of data for all estimates in cell **E66**.
  + Use 2006 for multi-year data from American FactFinder or for CTPP esti
  + Use actual year for single-year data from American FactFinder
- Up to 200 ACS estimates in range **E82:E181**.
- 90% MOE for each ACS estimate (without +/-) in range **F82:F181**.
- Description of the table in range **D71:L74**.

CONDITIONS *The entered data must meet these conditions:*
- MOE values are from tables at American FactFinder for the CTPP.
- If from American FactFinder, the up-to-200 estimates are for the same data

ENTERING DATA *The following are suggestions:*
- Paste as Values if numbers are copied and pasted.
- To delete any input data for another use, either use the **Delete** key or selec
  then click **Clear**. Do not use the space bar for deleting the content of any c
- Adjust cells, columns, and/or rows to increase the readability of both input a

EXAMPLE

DESIRED ALTERNATIVE CONFIDENCE | 95%

YEAR OF DATA (2006 is entered because the data are from 2006 ACS) | 2006

OTHER DATA INPUT AND RESULTS

ACS or CTP

- ACS or CTPP Table | B08121. MEDIAN EARNINGS IN THE PAST 12 MONTHS BY MEANS OF
- Universe | WORKERS 16 YEARS AND OVER WITH EARNINGS
- Dataset | 2008 American Community Survey 1-Year Estimates
- Geography | Miami City, Florida

Other Input

| Count of Estimates | **Description of Estimates** | **Estimates** |

1	Total:	22,429
2	Car, truck, or van - drove alone	26,529
3	Car, truck, or van - carpooled	18,571
4	Public transportation (excluding taxicab)	11,983
5	Walked	16,069
6	Taxicab, motorcycle, or other means	15,193
7	Worked at home	22,665

INPUT AND ANALYSIS

DESIRED ALTERNATIVE CONFIDENCE

YEAR OF DATA FOR ESTIMATES

OTHER INPUT AND RESULTS

	ACS or CTP
- ACS or CTPP Table	
- Universe	
- Dataset	
- Geography	

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P Table Identification (not essential)

TRANSPORTATION TO WORK

			Results			
		Confidence Interval IntervalConfidence @ 90% Confidence			Results @ Alternative Confidence	
90% MOE	Relative Reliability					Confidence Interval

	Reliability	Lower Bound	Upper Bound	MOE	Lower Bound	Upper Bound	Standard Error
1,206	3.27%	21,223.00	23,635.00	1,436.91	20,992.09	23,865.91	733.12
1,472	3.37%	25,057.00	28,001.00	1,753.84	24,775.16	28,282.84	894.82
5,394	17.66%	13,177.00	23,965.00	6,426.78	12,144.22	24,997.78	3,278.97
617	3.13%	11,366.00	12,600.00	735.14	11,247.86	12,718.14	375.07
5,262	19.91%	10,807.00	21,331.00	6,269.50	9,799.50	22,338.50	3,198.73
9,783	39.14%	5,410.00	24,976.00	11,656.13	3,536.87	26,849.13	5,947.00
7,041	18.88%	15,624.00	29,706.00	8,389.12	14,275.88	31,054.12	4,280.16

P Table Identification (not essential)

90% MOE	Relative Reliability	Results			Results @ Alternative Confidence in E64			
		Confidence Interval @ 90% Confidence			Confidence Interval			
		Lower Bound	Upper Bound	MOE	Lower Bound	Upper Bound	Standard Error

Precision Measures for ACS PUMS Estir
Using Replicate Estimates

INTRODUCTION

USAGE -- *To determine precision measures for ACS PUMS estimates using replicate estimates.*

DATA NEEDS -- *Enter the following data items into the white cells under* INPUT*:*
- Desired confidence level.
  + Enter 95 rather than 0.95 for 95%
- Up to 20 estimates (i.e., Full Weight estimates).
- Description of the estimates.
- 80 replicate estimates obtained from using 80 replicate weights for each Full Weight es

CONDITIONS
- Do not use this sub-function for an estimate if it is zero or a controlled frequency.
- Do not use the results from this sub-function for a median if the estimated MOE is zero.
- Use the following for these special cases:
  + **B03 - Average** if the estimate of interest is an average
  + **B04 - Median** if the estimate of interest is a median
  + **B05 - Frequency** if the estimate of interest is a frequency

ENTERING INPUT DATA -- *The following are suggestions:*
- Paste as Values if numbers are copied and pasted.
- To delete any input data for another use, either use the **Delete** key or select **Edit** from
  Do not use the space bar for deleting the content of any cell for input data.
- Adjust cells, columns, and/or rows to increase the readability of both input and output.

INPUT AND RESULTS

RESULTS

#	Description	Estimates	MOE	Relative Reliability
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INPUT

- Desired confidence. [   ]
- Full Weight estimates in row **66** for up to 20 characteristics.
- Description of the estimates in row **65**.
- 80 replicate estimates from using 80 replicate weights in rows **67-146** for each Full Wei

Estimates from Using Full Weight and Replicate Weights	1	2	3
Full Weight Estimates			
Replicate Weight 1			
Replicate Weight 2			
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Confidence Interval		Standard Error
Lower Bound	Upper Bound	

