

Demystifying the Census API



Presented by: Tyson Weister
Survey Statistician
Center for Enterprise Dissemination
Dissemination Outreach Branch
U.S. Census Bureau

Agenda

- **API Basics**
- Building an API Request
- API Demo
- Resources for Learning More

Application Programming Interfaces

Free, publically accessible, open source services:

- **Census Data API:** Raw statistical data from programs and surveys across the Bureau
- **Geocoder:** Translates addresses and other location formats into latitude/longitude parameters
- **TIGERweb Services:** Census area boundaries and shapes for mapping referenced by FIPS codes



Census Data API

Census Data API

- Data service that allows software developers and other users to access public data in a standardized way

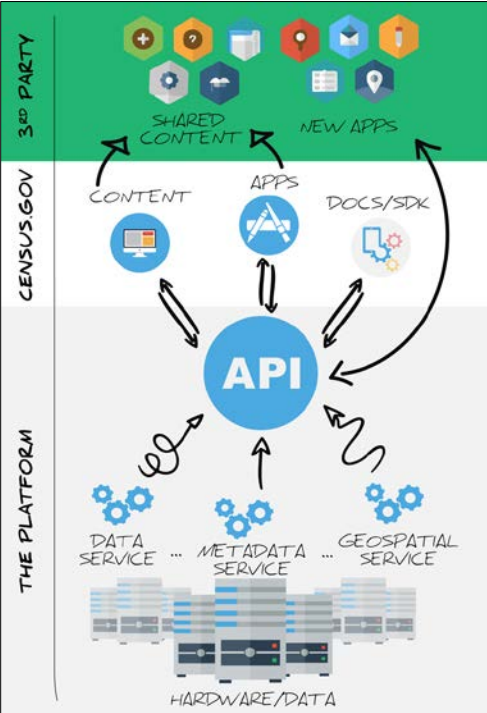
Uses:

- Supports mobile and web applications (internal and external)
- Drives interactive data visualizations
- Connects to statistical analysis software like SAS and R

Advantages:

- Access only the variables and geographies needed
- Immediate access to updates
- No need to host data on another server
- More data than what is available on data.census.gov

Example: The API Powers data.census.gov



Disability

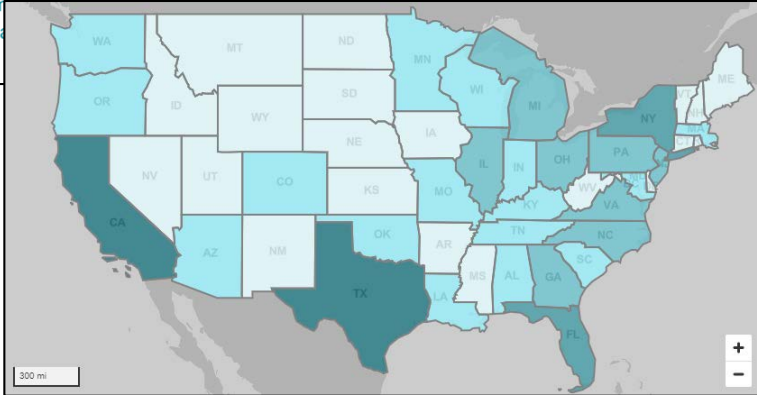
11.4% +/- 0.3%
Disabled population in Maryland

12.6% +/- 0.1%
Disabled population in the United States

Table: DP02
Table Survey/Program:
2018 American
Community Survey
Estimate

Types of Disabilities in Maryland

- Hearing difficulty - 3.0%
- Vision difficulty - 1.9%
- Cognitive difficulty - 4.8%
- Ambulatory difficulty - 5.9%
- Self-care difficulty - 2.1%
- Independent living difficulty - 5.1%



ACS DEMOGRAPHIC AND HOUSING ESTIMATES		
Survey/Program:		Product: 2018: ACS 1-Year Estimates Data Pr
American Community Survey		
TableID: DP05		
	United States	
	Estimate	Percent
SEX AND AGE		
Total population	327,167,439	327,167,439
Male	161,118,151	49.2%
Female	166,049,288	50.8%
Ratio (males per 1...	97.0	(X)
Under 5 years	19,646,315	6.0%
6-9 years	19,805,900	6.1%
10-14 years	21,392,922	6.5%

data.census.gov

Census Programs in the API

Demographic Programs

- American Community Survey
- Decennial Census
- Decennial Census Self Response Rates
- Health Insurance stats (from Current Population Survey, Survey of Income Program Participation, ACS, Small Area Health Insurance Estimates)
- International Database
- Population Estimates and Projections
- Poverty stats (from CPS, Small Area Income & Poverty Estimates)

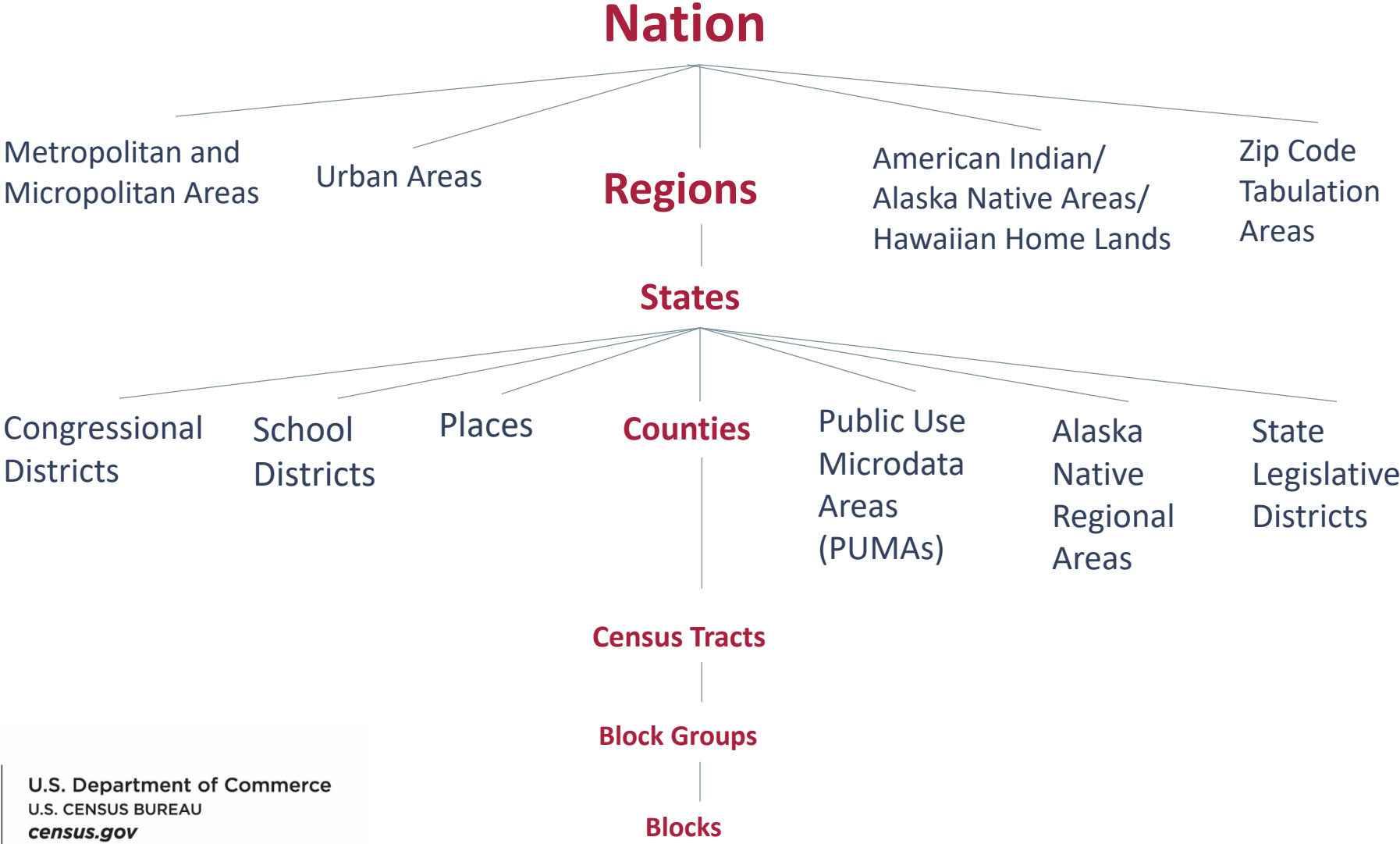
Economic (Business) Programs

- Annual Survey of Entrepreneurs and Annual Survey of Manufacturers
- Business Dynamics Statistics
- County Business Patterns and Nonemployer Stats
- Economic Census and Economic Indicators
- International Trade
- Quarterly Workforce Indicators
- Survey of Business Owners

Other Programs

- The Planning Database

Available Geographic Areas



Developers Page

United States Census Bureau

Search

BROWSE BY TOPIC EXPLORE DATA LIBRARY SURVEYS/PROGRAMS INFORMATION FOR... FIND A CODE ABOUT US

// Census.gov / Data / Developers

Developers

About
API Forum
App Gallery
Available APIs
Geography
Guidance for Developers
News
Terms of Service
Updates

The Census Bureau has begun rolling out our datasets via APIs. Check out our **Discovery Tool**. Sign up for our [newsletter](#) to get the latest updates and newest dataset addition. We also invite you to make requests for features / data via our [forum](#).

[Read More](#)

Request a KEY

Developers' Forum (Gitter.im)

Join the Mailing List

Updates

SEPTEMBER 19, 2018
2018 API Changes

AUGUST 30, 2018
API Format Changes: 2010-2014 ACS Estimates

AUGUST 30, 2018
API Format Changes: SF1 2010

[VIEW ALL UPDATES](#)

Accessing our API

- Request a Key
 - No charge
 - No throttling/limitations
- Browse the Discovery Tool
 - List of available datasets/endpoints (312 as of 10/11/2018)
 - Descriptions, etc.
- Review the Updates Periodically
 - Join the Mailing List
 - Check your Spam folder for alerts
- Share your Experiences
 - Developers Forum

Developers Home Page

<https://www.census.gov/developers/>

Discovery Tool

Information Provided

- Dataset Description
- Variables Included, Changes, Variable Formats, and Notes
- Annotation Variables and Values
- Cross-Tab Variables
- Supported Geographies
- Example Calls
- Sample Use Cases
- Links to Program Technical Documentation

Links to FTP Servers

Developers

About API Forum App Gallery Available APIs Geography Guidance for Developers News Terms of Service Updates

Census Data API Discovery Tool

MARCH 01, 2014

The Census Data API Discovery Tool provides a machine-readable dataset discovery service and is available in three formats:

- api.census.gov/data.html
- api.census.gov/data.xml
- api.census.gov/data.json

The content of api.census.gov/data.json is based largely on the Open Project Data Common Core Metadata Schema and is extended to include metadata specific to Census Bureau datasets. The api.census.gov/data.xml URI may be used to access the same information as XML.

Request a KEY

Census API: Datasets in /data/2017/acs/acs5/profile and its descendants

Title	Description	Vintage	Dataset Name	Geography List	Variable List	Group List	Tag List	Examples	Developer Documentation	API Base URL
ACS 5-Year Data Profiles	The American Community Survey (ACS) is an ongoing survey that provides data every year -- giving communities the current information they need to plan investments and services. The ACS covers a broad range of topics about social, economic, demographic, and housing characteristics of the U.S. population. The data profiles include the following geographies: nation, all states (including DC and Puerto Rico), all metropolitan areas, all congressional districts, all counties, all places and all tracts. Data profiles contain broad social, economic, housing, and demographic information. The data are presented as both counts and percentages. There are over 2,400 variables in this dataset.	2017	acs>acs5>profile	geographies	variables	groups	N/A	examples	documentation	https://api.census.gov/data/2017/acs/acs5/profile

Agenda

- API Basics
- **Building an API Request**
- API Demo
- Resources for Learning More



How to Start Your Data Request

api.census.gov/data/2018/pep/charagegroups?get=POP,GE
ONAME,DATE_DESC&DATE_CODE=11&RACE=10&for=count
y:*&in=state:24



Requests always begin with:
<https://api.census.gov/data>



Add the Dataset Name

api.census.gov/data/**2018/pep/charagegroups**?get=POP,GE
ONAME,DATE_DESC&DATE_CODE=11&RACE=10&for=count
y:*&in=state:24



Find the dataset name at:
[https://api.census.gov/data/
2018.html](https://api.census.gov/data/2018.html)



Start Your Variable Request

api.census.gov/data/2018/pep/charagegroups?**get=POP,GE**
ONAME,DATE_DESC&DATE_CODE=11&RACE=10&for=count
y:*&in=state:24

3

Always start your variable request with **?get=**



Add Your Variables

api.census.gov/data/2018/pep/charagegroups?get=**POP,GE
ONAME,DATE_DESC&DATE_CODE=11&RACE=10**&for=count
y:*&in=state:24

4

Find the variables you want here:

<https://api.census.gov/data/2018/pep/charagegroups/variables.html>



Add Your Geography

api.census.gov/data/2018/pep/charagegroups?get=POP,GE
ONAME,DATE_DESC&DATE_CODE=11&RACE=10 **&for=count**
y:*&in=state:24



Find available geographies here:

[https://api.census.gov/data/
2018/pep/charagegroups/
geography.html](https://api.census.gov/data/2018/pep/charagegroups/geography.html)

Put it all Together

```
api.census.gov/data/2018/pep/charagegroups?get=POP,GEON  
AME,DATE_DESC&DATE_CODE=11&RACE=10&for=county:*&in  
=state:24
```



6

Returns data in json format

Output From the API

https://api.census.gov/data/2018/pep/charagegroups?get=POP,GEONAME,DATE_DESC&DATE_CODE=11&RACE=10&for=county:*&in=state:24

This URL returns data in JSON format that looks like this:

```
[["POP", "GEONAME", "DATE_DESC", "DATE_CODE", "RACE", "state", "county"],  
["1017", "Allegany County, Maryland", "7/1/2018 population estimate", "11", "10", "24", "1"],  
["31385", "Anne Arundel County, Maryland", "7/1/2018 population estimate", "11", "10", "24", "3"],  
["59617", "Baltimore County, Maryland", "7/1/2018 population estimate", "11", "10", "24", "5"],  
["2731", "Calvert County, Maryland", "7/1/2018 population estimate", "11", "10", "24", "9"],  
["535", "Caroline County, Maryland", "7/1/2018 population estimate", "11", "10", "24", "11"],  
["4579", "Carroll County, Maryland", "7/1/2018 population estimate", "11", "10", "24", "13"],  
["2085", "Cecil County, Maryland", "7/1/2018 population estimate", "11", "10", "24", "15"],  
["7391", "Charles County, Maryland", "7/1/2018 population estimate", "11", "10", "24", "17"],  
["490", "Dorchester County, Maryland", "7/1/2018 population estimate", "11", "10", "24", "19"],  
["15000", "Frederick County, Maryland", "7/1/2018 population estimate", "11", "10", "24", "21"]]
```

Agenda

- API Basics
- Building an API Request
- **API Demo**
- Resources for Learning More

Learning Objectives

At the end of this training you will be able to:

- Find available datasets in the API
- Navigate the Discovery Tool
- Edit a sample URL to access the data you need
- View results in your web browser
- Save results as a .csv file and format it into a readable format

Demo

1. Single estimate, Single Geo (Population Estimates Program)

What was the Hispanic population in California as of 7/1/2019?

