

# U.S. Decennial Census

## Finding and Accessing Data

Summer Durrant  
October 20, 2014

Data & Geographical Information Librarian  
Research Data Services  
durrant@virginia.edu



# Overview

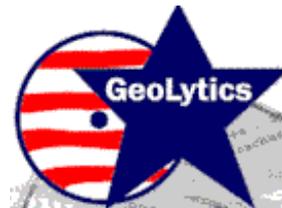
There are many different tools for accessing census data. Some are freely available while others are commercial products.

In this workshop, we'll explore four of these products—**Social Explorer**, **NHGIS**, **GeoLytics Neighborhood Change Database**, and **IPUMS-USA**.

Each tool has unique features and functionality that make it useful for particular types of projects.



ICPSR



ESRI





# Part One

## Overview of the U.S. Decennial Census

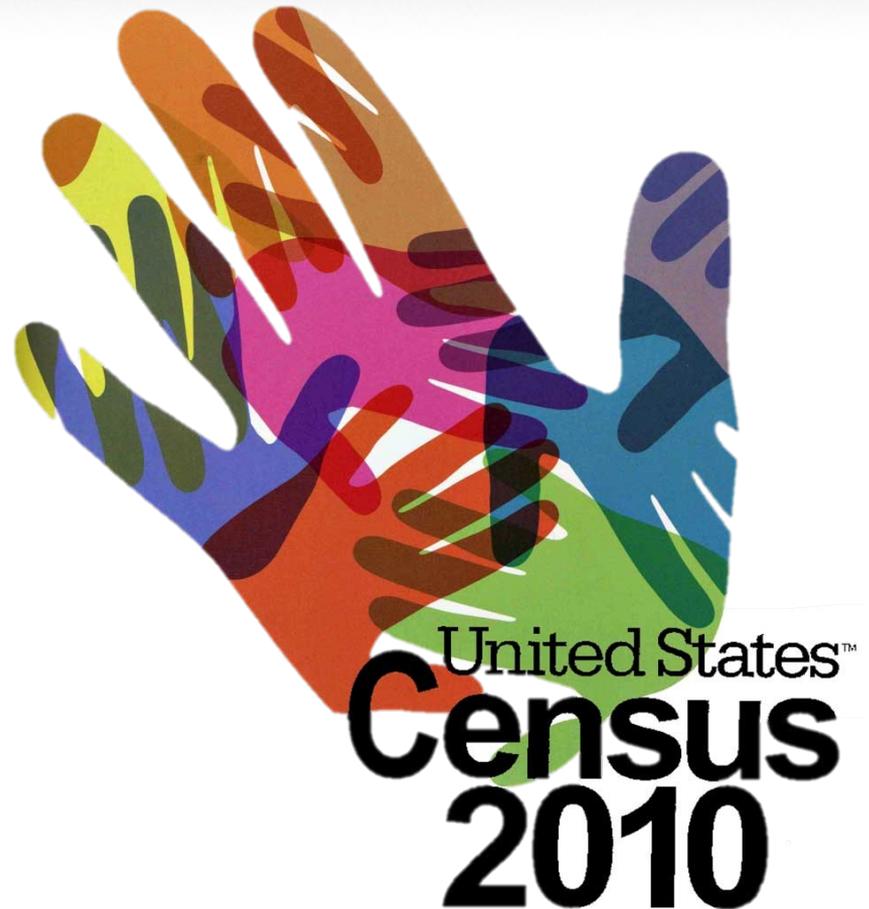


# What is the Census?

The U.S. Constitution mandates that the **Census of Population and Housing** be undertaken every ten years to apportion seats in the House of Representatives.

The census has been taken decennially since 1790. Census 2010 is the twenty-third and most recent decennial census.

Census data are used to help determine how more than \$400 billion dollars in federal funds are allocated to states and local areas. They are also used to evaluate many federal, state, and local programs.



# Census Questionnaire

United States  
Census  
2010

This is the official form for all the people at this address.  
It is quick and easy, and your answers are protected by law.