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19	20
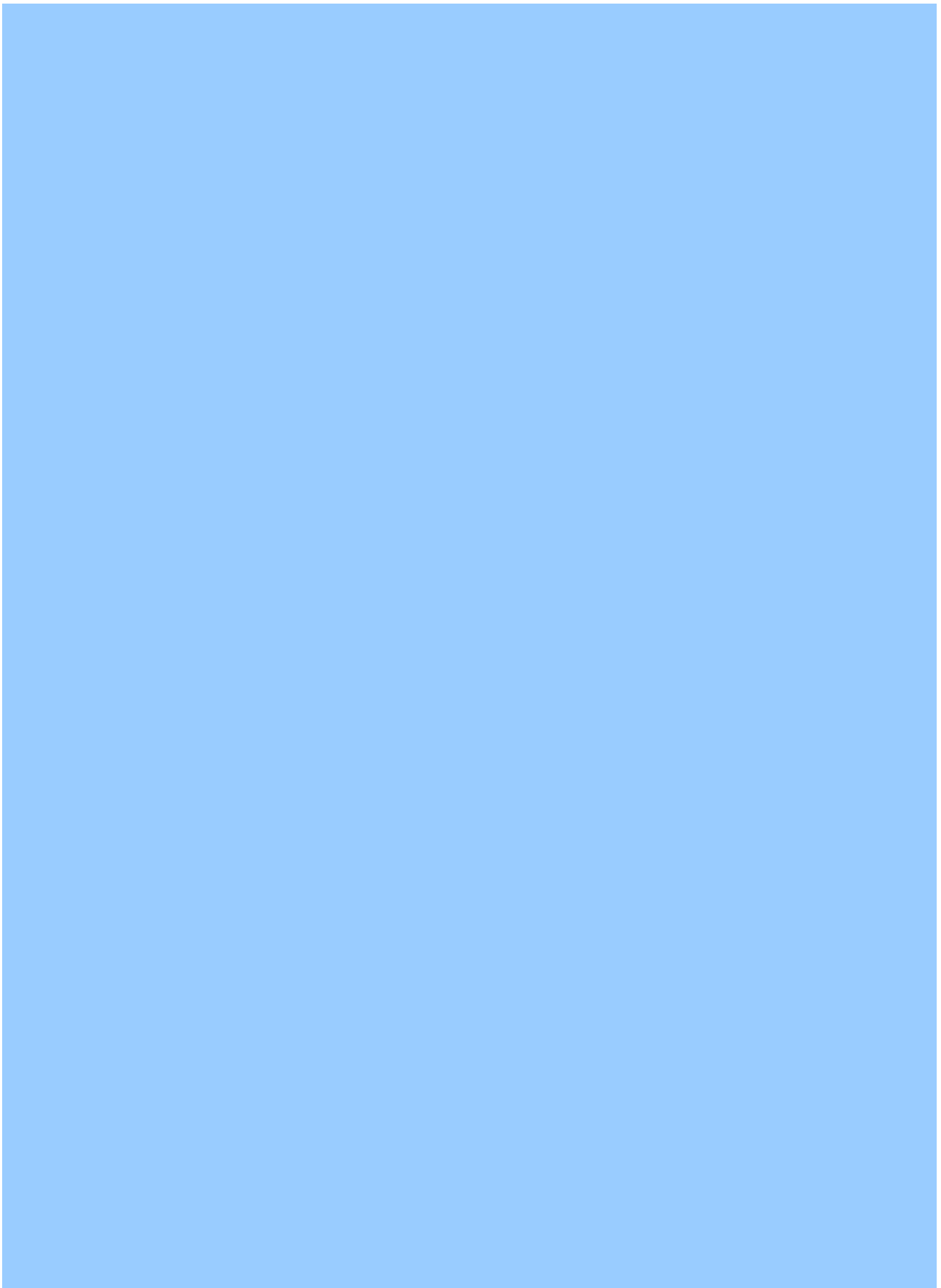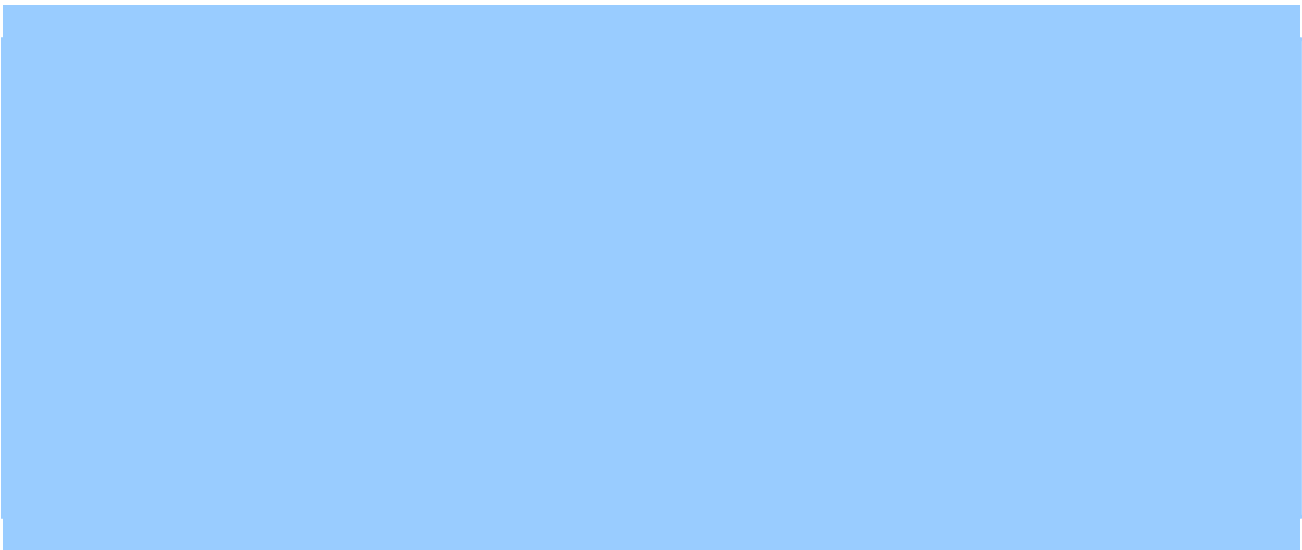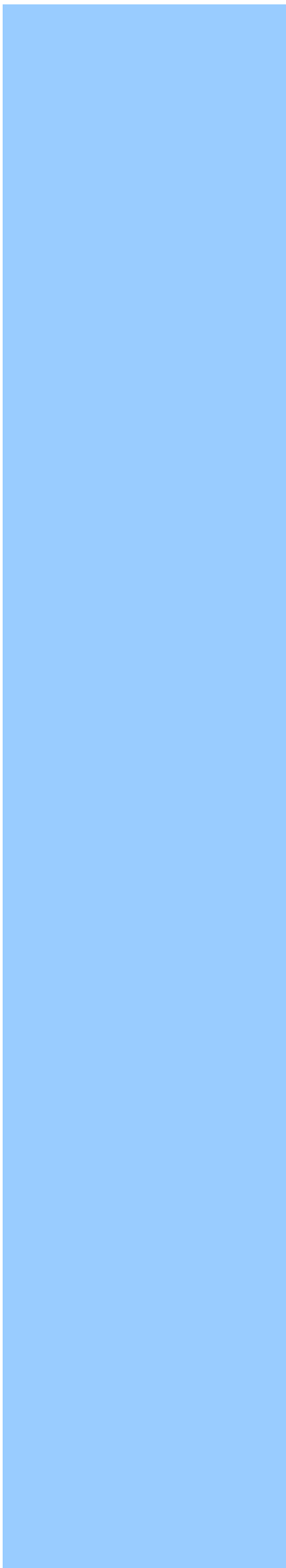
Precision Measures for Estimates of Averages
Using a Distribution Table

INTRODUCTION

<u>USAGE</u> -- *To determine the MOE, relative reliability, and confidence interval for one estimate of average*

<u>DATA NEEDS</u> -- *Enter the following data items into the white cells under* **INPUT***:*
- Source of estimates:
    + Published Census 2000, ACS PUMS, 2000 PUMS, or CTPP
    + Duration of ACS Period (1, 3, or 5 Years) if ACS PUMS is the source
    + Size of the PUMS (1% or 5%) if 2000 PUMS is the source
- Desired level of confidence.
    + Enter 95 rather than 0.95 for 95%
- Percent in sample for the geographic area if estimates are based on Census 2000.
- Design factor for the state where the geographic area is located.
- A distribution table for the subject measure.

<u>CONDITIONS</u>
- The distribution table may have up to 25 ranges.
- For ACS PUMS data:
    + Limit to 2005 or later
    + Use sub-function **B02 - ACS Direct** to get exact measures of precision.