2. Multiple estimates, multiple geographies (American Community Survey)

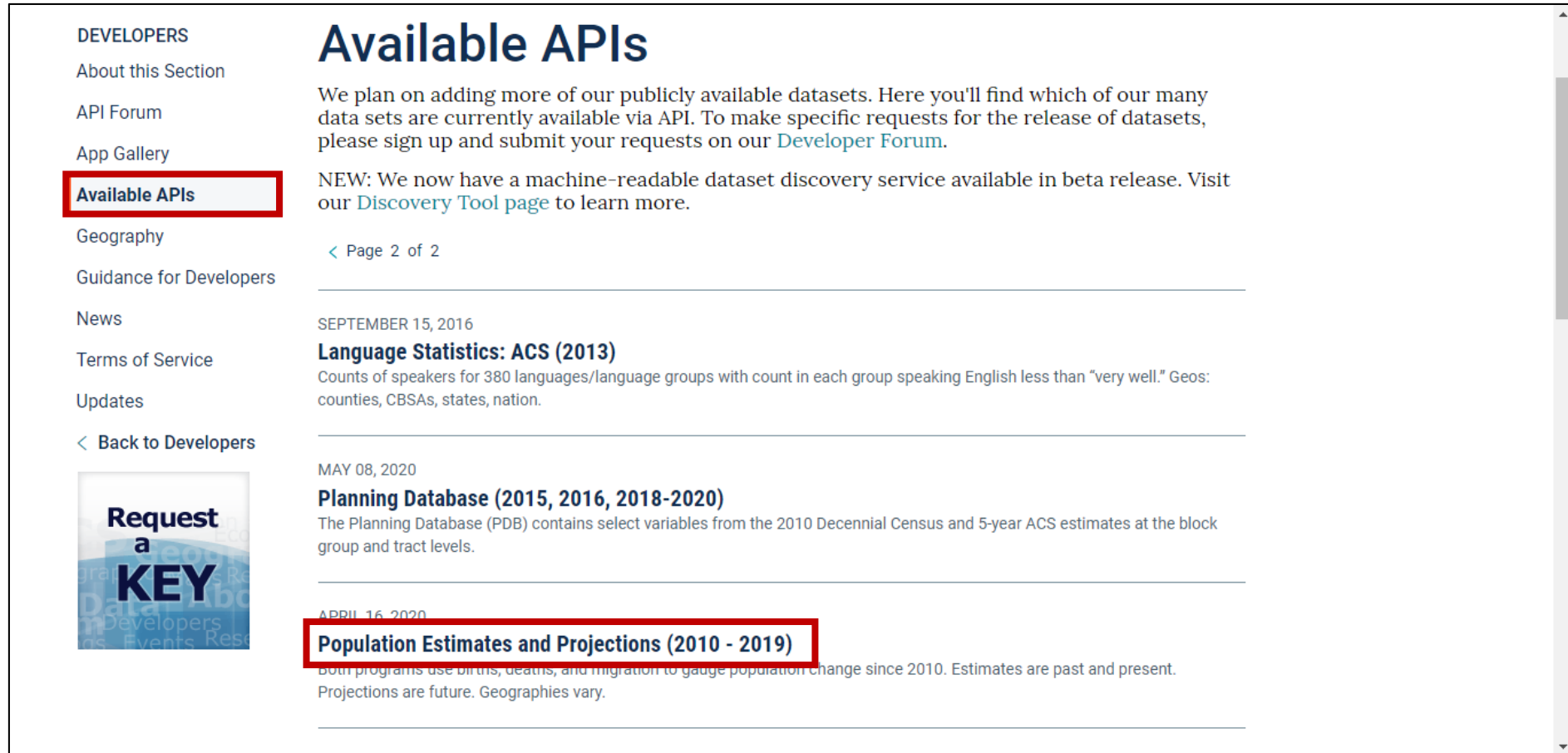
What was median income and homeownership rate across all counties in California in 2007?

3. Entire table – Groups functionality (American Community Survey)

How can I download DP03 for All Metropolitan Statistical Areas in 2007?

Single Variable and Geography: Hispanic Population in California

- Select Your Dataset On The Developers Page



The screenshot shows the 'Available APIs' section of the Census Bureau Developers page. The left sidebar contains navigation links: DEVELOPERS, About this Section, API Forum, App Gallery, Available APIs (highlighted with a red box), Geography, Guidance for Developers, News, Terms of Service, and Updates. Below these is a 'Back to Developers' link and a 'Request a KEY' button. The main content area is titled 'Available APIs' and contains an introductory paragraph, a 'NEW' announcement about a discovery service, and a list of datasets. The 'Population Estimates and Projections (2010 - 2019)' dataset is highlighted with a red box. The URL 'census.gov/data/developers/data-sets.html' is visible at the bottom of the page.

DEVELOPERS

About this Section

API Forum

App Gallery

Available APIs

Geography

Guidance for Developers

News

Terms of Service

Updates

< Back to Developers

Request a KEY

Available APIs

We plan on adding more of our publicly available datasets. Here you'll find which of our many data sets are currently available via API. To make specific requests for the release of datasets, please sign up and submit your requests on our [Developer Forum](#).

NEW: We now have a machine-readable dataset discovery service available in beta release. Visit our [Discovery Tool page](#) to learn more.

< Page 2 of 2

SEPTEMBER 15, 2016

Language Statistics: ACS (2013)

Counts of speakers for 380 languages/language groups with count in each group speaking English less than "very well." Geos: counties, CBSAs, states, nation.

MAY 08, 2020

Planning Database (2015, 2016, 2018-2020)

The Planning Database (PDB) contains select variables from the 2010 Decennial Census and 5-year ACS estimates at the block group and tract levels.

APRIL 16, 2020

Population Estimates and Projections (2010 - 2019)

Both programs use births, deaths, and migration to gauge population change since 2010. Estimates are past and present. Projections are future. Geographies vary.

- Choose Program - Select “Populations Estimates APIs”

DEVELOPERS

About this Section

API Forum

App Gallery

Available APIs

Geography

Guidance for Developers

News

Terms of Service

Updates

< Back to Available APIs

Request a KEY

Population Estimates and Projections (2010 - 2019)

APRIL 16, 2020

Population Estimates Program

Each year, the Census Bureau's Population Estimates Program uses current data on births, deaths, and migration to calculate population change since the most recent decennial census and produces a time series of estimates of population, demographic components of change, and housing units. The annual time series of estimates begins with the most recent decennial census data and extends to the vintage year.

MAY 21, 2020

Population Estimates APIs

Population estimates datasets currently available via API.

Population Projections

Population projections are estimates of the population for future dates. Projections illustrate possible courses of population change based on assumptions about future births, deaths, net international migration, and domestic migration.

FEBRUARY 20, 2020

census.gov/data/developers/data-sets/popest-popproj.html

- Choose Type of Table - Select “Examples and Supported Geography” under Components of Change Estimates

The screenshot shows the 'Population Estimates APIs' page for 'Vintage 2019'. On the left is a navigation menu with links like 'About this Section', 'API Forum', and 'Available APIs'. The main content area features a header with social media icons and a date 'MAY 21, 2020'. Below this is a horizontal menu of vintages from 2019 to 2013, with 'Vintage 2019' selected and underlined. The main heading is 'Vintage 2019', followed by the sub-heading 'Demographic Characteristics Estimates by Age Groups'. A list of links is provided, with 'Examples and Supported Geographies: api.census.gov/data/2019/pep/charagegroups.html' highlighted by a red box. Below the list is an API call example: `api.census.gov/data/2019/pep/charagegroups?get=POP,NAME&for=state:01&DATE_CODE=12&key=YOUR_KEY`. At the bottom left of the page is a 'Request a KEY' button.

census.gov/data/developers/data-sets/popest-popproj/popest.html

- Select “examples”

Census Data API: /data/2019/pep x +

api.census.gov/data/2019/pep/charagegroups.html

Census API: Datasets in /data/2019/pep/charagegroups and its descendants

Title	Description	Vintage	Dataset Name	Dataset Type	Geography List	Variable List	Group List	Examples	Developer Documentation	API Base URL
Population Estimates: Estimates by Age Group, Sex, Race, and Hispanic Origin	Annual Resident Population Estimates by Age Group, Sex, Race, and Hispanic Origin; for the United States, States, Counties; and for Puerto Rico and its Municipios: April 1, 2010 to July 1, 2019 // Source: U.S. Census Bureau, Population Division // The contents of this file are released on a rolling basis from December through June. // Note: 'In combination' means in combination with one or more other races. The sum of the five race-in-combination groups adds to more than the total population because individuals may report more than one race. Hispanic origin is considered an ethnicity, not a race. Hispanics may be of any race. Responses of 'Some Other Race' from the 2010 Census are modified. This results in differences between the population for specific race categories shown for the 2010 Census population in this file versus those in the original 2010 Census data. The estimates are based on the 2010 Census and reflect changes to the April 1, 2010 population due to the Count Question Resolution program and geographic program revisions. // Current data on births, deaths, and migration are used to calculate population change since the 2010 Census. An annual time series of estimates is produced, beginning with the census and extending to the vintage year. The vintage year (e.g., Vintage 2019) refers to the final year of the time series. The reference date for all estimates is July 1, unless otherwise specified. With each new issue of estimates, the entire estimates series is revised. Additional information, including historical and intercensal estimates, evaluation estimates, demographic analysis, research papers, and methodology is available on website: https://www.census.gov/programs-surveys/popest.html .	2019	pep> charagegroups	Aggregate	geographies	variables	groups	examples	documentation	https://api.census.gov/data/2019/pep/charagegroups

<https://api.census.gov/data/2019/pep/charagegroups.html>

- **Choose Your Geography** – Explore the available geographic levels on the left, copy a sample URL, and open a new tab

Census API: Examples for /data/2019/pep/charagegroups

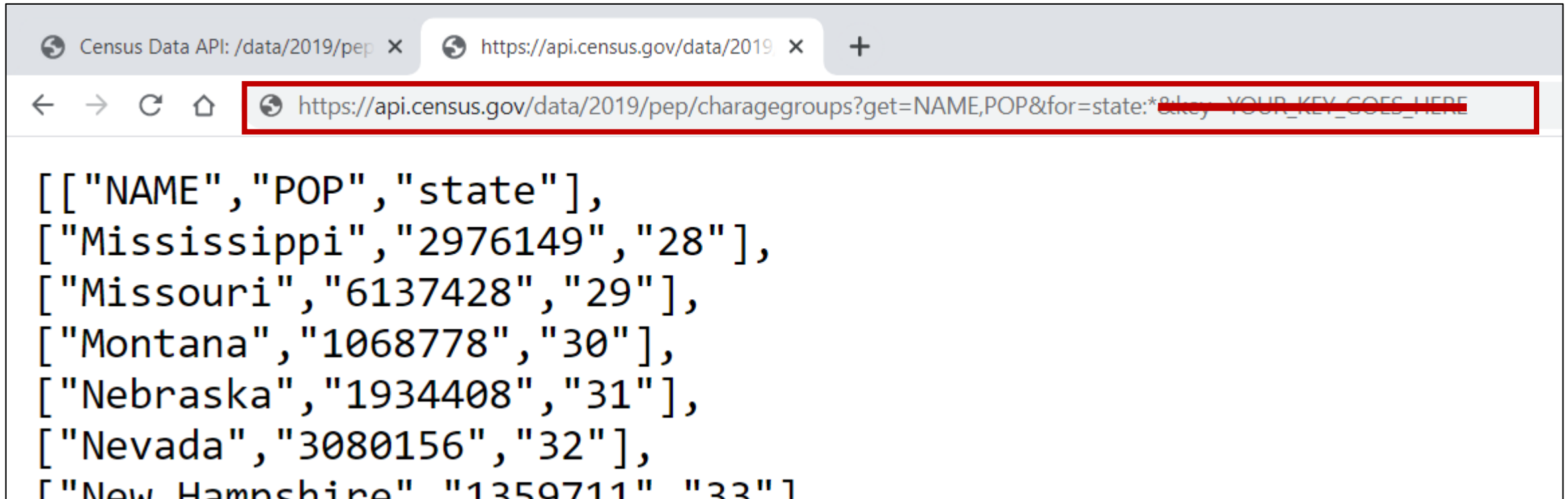
Geography Hierarchy	Geography Level	Example URL	Number
us	010	https://api.census.gov/data/2019/pep/charagegroups?get=NAME,POP&for=us:*&key=YOUR_KEY_GOES_HERE	1
		https://api.census.gov/data/2019/pep/charagegroups?get=NAME,POP&for=us:1&key=YOUR_KEY_GOES_HERE	2
state	040	https://api.census.gov/data/2019/pep/charagegroups?get=NAME,POP&for=state:*&key=YOUR_KEY_GOES_HERE	3
		https://api.census.gov/data/2019/pep/charagegroups?get=NAME,POP&for=state:01&key=YOUR_KEY_GOES_HERE	4
state > county	050	https://api.census.gov/data/2019/pep/charagegroups?get=NAME,POP&for=county:*&key=YOUR_KEY_GOES_HERE	5
		https://api.census.gov/data/2019/pep/charagegroups?get=NAME,POP&for=county:*&in=state:*&key=YOUR_KEY_GOES_HERE	6
		https://api.census.gov/data/2019/pep/charagegroups?get=NAME,POP&for=county:001&in=state:01&key=YOUR_KEY_GOES_HERE	7

<https://api.census.gov/data/2019/pep/charagegroups/examples.html>

- `&for=state:*` gets data for all states
- `&for=state:01` gets data for AL

Choose the example with the wildcard (*) to get data for all states so you can find the code for California

- **Paste A Sample URL Into The Address Bar**
- **Enter Your API Key Or Delete “&key=YOUR_KEY_GOES_HERE”**
- **Press Enter And View Results to find that the state code for CA is 06**

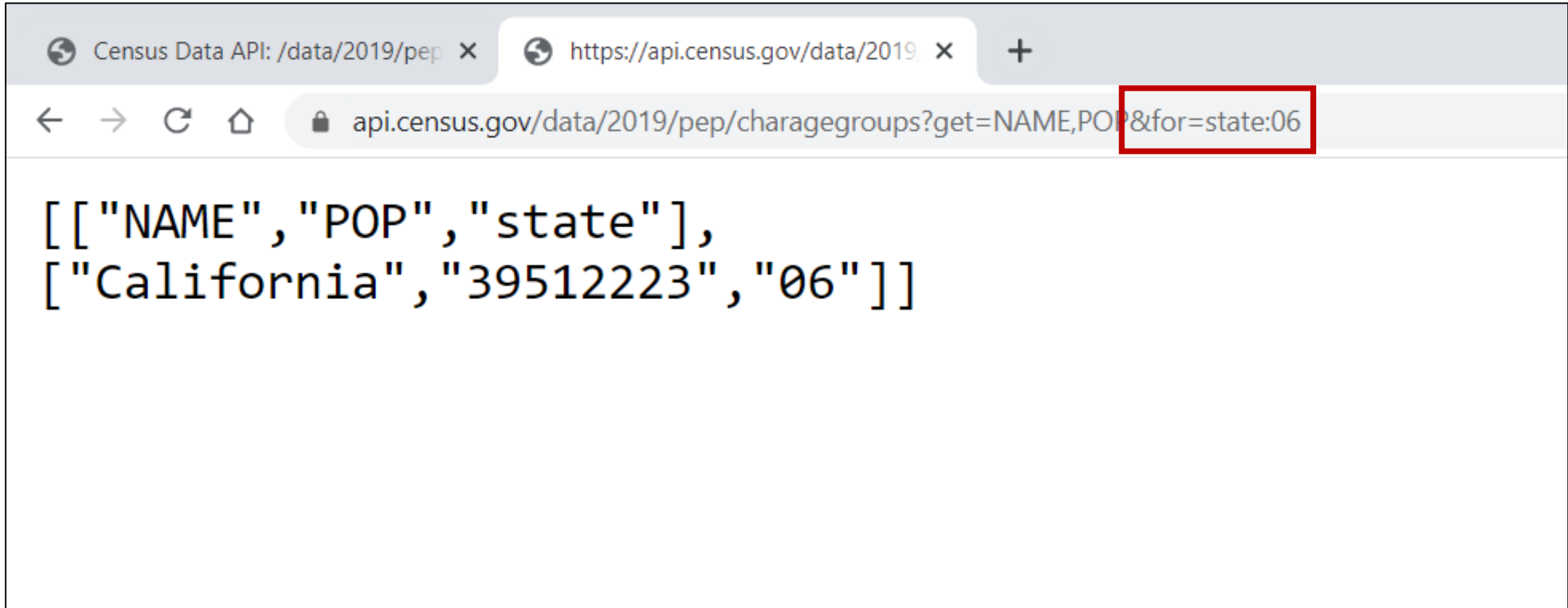


The screenshot shows a web browser with two tabs. The active tab is titled "https://api.census.gov/data/2019". The address bar contains the URL `https://api.census.gov/data/2019/pep/charagegroups?get=NAME,POP&for=state:*&key=YOUR_KEY_GOES_HERE`, which is highlighted with a red box. Below the address bar, the JSON response is displayed as a list of arrays, each representing a state with its name, population, and state code.

```
[["NAME", "POP", "state"],  
["Mississippi", "2976149", "28"],  
["Missouri", "6137428", "29"],  
["Montana", "1068778", "30"],  
["Nebraska", "1934408", "31"],  
["Nevada", "3080156", "32"],  
["New Hampshire", "1350711", "33"]]
```

https://api.census.gov/data/2019/pep/charagegroups?get=NAME,POP&for=state:*

- **Edit Geography Selection To Retrieve Data for California** – In this example, replace the state wildcard (*) with state code **06** for CA



```
[[ "NAME", "POP", "state"],  
["California", "39512223", "06"]]
```

