

How to Access and Use Limited English Proficiency (LEP) * Poverty Data

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Downloads

Email: Frances.Burden@usdoj.gov to receive the following 3 documents from this presentation:

- A. PowerPoint presentation
- B. Excel spreadsheet:
 - (1) Original Data
 - (2) Working Data
 - (3) Summary Table
 - (4) Standard Errors & Coefficients of Variation
- C. Word document summarizing steps (cheat sheet)

Overview of Presentation

- (1) Discussion of ACS and PUMS data
- (2) Accessing LEP information
- (3) Accessing LEP * Poverty information
- (4) Using Excel to manipulate the LEP * Poverty
- (5) Summarizing LEP * Poverty information
- (6) Further considerations

Part 1: Discussion of ACS and PUMS Census Data

US Census Data: Overview

Decennial Census: Two Parts

1. A set of questions administered to all housing units.
 - Count the population
 - Gather basic demographic information (e.g., age, sex, race of US population)
2. An additional set of questions administered to a sample of housing units.
 - More detailed demographic, housing, social and economic information
 - Known as the “long form”
 - This is where we find data on income level, language ability, employment, etc...
 - Also known as the American Community Survey (ACS)

US Census Data: ACS

In 2005, the Census Bureau launched yearly 1% estimates of the American Community Survey (ACS).

- The ACS replaces the long form
- ACS is now collected continuously from a national sample of housing units.
- Time Periods Available:
 - 1-year estimates
 - 3-year estimates
 - 5-year estimates

US Census Data: Pros

ACS estimates are helpful:

- Rolling data collection means that data is more timely.
 - Ex: We no longer need to use 1990 data to describe populations in 1999.
- Longitudinal data is easily accessible for certain geographic areas.
 - E.g., National, state, congressional districts.
- We can look at crosstabs between two variables.
 - With pre-2005 census data we used to know how many LEP populations existed and how many individuals who were above/below the Federal Poverty Line existed.
 - Unless Census cut the data, we did not know the intersection of these two variables.
 - With PUMS, we know download a dataset and can see the intersection of these two variables.
- But we can only examine this intersection using a lengthier process...

US Census Data: Precautions

- Census has recommended that users should not compare 1-year data with 3- or 5-year data.
 - So, if you wanted to compare a large city with 65,000 people to a small city with less than 20,000 people even though the large city estimates has 1-, 3-, and 5-year estimates you would need to select the 5-year estimate to be comparable with the smaller city.
- Need to balance **precision** with **currency**:
 - Precision
 - Generally, the larger the sample then the lower the margin of error.
 - For rare populations, the use of larger samples is highly recommended.
 - Currency of estimates
 - If we want to know about current LEP populations use most recent estimate possible.

US Census Data: Precautions

- Moving Averages Make It Difficult to Compare Variables Over Time
 - Thus, overlapping 5-year estimates should not be compared
 - Ex: Comparing 2008-2012 and 2009-2013 ACS estimates of LEP populations contains 4 overlapping years (i.e., 2009, 2010, 2011, and 2012). This means only 20% of the estimate is new!
 - For 3-year estimates only 33% of the estimate is new.
- Even 1-yr estimates are collected every month, so certain new populations may be underrepresented.
 - Ex: Refugee populations that arrive mid-year will only be counted for those 6 months by the surveys which are deployed monthly.
- Tough to compare ACS data to decennial census long form data.

Part 2: Accessing Census Data on LEP Residents

Using the U.S. Census: American Fact Finder

So, I want to know how many LEP individuals live in the United States.

(1) Identify a research question.

- How many LEP individuals live in the US?

(2) Go to American Fact Finder

- www.factfinder.census.gov

(3) Select *Advanced Search*



The screenshot shows a web browser window with the URL <http://factfinder.census.gov/faces/nav/jsf/page>. The browser tabs include "American FactFinder", "American FactFinder - Results", and "TheDataWeb - Da". The page header features the "United States Census Bureau" logo and the "AMERICAN FactFinder" title with a magnifying glass icon over a map of the United States. The navigation menu includes "MAIN", "COMMUNITY FACTS", "GUIDED SEARCH", "ADVANCED SEARCH", and "DOWNLOAD CENTER". A blue information banner at the top right states: "A preview version of the U.S. Census Bureau's newly designed website for the American Community Survey (ACS) is now available." The main content area has a dropdown menu for "Community Facts" with a description: "Find popular facts (population, income, etc.) and frequently requested data about your community." Below this is a search input field containing "e.g., Atlanta, GA" and a "GO" button. The navigation menu items are: "Guided Search", "Advanced Search", and "Download Center". A photograph of a smiling young woman is visible on the right side of the page.

U.S. Department of Commerce
United States[™]
Census
Bureau

AMERICAN
FactFinder

MISSOURI KANSAS KENTUCKY VIRGINIA VIRG
NORTH

MAIN COMMUNITY FACTS GUIDED SEARCH **ADVANCED SEARCH** DOWNLOAD CENTER

i A [preview version](#) of the U.S. Census Bureau's newly designed website for the American Community Survey (ACS) is now available.

▼ **Community Facts**
Find popular facts (population, income, etc.) and frequently requested data about your community.
Enter a state, county, city, town, or zip code:

▶ **Guided Search**

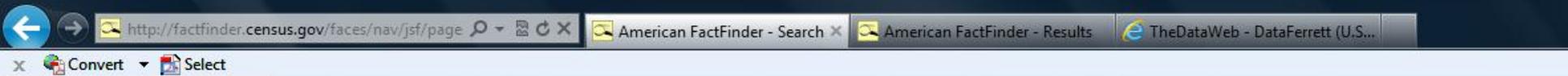
▶ **Advanced Search**

▶ **Download Center**

(4) Select *Show Me All*

The screenshot shows the American FactFinder website interface. At the top, there is a navigation bar with the United States Census Bureau logo and the text 'AMERICAN FactFinder'. Below this is a menu with options: MAIN, COMMUNITY FACTS, GUIDED SEARCH, ADVANCED SEARCH, and DOWNLOAD CENTER. A notification banner below the menu states: 'A preview version of the U.S. Census Bureau's newly designed website for the American Community Survey (ACS) is now available.' The main content area features a list of search options: Community Facts, Guided Search, **Advanced Search** (highlighted with a red dashed box), and Download Center. Below the 'Advanced Search' option is a 'SHOW ME ALL' button. On the right side of the page, there is a large graphic showing a hand interacting with a digital interface, with a world map and data points visible.

(5) Select *Topics* tab



Search - Use the options on the left (topics, geographies, ...) to narrow your search results

Your Selections

'Your Selections' is empty

[load search](#) | [save search](#)

Search using the options below:

Topics

(age, income, year, dataset, ...)

Geographies

(states, counties, places, ...)

Race and Ethnic Groups

(race, ancestry, tribe)

Industry Codes

(NAICS industry, ...)

EEO Occupation Codes

(executives, analysts, ...)

To search for tables and other files in American FactFinder:

1

Enter search terms and an optional geography and click GO

topic or table name state, county or place (optional)

topics race/ancestry industries occupations

-- or --

Select from [Topics](#), [Race and Ethnic Groups](#), [Industry Codes](#), [EEO Occupation Codes](#).

- these are added to 'Your Selections'
- the Search Results are updated

2

Next, select [Geographies](#) (states, counties, cities, towns, etc.)