<u>OBTAINING INPUT DATA</u> -- *Refer to the inserted pdf file at K50 in the Cover worksheet for guidance*.

<u>ENTERING INPUT DATA</u> -- *The following are suggestions:*
- Paste as Values if numbers are copied and pasted.
- To delete any input data for another use, either use the **Delete** key or select **Edit** from the menu
  space bar for deleting the content of any cell for input data.
- Adjust cells, columns, and/or rows to increase the readability of both input and output.

EXAMPLE

<u>OBJECTIVE</u> -- *Derive measures of precision for the average commuting time in 2000 in Miami City, Flor*
- Detailed Table QT-P23 shows an average commuting time of 28.1 minutes.

<u>SOURCE</u> -- *Enter one of the following three values into this white cell:*
- Published estimates from Census 2000 = **1**.
- User-derived estimates from an ACS PUMS = **2**.
- User-derived estimates from a 2000 PUMS = **3**.

<u>DURATION OF ACS PERIOD</u> (Years) -- *Enter one of the following three values into this white cell if* <u>SO</u>
- One-Year Period = **1**.
- Three-Year Period = **3**.

- Five-Year Period = **5**.

SIZE OF 2000 PUMS -- *Enter one of the following two values into this white cell if* SOURCE = **3**:
- 1% PUMS = **1**.
- 5% PUMS = **5**.

OTHER INPUT -- *Enter the following other input into the appropriate white cells:*
- The estimate of an average.
- Desired confidence for the MOE of the estimate.
- Percent in sample for the geographic area if the estimate is based on Census 2000.
- Design factor for the subject characteristic and the geographic area.

DISTRIBUTION TABLE -- *Enter the distribution table as follows*:
- Description distribution ranges in column **D**.
- The smallest value of each range in column **E**.
- The largest value of each range in column **F**.
- The number of units for each range in column **G**.
- The word "Last" in column **C** of the row where the last range of the distribution table is entered.

#	Last Row	Range Description	Smallest Value
1		Less than 5 minutes	0
2		5 to 9 minutes	5
3		10 to 14 minutes	10
4		15 to 19 minutes	15
5		20 to 24 minutes	20
6		25 to 29 minutes	25
7		30 to 34 minutes	30
8		35 to 39 minutes	35
9		40 to 44 minutes	40
10		45 to 59 minutes	45
11		60 to 89 minutes	60
12	Last	90 or more minutes	90

RESULTS

Description of the Average	Average
Average commuting time in 2000, Miami City, Florida	28.10

INPUT

SOURCE -- *Enter one of the following three values into this white cell:*
- Published estimates from Census 2000 = **1**.
- User-derived estimates from an ACS PUMS = **2**.
- User-derived estimates from a 2000 PUMS = **3**.

DURATION OF ACS PERIOD (Years) -- *Enter one of the following three values into this white cell if SO*
    - One-Year Period = **1**.
    - Three-Year Period = **3**.
    - Five-Year Period = **5**.

SIZE OF 2000 PUMS -- *Enter one of the following two values into this white cell if* SOURCE = **3**:
    - 1% PUMS = **1**.
    - 5% PUMS = **5**.

OTHER INPUT -- *Enter the following other input into the appropriate white cells:*
    - The estimate of an average.
    - Desired confidence for the MOE of the estimate.
    - Percent in sample for the geographic area if the estimate is based on Census 2000.
    - Design factor for the subject characteristic and the geographic area.

DISTRIBUTION TABLE -- *Enter the distribution table as follows*:
    - Description distribution ranges in column **D**.
    - The smallest value of each range in column **E**.
    - The largest value of each range in column **F**.
    - The number of units for each range in column **G**.
    - The word "Last" in column **C** of the row where the last range of the distribution table is entered.

#	Last Row	Range Description	Smallest Value
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RESULTS

Description of the Average	Average

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Largest Value	Units
5	1,832
9	8,094
14	14,858
19	21,137
24	20,206
29	6,890
34	24,268
39	2,428
44	4,059
59	8,211
89	7,703
	4,245

MOE	Relative Reliability	Confidence Interval		Standard Error
		Lower Bound	Upper Bound	
0.50	0.9%	27.60	28.60	0.26

URCE = **2**:

Largest Value	Units

MOE	Relative Reliability	Confidence Interval		Standard Error
		Lower Bound	Upper Bound	

Precision Measures for Estimates of Medians
Using a Distribution Table

INTRODUCTION

USAGE -- *To determine the MOE, relative reliability, and confidence interval for one estimate of media*

DATA NEEDS -- *Enter the following data items into the white cells under* **INPUT**:
- Source of estimates:
  + Published Census 2000, ACS PUMS, 2000 PUMS, or CTPP estimates
  + Duration of ACS Period (1, 3, or 5 Years) if ACS PUMS is the source
  + Size of the PUMS (1% or 5%) if 2000 PUMS is the source
- Desired level of confidence.
  + Enter 95 rather than 0.95 for 95%
- Percent in sample for the geographic area if estimates are based on Census 2000.
- Design factor for the state where the geographic area is located.
- A distribution table for the subject measure.

CONDITIONS -- *The distribution table may have up to 25 ranges. For ACS PUMS data, they should b*

OBTAINING INPUT DATA -- *Refer to the inserted pdf file at K50 in the Cover worksheet for guidance*.

ENTERING INPUT DATA -- *The following are suggestions:*
- Paste as Values if numbers are copied and pasted.
- To delete any input data for another use, either use the **Delete** key or select **Edit** from the menu
  Clear. Do not use the space bar for deleting the content of any cell for input data.
- Adjust cells, columns, and/or rows to increase the readability of both input and output.

EXAMPLE

OBJECTIVE -- *Derive measures of precision for median household income in 1999 in Miami City, Florid*
- Detailed Table P53 shows that median household income in Miami City, Florida was $23,483 in

SOURCE -- *Enter one of the following three values into this white cell:*
- Published estimates from Census 2000 = **1**.
- User-derived estimates from an ACS PUMS = **2**.
- User-derived estimates from a 2000 PUMS = **3**.

DURATION OF ACS PERIOD (Years) -- *Enter one of the following three values into this white cell if* SC
- One-Year Period = **1**.
- Three-Year Period = **3**.
- Five-Year Period = **5**.

SIZE OF 2000 PUMS -- *Enter one of the following two values into this white cell if* SOURCE = *3:*
- 1% PUMS = **1**.

- 5% PUMS = **5**.

OTHER INPUT -- *Enter the following other input into the appropriate white cells:*
- The estimate of a median.
- Desired confidence for the MOE.
- Percent in sample for the geographic area if the estimate is based on Census 2000.
- Design factor for the subject characteristic and the geographic area.

DISTRIBUTION TABLE -- *Enter the distribution table as follows*:
- Description distribution ranges in column **D**.
- The smallest value of each range in column **E**.
- The number of units for each range in column **F**.
- The word "Last" in column **C** of the row where the last range of the distribution table is entered.