<https://api.census.gov/data/2019/pep/charagegroups?get=NAME,POP&for=state:06>

- Find Your Variables: Click variables from the dataset page

Title	Description	Vintage	Dataset Name	Dataset Type	Geography List	Variable List	Group List	Examples	Developer Documentation	API Base URL
Population Estimates by Age Group, Sex, Race, and Hispanic Origin	Annual Resident Population Estimates by Age Group, Sex, Race, and Hispanic Origin; for the United States, States, Counties; and for Puerto Rico and its Municipios: April 1, 2010 to July 1, 2019 // Source: U.S. Census Bureau, Population Division // The contents of this file are released on a rolling basis from December through June. // Note: 'In combination' means in combination with one or more other races. The sum of the five race-in-combination groups adds to more than the total population because individuals may report more than one race. Hispanic origin is considered an ethnicity, not a race. Hispanics may be of any race. Responses of 'Some Other Race' from the 2010 Census are modified. This results in differences between the population for specific race categories shown for the 2010 Census population in this file versus those in the original 2010 Census data. The estimates are based on the 2010 Census and reflect changes to the April 1, 2010 population due to the Count Question Resolution program and geographic program revisions. // Current data on births, deaths, and migration are used to calculate population change since the 2010 Census. An annual time series of estimates is produced, beginning with the census and extending to the vintage year. The vintage year (e.g., Vintage 2019) refers to the final year of the time series. The reference date for all estimates is July 1, unless otherwise specified. With each new issue	2019	pep> charagegroups	Aggregate	geographies	variables	groups	examples	documentation	https://api.census.gov/data/2019/pep/charagegroups

<https://api.census.gov/data/2019/pep/charagegroups.html>

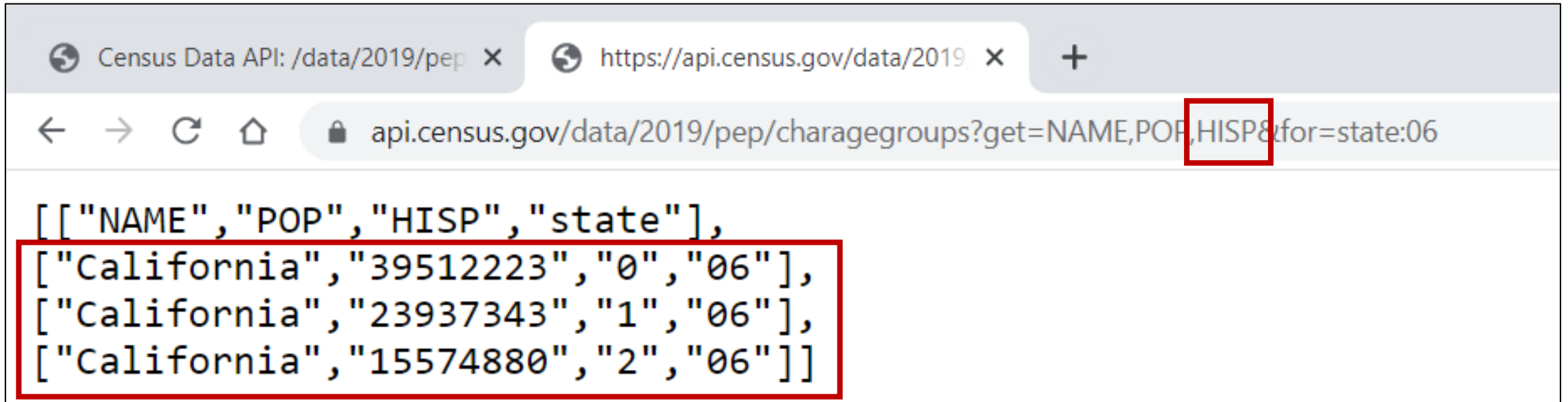
- Find your variables of interest (cont.): Variables that say “default displayed” in the “Required” column are categorical. Click on the variable name **HISP** to discover that including **&HISP=2** in the API call will provide data for the Hispanic population

Census Data API: Variables in /data/2019/pep/charagegroups/variables

Name	Label	Concept	Required	Attributes	Limit	Predicate Type	Group
AGEGROUP	Age Group		default displayed		0	int	N/A
COUNTY	Geography		not required		0	(not a predicate)	N/A
DATE_CODE	Estimate Date		default displayed		0	int	N/A
DATE_DESC	Description of DATE values		not required		0	string	N/A
for	Census API FIPS 'for' clause	Census API Geography Specification	predicate-only		0	fips-for	N/A
GEO_ID	Geography		not required	NAME	0	string	N/A
GEOCOMP	GEO_ID Component		default displayed		0	string	N/A
HISP	Hispanic Origin		default displayed		0	int	N/A

```
{
  "name": "HISP",
  "label": "Hispanic Origin",
  "required": "default displayed",
  "predicateType": "int",
  "group": "N/A",
  "limit": 0,
  "values": {
    "item": {
      "2": "Hispanic",
      "1": "Non Hispanic",
      "0": "Both Hispanic origins"
    }
  }
}
```

- Update Query With Variable Of Interest: HISP
- View Results – By default, you get data for all three values:
 - Total population = 0
 - Not Hispanic = 1
 - Hispanic = 2

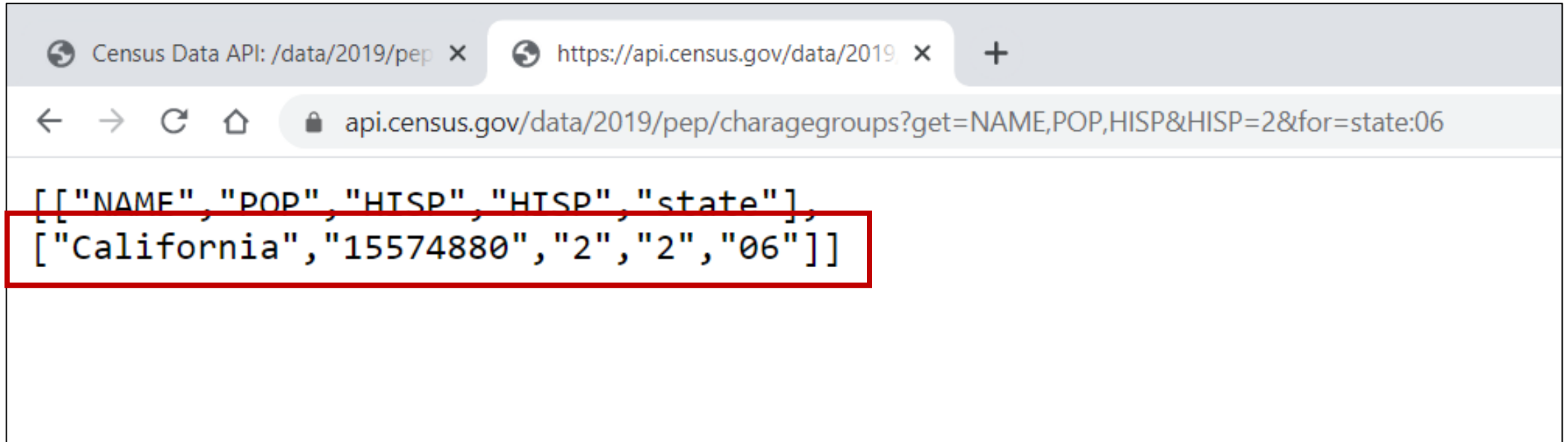


```
api.census.gov/data/2019/pep/charagegroups?get=NAME,POP,HISP&for=state:06
```

```
[["NAME", "POP", "HISP", "state"],  
["California", "39512223", "0", "06"],  
["California", "23937343", "1", "06"],  
["California", "15574880", "2", "06"]]
```

<https://api.census.gov/data/2019/pep/charagegroups?get=NAME,POP,HISP&for=state:06>

- Add &HISP=2 to the URL to get restrict results to the Hispanic population
- **View Results** – There were 15,574,880 Hispanics living in California as of July 1, 2019



The screenshot shows a web browser with two tabs. The active tab is titled "https://api.census.gov/data/2019" and the address bar contains the URL "api.census.gov/data/2019/pep/charagegroups?get=NAME,POP,HISP&HISP=2&for=state:06". The main content area displays a JSON array: `[["NAME", "POP", "HTSP", "HTSP", "state"], ["California", "15574880", "2", "2", "06"]]`. A red rectangular box highlights the second element of the array, which represents the data for California.

<https://api.census.gov/data/2019/pep/charagegroups?get=NAME,POP,HISP&HISP=2&for=state:06>

Demo

1. Single estimate, Single Geo (Population Estimates Program)

What was the Hispanic population in California as of 7/1/2019?

2. **Multiple estimates, multiple geographies (American Community Survey)**

What was median income and homeownership rate across all counties in California in 2007?

3. Entire table – Groups functionality (American Community Survey)

How can I download DP03 for All Metropolitan Statistical Areas in 2007?



API Variable Naming Convention: American Community Survey (ACS) and Decennial Census

The ACS and Decennial Census follow a code-based variable naming convention:

Example: B17001_002E for total people in poverty

```
[ ["NAME", "B17001_002E", "B17001_002M", "us"],  
  ["United States", "41852315", "232949", "1"] ]
```

https://api.census.gov/data/2018/acs/acs1?get=NAME,B17001_002E,B17001_002M&for=us

Visualizing ACS Variable Names: B17001_002E

B17001 = Table ID

002 = Line number

E = Estimate

M = Margin of Error

// Search / Tables / B17001

POVERTY STATUS IN THE PAST 12 MONTHS BY SEX BY AGE

Survey/Program: American Community Survey Universe: Population for whom poverty status is determined **TableID: B17001**
Product: 2018: ACS 1-Year Estimates Detailed Tables

Data Notes Selections Geographies Years Topic Survey Code 123 Hide Filter Sort Transpose Table

	United States	
	Estimate	Margin of Error
▼ Total:	319,184,033	+/-23,581
▼ Income in the past 12 months below poverty level:	41,852,315	+/-232,949
▼ Male:	18,550,942	+/-111,801
Under 5 years	1,913,474	+/-28,529
5 years	264,556	+/-9,022

data.census.gov/cedsci/table?q=b17001&hidePreview=true&tid=ACSDT1Y2018.B17001

Understanding Common ACS API Variables

Variables Ending in...	Meaning	Example
E	Estimate	13821
M	Margin of Error	519
PE	Percent Estimate	10.1
PM	Percent Margin of Error	1.2
EA	Annotation of Estimate	(X)
MA	Annotation of Margin of Error	*****
PEA	Annotation of Percent Estimate	(X)
PMA	Annotation of Percent Margin of Error	*****
SS	Statistical Significance	*
Other Variables	Meaning	Example
GEO_ID	Geography ID	0400000US24
NAME	Geography Name	Maryland

Annual ACS Datasets

API Dataset	Table ID Begins with	API Call Begins with
Detailed Tables	B or C	api.census.gov/data/2018/acs/acs1
Data Profiles	DP	api.census.gov/data/2018/acs/acs1/ profile
Comparison Profiles	CP	api.census.gov/data/2018/acs/acs1/ cprofile
Selected Population Profiles	S0201	api.census.gov/data/2018/acs/acs1/ spp
Subject Tables	S	api.census.gov/data/2018/acs/acs1/ subject

census.gov/programs-surveys/acs/guidance/which-data-tool/table-ids-explained.html

Multiple Variables and Geographies:

Median Income/Homeownership in 2007 – All counties in CA

- Use the Discovery Tool for the most up-to-date listing of available datasets

DEVELOPERS

About this Section

API Forum

App Gallery

Available APIs

Geography

Guidance for Developers

News

Terms of Service

Updates

< Back to Updates

Census Data API

Discovery Tool

MARCH 01, 2014

The Census Data API Discovery Tool provides a machine-readable dataset discovery service and is available in three formats:

- api.census.gov/data.html
- api.census.gov/data.xml
- api.census.gov/data.json

The content of api.census.gov/data.json is based largely on the Open Project Data Common Core Metadata Schema and is

census.gov/data/developers/updates/new-discovery-tool.html

- Find Your Dataset: Search the webpage (CTRL+F) to find your dataset of interest, such as “2007” to find ACS 1-Year Data Profiles. Open “examples” in a new tab.

		2007	3/29							
Business Patterns: Total For Zip Code	Industries by 5-digit ZIP Code. All Industries is set using SIC=00 from 1994 to 1997 and then with NAICS=00 from 1998 to present.									
American Community Survey: 1-Year Estimates: Detailed Tables 1-Year	The American Community Survey (ACS) is an ongoing survey that provides data every year -- giving communities the current information they need to plan investments and services. The ACS covers a broad range of topics about social, economic, demographic, and housing characteristics of the U.S. population. Much of the ACS data provided on the Census Bureau's Web site are available separately by age group, race, Hispanic origin, and sex. Summary files, Subject tables, Data profiles, and Comparison profiles are available for the nation, all 50 states, the District of Columbia, Puerto Rico, every congressional district, every metropolitan area, and all counties and places with populations of 65,000 or more. Detail Tables contain the most detailed cross-tabulations published for areas 65k and more. The data are population counts. There are over 31,000 variables in this dataset.	2007	acs> acs1	Aggregate	geographies	variables	groups	examples	documentation	http
American Community Survey: 1-Year Estimates: Data Profiles 1-Year	The American Community Survey (ACS) is an ongoing survey that provides data every year -- giving communities the current information they need to plan investments and services. The ACS covers a broad range of topics about social, economic, demographic, and housing characteristics of the U.S. population. Much of the ACS data provided on the Census Bureau's Web site are available separately by age group, race, Hispanic origin, and sex. Summary files, Subject tables, Data profiles, and Comparison profiles are available for the nation, all 50 states, the District of Columbia, Puerto Rico, every congressional district, every metropolitan area, and all counties and places with populations of 65,000 or more. Data profiles contain broad social, economic, housing, and demographic information. The data are presented as population counts and percentages. There are over 1,000 variables in this dataset.	2007	acs> acs1> profile	Aggregate	geographies	variables	groups	examples	documentation	http
	The American Community Survey (ACS) is a nationwide survey designed to									

api.census.gov/data.html

- Choose Your Geography – Explore the available geographic levels on the left, copy a sample URL, and open a new tab

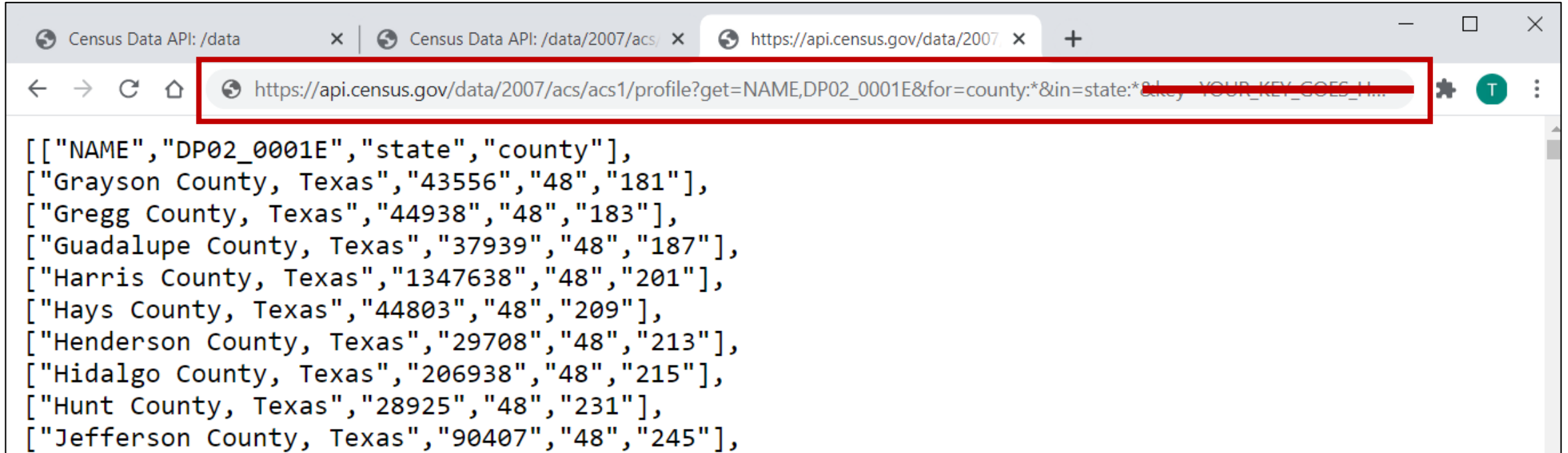
Geography Hierarchy	Geography Level	Example URL
us	010	https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=us:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=us:1&key=YOUR_KEY_GOES_HERE
region	020	https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=region:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=region:1&key=YOUR_KEY_GOES_HERE
division	030	https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=division:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=division:1&key=YOUR_KEY_GOES_HERE
state	040	https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=state:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=state:01&key=YOUR_KEY_GOES_HERE
state > county	050	https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=county:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=county:*&in=state:*&key=YOUR_KEY_GOES_HERE
		https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=county:003&in=state:01&key=YOUR_KEY_GOES_HERE
state > county >		https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=county%20subdivision:*&in=state:09&key=YOUR_KEY_GC