U.S. DEPARTMENT OF COMMERCE  
Economics and Statistics Administration  
U.S. CENSUS BUREAU

Use a blue or black pen.

## Start here

The Census must count every person living in the United States on April 1, 2010.

Before you answer Question 1, count the people living in this house, apartment, or mobile home using our guidelines.

- Count all people, including babies, who live and sleep here most of the time.

The Census Bureau also conducts counts in institutions and other places, so:

- Do not count anyone living away either at college or in the Armed Forces.
- Do not count anyone in a nursing home, jail, prison, detention facility, etc., on April 1, 2010.
- Leave these people off your form, even if they will return to live here after they leave college, the nursing home, the military, jail, etc. Otherwise, they may be counted twice.

The Census must also include people without a permanent place to stay, so:

- If someone who has no permanent place to stay is staying here on April 1, 2010, count that person. Otherwise, he or she may be missed in the census.

1. How many people were living or staying in this house, apartment, or mobile home on April 1, 2010?

Number of people =

2. Were there any additional people staying here April 1, 2010 that you did not include in Question 1? Mark  all that apply.

- Children, such as newborn babies or foster children
- Relatives, such as adult children, cousins, or in-laws
- Nonrelatives, such as roommates or live-in baby sitters
- People staying here temporarily
- No additional people

3. Is this house, apartment, or mobile home — Mark  ONE box.

- Owned by you or someone in this household with a mortgage or loan? *Include home equity loans.*
- Owned by you or someone in this household free and clear (without a mortgage or loan)?
- Rented?
- Occupied without payment of rent?

4. What is your telephone number? We may call if we don't understand an answer.

Area Code + Number  
 -  -

OMB No. 0607-0919-C; Approval Expires 12/31/2011.

Form D-61 (9-25-2008)

5. Please provide information for each person living here. Start with a person living here who owns or rents this house, apartment, or mobile home. If the owner or renter lives somewhere else, start with any adult living here. This will be Person 1.

What is Person 1's name? *Print name below.*

Last Name

First Name  MI

6. What is Person 1's sex? Mark  ONE box.

- Male  Female

7. What is Person 1's age and what is Person 1's date of birth? *Please report babies as age 0 when the child is less than 1 year old.*

Age on April 1, 2010    
Month  Day  Year of birth

NOTE: Please answer BOTH Question 8 about Hispanic origin and Question 9 about race. For this census, Hispanic origins are not races.

8. Is Person 1 of Hispanic, Latino, or Spanish origin?

- No, not of Hispanic, Latino, or Spanish origin
- Yes, Mexican, Mexican Am., Chicano
- Yes, Puerto Rican
- Yes, Cuban
- Yes, another Hispanic, Latino, or Spanish origin — *Print origin, for example, Argentinian, Colombian, Dominican, Nicaraguan, Salvadoran, Spaniard, and so on.*

9. What is Person 1's race? Mark  one or more boxes.

- White
- Black, African Am., or Negro
- American Indian or Alaska Native — *Print name of enrolled or principal tribe.*

- Asian Indian  Japanese  Native Hawaiian
- Chinese  Korean  Guamanian or Chamorro
- Filipino  Vietnamese  Samoan
- Other Asian — *Print race, for example, Hmong, Laotian, Thai, Pakistani, Cambodian, and so on.*   Other Pacific Islander — *Print race, for example, Fijian, Tongan, and so on.*

- Some other race — *Print race.*

10. Does Person 1 sometimes live or stay somewhere else?

- No  Yes — Mark  all that apply.
- In college housing  For child custody
- In the military  In jail or prison
- At a seasonal or second residence  In a nursing home
- For another reason

→ If more people were counted in Question 1, continue with Person 2.

## The questionnaire has changed over time!

The first census in 1790 did little more than count the population. Over time the census included more social and economic questions, such as place of birth and occupation.

In 1940, the Long Form was introduced to gather more detailed information from a sample of the population. It was sent to 1 in 6 households. The 2000 Census was the last time it was used.