	Last Row	Range Description	Smallest Value
1		Less than $10,000	0
2		$10,000 to $14,999	10000
3		$15,000 to $19,999	15000
4		$20,000 to $24,999	20000
5		$25,000 to $29,999	25000
6		$30,000 to $34,999	30000
7		$35,000 to $39,999	35000
8		$40,000 to $44,999	40000
9		$45,000 to $49,999	45000
10		$50,000 to $59,999	50000
11		$60,000 to $74,999	60000
12		$75,000 to $99,999	75000
13		$100,000 to $124,999	100000
14		$125,000 to $149,999	125000
15		$150,000 to $199,999	150000
16	Last	$200,000 or more	200000

RESULTS

Description of the Median	Median
Median household income in 1999, Miami City, Florida	23,483.00

INPUT

SOURCE -- *Enter one of the following three values into this white cell:*
- Published estimates from Census 2000 = **1**.
- User-derived estimates from an ACS PUMS = **2**.
- User-derived estimates from a 2000 PUMS = **3**.

DURATION OF ACS PERIOD (Years) -- *Enter one of the following three values into this white cell if SC*

- One-Year Period = **1**.
- Three-Year Period = **3**.
- Five-Year Period = **5**.

SIZE OF 2000 PUMS -- *Enter one of the following two values into this white cell if* SOURCE *=* **3**:
- 1% PUMS = **1**.
- 5% PUMS = **5**.

OTHER INPUT -- *Enter the following other input into the appropriate white cells:*
- The estimate of a median.
- Desired confidence for the MOE.
- Percent in sample for the geographic area if the estimate is based on Census 2000.
- Design factor for the subject characteristic and the geographic area.

DISTRIBUTION TABLE -- *Enter the distribution table as follows*:
- Description distribution ranges in column **D**.
- The smallest value of each range in column **E**.
- The number of units for each range in column **F**.
- The word "Last" in column **C** of the row where the last range of the distribution table is entered.

	Last Row	Range Description	Smallest Value
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RESULTS

Description of the Median	Median

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e limited to 2005 or later.

and then click

da
1999.

	1

OURCE = 2:

23483
95%
14.3
1.2

Units
32,558
14,370
12,080
11,007
9,128
8,152
6,763
5,737
4,536
7,360
7,124
6,458
3,319
1,510
1,581
2,661

		Confidence Interval		
	Relative	Lower	Upper	Standard
MOE	Reliability	Bound	Bound	Error
437.82	1.0%	23,045.18	23,920.82	223.38

DURCE = 2:

Units

MOE	Relative Reliability	Confidence Interval		Standard Error
		Lower Bound	Upper Bound	

Precision Measures for Estimates of Frequen

Using Design Factors

INTRODUCTION

<u>USAGE</u> -- *To determine the MOE, relative reliability, and confidence interval for up to 200 estima*

<u>DATA NEEDS</u> -- *Enter the following data items into the white cells under* **INPUT AND RESULTS**
- Source of estimates:
    + Published Census 2000, ACS PUMS, 2000 PUMS, or CTPP
    + Duration of ACS Period (1, 3, or 5 Years) if ACS PUMS is the source
    + Size of the PUMS (1% or 5%) if 2000 PUMS is the source
- Desired level of confidence.
    + Enter 95 rather than 0.95 for 95%
- Size of the geographic area in the same unit as the estimate.
- Percent in sample for the geographic area if estimates are based on Census 2000.
- Design factor for the state where the geographic area is located.

<u>CONDITIONS</u>
- Estimates of frequencies are limited to the following:
    + Persons, including population, workers, etc.
    + Households
    + Families
    + Housing units
- The up to 200 estimates of frequencies are:
    + from the same source of data (e.g., 1% 2000 PUMS)
    + from the same geographic area
    + about the same characteristic shown in a table of design factors

<u>OBTAINING INPUT DATA</u> -- *Refer to the inserted pdf file at K50 in the Cover worksheet for guid*

<u>ENTERING INPUT DATA</u> -- *The following are suggestions:*
- Paste as Values if numbers are copied and pasted.
- To delete any input data for another use, either use the **Delete** key or select **Edit** from the m
  click **Clear**. Do not use the space bar for deleting the content of any cell for input data.
- Adjust cells, columns, and/or rows to increase the readability of both input and output.

EXAMPLE

<u>SETTING</u>

Suppose that you want to tally a 5% 2000 PUMS for state A. Further, suppose that for count
people is 131, 220. The sum of the PUMS weights for those people who are 16 years or old
which is the estimate of interest. What are the precision measures for this estimate at the 95
in sample is 12% and that the design factor for the relevant characteristic (employment statu

<u>SOURCE</u> -- *Enter one of the following three values into this white cell:*
- Published estimates from Census 2000 = **1**.
- User-derived estimates from an ACS PUMS = **2**.

- User-derived estimates from a 2000 PUMS = **3**.

<u>DURATION OF ACS PERIOD</u> (Years) -- *Enter one of the following three values into this white ce*
   - One-Year Period = **1**.
   - Three-Year Period = **3**.
   - Five-Year Period = **5**.

<u>SIZE OF 2000 PUMS</u> -- *Enter one of the following two values into this white cell if* <u>SOURCE</u> *= 3:*
   - 1% PUMS = **1**.
   - 5% PUMS = **5**.

<u>OTHER INPUT</u> -- *Enter the following other input into the appropriate white cells:*
   - Up to 100 estimates and their descriptions for the same geography obtained from the same s
      + Estimates in column **E**
      + Description of estimates in column **D**
   - Desired confidence for the MOE.
   - Total size of the area in the same unit as the estimates (persons, households, or housing un
   - Percent in sample for the geographic area if estimates are based on Census 2000.
   - Design factor for the subject characteristic and the geographic area.

<u>RESULTS</u>

Other Input		
Description of Estimate	**Estimate**	**MOE**
1 16+ civilian labor force in County A, State A	59,948.0	1,849.9

INPUT AND RESULTS

- Percent in sample for the geographic area if estimates are based on Census 2000.
- Design factor for the subject characteristic and the geographic area.

RESULTS

	Other Input		
	Description of Estimate	Estimate	MOE
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ates of frequencies.

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ance.

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ty A, the sum of the PUMS weights for all
er and in the civilian labor force is 59,948,
5% confidence level? Assume that the percent
s) is 1.2.

| 3 |

ell if <u>SOURCE</u> = *2:*

[ ]

[5]

source as indicated by the above input.

	95%
its).		131,220
	12
	1.2

Results			
Relative Reliability	**Confidence Interval**		**Standard Error**
	Lower Bound	**Upper Bound**	
1.6%	58,098.1	61,797.9	943.85

[ ]

ell if <u>SOURCE</u> = *2:*

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source as indicated by the above input.

its).