- &for=county:* gets data for all counties
- &for=county:*&in=state:* gets data for all counties in all states
- &for=county003&in=state:01 gets data for Baldwin County AL

We'll choose the second example for all counties across all states in case we need to reference state code 06 for California

api.census.gov/data/2007/acs/acs1/profile/examples.html

- Paste A Sample URL Into The Address Bar
- Enter Your API Key Or Delete “&key=YOUR_KEY_GOES_HERE”
- Press Enter And View Results to find that the state code for CA is 06

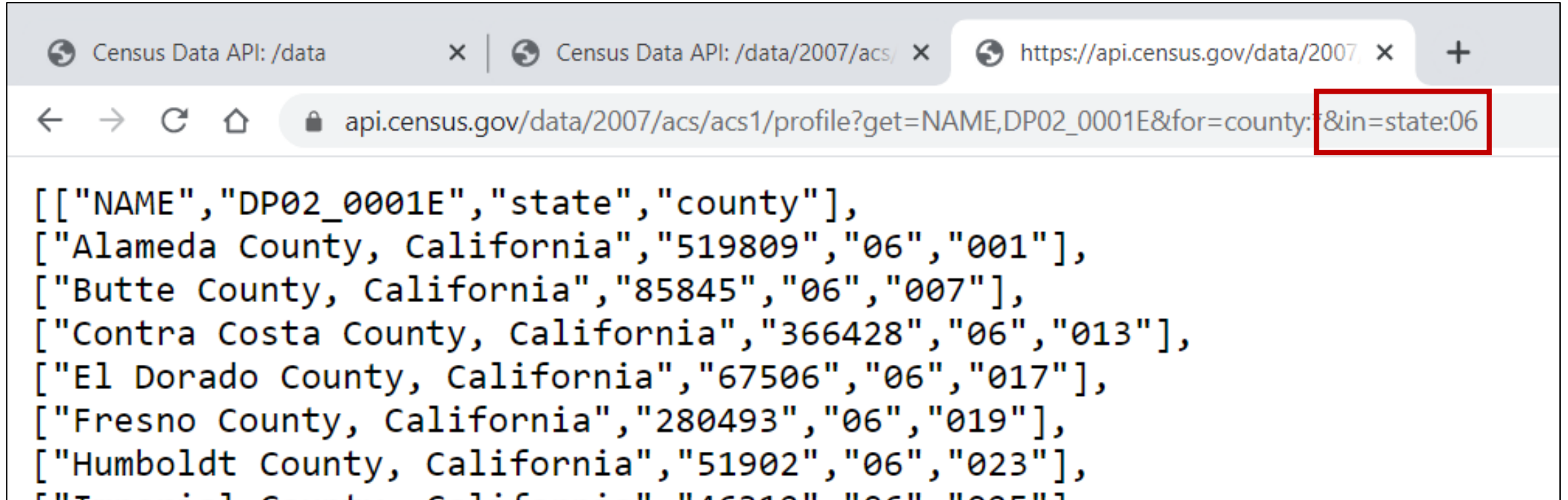


The screenshot shows a web browser window with the following address bar text: `https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=county:*&in=state:*&key=YOUR_KEY_GOES_HERE`. The page content displays a JSON array of county data for Texas:

```
[["NAME", "DP02_0001E", "state", "county"],  
["Grayson County, Texas", "43556", "48", "181"],  
["Gregg County, Texas", "44938", "48", "183"],  
["Guadalupe County, Texas", "37939", "48", "187"],  
["Harris County, Texas", "1347638", "48", "201"],  
["Hays County, Texas", "44803", "48", "209"],  
["Henderson County, Texas", "29708", "48", "213"],  
["Hidalgo County, Texas", "206938", "48", "215"],  
["Hunt County, Texas", "28925", "48", "231"],  
["Jefferson County, Texas", "90407", "48", "245"],
```

api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=county:*&in=state:*

- **Edit Geography Selection To Retrieve Data for California** – In this example, replace the state wildcard (*) with state code **06** for CA



```
api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=county:&in=state:06
```

```
[["NAME", "DP02_0001E", "state", "county"],  
["Alameda County, California", "519809", "06", "001"],  
["Butte County, California", "85845", "06", "007"],  
["Contra Costa County, California", "366428", "06", "013"],  
["El Dorado County, California", "67506", "06", "017"],  
["Fresno County, California", "280493", "06", "019"],  
["Humboldt County, California", "51902", "06", "023"],  
["Imperial County, California", "46210", "06", "025"]]
```

api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=county:*&in=state:06

- Find Your Variables: Click variables from the dataset page

		2007	3/29	^	v	x				
Business Patterns: Total For Zip Code	Industries by 5-digit ZIP Code. All Industries is set using SIC=00 from 1994 to 1997 and then with NAICS=00 from 1998 to present.									
American Community Survey: 1-Year Estimates: Detailed Tables 1-Year	The American Community Survey (ACS) is an ongoing survey that provides data every year -- giving communities the current information they need to plan investments and services. The ACS covers a broad range of topics about social, economic, demographic, and housing characteristics of the U.S. population. Much of the ACS data provided on the Census Bureau's Web site are available separately by age group, race, Hispanic origin, and sex. Summary files, Subject tables, Data profiles, and Comparison profiles are available for the nation, all 50 states, the District of Columbia, Puerto Rico, every congressional district, every metropolitan area, and all counties and places with populations of 65,000 or more. Detail Tables contain the most detailed cross-tabulations published for areas 65k and more. The data are population counts. There are over 31,000 variables in this dataset.	2007	acs> acs1	Aggregate	geographies	variables	groups	examples	documentation	http
American Community Survey: 1-Year Estimates: Data Profiles 1-Year	The American Community Survey (ACS) is an ongoing survey that provides data every year -- giving communities the current information they need to plan investments and services. The ACS covers a broad range of topics about social, economic, demographic, and housing characteristics of the U.S. population. Much of the ACS data provided on the Census Bureau's Web site are available separately by age group, race, Hispanic origin, and sex. Summary files, Subject tables, Data profiles, and Comparison profiles are available for the nation, all 50 states, the District of Columbia, Puerto Rico, every congressional district, every metropolitan area, and all counties and places with populations of 65,000 or more. Data profiles contain broad social, economic, housing, and demographic information. The data are presented as population counts and percentages. There are over 1,000 variables in this dataset.	2007	acs> acs1> profile	Aggregate	geographies	variables	groups	examples	documentation	http
	The American Community Survey (ACS) is a nationwide survey designed to									

api.census.gov/data.html

- Find Your Variables (cont.): Search the webpage (CTRL+F) to find your variables of interest, such as “median” to find DP03_0063E, median household income and “owner” to find DP04_0045PE, percent owner-occupied housing unites

Variable ID	Description
DP03_0062PE	Percent!!Estimate!!INCOME AND BENEFITS (IN 2007 INFLATION-ADJUSTED DOLLARS)!!Total households!!\$200,000 or more
DP03_0063E	Number!!Estimate!!INCOME AND BENEFITS (IN 2007 INFLATION-ADJUSTED DOLLARS)!!Total households!!Median household income (dollars)
DP03_0063PE	Percent!!Estimate!!INCOME AND BENEFITS (IN 2007 INFLATION-ADJUSTED DOLLARS)!!Total households!!Median household income (dollars)

Variable ID	Description	Selected Housing Characteris 2007
DP04_0044PE	Percent!!Estimate!!HOUSING TENURE!!Occupied housing units	Selected Housing Characteris 2007
DP04_0045E	Number!!Estimate!!HOUSING TENURE!!Occupied housing units!!Owner-occupied	Selected Housing Characteris 2007
DP04_0045PE	Percent!!Estimate!!HOUSING TENURE!!Occupied housing units!!Owner-occupied	Selected Housing Characteris 2007

- Update Query With Variables Of Interest: DP03_0063E,DP04_0045PE
- View Results – See median household income and homeownership in CA counties. In 2007 in Alameda County, median income was \$68,740 and 57.4% of housing units were owner occupied

```

[["NAME", "DP03_0063E", "DP04_0045PE", "state", "county"],
["Alameda County, California", "68740", "57.4", "06", "001"],
["Butte County, California", "39529", "58.9", "06", "007"],
["Contra Costa County, California", "76436", "71.2", "06", "013"],
["El Dorado County, California", "64188", "72.5", "06", "017"],
["Fresno County, California", "47298", "56.0", "06", "019"],
["Humboldt County, California", "36870", "58.8", "06", "023"],
["Imperial County, California", "21912", "49.2", "06", "025"]

```

api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP03_0063E,DP04_0045PE&for=county:*&in=state:06

Demo

1. Single estimate, Single Geo (Population Estimates Program)
What was the Hispanic population in California as of 7/1/2019?
2. Multiple estimates, multiple geographies (American Community Survey)
What was median income and homeownership rate across all counties in California in 2007?
3. **Entire table – Groups functionality (American Community Survey)**
How can I access DP03 for All Metropolitan Statistical Areas in 2007?

Groups Functionality – Get All Results for an ACS Table

- Pull results for more than 50 variables in a single call
- Find example calls on ACS API pages
- All variable names will appear first followed by all the values in the output

Detailed Tables

- **Example Call:** `api.census.gov/data/2018/acs/acs1?get=NAME,group(B01001)&for=us:1&key=YOUR_KEY_GOES_HERE`
- 2018 ACS Detailed Tables Variables [[html](#) | [xml](#) | [json](#)]
- [ACS Technical Documentation](#)
- [Examples and Supported Geography](#)

Subject Tables

- **Example Call:** `api.census.gov/data/2018/acs/acs1/subject?get=NAME,group(S0101)&for=us:1&key=YOUR_KEY_GOES_HERE`
- 2018 ACS Subject Tables Variables [[html](#) | [xml](#) | [json](#)]
- [ACS Technical Documentation](#)
- [Examples and Supported Geography](#)

Data Profiles

- **Example Call:** `api.census.gov/data/2018/acs/acs1/profile?get=group(DP02)&for=us:1&key=YOUR_KEY_GOES_HERE`
- 2018 ACS Data Profiles Variables [[html](#) | [xml](#) | [json](#)]
- [ACS Technical Documentation](#)
- [Examples and Supported Geography](#)

census.gov/data/developers/data-sets/acs-1year.html

Results for An Entire Table: DP03 for all Metro/Micro Areas in U.S.

- Copy the example group call under Data Profiles and open a new tab

About this Section

API Forum

App Gallery

Available APIs

Geography

Guidance for Developers

News

Terms of Service

Updates

< Back to Available APIs

Request a

American Community Survey 1-Year Data (2011-2018)

OCTOBER 17, 2019

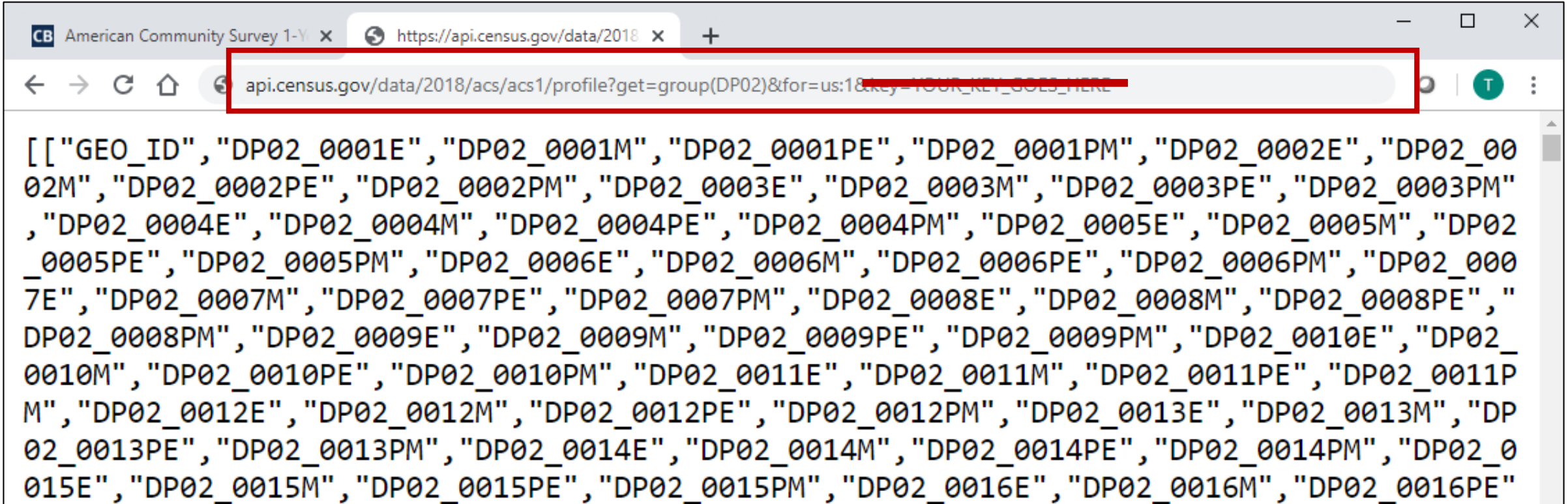
2018 2017 2016 2015 2014 2013 2012 2011

Data Profiles

- Example Call:** `api.census.gov/data/2018/acs/acs1/profile?get=group(DP02)&for=us:1&key=YOUR_KEY_GOES_HERE`
- 2018 ACS Data Profiles Variables [[html](#) | [xml](#) | [json](#)]
- [ACS Technical Documentation](#)
- [Examples and Supported Geography](#)

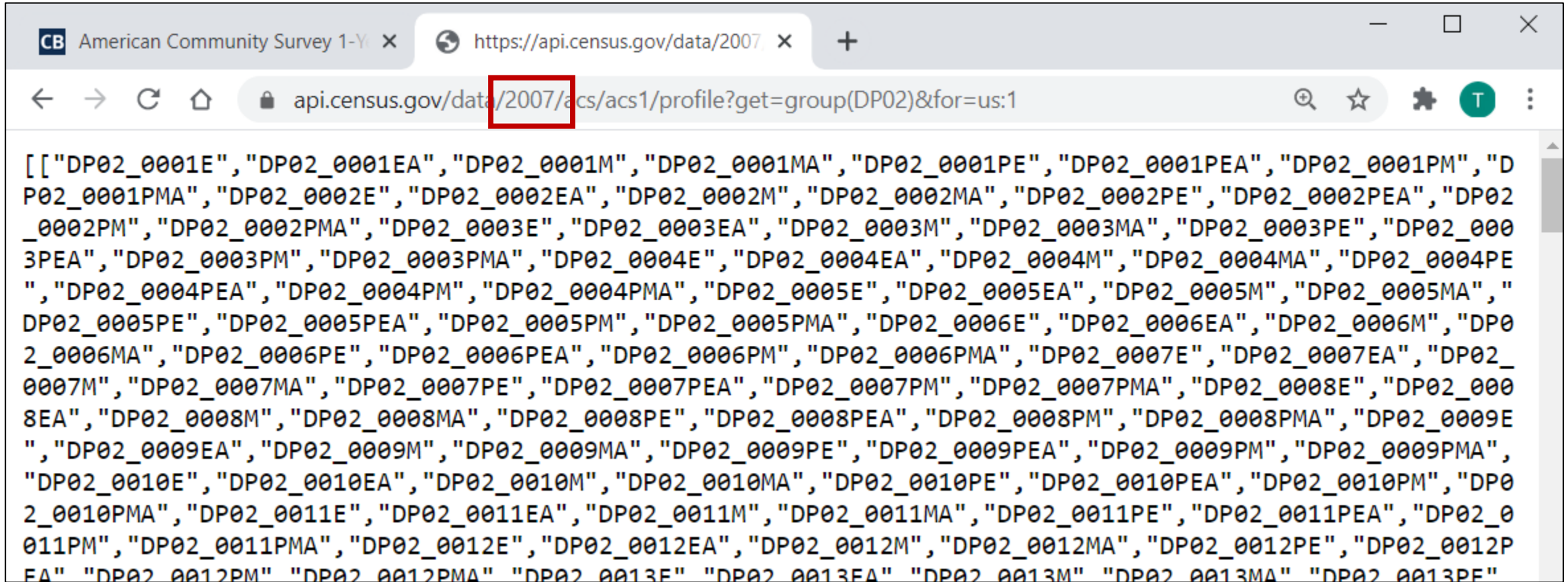
census.gov/data/developers/data-sets/acs-1year.html