The American Community Survey (ACS) has replaced the long form. The ACS is an ongoing survey that provides more detailed and current information.



# Subjects

## Demographic Characteristics

Age  
Sex  
Color or Race  
Hispanic Origin  
Marital Status

## Economic Characteristics

Industry  
Occupation  
Class of Worker  
Employment Status  
Duration of Unemployment  
Year Last Worked  
Income  
Means of Transportation to Work  
Transportation Time to Work

## Social Characteristics

Free or Slave  
Ancestry  
Place of Birth  
Place of Birth of Parents  
Language  
Language of Parents  
Citizenship  
Year of Immigration  
Year of Naturalization  
Veteran Status  
Educational Attainment  
School Attendance  
Literacy  
Migration

## Housing Characteristics

Occupied or Vacant  
Tenure (Owned or Rented)  
Vacancy Status  
Type of Structure  
Number of Rooms  
Number of Bedrooms  
Condition  
Water Supply  
Number of Bathrooms  
Value  
Gross Rent  
Mortgage

# Census Geography

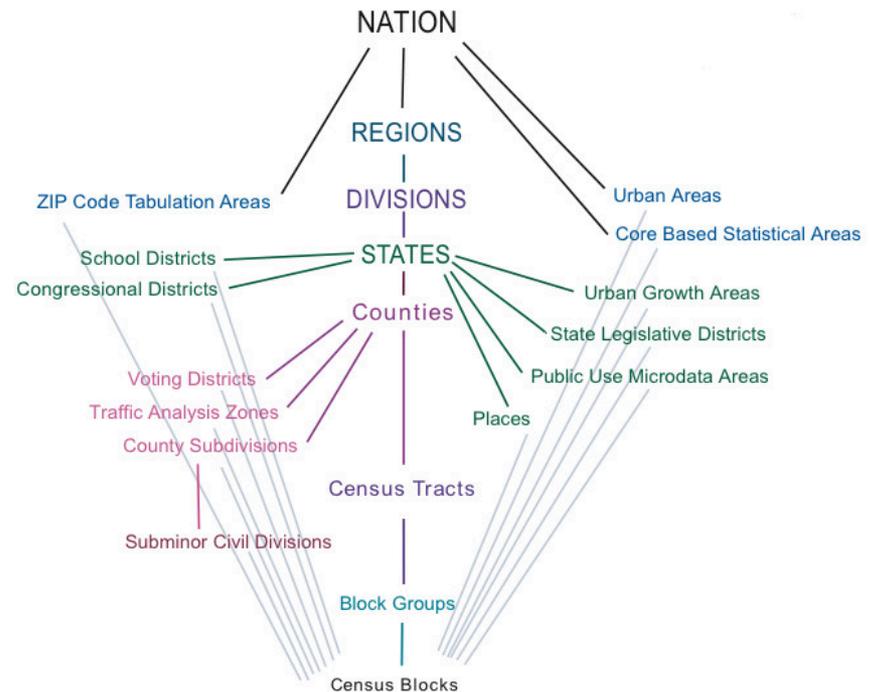
There are two main types of geographic areas:

**Administrative/Legal areas** are defined by law, and include states, counties, and congressional districts

**Statistical areas** are defined to tabulate and present data, and include metropolitan areas, census tracts, and block groups

Note that boundaries can change over time, especially census tracts, block groups, and census blocks

## Standard Hierarchy of Census Geographic Entities



Source: U.S. Census Bureau (<http://www.census.gov/geo/reference>)  
[Geographic Areas Reference Manual](#) | [Hierarchy Diagrams](#) | [Terms & Concepts](#)

# Geographic Identifiers

**GEOIDs** are numeric codes that uniquely identify all administrative/legal and statistical geographic areas for which the Census Bureau tabulates data

**FIPS codes** are one type of GEOID. They are used to merge datasets (e.g. crime data with demographic data) and join attribute data with GIS boundary files.