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Results			
Relative Reliability	Confidence Interval		Standard Error
	Lower Bound	Upper Bound	

Precision Measures for Estimates of Percentages
Using Design Factors

INTRODUCTION

<u>USAGE</u> -- *To determine the MOE, relative reliability, and confidence interval for up to 200*
- Published estimates of percentages from Census 2000 at American FacFinder.
- User-derived estimates of percentages from an ACS PUMS.
- User-derived estimates of percentages from a Census 2000 PUMS.

<u>DATA NEEDS</u> -- *Enter the following data items into the white cells under* **INPUT and RESULTS***:*
- Source of estimates
  + Published Census 2000, ACS PUMS, or 2000 PUMS
  + Duration of ACS Period (1, 3, or 5 Years) if ACS PUMS is the source
  + Size of the PUMS (1% or 5%) if 2000 PUMS is the source
- Up to 200 estimates of percentages.
- Base of the percentage.
- Percent in sample for the geographic area if estimates are based on Census 2000.
- Design factor for the subject characteristic and the geographic area.

<u>CONDITIONS</u>
- Estimates of frequencies are limited to the following:
  + Persons, including population, workers, etc.
  + Households
  + Families
  + Housing units
- The up to 200 estimates of frequencies are:
  + from the same source of data (e.g., 1% 2000 PUMS)
  + from the same geographic area
  + about the same characteristic shown in a table of design factors

<u>OBTAINING INPUT DATA</u> -- *Refer to the inserted pdf file at K50 in the Cover worksheet for guidance*.

<u>ENTERING INPUT DATA</u> -- *The following are suggestions:*
- Paste as Values if numbers are copied and pasted.
- To delete any input data for another use, either use the **Delete** key or select **Edit** from the menu and the space bar for deleting the content of any cell for input data.
- Adjust cells, columns, and/or rows to increase the readability of both input and output.

EXAMPLE

<u>SETTING</u>

For Miami City, FL, the Census 2000 Summary File 3 reports 126,539 workers 16 years or older in 200 commuted to work by public transportation (excluding taxi), implying that 11.1 percent of the workers c transportation. The base of the percentage is 126,539 workers in 2000. A total of 12.0 percent of the long-form sample. The design factor for Florida at this sampling rate is 1.4 for estimates related to me At the 90% confidence level, what are the precision measures for this estimate?

SOURCE -- *Enter one of the following three values into this white cell:*
  - Published estimates from Census 2000 = **1**.
  - User-derived estimates from an ACS PUMS = **2**.
  - User-derived estimates from a 2000 PUMS = **3**.

DURATION OF ACS PERIOD (Years) -- *Enter one of the following three values into this white cell if* SOURC
  - One-Year Period = **1**.
  - Three-Year Period = **3**.
  - Five-Year Period = **5**.

SIZE OF 2000 PUMS -- *Enter one of the following two values into this white cell if* SOURCE = *3:*
  - 1% PUMS = **1**.
  - 5% PUMS = **5**.

OTHER INPUT -- *Enter the following other input into the appropriate white cells:*
  - Up to 200 estimates and their descriptions for the same geography obtained from the same source as
    + Estimates in column **E**
    + Description of estimates in column **D**
  - Desired confidence for the MOE of all estimates.
  - Base used in calculating the estimate of all percentages.
  - Percent in sample for the geographic area if estimates are based on Census 2000.
  - Design factor for the subject characteristic and the geographic area.

RESULTS

Other Input	
Description of Estimate	**Estimate**
1 % workers commuting by public transportation in 2000, Miami City	11.1

INPUT AND RESULTS

SOURCE -- *Enter one of the following three values into this white cell:*
  - Published estimates from Census 2000 = **1**.
  - User-derived estimates from an ACS PUMS = **2**.
  - User-derived estimates from a 2000 PUMS = **3**.

DURATION OF ACS PERIOD (Years) -- *Enter one of the following three values into this white cell if* SOURC
  - One-Year Period = **1**.
  - Three-Year Period = **3**.
  - Five-Year Period = **5**.

SIZE OF 2000 PUMS -- *Enter one of the following two values into this white cell if* SOURCE = *3:*
  - 1% PUMS = **1**.
  - 5% PUMS = **5**.

OTHER INPUT -- *Enter the following other input into the appropriate white cells:*
  - Up to 200 estimates and their descriptions for the same geography obtained from the same source as
    + Estimates in column **E**
    + Description of estimates in column **D**

- Desired confidence for the MOE of all estimates.
- Base used in calculating the estimate of all percentages.
- Percent in sample for the geographic area if estimates are based on Census 2000.
- Design factor for the subject characteristic and the geographic area.

RESULTS

	Other Input	
	Description of Estimate	**Estimate**
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then click **Clear**. Do not use

00 and 14,087 among them
commuted to work by public
total population was in the
eans of transportation to work.

	1

indicated by the above input.

90%
126,539
12
1.4

Results				
MOE	Relative Reliability	Confidence Interval		Standard Error
		Lower Bound	Upper Bound	
0.45	2.5%	10.6	11.6	0.28

indicated by the above input.

	Results			
MOE	Relative Reliability	Confidence Interval		Standard Error
		Lower Bound	Upper Bound	

Sum of Two or More Estim

INTRODUCTION

<u>USAGE</u>
- To derive a new estimate from summing up to 200 original estimates that already have an MOE.
- To derive the MOE, relative reliability, and confidence interval of the new estimates.

<u>DATA NEEDS</u>
- Desired confidence for the MOE of all sums.
- The original estimates to be summed.
- MOE for each original estimate.
- Confidence for the original estimates' MOE.
- If the original estimates are published ACS estimates at American FactFinder:
    + Enter 90% as the confidence for the original estimates
    + Year of data for the original estimates (actual year for single-years; 2006 for multiyears); bla

<u>CONDITIONS</u>
- The MOE of the original estimates is based on the same confidence level.
- If published ACS estimates at American FactFinder, the original estimates are based on ACS da
- Not applicable to original estimates of averages, medians, or ratios.

<u>ENTERING INPUT DATA</u> -- *The following are suggestions:*
- Paste as Values if numbers are copied and pasted.
- To delete any input data for another use, either use the **Delete** key or select **Edit** from the menu
  not use the space bar for deleting the content of any cell for input data.
- Adjust cells, columns, and/or rows to increase the readability of both input and output.
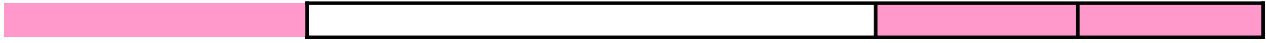
ANALYSIS

<u>DATA INPUT</u>
- Desired confidence level for the MOE of the sum.
- Confidence for original estimates' MOE; 90% if published ACS estimates.
- Year of data if published ACS estimates; blank otherwise.