- Paste the Sample URL Into The Address Bar
- Enter Your API Key Or Delete “&key=YOUR_KEY_GOES_HERE”
- Press Enter



[api.census.gov/data/2018/acs/acs1/profile?get=group\(DP02\)&for=us:1](https://api.census.gov/data/2018/acs/acs1/profile?get=group(DP02)&for=us:1)

- **Update Year** – In this example, replace the 2018 with **2007** and press enter



```
[["DP02_0001E", "DP02_0001EA", "DP02_0001M", "DP02_0001MA", "DP02_0001PE", "DP02_0001PEA", "DP02_0001PM", "DP02_0001PMA", "DP02_0002E", "DP02_0002EA", "DP02_0002M", "DP02_0002MA", "DP02_0002PE", "DP02_0002PEA", "DP02_0002PM", "DP02_0002PMA", "DP02_0003E", "DP02_0003EA", "DP02_0003M", "DP02_0003MA", "DP02_0003PE", "DP02_0003PEA", "DP02_0003PM", "DP02_0003PMA", "DP02_0004E", "DP02_0004EA", "DP02_0004M", "DP02_0004MA", "DP02_0004PE", "DP02_0004PEA", "DP02_0004PM", "DP02_0004PMA", "DP02_0005E", "DP02_0005EA", "DP02_0005M", "DP02_0005MA", "DP02_0005PE", "DP02_0005PEA", "DP02_0005PM", "DP02_0005PMA", "DP02_0006E", "DP02_0006EA", "DP02_0006M", "DP02_0006MA", "DP02_0006PE", "DP02_0006PEA", "DP02_0006PM", "DP02_0006PMA", "DP02_0007E", "DP02_0007EA", "DP02_0007M", "DP02_0007MA", "DP02_0007PE", "DP02_0007PEA", "DP02_0007PM", "DP02_0007PMA", "DP02_0008E", "DP02_0008EA", "DP02_0008M", "DP02_0008MA", "DP02_0008PE", "DP02_0008PEA", "DP02_0008PM", "DP02_0008PMA", "DP02_0009E", "DP02_0009EA", "DP02_0009M", "DP02_0009MA", "DP02_0009PE", "DP02_0009PEA", "DP02_0009PM", "DP02_0009PMA", "DP02_0010E", "DP02_0010EA", "DP02_0010M", "DP02_0010MA", "DP02_0010PE", "DP02_0010PEA", "DP02_0010PM", "DP02_0010PMA", "DP02_0011E", "DP02_0011EA", "DP02_0011M", "DP02_0011MA", "DP02_0011PE", "DP02_0011PEA", "DP02_0011PM", "DP02_0011PMA", "DP02_0012E", "DP02_0012EA", "DP02_0012M", "DP02_0012MA", "DP02_0012PE", "DP02_0012PEA", "DP02_0012PM", "DP02_0012PMA", "DP02_0013E", "DP02_0013EA", "DP02_0013M", "DP02_0013MA", "DP02_0013PE", "DP02_0013PEA", "DP02_0013PM", "DP02_0013PMA"]]
```

[api.census.gov/data/2007/acs/acs1/profile?get=group\(DP02\)&for=us:1](https://api.census.gov/data/2007/acs/acs1/profile?get=group(DP02)&for=us:1)

- Select **examples** from the dataset page for 2007 ACS 1-Year Data Profiles

Business Patterns: Total For Zip Code	Industries by 5-digit ZIP Code. All Industries is set using SIC=00 from 1994 to 1997 and then with NAICS=00 from 1998 to present.									
American Community Survey: 1-Year Estimates: Detailed Tables 1-Year	The American Community Survey (ACS) is an ongoing survey that provides data every year -- giving communities the current information they need to plan investments and services. The ACS covers a broad range of topics about social, economic, demographic, and housing characteristics of the U.S. population. Much of the ACS data provided on the Census Bureau's Web site are available separately by age group, race, Hispanic origin, and sex. Summary files, Subject tables, Data profiles, and Comparison profiles are available for the nation, all 50 states, the District of Columbia, Puerto Rico, every congressional district, every metropolitan area, and all counties and places with populations of 65,000 or more. Detail Tables contain the most detailed cross-tabulations published for areas 65k and more. The data are population counts. There are over 31,000 variables in this dataset.	2007	acs> acs1	Aggregate	geographies	variables	groups	examples	documentation	http
American Community Survey: 1-Year Estimates: Data Profiles 1-Year	The American Community Survey (ACS) is an ongoing survey that provides data every year -- giving communities the current information they need to plan investments and services. The ACS covers a broad range of topics about social, economic, demographic, and housing characteristics of the U.S. population. Much of the ACS data provided on the Census Bureau's Web site are available separately by age group, race, Hispanic origin, and sex. Summary files, Subject tables, Data profiles, and Comparison profiles are available for the nation, all 50 states, the District of Columbia, Puerto Rico, every congressional district, every metropolitan area, and all counties and places with populations of 65,000 or more. Data profiles contain broad social, economic, housing, and demographic information. The data are presented as population counts and percentages. There are over 1,000 variables in this dataset.	2007	acs> acs1> profile	Aggregate	geographies	variables	groups	examples	documentation	http
	The American Community Survey (ACS) is a nationwide survey designed to									

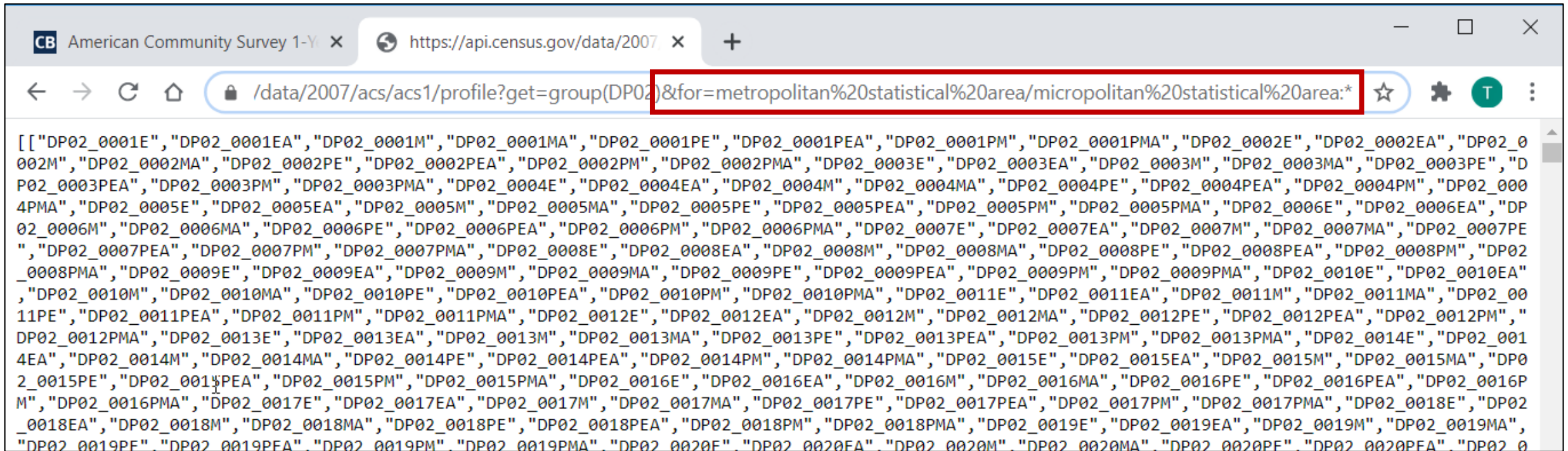
api.census.gov/data.html

- Choose Your Geography** – Explore the available geographic levels on the left and copy the geography portion. In this example we'll copy **&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:*** which provides data for all metro/micro areas in the U.S.

american indian area/alaska native area/hawaiian home land	250	https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=american%20indian%20area/alaska%20native%20area/hawaiian%20home%20land:*&key=YOUR_KEY_HERE https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=american%20indian%20area/alaska%20native%20area/hawaiian%20home%20land:2430&key=YOUR_KEY_GOES_HERE
metropolitan statistical area/micropolitan statistical area	310	https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:*&key=YOUR_KEY_HERE https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:49500&key=YOUR_KEY_HERE
metropolitan statistical area/micropolitan statistical area > state > principal city (or part)	312	https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=principal%20city%20(or%20part):*&in=metropolitan%20statistical%20area/micropolitan%20statistical%20area:13820%20state:01&key=YOUR_KEY_HERE https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=principal%20city%20(or%20part):07000&in=metropolitan%20statistical%20area/micropolitan%20statistical%20area:13820%20state:01&key=YOUR_KEY_HERE
metropolitan statistical area/micropolitan statistical area >	314	https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,DP02_0001E&for=metropolitan%20division:*&in=metropolitan%20statistical%20area/micropolitan%20statistical%20area:14460&key=YOUR_KEY_GOES_HERE

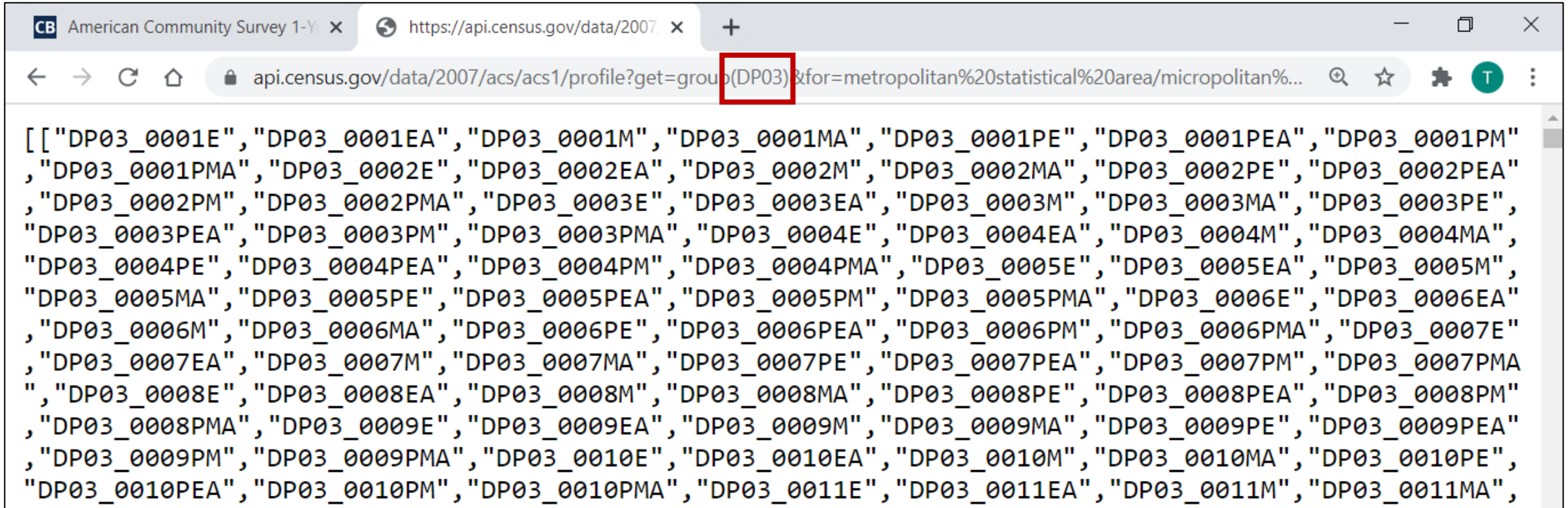
api.census.gov/data/2007/acs/acs1/profile/examples.html

- Navigate to the tab with the sample URL group call
- Replace `&for=us:*` with the geography portion for all metro/micro areas
`&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:*`
- Press enter



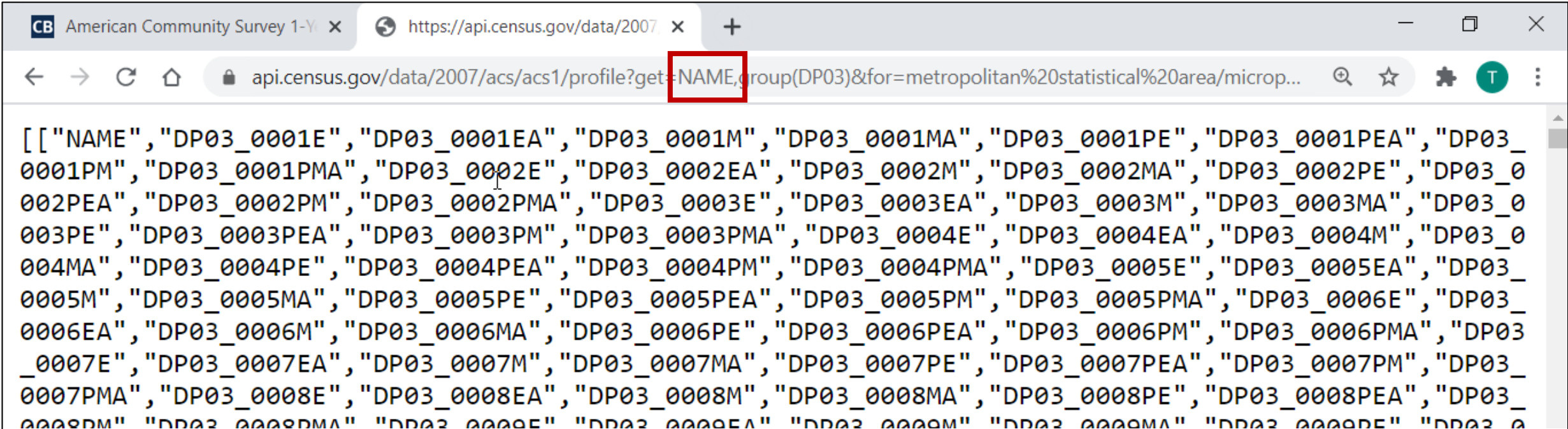
[api.census.gov/data/2007/acs/acs1/profile?get=group\(DP02\)&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:*](https://api.census.gov/data/2007/acs/acs1/profile?get=group(DP02)&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:*)

- Edit Table Selection To Retrieve Data for DP03 – In this example, replace DP02 with DP03
- Press Enter



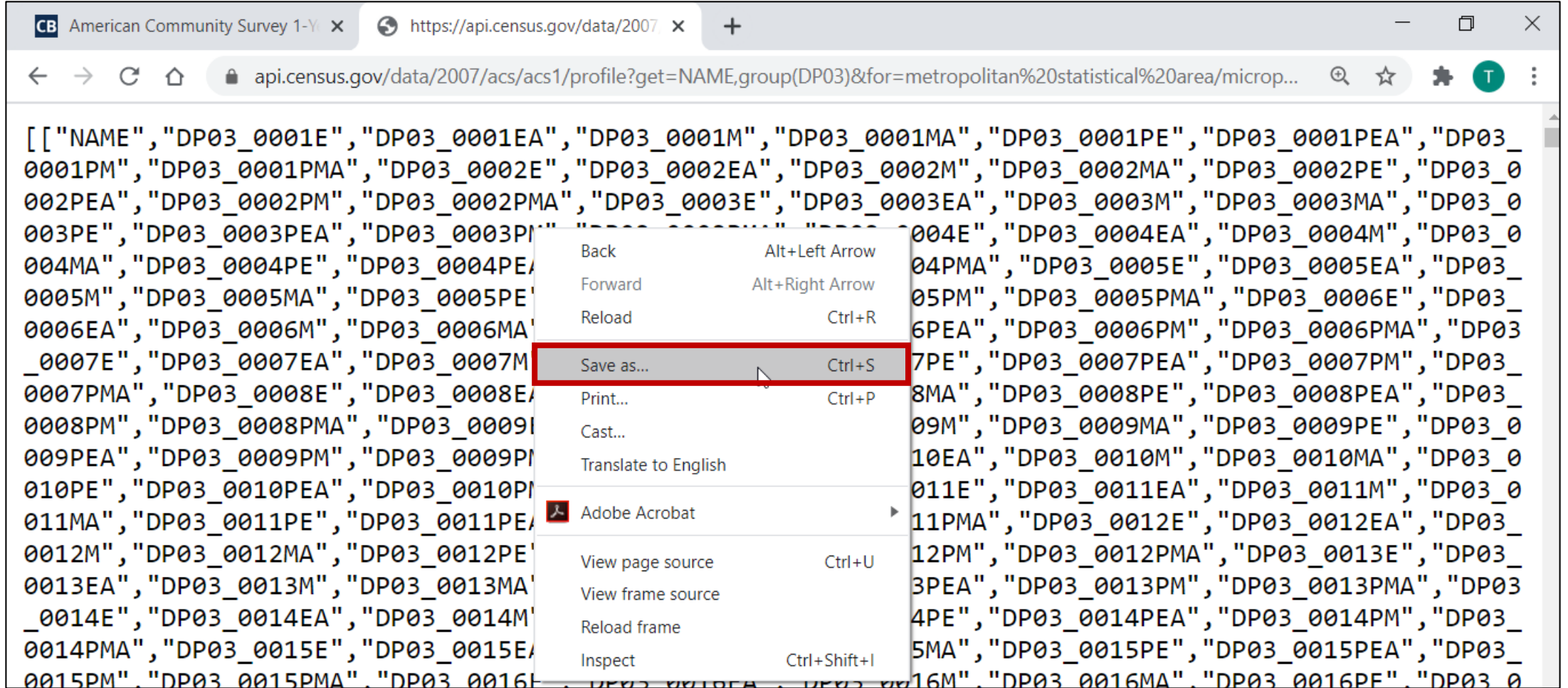
[api.census.gov/data/2007/acs/acs1/profile?get=group\(DP03\)&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:*](https://api.census.gov/data/2007/acs/acs1/profile?get=group(DP03)&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:*)