## How to Understand FIPS Codes

AABBCCCCCDEEE

- A = State (2 digit FIPS code)
- B = County (3 digit FIPS code)
- C = Tract (6 digit FIPS code)
- D = Block Group (1 digit FIPS code)
- E = Block (3 digit FIPS code)

Charlottesville, VA  
2010 Census Tracts





## **Section Two**

Finding decennial census data

# Social Explorer

## Data Resources:

- Aggregate (summary-level) data
- Decennial Census (1790 to 2010)
- American Community Survey (2005 to 2012)

## Features/Functionality:

- Intuitive interface for selecting census variables and geographical areas
- Setup files to export data to statistical software (SPSS, SAS, Stata)
- Ability to search by FIPS code
- Simple web mapping tools—choropleth, proportional symbol, and dot density maps

## Limitations:

- Does not have block-level data
- Difficult to select data for more than one decennial census

The screenshot shows the Social Explorer web application interface. At the top, it says "Professional Edition provided by University of Virginia Library". The main header includes the "Social Explorer" logo and navigation links for "Maps & Tables", "How To", "My Explorer", "Log In", and "Sign Up". The current page is titled "Census 2010" and has a breadcrumb trail: "Choose census year > Geographies > Tables > Results". There are three main buttons: "List Tables" (highlighted in orange), "Search by Keyword", and "Premade Reports". Below these is a "Select a dataset:" section with a dropdown menu showing "Social Explorer Tables". A section titled "Select one or more tables and click 'add':" contains a list of tables: T1. Total Population, T2. Population Density (per sq. mile), T2A. Land Area (sq. miles), T3. Sex, T4. Sex By Age, T4A. Sex By Age - Cumulative (Less), T4B. Sex By Age - Cumulative (More), T7. Sex By Age (Short Version), T8. Age, T8A. Age - Cumulative (Less), T8B. Age - Cumulative (More), and T11. Age (Short Version). Below this list are "Add" and "Remove" buttons. At the bottom, the "Current Table Selections:" section shows "Social Explorer Tables" and "T1. Total Population" selected, with a "Show results" button to the right.

<http://www.socialexplorer.com>

# NHGIS

MINNESOTA POPULATION CENTER, UNIVERSITY OF MINNESOTA

## NHGIS National Historical Geographic Information System

Home | Select Data | FAQ | Login

### Welcome to NHGIS

The National Historical Geographic Information System (NHGIS) provides, free of charge, aggregate census data and GIS-compatible boundary files for the United States between 1790 and 2012.

#### NHGIS News

- [2009 ACS 5-Year Summary File now available](#)
- [Improved breakdown codes](#)
- [Time series now include 2008-2012 ACS data](#)

[read more >](#)

#### NHGIS Data Finder Tutorial

Apply Filters

To view available data, one or more filters may be applied on geographic level, year, topic, or dataset.

IPUMS-International  
IPUMS-USA  
IPUMS-CPS  
NAPP  
IHIS  
ATUS-X

**Select Data**  
Tables & GIS Files

**SABINS**  
School Attendance Boundary Information System

Funding provided by the [National Science Foundation](#) and [National Institutes of Health](#).  
Project support provided by the [Minnesota Population Center](#).

© 2005-2010 Regents of the University of Minnesota. All rights reserved.  
The University of Minnesota is an equal opportunity educator and employer.

Twin Cities Campus: [Parking & Transportation](#) [Maps & Directions](#)  
[Directories](#) [Contact Us](#) [U of M Privacy](#)

## Data Resources:

- Aggregate (summary-level) data
- Decennial Census (1790 to 2010)
- American Community Survey (2005 to 2012)
- GIS Boundary Files (1790 to 2012)

## Features/Functionality:

- Select time series tables for variables that can be compared over time
- Setup files to export data to statistical software (SPSS, SAS, Stata)
- Download boundary files that can be joined with attribute data

## Limitations:

- Can only select data for the entire country, or state for block group and block data
- Must wait for data extract to complete

<http://www.nhgis.org>

# GeoLytics NCDB

## Data Resources:

- Aggregate (summary-level) data
- Decennial Census (1970 to 2010)

## Features/Functionality:

- Data normalized (cross walked) to 2010 decennial census tract boundaries
- Built-in map viewer to visualize data and export GIS boundaries files

## Limitations:

- Only contains a subset of 1000+ variables that can be compared over time
- Limited to census tracts only for the geography and therefore, smaller geographies (block group) or larger geographies (zip code, county, or state) are not available

Neighborhood Change Database 1970-2010.