<u>RESULTS</u>

Description of Sum	Sum	MOE

<u>OTHER DATA INPUT</u>

Data Description

	Description of Original Estimates	Estimates	MOE
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ata of the same year.

and then click **Clear**. Do

	Confidence Interval		
Relative Reliability	Lower Bound	Upper Bound	Standard Error

Difference of Two Estima

INTRODUCTION

USAGE
- To derive the difference between two original estimates that already have an MOE.
- Diff = **Minuend** - **Subtrahend**.
- To derive the MOE, relative reliability, and confidence interval of the difference.

DATA NEEDS
- Desired confidence for the difference's MOE.
- The original estimates.
- MOE for each original estimate.
- If an original estimate is a **published ACS** estimate from American FactFinder:
    + Year of data for the original estimate (actual year for single-years; 2006 for multiyears); blank
    + Leave the cell for confidence blank
- If an original estimate is **not** a published ACS estimate from American FactFinder:
    + Confidence for the original estimate' MOE
    + Leave the cell for year of data blank

CONDITIONS
- The subtrahend is not part of the minuend.
- Use **B05 - Frequency** instead if:
    + The subtrahend is part of the minuend (e.g., all persons - persons of Hispanic ethnicity)
    + Estimates are frequencies (e.g., persons) not totals (e.g., total income)

ENTERING INPUT DATA -- *The following are suggestions:*
- Paste as Values if numbers are copied and pasted.
- To delete any input data for another use, either use the **Delete** key or select **Edit** from the menu a
  Clear. Do not use the space bar for deleting the content of any cell for input data.
- Adjust cells, columns, and/or rows to increase the readability of both input and output.

ANALYSIS

DATA INPUT
- Desired confidence level for the difference: [   ]
- Original estimates and related information:

	Description	Estimate	MOE
Minuend			
Subtrahend			

RESULTS

Description	Diff	MOE

tes

otherwise

and then click

Confidence; blank if published ACS	Year of data if published ACS; blank otherwise

Confidence Interval

Relative Reliability	Lower Bound	Upper Bound	Standard Error	

% Difference of Two Estima

INTRODUCTION

USAGE
- To derive the % difference between two original estimates that already have an MOE.

- %Diff = 100 * $\dfrac{\text{Numerator} - \text{Denominator}}{\text{Denominator}}$

- To derive the MOE, relative reliability, and confidence interval of the % difference.

DATA NEEDS
- Desired confidence for the % difference's MOE.
- The original estimates.
- MOE for each original estimate.
- If an original estimate is **published ACS** estimate from American FactFinder:
    + Year of data for the original estimate (actual year for single-years; 2006 for multiyears); blank
    + Leave the cell for confidence blank
- If an original estimate is **not** a published ACS estimate from American FactFinder:
    + Confidence for the original estimate' MOE
    + Leave the cell for year of data blank

CONDITIONS
- The numerator is not part of the denominator.

ENTERING INPUT DATA -- *The following are suggestions:*
- Paste as Values if numbers are copied and pasted.
- To delete any input data for another use, either use the **Delete** key or select **Edit** from the menu
    Clear. Do not use the space bar for deleting the content of any cell for input data.
- Adjust cells, columns, and/or rows to increase the readability of both input and output.

ANALYSIS

DATA INPUT
- Desired confidence level for the % difference:
- Original estimates and related information:

	Description	Estimate	MOE
Numerator			
Denominator			

RESULTS

	Description	%Diff	MOE

ates

otherwise

and then click

Confidence level; blank if published ACS estimate	Year of data if published ACS; blank otherwise

	Confidence Interval		
Relative Reliability	Lower Bound	Upper Bound	Standard Error

Ratio of Two Estimates

INTRODUCTION

USAGE
- To derive the ratio of two estimates that already have an MOE.

- Ratio = $\dfrac{\textbf{Numerator}}{\textbf{Denominator}}$

- To derive the MOE, relative reliability, and confidence interval of the ratio.

DATA NEEDS
- Desired confidence for the ratio's MOE.
- The original estimates.
- MOE for each original estimate.
- If an original estimate is a **published ACS** estimate from American FactFinder:
  + Year of data for the original estimate (actual year for single-years; 2006 for multiyears)
  + Leave the cell for confidence blank
- If an original estimate is **not** a published ACS estimate from American FactFinder:
  + Confidence for the original estimate' MOE
  + Leave the cell for year of data blank

CONDITIONS
- The numerator is not part of the denominator.
- Use sub-function **C11 - Percentage** instead if the numerator is part of the denominator.

ENTERING INPUT DATA -- *The following are suggestions:*
- Paste as Values if numbers are copied and pasted.
- To delete any input data for another use, either use the **Delete** key or select **Edit** from the click **Clear**. Do not use the space bar for deleting the content of any cell for input data.
- Adjust cells, columns, and/or rows to increase the readability of both input and output.

ANALYSIS

DATA INPUT
- Desired confidence level for the ratio: [ ]
- Original estimates and related information:

	Description	Estimate	MOE
Numerator			
Denominator			

RESULTS

	Description	Ratio	MOE

; blank otherwise

menu and then

Confidence; blank if published ACS	Year of data if published ACS; blank otherwise

	Confidence Interval		
Relative	Lower	Upper	Standard

Reliability	Bound	Bound	Error	

Percentage Derived from Two Estimates

INTRODUCTION

USAGE
- To derive the percentage from two estimates that already have an MOE.
- Percentage $= 100 * \dfrac{\textbf{Numerator}}{\textbf{Denominator}}$
- To derive the MOE, relative reliability, and confidence interval of the percentage.

DATA NEEDS
- Desired confidence for the percentage's MOE.
- The original estimates.
- MOE for each original estimate.
- If an original estimate is a **published ACS** estimate from American FactFinder:
    + Year of data for the original estimate (actual year for single-years; 2006 for multiyears); blank ot
    + Leave the cell for confidence blank
- If an original estimate is **not** a published ACS estimate from American FactFinder:
    + Confidence for the original estimate' MOE
    + Leave the cell for year of data blank

CONDITIONS
- The numerator is part of the denominator.
- Applicable to estimates of both frequencies and totals.

ENTERING INPUT DATA -- *The following are suggestions:*
- Paste as Values if numbers are copied and pasted.
- To delete any input data for another use, either use the **Delete** key or select **Edit** from the menu and
  Clear. Do not use the space bar for deleting the content of any cell for input data.
- Adjust cells, columns, and/or rows to increase the readability of both input and output.

ANALYSIS

DATA INPUT
- Desired confidence level for the percentage:
- Original estimates and related information:

	Description	Estimate	MOE
Numerator			
Denominator			

RESULTS

	Description	Percentage	MOE

herwise

d then click

Confidence; blank if published ACS	Year of data if published ACS; blank otherwise

	Confidence Interval		
Relative	Lower	Upper	Standard

Reliability	Bound	Bound	Error	

Product of Two Estimates

INTRODUCTION

<u>USAGE</u>
- To derive the product of two original estimates that already have an MOE.
- Product = **Estimate 1** * **Estimate 2**.
- To derive the MOE, relative reliability, and confidence interval of the product.