- these are added to 'Your Selections'
- the Search Results are updated

3

Select one or more Search Results and click [View](#)

(6) Select *English Usage & Language Spoken at Home*

The screenshot shows the American FactFinder website interface. At the top, there is a navigation bar with the United States Census Bureau logo and the 'AMERICAN FactFinder' title. Below this is a search bar and a navigation menu with options: MAIN, COMMUNITY FACTS, GUIDED SEARCH, **ADVANCED SEARCH**, and DOWNLOAD CENTER. A search instruction reads: "Search - Use the options on the left (topics, geographies, ...) to narrow your search results".

On the left side, there is a 'Your Selections' box which is currently empty. Below it, a search instruction says: "To search for tables and other files in American FactFinder: Enter search terms and an optional geography and click GO".

The main content area features a 'Select Topics' dialog box. The dialog box title is "Select Topics to add to 'Your Selections'". It contains a list of topic categories with expandable sub-items:

- People
 - Basic Count/Estimate
 - Age & Sex
 - Age Group
 - Disability
 - Education
 - Employment
 - Income & Earnings
 - Insurance Coverage
 - Language
 - English Usage (1,217)
 - Language Spoken at Home (1,826)
 - Marital & Fertility Status
 - Origins
 - Population Change
 - Poverty
 - Relationship
 - Veterans
- Housing

Other visible elements include a 'Geographies' dropdown menu, and a search input field with a 'GO' button. The background shows a map of the United States with a magnifying glass over the state of Kansas.

(7) Identify your table: *B16002*

The screenshot shows the American FactFinder website interface. The browser address bar displays the URL: <http://factfinder.census.gov/faces/nav/jsf/page>. The page header includes the U.S. Department of Commerce logo and the American FactFinder title. The navigation menu contains links for MAIN, COMMUNITY FACTS, GUIDED SEARCH, **ADVANCED SEARCH**, and DOWNLOAD CENTER. A search instruction reads: "Search - Use the options on the left (topics, geographies, ...) to narrow your search results".

Your Selections

Search using...
People: Language: English Usage
Language Spoken at Home

clear all selections and start a new search

load search | save search

Search using the options below:

- Topics (age, income, year, dataset, ...)
- Geographies (states, counties, places, ...)
- Race and Ethnic Groups (race, ancestry, tribe)
- Industry Codes (NAICS industry, ...)
- EEO Occupation Codes (executives, analysts, ...)

Search Results: 1-25 of 856 tables and other products match 'Your Selections'

Refine your search results: topic or table name state, county or place (optional)

topics race/ancestry industries occupations

Selected:

Show results from:

ID	Table, File or Document Title
<input type="checkbox"/> S1602	LIMITED ENGLISH SPEAKING HOUSEHOLDS
<input type="checkbox"/> S1602	LIMITED ENGLISH SPEAKING HOUSEHOLDS
<input type="checkbox"/> S1602	LIMITED ENGLISH SPEAKING HOUSEHOLDS
<input type="checkbox"/> B06007	PLACE OF BIRTH BY LANGUAGE SPOKEN AT HOME AND ABILITY TO SPEAK ENGLISH IN THE UNITED STATES
<input type="checkbox"/> B06007	PLACE OF BIRTH BY LANGUAGE SPOKEN AT HOME AND ABILITY TO SPEAK ENGLISH IN THE UNITED STATES
<input type="checkbox"/> B06007	PLACE OF BIRTH BY LANGUAGE SPOKEN AT HOME AND ABILITY TO SPEAK ENGLISH IN THE UNITED STATES
<input type="checkbox"/> B06007PR	PLACE OF BIRTH BY LANGUAGE SPOKEN AT HOME AND ABILITY TO SPEAK ENGLISH IN PUERTO RICO

(8) Examine the Dataset



This table is displayed with default geographies. [?](#)
Click Back to Search to select other geographies using the search options on the left.

[View Geograph](#)

Although the American Community Survey (ACS) produces population, demographic and housing unit estimates, it is the Census Bureau's Population Estimates Program that produces 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:

2013 ▶
2012
2011
2010
2009

		United States	
		Estimate	Margin of Error
119 of 119	Total:	291,484,482	+/-3,346
	Speak only English	231,122,908	+/-108,816
	Spanish or Spanish Creole:	37,458,624	+/-64,494
	Speak English "very well"	21,114,151	+/-43,392
	Speak English less than "very well"	16,344,473	+/-40,610
	French (incl. Patois, Cajun):	1,307,742	+/-10,490
	Speak English "very well"	1,041,622	+/-8,821
	Speak English less than "very well"	266,120	+/-4,546
	French Creole:	739,725	+/-11,244
	Speak English "very well"	416,036	+/-8,187
	Speak English less than "very well"	323,689	+/-6,652
	Italian:	708,966	+/-7,910
	Speak English "very well"	517,242	+/-6,402
	Speak English less than "very well"	191,724	+/-3,380
	Portuguese or Portuguese Creole:	693,469	+/-9,721
	Speak English "very well"	423,664	+/-6,626
	Speak English less than "very well"	269,805	+/-5,692
	German:	1,063,773	+/-9,107
	Speak English "very well"	889,015	+/-8,092
	Speak English less than "very well"	174,758	+/-2,680

So, we know the number of LEP residents in the United States (or any geographic area of interest).

But, we do not know how many LEP residents are below the poverty line.

How do we obtain this data?

Part 3: Accessing Census Data on LEP Residents Above & Below the Federal Poverty Line

Part 2: Examine the # of LEP residents & the # of FPL

Variables	#
English Speakers	#
Limited English Proficiency Individuals	#
At or below the poverty level	#
Above the poverty level	#

Part 3: We want to know the # of LEP residents who are above/below the FPL

	English Speaker	Limited English Proficiency
At or below the poverty level	#	#
Above the poverty level	#	#

US Census Data: ACS

ACS is a sample of US residents, so we can identify the intersection of LEP * Poverty

- Let's say that we know that Joe is LEP & above the FPL.
- US Census gives us a weight which we lets us know how many Joes there are in the U.S.
- We can then sum the information for this sample of people and identify how many individuals are in each of the 4 cells.
- We use Data Ferrett to access this data.

	English Speaker	Limited English Proficiency
At or below the poverty level	#	#
Above the poverty level	#	#

(1) Dataferrett.census.gov

The screenshot shows a web browser window with the address bar displaying "dataferrett.census.gov". The page header includes the United States Census Bureau logo and a navigation menu with categories: Topics (Population, Economy), Geography (Maps, Data, Resources), Library (Infographics, Publications), Data (Tools, Developers), About the Bureau (Research, Surveys), and Newsroom (News, Events, Blogs). A search bar is located in the top right corner. The main content area is titled "TheDataWeb" and features a navigation bar with links for Home, About Us, Products/Services, Collaboration, and Contact Us. The "DataFerrett" section provides a description of the tool and a list of prerequisites for getting started, accompanied by a cartoon cat illustration. A sidebar on the right contains a "DATA FERRETT" logo and a list of links: DataFerrett Home, Getting Started, About the Datasets, User Resources, FAQs, and a "Launch DataFerrett" button with a refresh icon. At the bottom, there are sections for "Support" (Call Us Toll Free), "betaDataFerrett" (Latest enhancements and features highlights), and "In the News" (RELEASED:).

U.S. Department of Commerce | Blogs | Index A-Z | Glossary | FAQs

United States Census Bureau

Topics
Population, Economy

Geography
Maps, Data, Resources

Library
Infographics, Publications

Data
Tools, Developers

About the Bureau
Research, Surveys

Newsroom
News, Events, Blogs

TheDataWeb

Home About Us Products/Services Collaboration Contact Us

DataFerrett

DataFerrett is a data analysis and extraction tool to customize federal, state, and local data to suit your requirements. Using DataFerrett, you can develop an unlimited array of customized spreadsheets that are as versatile and complex as your usage demands then turn those spreadsheets into graphs and maps without any additional software.