View Selections: ehrlbk Search Tree View Request

Year  
Geography  
Area  
Counts  
Report Type  
Radius Report  
Options

GeoLytics Report Viewer

Name	Type	Table
GEO2010	String(11)	
TCH_70_10	String(1)	
TCH_80_10	String(1)	
TCH_90_10	String(1)	
TCH_00_10	String(1)	
TRCTPOP7	String(5)	

GeoLytics GIS Viewer

Area Data

Area	Data
GEO2010	2
TCH_70_10	2
TCH_80_10	2
TCH_90_10	2
TCH_00_10	2
TRCTPOP7	1
SHRBLK7	1
TRCTPOP8	1
SHRBLK8	1
TRCTPOP9	1
SHRBLK9	1
TRCTPOP0	2
SHRBLK0	2
TRCTPOP1	2
SHRBLK1	2

Cursor point: -76.022895 long, 37.013296 lat

Must be used on LDC@C computer

<http://data.library.virginia.edu/datasources/licensed/geolytics/>

# IPUMS USA

MINNESOTA POPULATION CENTER, UNIVERSITY OF MINNESOTA

## IPUMS USA

Home Select Data FAQ Help Login Data Cart

**DATA**

Browse and Select Data  
Download or Revise Extracts  
Analyze Data Online  
IPUMS Registration

**DOCUMENTATION**

Variables  
Samples  
User's Guide  
Geographic Tools  
FAQ

**RESOURCES**

Enumeration Forms  
Published Census Volumes  
Errata and Revisions

**RESEARCH**

Citation and Use  
Bibliography  
Related Sites

**CONTACT US**

Help  
User Forum  
IPUMS Staff  
How to Help  
Donate to IPUMS

**IPUMS IN THE NEWS**

NYT "Where We Came From"  
IPUMS is for "Data Addicts"  
1940 Census Archives  
IPUMS and the Civil War

**IPUMS-USA DATA UPDATES**

Updated 2012 ACS/PRCS  
Geography Variables,  
and other data improvements  
2012 5-year ACS and PRCS, and  
other data improvements  
2012 3-year ACS and PRCS  
2012 1-year ACS and PRCS

**OTHER IPUMS DATA**

Complete Count Data  
Linked Samples 1850-1900  
1850-1860 Slave Samples

**OTHER MPC PROJECTS**

IPUMS-CPS  
IPUMS-International  
NHGIS  
NAPP  
IHIS  
ATUS-X

**Integrated Public Use Microdata Series**  
census microdata for social and economic research

IPUMS-USA is a project dedicated to collecting and distributing United States census data. Its goals are to:

- Collect and preserve data and documentation
- Harmonize data
- Disseminate the data absolutely free!

Use it for **GOOD** -- never for **EVIL**

Funding by

NSF UNIVERSITY OF MINNESOTA StatTransfer NATIONAL INSTITUTE OF HEALTH

HOME | DATA | VARIABLES | SAMPLES | HELP | SEARCH  
Copyright © Minnesota Population Center, University of Minnesota

<http://usa.ipums.org/usa>

## Data Resources:

- Public-Use Microdata Samples (PUMS)
- Decennial Census (1850 to 2000)
- American Community Survey (2000 to 2012)

## Features/Functionality:

- Analyze data online
- Setup files to export data to statistical software packages (SPSS, SAS, Stata)
- Recode variables and create custom tabulations and crosstabs
- Documentation on comparability of variables

## Limitations:

- Must wait for data extract to complete
- Limited to larger geographical areas (e.g. PUMA – public use microdata area have 100,000+ residents)

# Questions?