<u>DATA NEEDS</u>
- Desired confidence for the product's MOE.
- The original estimates.
- MOE for each original estimate.
- If an original estimate is a **published ACS** estimate from American FactFinder:
    + Year of data for the original estimate (actual year for single-years; 2006 for multiyears); blank othe
    + Leave the cell for confidence blank
- If an original estimate is **not** a published ACS estimate from American FactFinder:
    + Confidence for the original estimate' MOE
    + Leave the cell for year of data blank

<u>ENTERING INPUT DATA</u> -- *The following are suggestions:*
- Paste as Values if numbers are copied and pasted.
- To delete any input data for another use, either use the **Delete** key or select **Edit** from the menu and th
  Do not use the space bar for deleting the content of any cell for input data.
- Adjust cells, columns, and/or rows to increase the readability of both input and output.

ANALYSIS

<u>DATA INPUT</u>
- Desired confidence level for the difference:
- Original estimates and related information:

	Description	Estimate	MOE
Estimate 1			
Estimate 2			

<u>RESULTS</u>

Description	Product	MOE

rwise

hen click **Clear**.

Confidence; blank if published ACS	Year of data if published ACS; blank otherwise

	Confidence Interval		
Relative Reliability	Lower Bound	Upper Bound	Standard Error

Comparison of Two ACS Estimates

INTRODUCTION

USAGE
- To determine if the difference between each of up to 200 pairs of ACS estimates is statistically sign

DATA NEEDS
- Desired confidence for comparison of all pairs in **E60**. Enter 95 rather than 0.95 for 95%.
- The estimates and their MOE for each pair of estimates to be compared.
    + The estimates in columns E and H
    + The MOE in columns F and I
    + The confidence in columns G and J
- Enter 90% as the confidence for estimates from American FactFinder or CTPP.

CONDITIONS
- *Two ACS Estimates within a Period*
    + The two areas being compared do not overlap. That is, they do not share a common area.
    + The two population groups do not overlap. That is, they do not include a common group.
- *Two ACS Estimates across Periods*
    + Avoid comparing a single-year period with a multi-year period (e.g., one-year vs. three-year).
    + Avoid comparing two multi-year periods of different lengths (e.g., three-year vs. five-year).
    + Avoid comparing one pre-2006 and one post-2006 (inclusive of 2006) periods for an area with
    + Avoid comparing two multi-year periods that overlap (e.g., 2005-2009 vs. 2006-2010).
- *Use a higher confidence level for the comparison*
    + If more than one comparison is to be made, or
    + If the impact of an incorrect conclusion is substantial

EXAMPLE

DESIRED CONFIDENCE LEVEL

	95%

OTHER INPUT AND RESULTS

#	Description	OTHER INPUTS Estimate 1 (desc 20 Estimates
1	Total:	157,077
2	Car, truck, or van:	123,089
3	Drove alone	109,364
4	Carpooled:	13,725
5	In 2-person carpool	10,102

6	In 3-person carpool	2,091
7	In 4-or-more-person carpool	1,532
8	Public transportation (excluding taxicab)	19,315
9	Bicycle	710
10	Walked	6,163
11	Taxicab, motorcycle, or other means	1,501
12	Worked at home	6,299

INPUT AND RESULTS

DESIRED CONFIDENCE LEVEL

OTHER INPUT AND RESULTS

		OTHER INPUTS
		Estimate 1 (desc
#	Description	Estimates
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ificant at a user-desired significance level.

a substantial group quarters population.

cription below if desired)			Estimate 2 (description below if desired)			Results
008 ACS			2006 ACS			
	MOE	Confidence	Estimates	MOE	Confidence	Is the Difference Statistically Significant?
	8,333	90%	153,953	8,081	90%	No
	7,548	90%	125,086	6,956	90%	No
	6,801	90%	110,063	6,203	90%	No
	2,300	90%	15,023	3,004	90%	No
	1,805	90%	11,589	2,402	90%	No

963	90%	803	505	90%	No
1,151	90%	2,631	1,885	90%	No
2,823	90%	18,728	3,064	90%	No
557	90%	445	366	90%	No
1,461	90%	3,870	1,121	90%	Yes
986	90%	3,055	1,018	90%	No
1,423	90%	2,769	870	90%	Yes

...cription below if desired)		Estimate 2 (description below if desired)			Results
MOE	Confidence	Estimates	MOE	Confidence	Is the Difference Statistically Different?
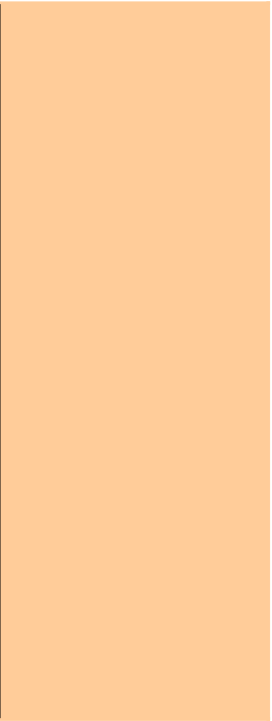
One ACS Estimate and One 2000 Estimate
Using Actual MOE for the 2000 Estimate

INTRODUCTION

<u>USAGE</u>
- To determine if the difference between an ACS estimate and a Census 2000 estimate is statisticall

<u>DATA NEEDS</u>
- Desired confidence for comparison in cell **E62**. Enter 95 rather than 0.95 for 95%.
- For the ACS estimate:
  + The estimate in column E
  + The MOE in column F
  + The confidence in column G. Enter 90% for estimates from American FactFinder or CTPP.
- For the Census 2000 estimate:
  + The estimate in column H
  + MOE in column I
  + Confidence in column J.

<u>CONDITIONS</u>
- *Avoid comparing estimates that may be affected by these differences:*
  + Residence rule (usual residence for Census 2000 but two-month residence for the ACS)
  + Reference period (prior calendar year for Census 2000 but prior 12 months for the ACS for inc
  + Seasonable variation (April 1 for Census 2000 but continuous for the ACS)
- *The two estimates may be from any of the following sources:*
  + Published at American FactFinder
  + Available from the CTPP
  + Derived within this template
  + Derived from a PUMS
  + Derived in any other way
- *Use a higher confidence level for the comparison*
  + If more than one comparison is to be made, or
  + If the impact of an incorrect conclusion is substantial

EXAMPLE

<u>QUESTION</u>
- Does a difference truly exist (95% confidence) in the percent of workers who usually commute to w
  and 2008 (ACS) for Miami City, FL?