What you should check before getting started:

- ✓ Java Installed: [Check your version](#) or [Download the latest version](#)
- ✓ Allow Pop-ups
- ✓ Run in IE/Firefox



DATA FERRETT

DataFerrett Home

Getting Started

About the Datasets

User Resources

FAQs

 Launch DataFerrett

Support

 Call Us Toll Free:

betaDataFerrett

[Latest enhancements and features highlights:](#)

In the News

 RELEASED:

dataferrett.census.gov

It looks like you haven't started Firefox in a while. Do you want to clean it up for a fresh, like-new experience? And by the way, welcome back!

Refresh Firefox

(2) Click *Launch DataFerrett* & Run

The screenshot shows a web browser window with the URL `dataferrett.census.gov`. The page header includes the United States Census Bureau logo and navigation links for Topics, Geography, Library, Data, About the Bureau, and Newsroom. A search bar is located in the top right. The main content area features a navigation bar with links for Home, About Us, Products/Services, Collaboration, and Contact Us. The 'DataFerrett' section contains a description of the tool, a list of prerequisites for getting started, and a 'Launch DataFerrett' button. The prerequisites include checking Java version, allowing pop-ups, and running in IE/Firefox. A small illustration of a ferret is also present. The footer includes a support section with a toll-free number, a betaDataFerrett section with a link to latest enhancements, and an 'In the News' section with a 'RELEASED' notice.

United States Census Bureau

U.S. Department of Commerce | Blogs | Index A-Z | Glossary | FAQs

Search

Topics: Population, Economy | Geography: Maps, Data, Resources | Library: Infographics, Publications | Data: Tools, Developers | About the Bureau: Research, Surveys | Newsroom: News, Events, Blogs

TheDataWeb

Home | About Us | Products/Services | Collaboration | Contact Us

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DATAFERRETT

- DataFerrett Home
- Getting Started
- About the Datasets
- User Resources
- FAQs
-  Launch DataFerrett

Support Call Us Toll Free:

betaDataFerrett [Latest enhancements and features highlights:](#)

In the News  **RELEASED:**

dataferrett.census.gov

It looks like you haven't started Firefox in a while. Do you want to clean it up for a fresh, like-new experience? And by the way, welcome back!

Refresh Firefox...

9:46 PM

(3) Enter your email address & OK

The screenshot shows the DataFerrett application window. The title bar reads "DataFerrett". The menu bar includes "File", "Edit", "View", "Options", "Special", and "Help". Below the menu bar are icons for file operations and a progress indicator with two steps: "Step1: Select Dataset & Variable" and "Step2: DataBasket/Download/Make A Table". The main content area features a blue header with the text "data: (da • ta) n. A collection of facts from which conclusions may be drawn" and a circular image of a ferret wearing a hat and looking through a magnifying glass. To the right of the image, the text "DataFerrett Browser to TheDataWeb" is displayed. Below this are several navigation buttons: "Tutorials", "Examples", "Users' Guide", "Kinds of Datasets", and "Datasets Available". On the left side, there are buttons for "About TheDataWeb", "Download Server", and "Discussion Group". A "Get Data Now" button is located at the bottom right. A "Ferrett Login" dialog box is open in the foreground, containing the "DataFerrett" logo, a ferret image, and a form with the following fields: "Email address: frances.f.burden@gmail.com" and a checked checkbox for "public use data only". Below the form is a paragraph of text explaining the use of the email address, and "Ok" and "Cancel" buttons.

DataFerrett
Browser to TheDataWeb

Tutorials
Brand new to using DataFerrett ...

Examples
Sample Analysis and instruction ...

Users' Guide
Handbook on all DataFerrett functionality ...

Kinds of Datasets
Overview different Data Set types and how they behave ...

Datasets Available
Datasets and topics that are available ...

About TheDataWeb
A collaborative network of Internet data bases ...

Download Server
Adding/Publishing your data to TheDataWeb ...

Discussion Group
Information sharing with other users ...

Ferrett Login

DataFerrett

Email address: frances.f.burden@gmail.com

public use data only

The email address is used to send large extracts via email, and to inform users of new datasets available if desired. It is NOT used for any other purpose or shared with any organization.

Ok Cancel

Get Data Now

(4) Click *Get Data Now*

DataFerrett
Browser to TheDataWeb

data: (da • ta) n. A collection of facts from which conclusions may be drawn

ferret: (fer' • it) v. To uncover and to bring to light by searching; to search intensively

Tutorials
Brand new to using DataFerrett ...

Examples
Sample Analysis and instruction ...

Users' Guide
Handbook on all DataFerrett functionality ...

Kinds of Datasets
Overview different Data Set types and how they behave ...

Datasets Available
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Get Data Now

(5) Select 5-Year Estimates - PUMS

DataFerrett

File Edit View Options Special Help

Introduction Step1: Select Dataset & Variable Step2: DataBasket/Download/Make A Table

Select Data Types:

- MicroData
- Aggregate Data
- Longitudinal Data
- Time Series Data

Refresh Dataset List

Microdata is data in which every record is at the unit of analysis level and all records must be added up to get the totals for each data item. For example, for surveys of individuals, microdata contain records for each individual interviewed; for surveys of organizations, the microdata contain records for each organization.

Select Dataset(s) to search:

- Search All Datasets
 - American Community Survey
 - 3-Year Estimates - Public Use Microdata Sample
 - 3-Year Estimates - Puerto Rico PUMS
 - 5-Year Estimates - Public Use Microdata Sample
 - 2009-2013
 - 2008-2012
 - 2007-2011
 - 2006-2010
 - 2005-2009
 - 5-Year Estimates - Puerto Rico PUMS
 - Public Use Microdata Sample
 - Puerto Rico Public Use Microdata Sample
 - Summarized Data
 - American Housing Survey
 - Common Core of Data(Education)
 - Consumer Expenditure Survey
 - County Business Patterns
 - Current Population Survey
 - Decennial Census of Population and Housing
 - Decennial Public Use Microdata Samples
 - Home Mortgage Disclosure Act
 - Mortality
 - National Ambulatory Medical Care Survey
 - National Health Interview Survey

...or PUMS Sample & *View Variables*

The screenshot shows the DataFerrett web application interface. At the top, there is a navigation bar with the following menu items: File, Edit, View, Options, Special, and Help. Below the navigation bar, there are several icons and a progress indicator showing two steps: Step 1: Select Dataset & Variable (which is currently active) and Step 2: DataBasket/Download/Make A Table.

On the left side, there is a panel titled "Select Data Types:" with four checked options: MicroData, Aggregate Data, Longitudinal Data, and Time Series Data. Below these options is a "Refresh Dataset List" button. To the right of this panel, there is a text box explaining that microdata is data in which every record is at the unit of analysis level and all records must be added up to get the totals for each data item.

The main area of the interface is titled "Select Dataset(s) to search:". It contains a search tree with the following structure:

- Search All Datasets
 - American Community Survey
 - 3-Year Estimates - Public Use Microdata Sample
 - 3-Year Estimates - Puerto Rico PUMS
 - 5-Year Estimates - Public Use Microdata Sample
 - 2009-2013
 - 2008-2012
 - 2007-2011
 - 2006-2010
 - 2005-2009
 - 5-Year Estimates - Puerto Rico PUMS
 - Public Use Microdata Sample
 - 2013 (highlighted)
 - 2012
 - 2011
 - 2010
 - 2009
 - 2008
 - 2007
 - 2006

Overlaid on the search tree is a context menu with two options: "Description" and "View Variables".