- Add **NAME**, to the URL to get the geography names for each Metropolitan Area
- Press Enter



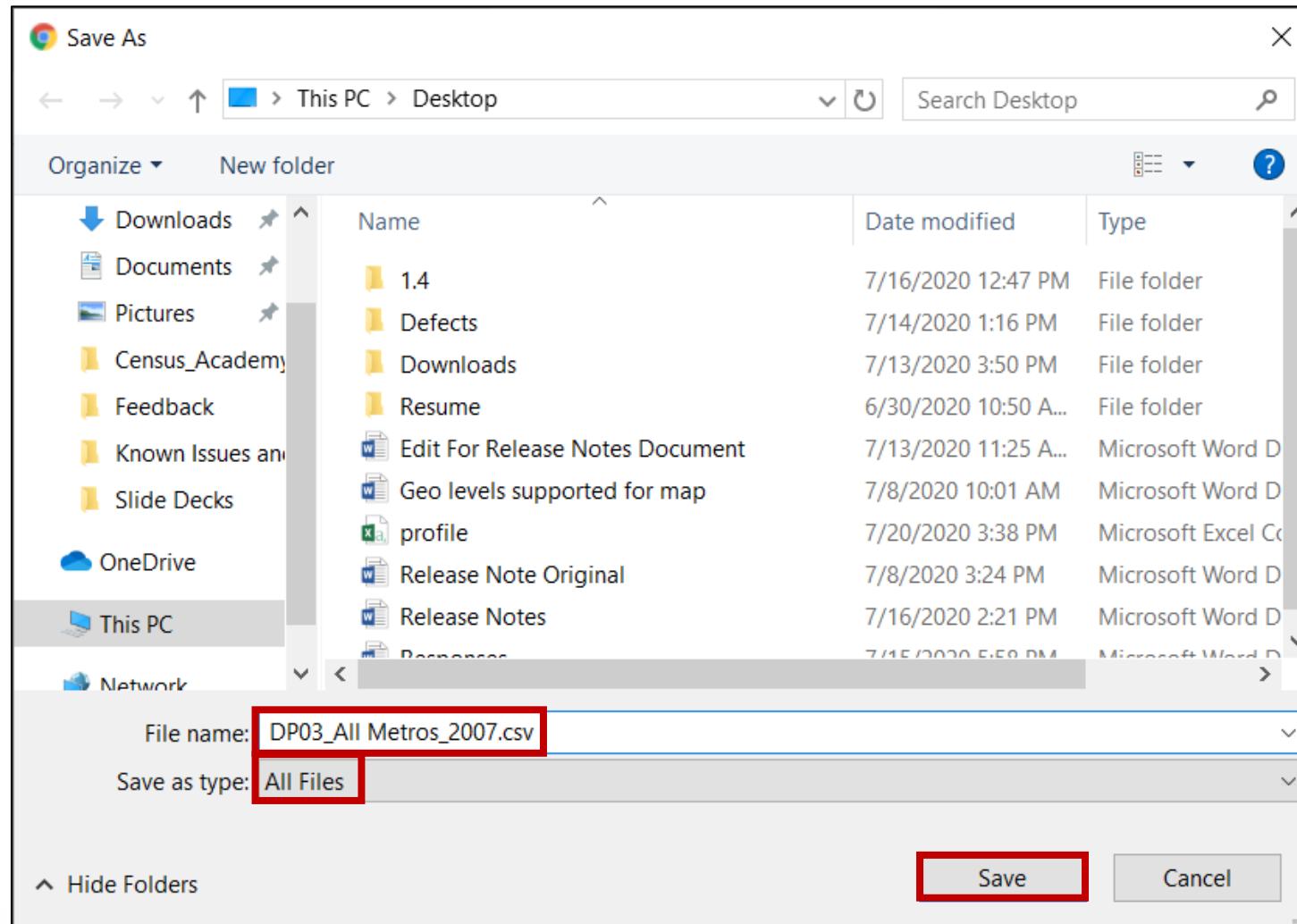
[api.census.gov/data/2007/acs/acs1/profile?get=NAME,group\(DP03\)&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:*](https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,group(DP03)&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:*)

- Save Results – Right click the page and select Save As



[api.census.gov/data/2007/acs/acs1/profile?get=NAME,group\(DP03\)&for=metropolitan%20statistical%20area/micropolit
an%20statistical%20area:*](https://api.census.gov/data/2007/acs/acs1/profile?get=NAME,group(DP03)&for=metropolitan%20statistical%20area/micropolitan%20statistical%20area:*)

- **Save As .csv** – Add **.csv** to the end of your filename and select **All Files** from the Save as type dropdown menu



- Open .csv In Excel – Each variable has its own column for easy viewing

	A	B	C	D	E	F
1	["NAME"	DP03_0001E	DP03_0001EA	DP03_000	DP03_000	DP03_000
2	["Galesburg	IL Micro Area"	55698	null	1260	null
3	["Gallup	NM Micro Area"	50978	null	527	null
4	["Gettysburg	PA Micro Area"	81091	null	435	null
5	["Glens Falls	NY Metro Area"	105941	null	769	null
6	["Goldsboro	NC Metro Area"	87803	null	531	null
7	["Grand Forks	ND-MN Metro Area"	78791	null	1057	null
8	["Grand Island	NE Micro Area"	52417	null	1407	null
9	["Grand Junction	CO Metro Area"	111125	null	825	null

- Clean up the table in Excel and pull in the labels for each variable. Step-by-step instructions are included in the next section

The screenshot shows an Excel spreadsheet titled "DP03_All Metros_2007". The active cell is A1, which contains the text "NAME". The spreadsheet displays data for seven micro areas, with columns A through F representing different variables. The data is as follows:

	A	B	C	D	E	F	G
1	NAME	DP03_0001E	DP03_0001M	DP03_0001M	DP03_0001PE		DP03_0001PE
2		Number!!Estimate!!EMPLOYMENT STATUS!!Population 16 years and over	#N/A	#N/A	#N/A	Percent!!Estimate!!EMPLOYMENT STATUS!!Population 16 years and over	#N/A
3	Galesburg IL Micro Area	55698	null	1260	null		100 null
4	Gallup NM Micro Area	50978	null	527	null		100 null
5	Gettysburg PA Micro Area	81091	null	435	null		100 null
6	Glens Falls NY Metro Area	105941	null	769	null		100 null
7	Goldsboro NC Metro Area	87803	null	531	null		100 null

Formatting Excel File

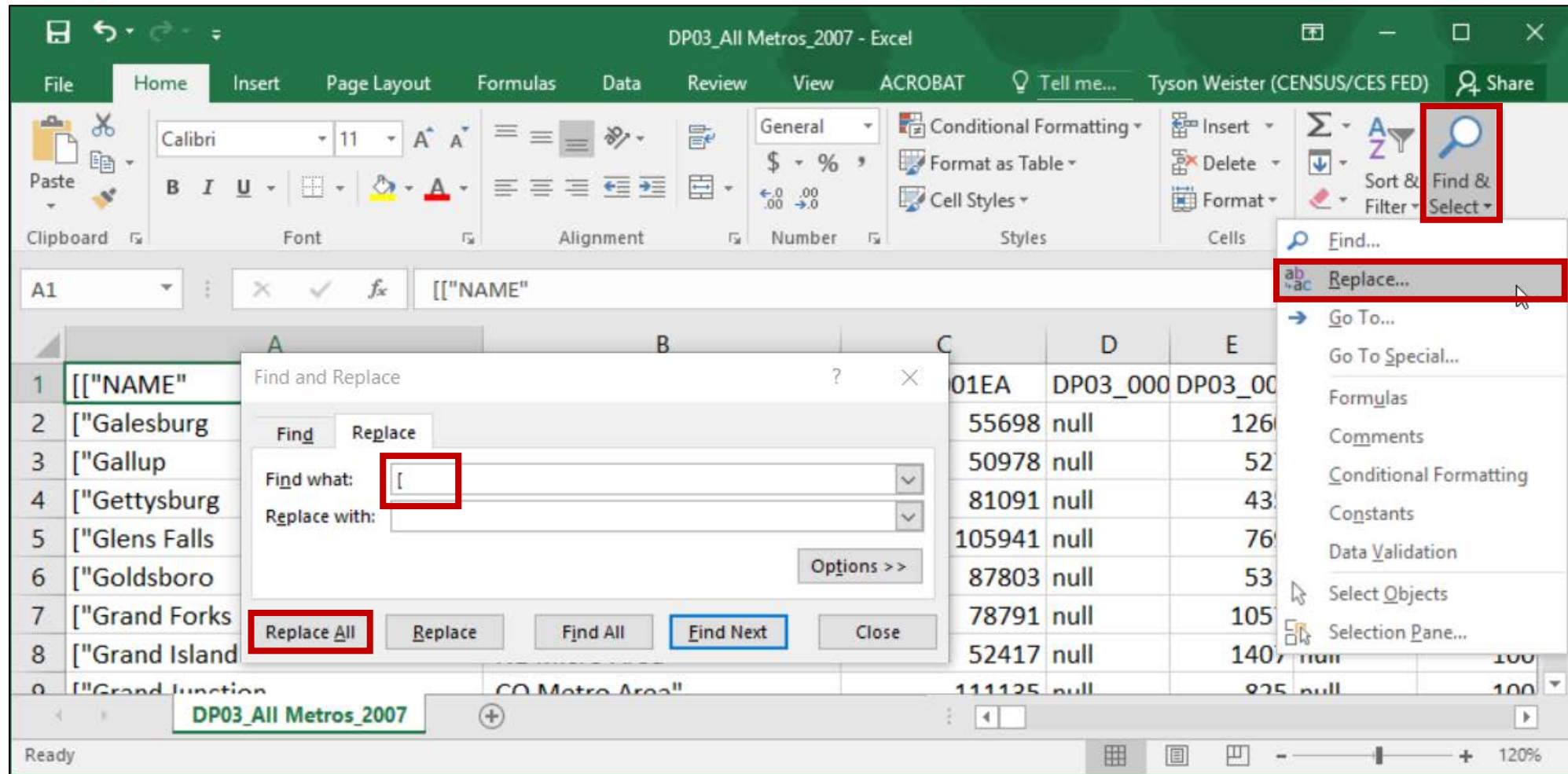
In this section, you will learn how to use Excel to:

1. Remove special characters using Find and Replace
2. Merge geography names in the first two columns and re-align the table under the correct headers
3. Add labels for the variable names using VLOOKUP

- Open .csv In Excel – Each variable has its own column for easy viewing

	A	B	C	D	E	F
1	[["NAME"	DP03_0001E	DP03_0001EA	DP03_000	DP03_000	DP03_
2	["Galesburg	IL Micro Area"	55698	null	1260	null
3	["Gallup	NM Micro Area"	50978	null	527	null
4	["Gettysburg	PA Micro Area"	81091	null	435	null
5	["Glens Falls	NY Metro Area"	105941	null	769	null
6	["Goldsboro	NC Metro Area"	87803	null	531	null
7	["Grand Forks	ND-MN Metro Area"	78791	null	1057	null
8	["Grand Island	NE Micro Area"	52417	null	1407	null
9	["Grand Junction	CO Metro Area"	111125	null	825	null

- Remove special characters— In this example, use Excel's Find and Replace. Copy the open bracket [, paste into "Find what", and select **Replace All**. Repeat this step for the quote " and closed bracket]



- Merge the geography name in columns A and B and realign the table data under the correct headers:** Because of the comma within each geography name (e.g. Galesburg, IL Micro area), the label was split across two columns (Galesburg) and (IL Micro Area). We need realign the data under the correct headers so Galesburg, IL Micro Area appears under the NAME column and 55698 appears under the DP03_0001E column, etc.

DP03_All Metros_2007 - Excel

File Home Insert Page Layout Formulas Data Review View ACROBAT Tell me... Tyson Weister (CENSUS/CES FED) Share

Clipboard Font Alignment Number Styles Cells Editing

A1 NAME

	A	B	C	D	E	F	G
1	NAME	DP03_0001E	DP03_0001EA	DP03_000	DP03_000	DP03_000	DP03_000
2	Galesburg	IL Micro Area	55698	null	1260	null	100
3	Gallup	NM Micro Area	50978	null	527	null	100
4	Gettysburg	PA Micro Area	81091	null	435	null	100
5	Glens Falls	NY Metro Area	105941	null	769	null	100

- Merge the contents of columns A and B:
 - Right click Column C and select “Insert”

The screenshot displays the Microsoft Excel interface for a file named "DP03_All Metros_2007 - Excel". The ribbon is set to "Home", and the active cell is C1, containing the text "DP03_0001EA". A right-click context menu is open over column C, with the "Insert" option highlighted by a red box. The spreadsheet data is as follows:

	A	B	C	D	E	F	G
1	NAME	DP03_0001E	DP03_000		DP03_000	DP03_000	DP03_000
2	Galesburg	IL Micro Area			1260	null	100
3	Gallup	NM Micro Area			527	null	100
4	Gettysburg	PA Micro Area			435	null	100
5	Glens Falls	NY Metro Area	1		769	null	100
6	Goldsboro	NC Metro Area			531	null	100
7	Grand Forks	ND-MN Metro Area			1057	null	100
8	Grand Island	NE Micro Area			1407	null	100
9	Grand Junction	CO Metro Area	1		825	null	100
10	Grand Rapids-Wyoming	MI Metro Area	5		1287	null	100
11	Grants Pass	OR Micro Area			510	null	100

The status bar at the bottom of the window shows: "Ready", "Average: -3516521.841", "Count: 511", "Sum: -1789909617", and "120%".