  The 2008 ACS reports that 12.3 percent (90% MOE = 0.9) of the workers 16 years or older in Mian
  2008. The Census 2000 Summary File 3 reports 126,539 workers 16 years or older in 2000 and 14
  (excluding taxi), implying that 11.1 percent of the workers commuted to work by public transportatio

To determine the actual 90% MOE for the Census 2000 estimate, additional information is used. T
of the total population was in the long-form sample. The design factor for Florida at this sampling r
Using sub-function **B06 - Percentage**, the actual 90% MOE for the Census 2000 estimate is deter

DESIRED CONFIDENCE LEVEL | 95%

OTHER INPUT AND RESULTS

		OTHER INPUT	
		ACS Estimate (description belc	
		2008 1-Year	
#	Description	Estimates	MOE
1	% workers commuting by public transportation	12.3	0.90

INPUT AND RESULTS

DESIRED CONFIDENCE LEVEL |

OTHER INPUT AND RESULTS

		OTHER INPUT	
		ACS Estimate (description belc	
#	Description	Estimates	MOE
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y significant at a user-specified confidence for up to 200 pairs.

come and school attendance)

vork by public transportation (excluding taxi) between 2000 (Census)

ni City, FL commuted to work by public transportation (excluding taxi) in
4,087 among them commuted to work by public transportation
on.

The base of the percentage is 126,539 in 2000. A total of 12.0 percent
rate is 1.4 for estimates related to means of transportation to work.
mined to be 0.45.

ow if desired)	2000 Estimate (description below if desired)			RESULTS
	Summary File 3			
Confidence	Estimates	MOE	Confidence	Is the Difference Statistically Significant?
90%	11.1	0.45	90%	Yes

ow if desired)	2000 Estimate (description below if desired)			RESULTS
Confidence	Estimates	MOE	Confidence	Is the Difference Statistically Significant?

One ACS Estimate and One 2

Using the ACS MOE for the 200

INTRODUCTION:

USAGE

- To determine if the difference between an ACS estimate and a Census 2000 estimate is stati
  an MOE for the 2000 estimate.

DATA NEEDS

- Desired confidence for comparison in cell **E72**. Enter 95 rather than 0.95 for 95%.
- For the ACS estimate:
  + The estimate in column E
  + The MOE in column F
  + The confidence in column G. Enter 90% for estimates from American Fact Finder or CT
- For the Census 2000 estimate, enter the estimate in column H.

CONDITIONS

- *The ACS estimates must not be obtained through population controls.*
- *Avoid comparing estimates that may be affected by these differences:*
  + Residence rule (usual residence for Census 2000 but two-month residence for the ACS)
  + Reference period (prior calendar year for Census 2000 but prior 12 months for the ACS
  + Seasonable variation (April 1 for Census 2000 but continuous for the ACS)
- *MOE for the Census 2000 estimate*
  + If the difference between two estimates is fount to be statistically significant, the result is
  + If the difference between two estimates is found not to be statistically significant, the resu
  + If the user still wants to compare the two estimates when this worksheet finds their differ
    Census 2000 estimate and use **D14 - ACS&2000 Actual**.
- *The two estimates may be from any of the following sources:*
  + Published at American Fact Finder
  + Available from the CTPP
  + Derived within this template
  + Derived from a PUMS
  + Derived in any other way
- *Use a higher confidence level for the comparison*
  + If more than one comparison is to be made, or
  + If the impact of an incorrect conclusion is substantial

ASSUMPTION

- *The MOE for the 2000 estimate is smaller than that for the ACS estimate.*
- *This is true for almost all cases. But there are a few exceptions.*
- *Use D14 - ACS&2000 Actual if the use wants to be sure.*

EXAMPLE:

QUESTION

- For Miami City, Florida, is the difference in the percent of workers who commute to work by p
2008 (ACS) statistically different at the 95% confidence level?

The 2008 ACS reports that 12.3 percent (90% MOE = 0.9) of the workers 16 years or older in
2008. The Census 2000 Summary File 3 reports 126,539 workers 16 years or older in 2000
(excluding taxi), implying that 11.1 percent of the workers commuted to work by public transp

DESIRED CONFIDENCE LEVEL | 95% |

OTHER INPUT AND RESULTS

		OTHER INPUT	
		ACS
		2008
#	Descriptions	Estimates
1	Drove alone	70.1
2	Carpooled	9.3
3	Public transportation (excluding taxicab)	12.2
4	Walked	3.5

To determine the actual 90% MOE for the Census 2000 estimate, additional information is us
percent of the total population was in the long-form sample. The design factor for Florida at t
work. Using sub-function **B05 - Percentage**, the actual 90% MOE for the Census 2000 estim
comparison.

INPUT AND RESULTS

DESIRED CONFIDENCE LEVEL | |

OTHER INPUT AND RESULTS

		OTHER INPUT	
		ACS
#	Description	Estimates
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2000 Estimate

) Estimate

stically significant at a user-specified confidence for up to 200 pairs without

PP.

for income and school attendance)

valid.
ult from this worksheet could be incorrect.
ence not to be statistically significant, the user must provide the actual MOE for the

ublic transportation (excluding taxi) between 2000 (Census long form) and

Miami City, FL commuted to work by public transportation (excluding taxi) in
and 14,087 among them commuted to work by public transportation
ortation.

		Estimate		2000 Estimate	RESULTS
		8 1-Year		Summary File 3	
	MOE	Confidence		Estimates	Is the Difference Statistically Significant?
	1.5	90%		66.0	Yes
	0.9	90%		16.7	Yes
	1.0	90%		11.4	Inconclusive
	0.5	90%		3.8	Inconclusive

sed. The base of the percentage is 126,539 workers in 2000. A total of 12.0
his sampling rate is 1.4 for estimates related to means of transportation to
nate is determined to be 0.45. Use **D14 - ACS&2000 Actual** for further

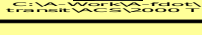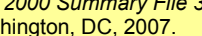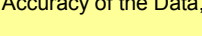|		Estimate		2000 Estimate	RESULTS
	MOE	Confidence		Estimates	Is the Difference Statistically Significantly?

Design-Factor Tables for Census 2000

This worksheet contains PDF files of design factors for the United States and individual states. They are required to determine the accuracy measures for estimates using data from the Census 2000 Long-Form Survey. These estimates include both published Census 2000 estimates and user-derived estimates from a 2000 PUMS. The following four sub-functions require these design factors when Census 2000 data are used:

- **B03 - Average**
- **B04 - Median**
- **B05 - Frequency**
- **B06 - Percentage**

Geography	Design Factor Table	Geography	Design Factor Table
United States		Missouri	
Alabama		Montana	
Alaska		Nebraska	
Arizona		Nevada	
Arkansas		New Hampshire	
California		New Jersey	
Colorado		New Mexico	
Connecticut		New York	
Delaware		North Carolina	
District of Columbia		North Dakota	
Florida		Ohio	
Georgia		Oklahoma	
Hawaii		Oregon	
Idaho		Pennsylvania	
Illinois		Rhode Island	
Indiana		South Carolina	
Iowa		South Dakota	
Kansas		Tennessee	
Kentucky		Texas	
Louisiana		Utah	
Maine		Vermont	
Maryland		Virginia	
Massachusetts		Washington	
Michigan		West Virginia	
Minnesota		Wisconsin	
Mississippi		Wyoming	