(6) Select Topics – Selectable Geographies & Population & Housing and *Search Variables*

The screenshot displays the DataFerrett web application interface. The top navigation bar includes 'File Edit View Options Special Help'. Below the navigation bar, there are tabs for 'Introduction', 'Step1: Select Dataset & Variable', and 'Step2: DataBasket/Download/Make A Table'. The main content area is divided into several sections:

- Select Data Types:** A panel on the left with checkboxes for 'MicroData', 'Aggregate Data', 'Longitudinal Data', and 'Time Series Data', all of which are checked. A 'Refresh Dataset List' button is located below these options. A text box explains that microdata is data where every record is at the unit of analysis level.
- Search Variables:** A search bar with a 'Search' button and radio buttons for 'match ANY word' (selected) and 'match ALL words'.
- Select Dataset(s) to search:** A tree view on the left showing a list of datasets. The 'American Community Survey' is expanded to show '5-Year Estimates - Public Use Microdata Sample' for the years 2004 through 2013. The year '2013' is highlighted.
- Select All Topics:** A panel on the right with a 'Select All Topics' button and checkboxes for 'Housing', 'Selectable Geographies', 'Population' (checked), 'Replicate Weights', and 'Geographic Entities'.

At the bottom right, a status bar indicates: 'Highlight the variables you are interested in' and '0 Variables returned from search. 0 variables selected in DataBasket.'

What Variables Do We Need?

- Geography
 - ST: (i.e., Nation, State, Region)
- Limited English Proficiency
 - LANX: Language other than English spoken at home
 - LNGI: Limited English speaking household
 - ENG: Ability to speak English
- Poverty
 - HINCP: Household income (past 12 months)
 - ADJINC: Adjustment factor for income
 - NP: Number of persons in household
- Weight
 - PWGTP : A weight that brings when applied brings the sample close to the true population.

(7) Add Variables to your Data Basket

Ferrett Browse Variable

Browse/Select Variables & Values

Your highlighted variables:

ACS PWGTP (2006 -) PUMS person weight

Select ALL Variables

Select ACS PWGTP PUMS person weight

PUMS person weight Variable Universe Description: ALL
Valid Range: 1 to 9,999

1 to 9999 Continuous values of PWGTP

Confirmation

?

You have added 1 variable for your DataBasket.

Name	Availability	Variable Label
PWGTP	2006 - current	PUMS person weight
AGEP	2006 - current	Age
ANC	2006 - current	Ancestry categorization
DECADE	2006 - current	Decade of entry
ies Geography	2006 - current	Geographic Items
DRIVESP	2006 - current	Number of vehicles calculated from JWRI
HISP	2006 - current	Hispanic recode
INTP	2006 - current	Interest, dividends, and net rental income past 12 months (si
JWAP	2006 - current	Time of arrival at work categorization
JWDP	2006 - current	Time of departure for work - hour and minute
JWMNP	2006 - current	Travel time to work
JWRIP	2006 - current	Vehicle occupancy
NATIVITY	2006 - current	Nativity
NOP	2006 - current	Nativity of Parent
OIP	2006 - current	All other income past 12 months
PAP	2006 - current	PUMS SSI/AFDC/other welfare income
POVPIP	2006 - current	Income-to-poverty ratio recode
SPORDER	2006 - current	Person key after swapping
QTRBIR	2006 - current	Quarter of birth
RACAIAN	2006 - current	Race includes AIAN
RACASN	2006 - current	Race includes Asian
RACBK	2006 - current	Race includes Black

(8) Select format & Click *Download*

The screenshot shows the DataFerrett web application interface. At the top, there is a navigation bar with 'File Edit View Options Special Help' and a progress indicator with 'Introduction', 'Step1: Select Dataset & Variable', and 'Step2: DataBasket/Download/Make A Table'. A message on the right says 'Review your variables then go back to select more variables or go on to get data' with a 'Download' button. Below this is a table of 'Current Query Variables from ACS (Public Use MI)'. A 'Download Data' dialog box is open in the foreground, showing options for displaying data on the screen or downloading it in various file formats (Tab Delimited, Space Delimited, Comma Delimited, SAS, SPSS, STATA) and compression methods (DOS PKZIP, GNU gzip). A 'Get Extract' button is at the bottom of the dialog.

Name	Variable Label	Availability
PWGTP	PUMS person weight	2006 - current
GEOG-101	FIPS State Code	2006 - current
ENG	English ability	2006 - current
ADJINC	Adjustment factor for income and earnings dollar amounts (6 implied decimal places)	2013 - current
LANX	Speaks another language at home	2006 - current

Download Data

Display data on the Screen

Show first 50 rows 100 rows 200 rows

Download Data (selection options below)

File Formats:

Tab Delimited (EXCEL / ACCESS) SAS (Version 8.0 or higher)

Space Delimited SPSS

Comma Delimited STATA

Compress using method: DOS (PKZIP) GNU (gzip)

Download data in batch mode?

Get Extract

Part 4: Manipulating the LEP * Poverty Data in Excel

First, open this dataset in statistical software package (Excel)

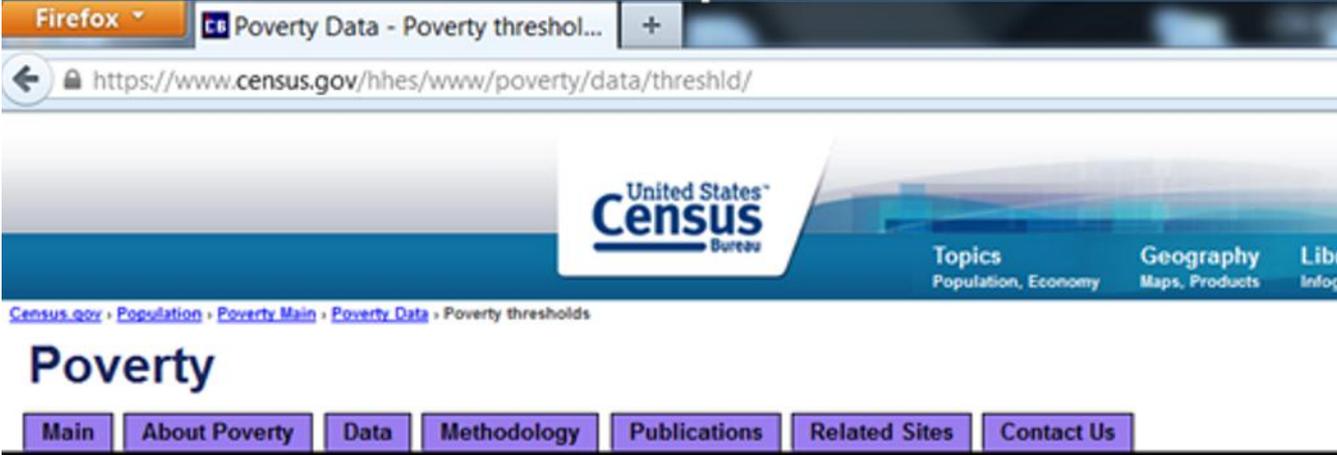
The screenshot shows the Microsoft Excel interface with the following data table:

	A	B	C	D	E	F	G	H	I
1	ST	LNGI	WGTP	NP	PWGTP	ENG	LANX	HINCP	ADJINC
2	1	1	19	3	24	1	1	35,000	1.094136
3	1	1	4	4	3	1	1	129,000	1.094136
4	1	1	10	4	11	1	1	112,400	1.094136
5	1	1	5	4	4	1	1	33,200	1.094136
6	1	1	18	4	18	1	1	149,900	1.094136
7	1	1	13	5	16	1	1	199,300	1.094136
8	1	1	24	3	31	1	1	56,000	1.094136
9	1	1	16	6	22	1	1	77,900	1.094136
10	1	1	12	4	13	1	1	71,830	1.094136
11	1	1	18	3	16	1	1	121,200	1.094136
12	1	1	14	3	26	1	1	269,900	1.094136
13	1	1	10	2	13	1	1	45,400	1.094136
14	1	1	76	4	52	1	1	124,000	1.094136
15	1	1	40	2	32	1	1	32,000	1.094136
16	1	1	5	4	1	1	1	106,300	1.094136
17	1	1	22	2	20	1	1	89,100	1.094136

Then, Get the Poverty Measures

- We need the Federal Poverty Thresholds

www.census.gov/hhes/www/poverty/data/threshld



The screenshot shows a Firefox browser window with the address bar displaying <https://www.census.gov/hhes/www/poverty/data/threshld/>. The page header features the United States Census Bureau logo and navigation links for Topics (Population, Economy), Geography (Maps, Products), and Libr. Below the header, a breadcrumb trail reads: [Census.gov](#) > [Population](#) > [Poverty Main](#) > [Poverty Data](#) > Poverty thresholds. The main heading is "Poverty", followed by a horizontal menu with buttons for Main, About Poverty, Data, Methodology, Publications, Related Sites, and Contact Us.

Poverty thresholds

Poverty thresholds by Size of Family and Number of Children

[2014](#) [XLS - 29k] [2013](#) [XLS - 36k] [2012](#) [XLS - 36k] [2011](#) [XLS - 29k] [2010](#) [XLS - 27k]
[2009](#) [2008](#) [2007](#) [2006](#) [2005](#) [2004](#) [2003](#) [2002](#) [2001](#) [2000](#)
[1999](#) [1998](#) [1997](#) [1996](#) [1995](#) [1994](#) [1993](#) [1992](#) [1991](#) [1990](#)
[1989](#) [1988](#) [1987](#) [1986](#) [1985](#) [1984](#) [1983](#) [1982](#) [1981](#) [1980](#)
[1978 Base](#)

Save and Open Excel File: *thresh14*

thresh14 [Compatibility Mode] - Microsoft Excel

Home Insert Page Layout Formulas Data Review View Acrobat

Cut Copy Paste Format Painter Clipboard Font Alignment Number Styles

Normal Bad Good Neutral Calculation Check Ce

E29

2 Poverty Thresholds for 2014 by Size of Family and Number of Related Children Under 18 Years

Size of family unit	Weighted average thresholds	Related children under 18 years									
		None	One	Two	Three	Four	Five	Six	Seven	Eight or more	
One person (unrelated individual).....	12,071										
Under 65 years.....	12,316	12,316									
65 years and over.....	11,354	11,354									
Two people.....	15,379										
Householder under 65 years.....	15,934	15,853	16,317								
Householder 65 years and over.....	14,326	14,309	16,256								
Three people.....	18,850	18,518	19,055	19,073							
Four people.....	24,230	24,418	24,817	24,008	24,091						
Five people.....	28,695	29,447	29,875	28,960	28,252	27,820					
Six people.....	32,473	33,869	34,004	33,303	32,631	31,633	31,041				
Seven people.....	36,927	38,971	39,214	38,375	37,791	36,701	35,431	34,036			
Eight people.....	40,968	43,586	43,970	43,179	42,485	41,501	40,252	38,953	38,622		
Nine people or more.....	49,021	52,430	52,685	51,984	51,396	50,430	49,101	47,899	47,601	45,768	
Source: U.S. Census Bureau.											

Steps for Manipulating Excel: Our Game Plan

- Step 1: Calculate 2014 household income
- Step 2: Create Poverty thresholds (1 to 9+ person)
- Step 3: Collapse Family measures (1 to 5+ person)
- Step 4: Sum the Poverty Data
- Step 5: Identify LEP and non-LEP populations
- Step 6: Sum the LEP Data * Poverty Data

Note for real data: First, filter it!



- Filter button: Sort & Filter ▾

- Remove HINCP anything at or under -60000
- Remove LANX=0

AE21697 : *fx*

	A	B	C	D	E	F	G	H	I	J	K	L
1	ST	LNGI	WGTP	NP	PWGTP	ENG	LANX	HINCP	ADJINC			Income2014
2	1	1	19	3	24	1	1	35,000	1.094136			38294.76
3	1	1	4	4	3	1	1	129,000	1.094136			141143.5
4	1	1	10	4	11	1	1	112,400	1.094136			122980.9
5	1	1	5	4	4	1	1	33,200	1.094136			36325.32
6	1	1	18	4	18	1	1	149,900	1.094136			164011
7	1	1	13	5	16	1	1	199,300	1.094136			218061.3
8	1	1	24	3	31							
9	1	1	16	6	22							
10	1	1	12	4	13							
11	1	1	18	3	16							
12	1	1	14	3	26							
13	1	1	10	2	13							
14	1	1	76	4	52							
15	1	1	40	2	32							
16	1	1	5	4	1							
17	1	1	22	2	20							
18	1	1	16	3	16							
19	1	1	15	2	15							
20	1	1	6	4	14							
21	1	1	6	4	8	1	1	70,000	1.094136			76589.52
22	1	1	20	4	36	1	1	62,700	1.094136			68602.33
23	1	1	16	2	17	1	1	54,900	1.094136			60068.07
24	1	1	16	5	38	1	1	448,800	1.094136			491048.2
25	1	1	11	2	11	1	1	10,000	1.094136			50000.71

Custom AutoFilter [?] [X]

Show rows where:

HINCP

is greater than [-60000]

And Or

[] []

Use ? to represent any single character
Use * to represent any series of characters

OK Cancel

Step 1: Calculate 2014 household income

- Adjust the Income using ADJINC
 - $\text{Income}_{2014} = \text{HINCP} * \text{ADJINC}$
 - I made my Income2014 column in K
 - Select the Income2014 column, Control+D (to 21694)

	A	B	C	D	E	F	G	H	I	J	K	L
1	ST	LNGI	WGTP	NP	PWGTP	ENG	LANX	HINCP	ADJINC		Income2014	
2	1	1	19	3	24	1	1	35,000	1.094136		=H2*I2	
3	1	1	4	4	3	1	1	129,000	1.094136		141143.5	
4	1	1	10	4	11	1	1	112,400	1.094136		122980.9	
5	1	1	5	4	4	1	1	33,200	1.094136		36325.32	
6	1	1	18	4	18	1	1	149,900	1.094136		164011	
7	1	1	13	5	16	1	1	199,300	1.094136		218061.3	
8	1	1	24	3	31	1	1	56,000	1.094136		61271.62	
9	1	1	16	6	22	1	1	77,900	1.094136		85233.19	

Step 2: Create Poverty Thresholds

- Poverty threshold number depends on the people per household
- We calculate from 1 up to 9+ people per household
 - Ex: Threshold for 1 person household = \$12,071
 - Ex: Threshold for 9+ person household = \$49,021

Categories: PV1 and PV2

- PV1= Under the Poverty Threshold
- PV2= Over the Poverty Threshold
 - “Fam1PV1” = 1 person household, in poverty
 - “Fam9PV2” = 9 or more person household, above poverty

Fam1PV1	Fam1PV2	Fam2PV1	Fam2PV2	Fam3PV1	Fam3PV2	Fam4PV1	Fam4PV2	Fam5PV1
---------	---------	---------	---------	---------	---------	---------	---------	---------

Fam5PV2	Fam6PV1	Fam6PV2	Fam7PV1	Fam7PV2	Fam8PV1	Fam8PV2	Fam9PV1	Fam9PV2
---------	---------	---------	---------	---------	---------	---------	---------	---------

How to record PV1 and PV2

- To record out of two options, we can use dummy variables.
- If the category applies, Excel enters “1”.
 - If not, “0”.
 - Example: If a family of 3 has an Income2014 of \$10,000, Excel will enter “1” under PV1 and “0” under PV2.