- Merge the contents of columns A and B (cont):
 - Click into cell C2
 - Type = then click into cell A2, type & and click into cell B2
 - Press enter

The screenshot shows an Excel spreadsheet with the following data:

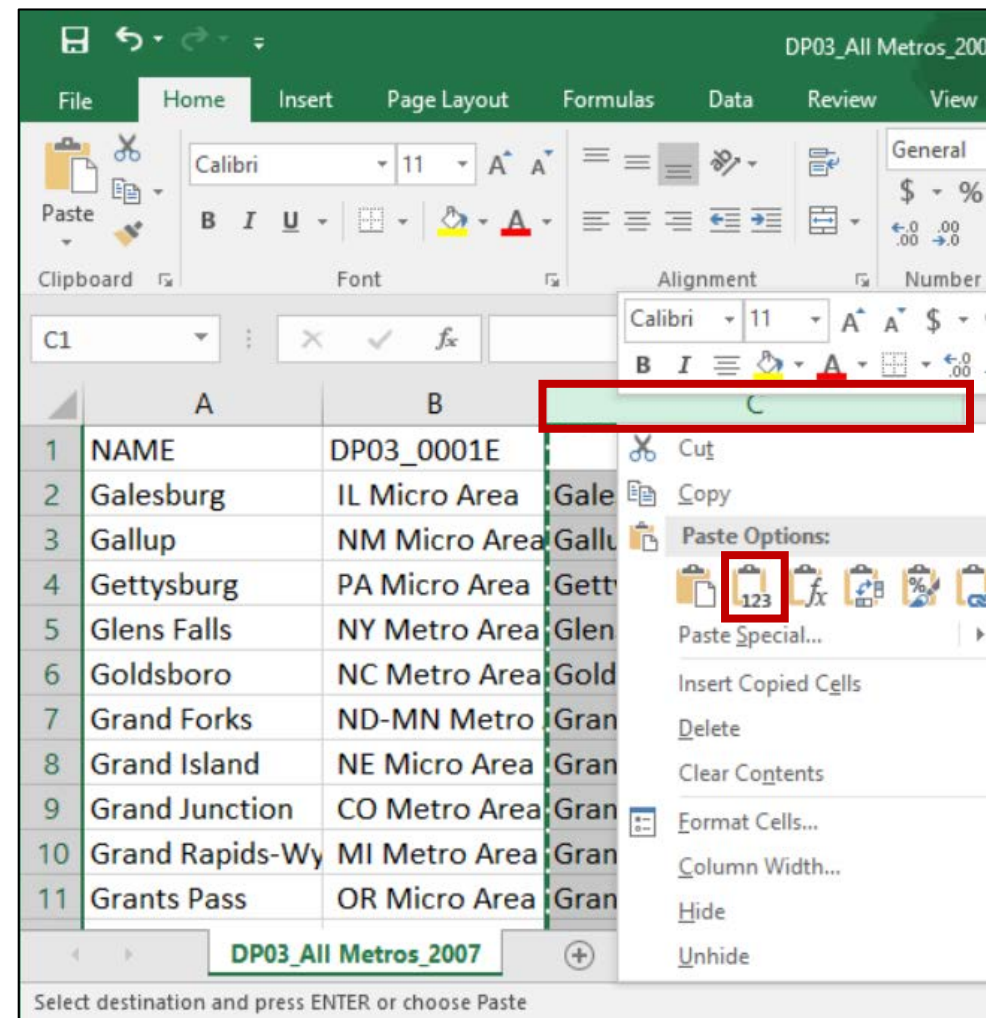
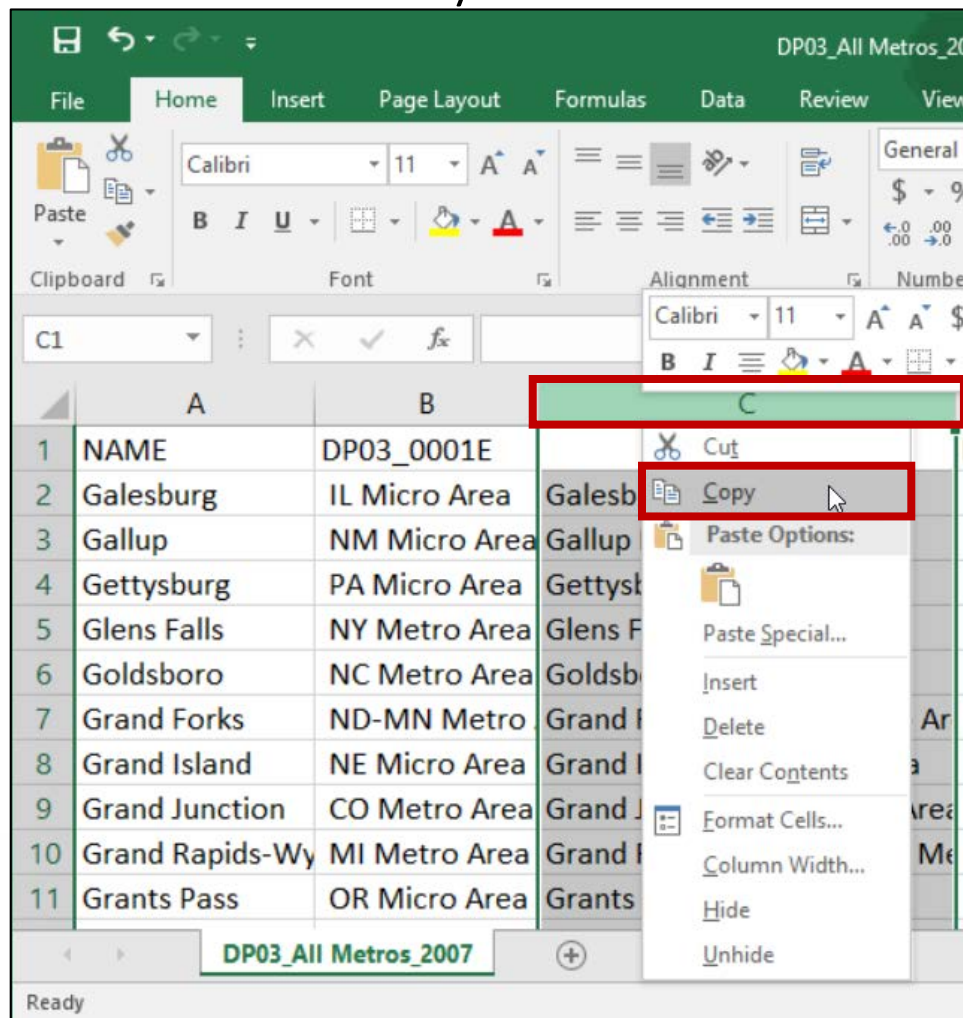
	A	B	C	D	E
1	NAME	DP03_0001E		DP03_000	DP03_
2	Galesburg	IL Micro Area	=A2&B2	55698	null
3	Gallup	NM Micro Area		50978	null
4	Gettysburg	PA Micro Area		81091	null
5	Glens Falls	NY Metro Area		105941	null
6	Goldsboro	NC Metro Area		87803	null

- Merge the contents of columns A and B (cont):
 - Double click the green square in the lower right corner of cell C2 to apply the formula across the whole list of geographies

The screenshot shows the Microsoft Excel interface with the following data in the spreadsheet:

	A	B	C	D	E
1	NAME	DP03_0001E		DP03_0001EA	DP03_000
2	Galesburg	IL Micro Area	Galesburg IL Micro Area	55698	null
3	Gallup	NM Micro Area		50978	null
4	Gettysburg	PA Micro Area		81091	null
5	Glens Falls	NY Metro Area		105941	null

- Lock down the geo labels in column C to replace the formula with only the text
 - Right click column C and select **Copy**
 - Right click column C again, and select the **second** paste icon that says “Values” when you hover over it



- Delete the original data that was split across columns A and B
 - Select cells **A2** and **B2** and then press **Control + Shift + ↓**
 - Right click the selected area and choose **Delete**
 - Leave the radio button marked to **Shift cells left** and click **OK**

The screenshot shows the Microsoft Excel interface with the 'Delete' menu open. The 'Delete...' option is highlighted in the main menu. In the sub-menu, the 'Shift cells left' radio button is selected. The 'OK' button is also highlighted. The background shows a spreadsheet with columns A and B containing data for various locations.

	A	B	D	E	F	G	H
1	NAME	DP03_0001E	DP03_0001EA	DP03_000	DP03_000	DP03_000	DP03_000
2	Galesburg	IL Micro Area	Delete	?	1260	null	100
3	Gallup	NM Micro Area	Delete		527	null	100
4	Gettysburg	PA Micro Area	Shift cells left		435	null	100
5	Glens Falls	NY Metro Area	Shift cells up		769	null	100
6	Goldsboro	NC Metro Area	Entire row		531	null	100
7	Grand Forks	ND-MN Metro	Entire column		1057	null	100
8	Grand Island	NE Micro Area	OK		1407	null	100
9	Grand Junction	CO Metro Area	Cancel		111135	null	825

- Delete cell C1 and shift the labels to the left
 - Right click cell C1 and choose **Delete**
 - Click the radio button to **Shift cells left** and click **OK**

The screenshot shows the Microsoft Excel interface with the 'Delete' dialog box open. The dialog box has three radio button options: 'Shift cells left' (which is selected and highlighted with a red box), 'Shift cells up', and 'Entire row'. The 'OK' button is also highlighted with a red box. In the background, the 'Delete...' option in the right-click context menu is highlighted with a red box. The spreadsheet data is as follows:

	A	B	C	E	F	G	H
1	NAME	DP03_0001E		DP03_000	DP03_000	DP03_000	DP03_000
2	Galesburg IL Micro	55698	null	50	null		0
3	Gallup NM Micro	50978	null	27	null		0
4	Gettysburg PA Mi	81091	null	35	null		0
5	Glens Falls NY Me	105941	null	39	null		0
6	Goldsboro NC Me	87803	null	31	null		0
7	Grand Forks ND-I	78791	null	57	null		0
8	Grand Island NE I	52417	null	07	null		0
9	Grand Junction C	111135	null	25	null		0
10	Grand Rapids-Wy	593270	null	37	null	100	null
11	Grants Pass OR M	67107	null	10	null	100	null

- Cells for NAME, and data variables are realigned under the correct headers

The screenshot shows an Excel spreadsheet with the following data:

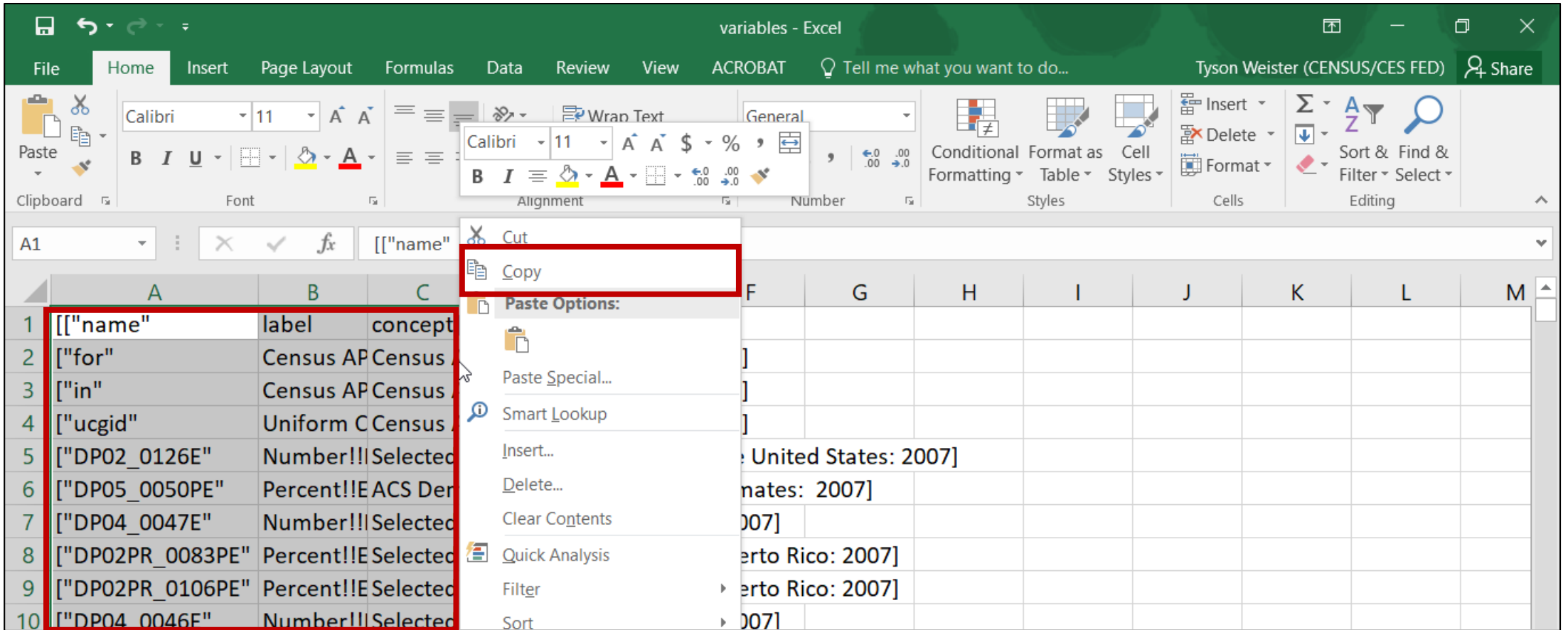
	A	B	C	D	E	F
1	NAME	DP03_0001E	DP03_0001EA	DP03_0001M	DP03_0001MA	DP03_0001
2	Galesburg IL Micro Area	55698	null	1260	null	100 r
3	Gallup NM Micro Area	50978	null	527	null	100 r
4	Gettysburg PA Micro Area	81091	null	435	null	100 r
5	Glens Falls NY Metro Area	105941	null	769	null	100 r
6	Goldsboro NC Metro Area	87803	null	531	null	100 r
7	Grand Forks ND-MN Metro Area	78791	null	1057	null	100 r
8	Grand Island NE Micro Area	52417	null	1407	null	100 r

- Run API Query To Get A List of All Variables In The 2007 Data Profiles – Delete .html from the webpage you pulled the variables from to run the query. Save as results as .csv.

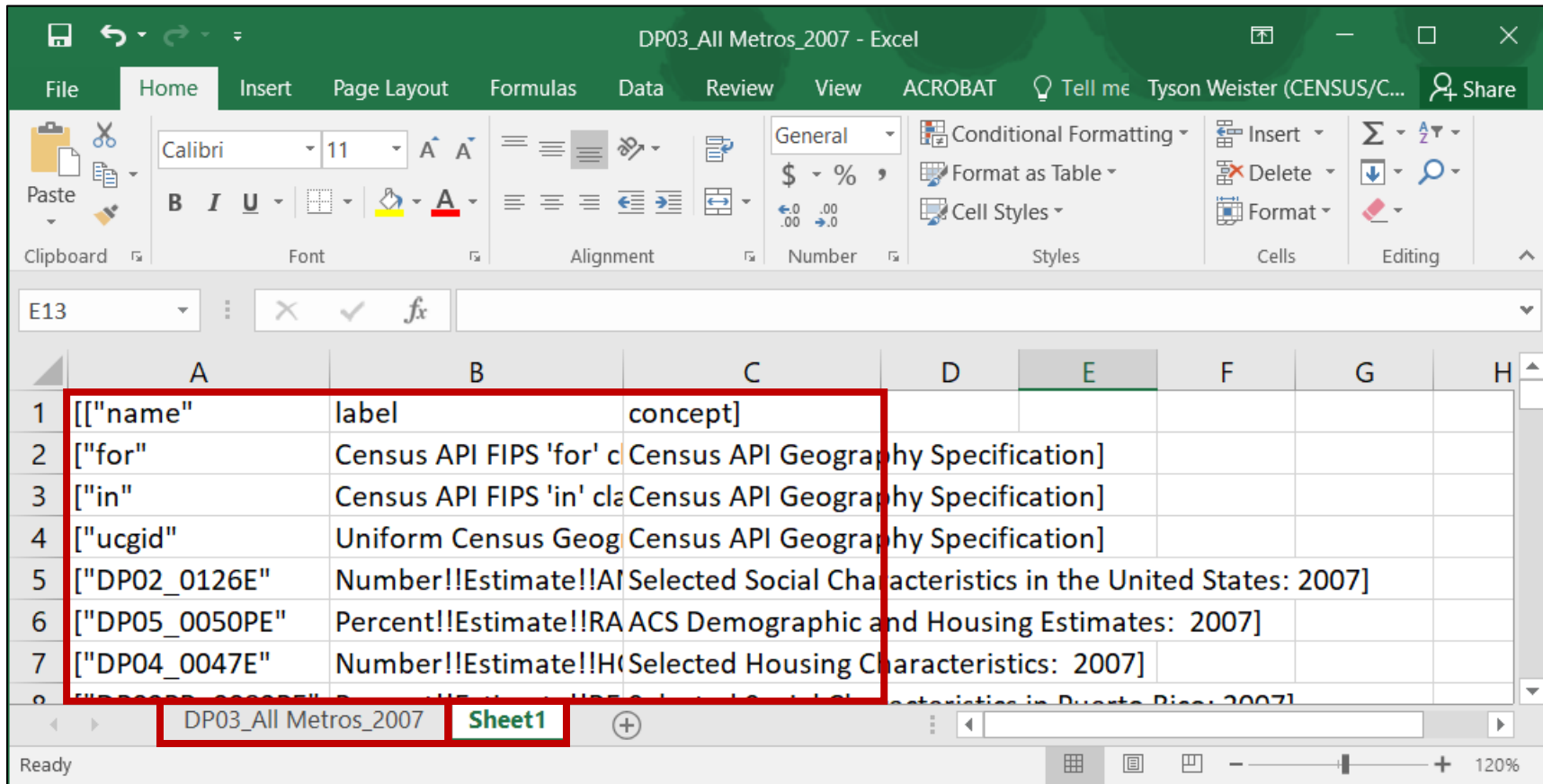
The screenshot shows a web browser window with the URL <https://api.census.gov/data/2007/acs/acs1/profile/variables.html> highlighted in red. A context menu is open over the URL, with the 'Save as...' option highlighted in red. A 'Save As' dialog box is also open, showing the file name 'DP Variables.csv' and 'All Files' as the save type, both highlighted in red. The 'Save' button in the dialog is also highlighted in red.

