Resource Presentation:
tidycensus

Course: GEO 511
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- Associate Professor of Geography and Director of the Center for Urban Studies at Texas Christian University.
- Author of the book Analyzing US Census Data: Methods, Maps, and Models in R.
- R developer:
  - tidycensus, which helps R users get demographic & spatial data from the US Census Bureau ready-to-go for use in their analyses;
  - tigris
- Researching data science and visualization tools for spatial demography.
- Personal firm, Walker Data.

Package

tidycensus is an R package that allows users to

- **interface** with a select number of the US Census Bureau's data APIs
- **return** tidyverse-ready data frames,
- optionally with simple feature geometry included.
1. Install from CRAN:
2. Set Census API key. A key can be obtained from http://api.census.gov/data/key_signup.html.

```
install.packages("tidycensus")
library(tidycensus)
```

```
census_api_key("83e6682de7bfa2
install = TRUE
```

Example1: Decennial Census

```r
11    ##############################Work with Decennial Census##################
12    age10 <- get_decennial(geography = "state",
13                            variables = "P013001",
14                            year = 2010)
15
16    head(age10)
17    age10 %>%
18      ggplot(aes(x = value, y = reorder(NAME, value))) +
19      geom_point()+
20      xlab("Median age") +
21      ylab("States") + # Add informative axis labels using xlab() and ylab() including units
22      labs(caption = "Figure.1. Data from 2010 Decennial Census."
23      ) # Add a graph title with ggtitle()
24    ggsave("Figure1.png")
```
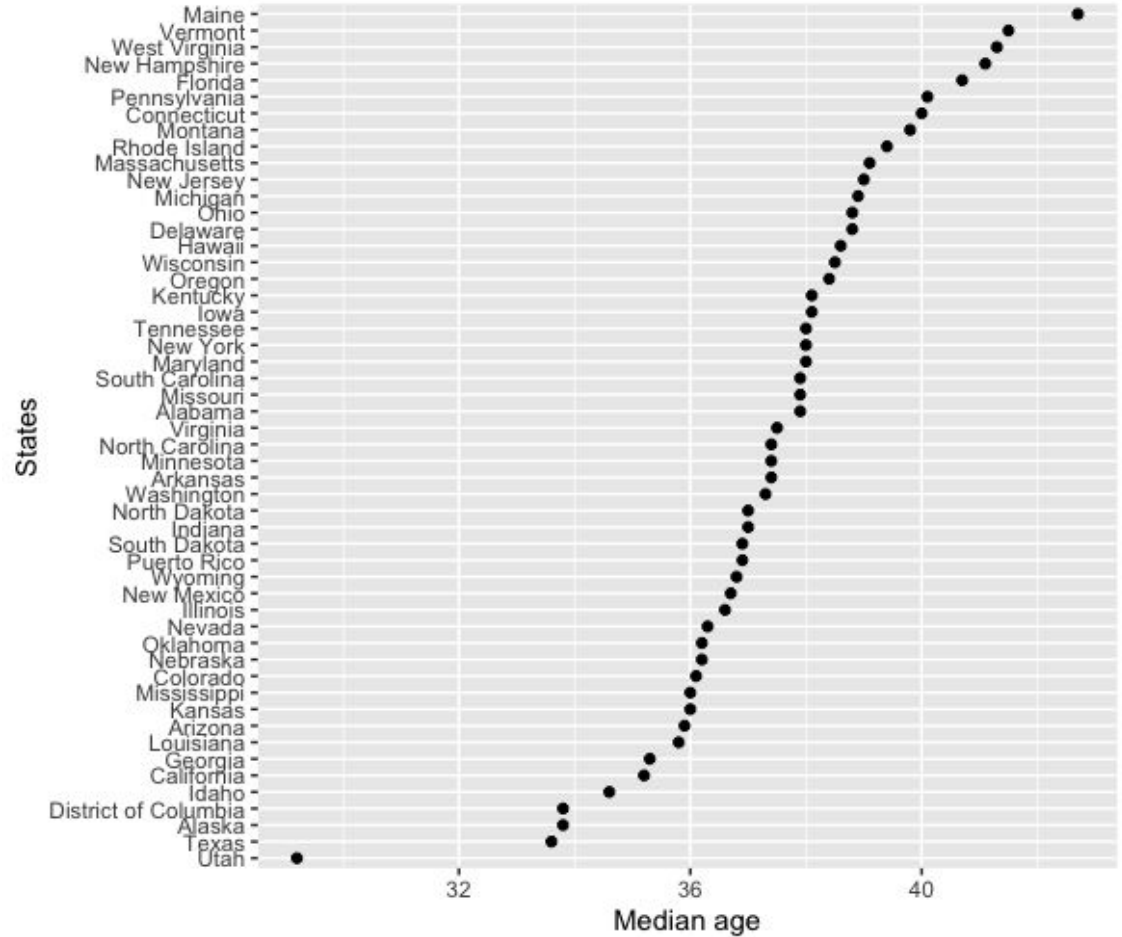
Plot for example1