How to record PV1 and PV2

- For us, we will create a function that will record the number of people it represents (PWGTP) instead of the “1”.
- PWGTP = Person’s weight
 - Not in lbs., but rather how many of the same exact situations of this individual exists in the state

How to write the function

PV1

- =IF(AND(D2=1,K2<=12071), E2, 0)
- =IF(AND(D2=2,K2<=15379), E2, 0)
- =IF(AND(D2=3,K2<=18850), E2, 0)
- =IF(AND(D2=4,K2<=24230), E2, 0)
- =IF(AND(D2=5,K2<=28695), E2, 0)
- =IF(AND(D2=6,K2<=32473), E2, 0)
- =IF(AND(D2=7,K2<=36927), E2, 0)
- =IF(AND(D2=8,K2<=40968), E2, 0)
- =IF(AND(D2>=9,K2<=49021), E2, 0)

PV2

- =IF(AND(D2=1,K2>12071), E2, 0)
- =IF(AND(D2=2,K2>15379), E2, 0)
- =IF(AND(D2=3,K2>18850), E2, 0)
- =IF(AND(D2=4,K2>24230), E2, 0)
- =IF(AND(D2=5,K2>28695), E2, 0)
- =IF(AND(D2=6,K2>32473), E2, 0)
- =IF(AND(D2=7,K2>36927), E2, 0)
- =IF(AND(D2=8,K2>40968), E2, 0)
- =IF(AND(D2>=9,K2>49021), E2, 0)

- Copy and paste these respective functions into Excel for each category
- Select column, Control+D

In real data, you'll want to make sure your variables match up—double check the letters in the equations!

Example Function

- Fam1PV1 =IF(AND(D2=1,K2<=12071), E2, 0)
- Says: *If the # of people in household is 1, and their income is at or below \$12,071, then enter “24”.*

The screenshot shows the Microsoft Excel interface with the following data table:

	A	B	C	D	E	F	G	H	I	J	K	L	M
1	ST	LNGI	WGTP	NP	PWGTP	ENG	LANX	HINCP	ADJINC		Income2014		Fam1PV1
2		1	1	19	3	24	1	1	35,000	1.094136	38294.76		=IF(AND(D
3		1	1	4	4	3	1	1	129,000	1.094136	141143.5		0
4		1	1	10	4	11	1	1	112,400	1.094136	122980.9		0
5		1	1	5	4	4	1	1	33,200	1.094136	36325.32		0
6		1	1	18	4	18	1	1	149,900	1.094136	164011		0
7		1	1	13	5	16	1	1	199,300	1.094136	218061.3		0
8		1	1	24	3	31	1	1	56,000	1.094136	61271.62		0

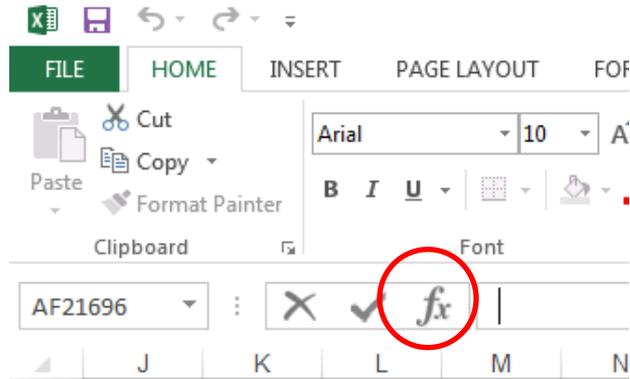
Step 3: Collapse Family Measures

- For our use, only need range of 1 to 5+ person
- We make a Fam5_PlusPV1 and a Fam5_PlusPV2 category
 - Fam5_PlusPV1: Fam5PV1+Fam6PV1+Fam7PV1+Fam8PV1+Fam9PV1
 - Fam5_PlusPV2: Fam5PV2+Fam6PV2+Fam7PV2+Fam8PV2+Fam9PV2

Step 5: Sum the Poverty Data

- Putting everything together to find Poverty percentages
- Find the sum of each category:
 - Fam1PV1
 - Fam1PV2
 - Fam2PV1
 - Fam2PV2
 - Fam3PV1
 - Fam3PV2
 - Fam4PV1
 - Fam4PV2
 - Fam5_PlusPV1
 - Fam5_PlusPV2

Select the SUM function from the upper left corner:



Select the whole column you want to sum:

A screenshot of an Excel spreadsheet showing the 'FORMULAS' tab. The formula bar displays the formula `=SUM(N2:N21694)`. The spreadsheet shows a grid of data with column N highlighted in green. A 'Function Arguments' dialog box is open, showing the 'SUM' function with 'Number1' set to `N2:N21694`. The dialog box also displays the formula result as 38365.

	J	K	L	M	N	O	P	Q	R	S
2		38294.76		0	0	0	0	0	24	
3		141143.5		0	0	0	0	0	0	
4		122980.9		0	0	0	0	0	0	
5		36325.32		0	0	0	0	0	0	
6		164011		0	0	0	0	0	0	
7		218061.3		0	0	0	0	0	0	
8		61271.62		0	0	0	0	0	0	
9		85233.19		0	0	0	0	0	0	
10		78591.79		0	0	0	0	0	0	
11		132609.3		0	0	0	0	0	0	
12		295307.3		0	0	0	0	0	0	
13		49673.77		0	0	0	0	0	0	
14		135672.9		0	0	0	0	0	0	
15		35012.35		0	0	0	0	0	0	
16		116306.7		0	0	0	0	0	0	
17		97487.52		0	0	0	0	0	0	
18		138572.3		0	0	0	0	0	0	
19		69587.05		0	0	0	0	0	0	
20		76589.52		0	0	0	0	0	0	
21		76589.52		0	0	0	0	0	0	
22		68602.33		0	0	0	0	0	0	
23		60068.07		0	0	0	0	0	0	
24		491048.2		0	0	0	0	0	0	
25		50986.74		0	0	0	0	0	0	
26		39388.9		0	0	0	0	0	0	
27		57989.21		0	0	0	0	0	10	

M	N	O	P	Q	R	S	T	AE	AF
Fam1PV1	Fam1PV2	Fam2PV1	Fam2PV2	Fam3PV1	Fam3PV2	Fam4PV1	Fam4PV2	Fam5Plus	Fam5Plus
0	0	0	0	0	24	0	0	0	0
0	0	0	0	0	0	0	3	0	0
0	0	0	0	0	0	0	11	0	0
0	0	0	0	0	0	0	4	0	0
0	0	0	0	0	0	0	18	0	0
0	0	0	0	0	0	0	0	0	16
0	0	0	0	0	31	0	0	0	0
0	0	0	0	0	0	0	0	0	22
0	0	0	0	0	0	0	13	0	0
0	0	0	0	0	16	0	0	0	0
0	0	0	0	0	26	0	0	0	0
0	0	0	13	0	0	0	0	0	0
0	0	0	0	0	0	0	52	0	0
0	0	0	32	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0
0	0	0	20	0	0	0	0	0	0
0	0	0	0	0	16	0	0	0	0
0	0	0	15	0	0	0	0	0	0
0	0	0	0	0	0	0	14	0	0
0	0	0	0	0	0	0	8	0	0
0	0	0	0	0	0	0	36	0	0
0	0	0	17	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	38
0	0	0	0	0	0	0	0	0	41
0	0	0	0	0	0	0	14	0	0
0	0	0	0	0	10	0	0	0	0
0	0	0	32	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	49
0	0	0	0	0	0	0	20	0	0
16	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	21	0	0	0
0	0	0	0	0	0	25	0	0	0

Going all the way to the bottom of the data...