api.census.gov/data/2007/acs/acs1/profile/variables.html

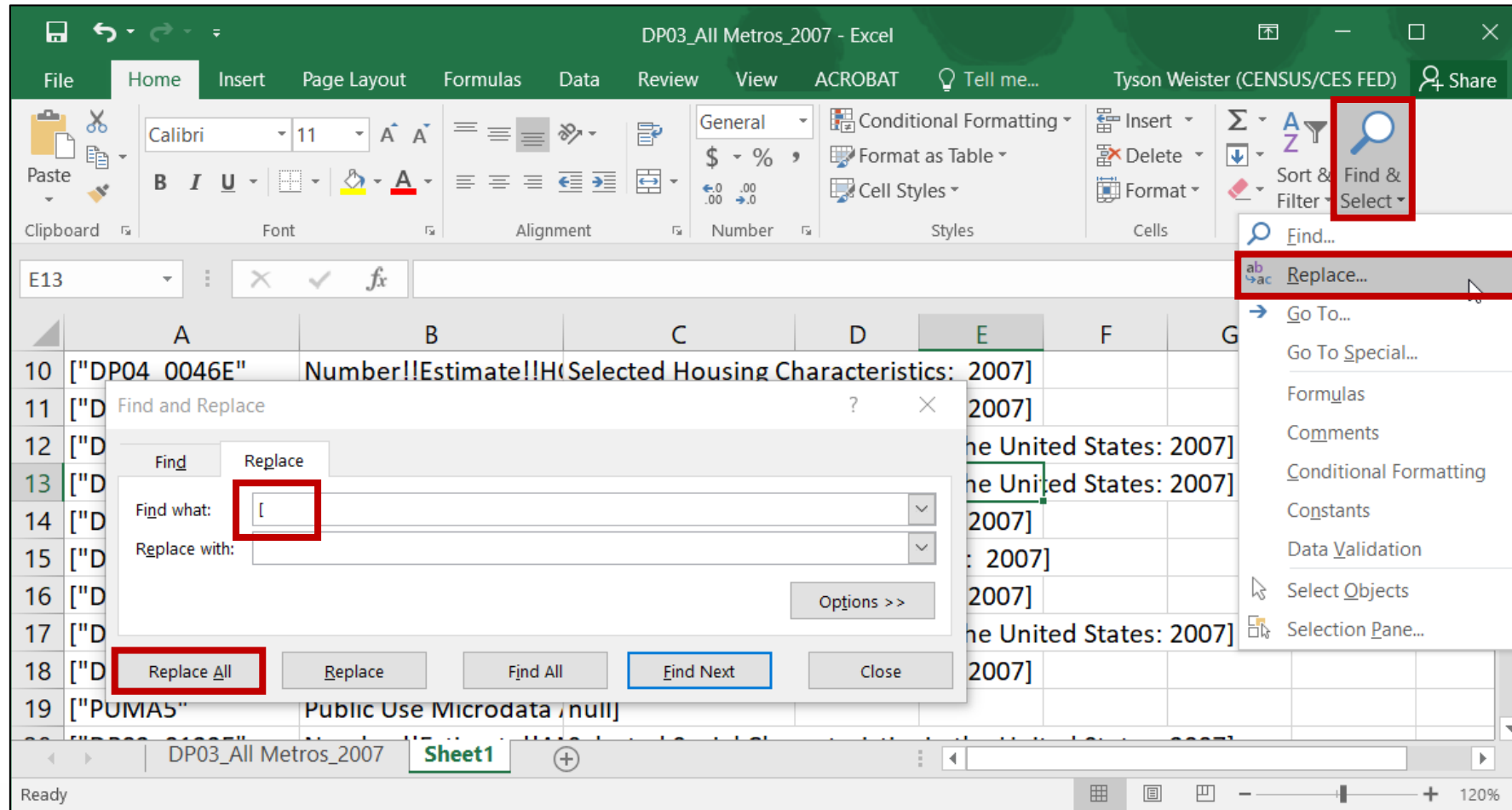
- Copy the list of variables from the .csv file
 - Press **Control + A** to select all cells
 - **Right click** the selection and select **Copy**



- Create a new worksheet in the .csv file with the data and paste the variable names
 - Click the plus sign next to DP03_All Metros_2007 to create a new sheet
 - Paste the variable names in Sheet 1



- **Remove special characters**— In this example, use Excel's **Find and Replace**. Copy the open bracket [, paste into find what, and select **Replace All**. Repeat this step for the quote " and closed bracket]



- Use VLOOKUP Function To Pull Matching Variable Labels Into Table
 - Navigate to the DP03_All Metros_2007 worksheet. Right click row 2 and select **Insert**
 - Click cell B2 and type **=VLOOKUP(**
 - Click cell B1 and type a comma (,). This tells Excel you want to find a match for DP03_0001E

	A	B	C	D	E
1	NAME	DP03_0001E	DP03_0001EA	DP03_0001M	DP03_0001MA
2		=VLOOKUP(B1,			
3	Galesburg IL Micro Area			0	null
4	Gallup NM Micro Area	50978	null	527	null
5	Gettysburg PA Micro Area	81091	null	435	null
6	Glens Falls NY Metro Area	105941	null	769	null
7	Goldsboro NC Metro Area	87803	null	531	null
8	Grand Forks ND MN Metro Area	78791	null	1057	null

DP03_All Metros_2007 Sheet1

- Use VLOOKUP Function (continued)

- Click **Sheet 1** to open the worksheet with the names and labels
- Select all contents of this table. This tells Excel to look for a match for DP03_0001E somewhere in this table.
- Press **F4** one time to lock the location and enter a comma (,).

1	A	B	C
	name	label	concept
2	for	Census API FIPS 'for' c	Census API Geography Specification
3	in	Census API FIPS 'in' cla	Census API Geography Specification
4	ucgid	Uniform Census Geog	Census API Geography Specification
5	DP02_0126E	Number!!Estimate!!AI	Selected Social Characteristics in the United States: 2007
6	DP05_0050PE	Percent!!Estimate!!RA	ACS Demographic and Housing Estimates: 2007
7	DP04_0047E	Number!!Estimate!!H	Selected Housing Characteristics: 2007
8	DP02PR_0083PE	Percent!!Estimate!!RE	Selected Social Characteristics in Puerto Rico: 2007

- Use VLOOKUP Function (continued)
- Enter a 2 and then a comma (,). This tells Excel pull the corresponding label in column B when it finds a matching variable name in the table.

The screenshot shows an Excel spreadsheet with the following data:

name	label	concept
for	Census API FIPS 'for' c	Census API Geography Specification
in	Census API FIPS 'in' cl	Census API Geography Specification
ucgid	Uniform Census Geog	Census API Geography Specification
DP02_0126E	Number!!Estimate!!A	Selected Social Characteristics in the United States: 2007
DP05_0050PE	Percent!!Estimate!!RA	ACS Demographic and Housing Estimates: 2007
DP04_0047E	Number!!Estimate!!H	Selected Housing Characteristics: 2007
DP02PR_0083PE	Percent!!Estimate!!RE	Selected Social Characteristics in Puerto Rico: 2007

The formula bar shows the formula: `=VLOOKUP(B1,Sheet1!A1:C1292,2,)`. The dropdown menu is open, showing the following options:

- TRUE - Approximate match
- FALSE - Exact match

- Use VLOOKUP Function (continued)
- Enter **0**) and press **enter** to specify that you want exact matches only, and to complete the VLOOKUP function.

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G	H	I
1	name	label	concept						
2	for	Census API FIPS 'for' c	Census API Geography Specification						
3	in	Census API FIPS 'in' cl	Census API Geography Specification						
4	ucgid	Uniform Census Geog	Census API Geography Specification						
5	DP02_0126E	Number!!Estimate!!A	Selected Social Characteristics in the United States: 2007						
6	DP05_0050PE	Percent!!Estimate!!RA	ACS Demographic and Housing Estimates: 2007						
7	DP04_0047E	Number!!Estimate!!H	Selected Housing Characteristics: 2007						
8	DP02PR_0083PE	Percent!!Estimate!!RE	Selected Social Characteristics in Puerto Rico: 2007						

The formula bar shows: `=VLOOKUP(B1,Sheet1!A1:C1292,2,0)`. The '0' in the formula is highlighted with a red box.

- Find the green box in the lower right corner of cell C2
- Click, hold, and drag the box to other cells

The screenshot shows an Excel spreadsheet titled "DP03_All Metros_2007 - Excel". The ribbon is set to "Home". The formula bar shows the formula in cell B2: `=VLOOKUP(B1,Sheet1!A1:C1292,2,0)`. The spreadsheet data is as follows:

	A	B	C	D
1	NAME	DP03 0001E	DP03 0001EA	DP03 0001M
2		Number!!Estimate!!EMPLOY MENT STATUS!!Population 16 years and over		+
3	Galesburg IL Micro Area	55698	null	1260
4	Gallup NM Micro Area	50978	null	527
5	Gettysburg PA Micro Area	81091	null	435
6	Glens Falls NY Metro Area	105941	null	769

A red box highlights the cell in row 2, column C, which is currently empty. The status bar at the bottom indicates "Drag outside selection to extend series or fill; drag inside to clear" and "120%".

- View your final table result with labels

The screenshot shows an Excel spreadsheet with the following data:

	A	B	C	D	E	F	G
1	NAME	DP03_0001E	DP03_0001M	DP03_0001M	DP03_0001PE		DP03_0001PE
2		Number!!Estimate!!EMPLOYMENT STATUS!!Population 16 years and over	#N/A	#N/A	#N/A	Percent!!Estimate!!EMPLOYMENT STATUS!!Population 16 years and over	#N/A
3	Galesburg IL Micro Area	55698	null	1260	null	100	null
4	Gallup NM Micro Area	50978	null	527	null	100	null
5	Gettysburg PA Micro Area	81091	null	435	null	100	null
6	Glens Falls NY Metro Area	105941	null	769	null	100	null
7	Goldsboro NC Metro Area	87803	null	531	null	100	null

Agenda

- API Basics
- Building an API Request
- API Demo
- **Resources for Learning More**

Accessing Data in Bulk

Benefits of API

- Get the exact variables and geographies you need
- Quickly update queries to get data across years: Most variables are consistent from year to year
- It has more historical data than data.census.gov

Limitations of the API calls:

- Only one geographic summary level at a time
- Not all collections of geographies are available (e.g. all census tracts in the U.S.)

Other Ways to Get Data in Bulk

- data.census.gov
- FTP sites



- Update the Year In Your Query and Year-Related Variables to Get Data Over Time
 - Most variables are consistent from year to year but check for changes

2018

https://api.census.gov/data/2018/acs/acs1/profile?get=NAME,DP03_0062E&for=state:24

https://api.census.gov/data/2018/acs/acs1/profile?get=NAME,DP05_0005E&for=us:*

2016

https://api.census.gov/data/2016/acs/acs1/profile?get=NAME,DP03_0062E&for=state:24

https://api.census.gov/data/2016/acs/acs1/profile?get=NAME,DP05_0004E&for=us:*

Visualizing ACS Table & Variable Changes

DP05_0004E

2018

	United States	
	Estimate	Margin of Error
▼ SEX AND AGE		
▼ Total population	327,167,439	*****
Male	161,118,151	+/-27,812
Female	166,049,288	+/-27,815
Sex ratio (males per...	97.0	+/-0.1
Under 5 years	19,646,315	+/-20,064

2016

	United States	
	Estimate	Margin of Error
▼ SEX AND AGE		
▼ Total population	323,127,515	*****
Male	159,061,631	+/-26,978
Female	164,065,884	+/-26,978
Under 5 years	19,798,554	+/-21,568
5 to 9 years	20,483,110	+/-59,803



Questions/Feedback

Media:

Public Information Office

U.S. Census Bureau

pio@census.gov

301-763-3030

Public:

Center for Enterprise Dissemination

U.S. Census Bureau

cedsci.feedback@census.gov

Stay Connected #CensusData



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



facebook.com/uscensusbureau



twitter.com/uscensusbureau



More information on the
American Community Survey:
<https://www.census.gov/acs>



youtube.com/user/uscensusbureau



instagram.com/uscensusbureau



Census (Non-media inquiries)
800-923-8282

Public Information Office (Media)
301-763-3030



pinterest.com/uscensusbureau



linkedin.com/company/us-census-bureau

Stay Connected: Webinars, Tutorials, and Feedback

API Resources page:

[census.gov/data/what-is-data-census-gov/guidance-for-data-users/how-to-materials-for-using-the-census-api.html](https://www.census.gov/data/what-is-data-census-gov/guidance-for-data-users/how-to-materials-for-using-the-census-api.html)

Census Academy:

[census.gov/data/academy/webinars/upcoming.html](https://www.census.gov/data/academy/webinars/upcoming.html)

- **Webinars:** Recorded and upcoming webinars on data.census.gov
- **Data Gems:** A series of short “How-To” videos

Feedback: Email comments to cedsci.feedback@census.gov

The screenshot shows a webpage titled "How-to Materials for Using the Census API". On the left is a navigation menu with links: "WHAT IS DATA.CENSUS.GOV?", "Frequently Asked Questions", "How to Materials for Using data.census.gov", "How-to Materials for Using the Microdata Access", "Transition from AFF", "Transition from DataFerrett", "Video Tutorials", "Webinars", and "Release Notes". The main content area features a large heading "How-to Materials for Using the Census API" with social media icons for Facebook, Twitter, and LinkedIn. Below the heading is a paragraph: "Do you have questions on how to use the Census API? Check out our step-by-step guidance to learn how to use the Census API to find the data you need. To learn more about the Census API, and to begin using it to locate data, visit our Census API Developers page." Below this is a section for the "Census Data API User Guide" with a PDF icon and text: "This user guide instructs developers and researchers on how to use the Census Data API to request data from U.S. Census Bureau datasets." To the right is a "Related Information" sidebar with links for "Contact Us", "You May Be Interested In", "RELATED TOPICS", "Census Academy", "AROUND THE BUREAU", "Our Surveys & Programs", "MOST POPULAR", and "Email Updates". At the bottom of the page, the text "How to Extract Data from the Census API" is visible.

Data Dissemination and Training: census.gov/academy

✓ **Bring our data experts to you.**

[Request](#) a free data training for your organization.

✓ **Subscribe to Census.gov/academy.**

Join our educational hub to receive our updates and training products

• **Receive our Data Gems.**

These short “how-to” videos are an easy and quick way to increase your knowledge of Census data. Get them in your inbox!

• **Get access to our data courses.**

You will learn-at-your-own-pace with these video-tutorials designed for different skill levels.

• **Interact with our instructors via webinars.**

Learn about our data releases and tools while attending these live virtual classes.

Contact us:

census.askdata@census.gov

1-844-ASK-DATA

Connect with us on Social Media

Census Academy

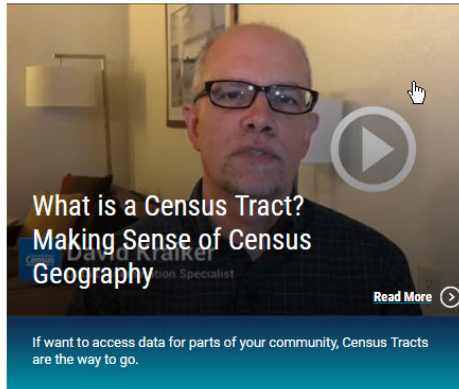
Data Gems

Webinars

Courses - Coming Soon!



Data Gems



VIDEO | OCTOBER 11, 2018

How to Access Data for a Neighborhood or Service Area

By using Census Tracts, you can select the boundaries of your area, and access demographic, socioeconomic, and housing statistics about your community.

VIDEO | SEPTEMBER 21, 2018

How to Extract Data from the Census API

Learn how to use the Census API to explore or learn more about America's changing population and economy.

VIDEO | SEPTEMBER 21, 2018

Visualizing Characteristics Using the Census Engagement Navigator

Learn how to use this interactive visualization to quickly understand what areas of the country had high or low return rates in the 2010 census.

[VIEW ALL DATA GEMS](#)

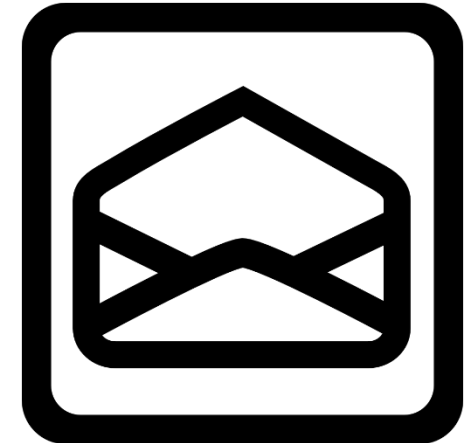
Additional Resources:
Want Free Training?
Need Local Stats?



**U.S. Census Bureau
Data Dissemination Specialist**

**Toll-free number:
1-844-ASK-DATA (1-844-275-2342)**

census.askdata@census.gov





Webinar Evaluation



<https://questionweb.com/59212/>