Figure.1. Data from 2010 Decennial Census.

Example2: American Community Survey

```r
26   ########################Work with American Community Survey####################
27   vt <- get_acs(geography = "county",
28                 variables = c(medincome = "B19013_001"),
29                 state = "VT",
30                 year = 2018)
31
32   vt
33
34   vt %>%
35     mutate(NAME = gsub(" County, Vermont", "", NAME)) %>%
36     ggplot(aes(x = estimate, y = reorder(NAME, estimate))) +
37     geom_errorbarh(aes(xmin = estimate - moe, xmax = estimate + moe)) +
38     geom_point(color = "red", size = 3) +
39     labs(title = "Household income by county in Vermont",
40          subtitle = "2014-2018 American Community Survey",
41          y = "",
42          x = "ACS estimate (bars represent margin of error)")
43   ggsave("Figure2.png")
```
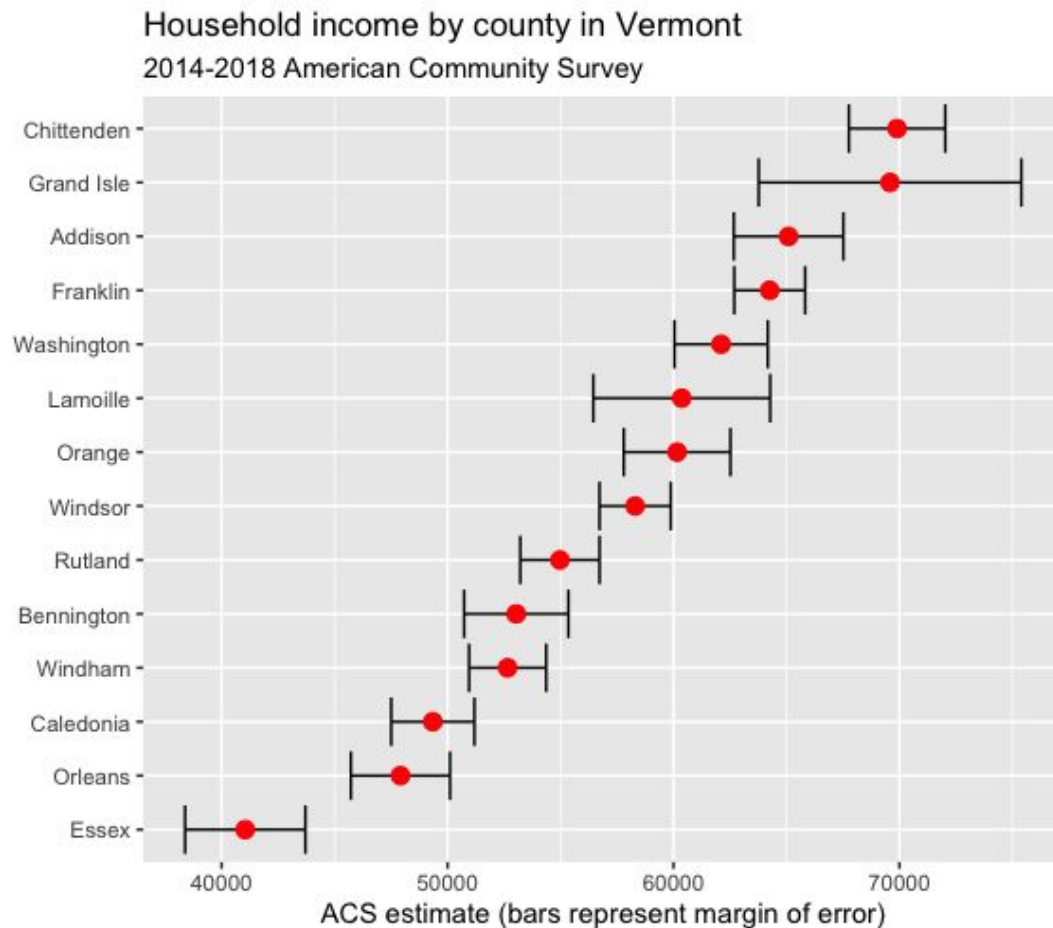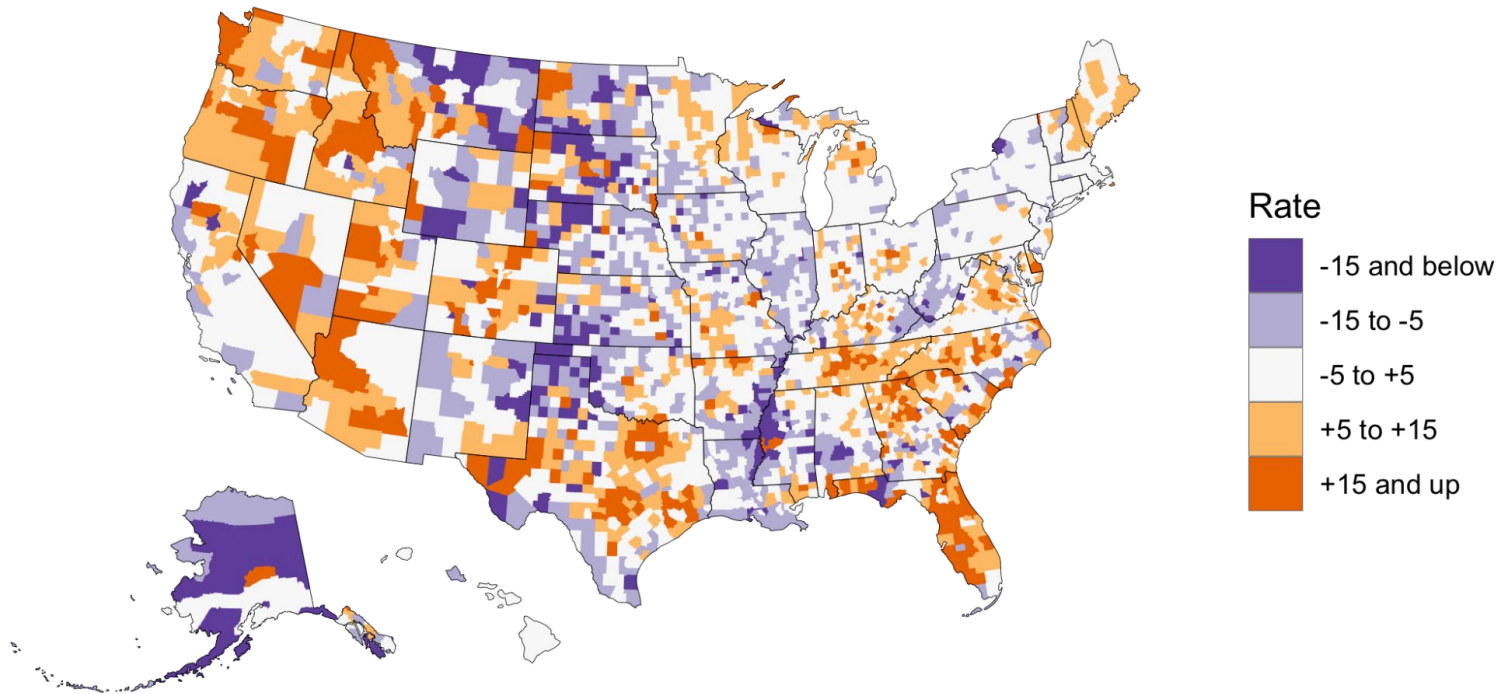
Plot for example2

Household income by county in Vermont
2014-2018 American Community Survey

ACS estimate (bars represent margin of error)

Figure.2. Data from 2014-2018 American Community Survey.

Example3: Population estimation Project

Net migration per 1000 residents by county
US Census Bureau 2019 Population Estimates

Rate
- -15 and below
- -15 to -5
- -5 to +5
- +5 to +15
- +15 and up

Data acquired with the R tidycensus package | @kyle_e_walker

Reference

1. https://cloud.r-project.org/web/packages/tidycensus/index.html

2. https://walker-data.com/tidycensus/index.html

3. Getting Started with American Community Survey Data in R and Python

https://www.youtube.com/watch?v=h1BWuz0mdcs