Should total
440204

13410	38365	13246	122982	14252	78418	12393	73003	16600	57535
-------	-------	-------	--------	-------	-------	-------	-------	-------	-------

Sum PV1 and PV2

- Now, add all PV1 together, and all PV2 together
- In example dataset:
 - PV1 = 69901
 - PV2 = 370303

Step 6: Sort by LEP and non-LEP

- LANX=0 has been deleted out
 - Fewer than 5 years old
- Recoding LEP and non-LEP population:
 - We want six categories:
 - LEP
 - nLEP
 - LEP*PV1
 - LEP*PV2
 - nLEP*PV1
 - nLEP*PV2

The Variables for LEP data

- ENG = ability to speak English
 - 1 = very well, 2 = well, 3 = not well, 4 = not at all
- LANX = language other than English spoken
 - 1 = Yes, speaks another language, 2 = No, speaks only English
- LNGI = limited English speaking household
 - 1 = at least one person speaks English 'very well', 2 = no one in the household speaks English 'very well'

How to find LEP and nLEP

- **LEP:** =IF (AND(G2=1, OR(F2=2, F2=3, F2=4)), E2, 0)
- **nLEP:** =IF (OR(F2=2,F2=1), E2, 0)

The screenshot shows the Microsoft Excel interface. The formula bar displays the formula: `=IF(AND(G2=1, OR(F2=2, F2=3, F2=4)), E2, 0)`. Below the formula bar is a table with the following data:

	A	B	C	D	E	F	G	H	
1	ST	LNGI	WGTP	NP	PWGTP	ENG	LANX	HINCP	
2		1	1	19	3	24	1	1	35,0
3		1	1	4	4	3	1	1	129,0
4		1	1	10	4	11	1	1	112.4

- We are using LANX, ENG and PWGTP
- In this example, the formula reads as: *“If the household speaks another language and their ability to speak English is ‘well’, ‘not well’ or ‘not at all’, assign that data point to the LEP category.”*

Sum these cross tabulations

AG	AH	AI	AJ	AK	AL
LEP	nLEP	LEP*PV1	LEP*PV2	nLEP*PV1	nLEP*PV2
0	24	0	0	0	24
0	3	0	0	0	3
0	11	0	0	0	11
0	4	0	0	0	4
0	18	0	0	0	18
0	16	0	0	0	16
0	31	0	0	0	31
0	22	0	0	0	22
0	13	0	0	0	13
0	16	0	0	0	16
0	26	0	0	0	26
0	13	0	0	0	13
0	52	0	0	0	52

Going all the way to the bottom of the data...

2	0	0	2	0	0
27	0	0	27	0	0
19	0	19	0	0	0
132	0	0	132	0	0
76	0	0	76	0	0
19	0	19	0	0	0
7	0	0	7	0	0
34	0	0	34	0	0
5	0	0	5	0	0
23	0	23	0	0	0
39	0	0	39	0	0
25	0	25	0	0	0
10780	429424	3399	7381	66502	362922

Should total
440204

Should total
440204

Part 5: Summarizing LEP *

Poverty Information in a Table

Create Table Using Excel

- We will use the numbers to create an easy-to-read table:

Table 1a: Poverty and English Language Ability of Residents of State 1

	Above Poverty Threshold	At or Below Poverty Threshold	Total
English Speaker	84.5%	15.5%	97.6%
	362,922	66,502	429,424
LEP	68.5%	31.5%	2.4%
	7,381	3,399	10,780
Total	84.1%	15.9%	100.0%
	370,303	69,901	440,204

Finding Percentages and Totals

- You can do this all sorts of ways, but the most important components are:
 - Totals of the categories: LEP, nLEP, PV1, PV2, LEP*PV1, LEP*PV2, nLEP*PV1, nLEP*PV2

	Above Poverty Threshold	At or Below Poverty Threshold	Total
English Speaker	362,922	66,502	429,424
LEP	7,381	3,399	10,780
Total	370,303	69,901	440,204

Then, Percentages:

- Percentages are read ACROSS
 - Ex: *“Out of all English speaking residents of State 1, 15.5% are in poverty”*

Table 1a: Poverty and English Language Ability of Residents of State 1

	Above Poverty Threshold	At or Below Poverty Threshold	Total
English Speaker	84.5%	15.5%	97.6%
	362,922	66,502	429,424
LEP	68.5%	31.5%	2.4%
	7,381	3,399	10,780
Total	84.1%	15.9%	100.0%
	370,303	69,901	440,204

- However, the exception is that the right column for **Total** is read vertically: *“Only 2.4% of the residents of State 1 are LEP”*

Part 6: Further Considerations

Further Considerations

1. What source of data did you use?
 - American Fact Finder?
 - Data Ferrett?
2. Stability of the estimates
3. Geographical considerations
4. Limitations of Excel

(1) Considerations: AFF or PUMS?

- What type of data do you need:
 - Do you need a single variable? (e.g., LEP)
 - If you use American Fact Finder the data is tabulated by Census
 - They have considered Margin of Errors and Geography so you don't have to when using this data source
 - Do you need the intersection of two variables? (e.g., LEP * Poverty)
 - Or, did you use Data Ferrett to access your dataset?
 - PUMS is a sample of houses/individuals
 - Because this is a sample we need to consider:
 - Margins of Error & Standard Errors & Coefficient of Variations
 - Geographic areas of analyses

(2) Consideration: Stability of Estimates

- Stability of Estimates:
 - Remember not everyone has been surveyed
 - We are looking at a sample of households/individuals.
 - Assess the impact of sampling on our estimates?
 - Or assess the amount of error in these estimates
- 4 Measures that will help us:
 - Standard Errors (SE):
 - Measures the variability of an estimate due to sampling
 - Margin of Errors (MoE):
 - Measures the precision of an estimate given a confidence level
 - Census recommends we use a 90% confidence level

(2) Consideration: Stability of Estimates

- Generally, the bigger the MoE, the less confident we are about the estimate.
- Confidence Intervals (CIs):
 - Gives us a range of numbers we are confident that the estimate falls in.
- Coefficient of Variation (CoV):
 - A measure of the relative amount of sampling error associated with the estimate
 - Most importantly we can use 15% as our cut off point

Luckily, we only need to worry about calculating
Standard Errors and Coefficients of Variation

(2) Stability: Calculating SEs

7.2.1 Standard Errors for Totals and Percentages

The design factors provided in Tables 5 through 5.52 in the appendix can be used to approximate the standard errors of most sample estimates of *totals* and *proportions*. Design factors are given by subject for the United States, all 50 states, the District of Columbia, and Puerto Rico. The term "subject" refers to a characteristic, such as age for persons and tenure for HUs. The design factors reflect the effects of the actual sample design and estimation procedures used for the ACS. To approximate the standard error for most estimates, use the following formulas:

Total Formula:

$$SE(\hat{Y}) \doteq DF \times \sqrt{\left(\frac{95}{5}\right) \times \hat{Y} \left(1 - \frac{\hat{Y}}{N}\right)}$$

Where:

DF = Design Factor

N = Size of Population in the Geographic Area

\hat{Y} = Estimate of Characteristic Total

(2) Stability: Calculating SEs

Table 5.1 Design Factors for Calculating PUMS Standard Errors - State 1

Characteristics	Design Factor
Number of Workers in Family	1.5
Presence of Own Children, Presence of People Under 18 Years, Presence of People 60 Years and Over, and Presence of People 65 Years and Over	1.4
Age of Own Children by Living Arrangements and Employment Status of Parents	1.7
Age of Householder	1.3
Race of Householder	1.3
Household, Family or Nonfamily Income	1.5
White Alone	1.1
Black or African American Alone	1.0
American Indian or Alaska Native Alone, Asian Alone, Native Hawaiian or Other Pacific Islander Alone, or Some Other Race Alone	1.7
Hispanic or Latino	2.2
Marital Status	1.4
Marital History	1.1
Relationship	1.5
Ancestry	2.0
Grandparents Responsible for Grandchildren	1.9
Number of Women Who Had a Birth in the Past 12 Months	1.3
Language Spoken at Home and Ability to Speak English	1.3

Design Factors for State 1:

- LEP Status = 1.3
- Household Income = 1.5

Use the highest of the DFs.

Citation:

2010-2014 ACS
5-year PUMS
Accuracy of the
Data

(2) Stability: Calculating SEs

SUM $=1.5*(SQRT(((95/5)*(B3*(1-B3/$D3))))$								
	A	B	C	D	E	F	G	H
1	Table 1: Estimates of Poverty and English Language Ability of Residents of State 1					Table 2: Standard Errors of Poverty and English Language Ability of Residents of State 1		
2		Above Poverty Threshold	At or Below Poverty Threshold	Total			Above Poverty Threshold	At or Below Poverty Threshold
3	English Speaker	362,922	66,502	429,424		English Speaker	$=1.5*(SQRT(((95/5$	1,550
4	LEP	7,381	3,399	10,780		LEP	315	315
5	Total	370,303	69,901	440,204				

(2) Stability: Calculating Coefficients of Variation

Calculating Coefficients of Variation From Standard Errors

The CV can be expressed as

$$CV = \frac{SE}{\hat{X}} \times 100$$

where \hat{X} is the ACS estimate and SE is the derived SE for the ACS estimate.

(2) Stability: Calculating CoVs

Table 1: Estimates of Poverty and English Language Ability of Residents of State 1

	Above Poverty Threshold	At or Below Poverty Threshold	Total
English Speaker	362,922	66,502	429,424
LEP	7,381	3,399	10,780
Total	370,303	69,901	440,204

Table 2: Standard Errors of Poverty and English Language Ability of Residents of State 1

	Above Poverty Threshold	At or Below Poverty Threshold
English Speaker	1,550	1,550
LEP	315	315

All of these CoVs were beneath 15.0%.

This means the estimates are stable.

Table 3: Coefficients of Variation of Poverty and English Language Ability of Residents of State 1

	Above Poverty Threshold	At or Below Poverty Threshold
English Speaker	=G3/B3	2.3%
LEP	4.3%	9.3%

Note: If you format the excel cells as percentages then you will not need to multiply the formula by 100.

(3) Geographical Considerations

The number of records for estimates grow as:

- The number of years of estimates is increased
 - 5- year estimates have more records than 3-year estimated, which have more records than 1-year estimates.
- The geographical unit gets larger
 - National estimates are larger than state estimates,
 - State estimates are larger than county estimates,
- When examining cities, you need to ensure that the borders of the PUMA match those of the city (or Metropolitan Statistical Area).

(3) Geographical Considerations

Comparison of MOEs

	Total 2000 Pop	Non-citizens	MOE 2000	Total 2006 Pop	Non-citizens	MOE 1 year	MOE 3 years	MOE 5 years
Dallas, TX	1,188,204	234,829	2,723	1,192,538	259,182	11,894	6,867	5,319
Youngstown, OH	82,026	559	113	70,459	951	322	186	144

Confidence Intervals = +/- MoE

Dallas: MOE Year 1 Estimates = 247,288 and 271,076

Youngstown: MOE Year 1 Estimates = 629 and 1,273

Level of Geography	1-Year Estimates	3-Year Estimates	5-Year Estimates
National	✓	✓	✓
State	✓	✓	✓
Congressional Districts	✓	✓	✓
Public Use Microdata Areas		✓	✓
Counties/ County Equivalents			✓
Metropolitan Statistical Area			✓
Census Tracts			✓
Block Groups			✓

(4) Limitations of Excel

Finally, Excel has a row size limit that varies depending on the version you are using.

	Max. Rows	Max. Columns	Max. Cols by letter
Excel 365*	1,048,576	16,384	XFD
Excel 2013	1,048,576	16,384	XFD
Excel 2010	1,048,576	16,384	XFD
Excel 2007	1,048,576	16,384	XFD
Excel 2003	65,536	256	IV
Excel 2002 (XP)	65,536	256	IV
Excel 2000	65,536	256	IV
Excel 97	65,536	256	IV
Excel 95	16,384	256	IV
Excel 5	16,384	256	IV

*Excel 365 unverified.

Table 1: 2010-2014 5-year ACS Housing Unit Estimates and PUMS Sample Sizes

State	ACS Housing Unit Estimate	PUMS Sample Size	State	ACS Housing Unit Estimate	PUMS Sample Size
Alabama	2,190,638	119,713	Montana	486,782	26,579
Alaska	307,820	17,422	Nebraska	805,256	44,707
Arizona	2,874,548	157,282	Nevada	1,185,232	61,766
Arkansas	1,329,139	73,214	New Hampshire	617,286	34,128
California	13,781,929	760,502	New Jersey	3,572,138	193,984
Colorado	2,238,624	121,787	New Mexico	907,233	49,006
Connecticut	1,490,381	84,697	New York	8,153,309	458,122
Delaware	411,250	22,130	North Carolina	4,385,668	241,899
District of Columbia	300,798	17,955	North Dakota	332,010	18,368
Florida	9,051,851	489,823	Ohio	5,135,173	282,803
Georgia	4,114,496	227,027	Oklahoma	1,680,457	93,666
Hawaii	524,852	29,998	Oregon	1,685,814	92,578
Idaho	675,421	35,894	Pennsylvania	5,578,393	314,247
Illinois	5,299,433	290,023	Rhode Island	462,930	26,551
Indiana	2,811,617	156,134	South Carolina	2,160,383	119,682
Iowa	1,348,151	76,035	South Dakota	369,186	21,013
Kansas	1,240,529	68,898	Tennessee	2,839,142	154,912
Kentucky	1,938,836	107,412	Texas	10,187,189	557,343
Louisiana	1,988,460	109,414	Utah	999,734	53,804
Maine	724,685	39,521	Vermont	324,332	18,006
Maryland	2,399,375	132,188	Virginia	3,403,241	190,968
Massachusetts	2,816,875	163,175	Washington	2,921,364	159,737
Michigan	4,532,719	245,729	West Virginia	883,197	48,298
Minnesota	2,364,149	130,345	Wisconsin	2,635,602	144,620
Mississippi	1,284,794	72,109	Wyoming	265,195	14,124
Missouri	2,723,417	151,811	Puerto Rico	1,553,611	83,236

(4) Limitations of Excel

Therefore, it will be necessary to consider the size of your dataset.

Estimates:

- National-Level Estimates will be a problem.
 - Use the 1-year ACS estimates, or
 - Use the 5-year ACS estimates but perform these analyses in state clusters and then sum the data in a separate excel sheet.
- State-Level Estimates will be fine
- Smaller geographical estimates (e.g., counties, PUMAs, cities) will also be fine, but
 - Be careful about the stability and look at your CoVs

Thank you.

**Questions?
(if we have time)**

Follow up questions can be sent to:

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