



# **American Community Survey Data Guide**

by Xiangqi Liu and Mika Munch



# Table of Contents

Overview	.....	1
Access	.....	2
Standards	.....	3
Codebook	.....	4-6
Data Biography	.....	7
Visualization	.....	8-10
Data Life Cycle	.....	11
Uses	.....	12
Sources	.....	13

# Overview

It is written in the US Constitution that every 10 years, a count of all the people in the United States must be made. Now, more information pertaining to demographic, economic, health, and other categories are taken along with population count and it is called the Decennial Census. In present day, the Census Bureau oversees this process as well as a number of other programs to collect demographic and economic data about the US. The Census Bureau states that their goal is to, “provide the best mix of timeliness, relevancy, quality and cost for the data we collect and services we provide.”

One of these other programs is the American Community Survey (ACS), which comes in year estimates of 1 year, 3 years, and 5 years. The primary purpose of the ACS is to help communities decide where to put resources. The audience is both the general public, to learn about their country, states, county, or city, but it is also for people that work in civic fields. They call this type of data “administrative data” because it greatly helps the administrations with operations and planning that go into civic services such as hospitals, post offices, taxes etc.

Around 1 in 38 people will take the ACS each year. The ACS 2017 data we are looking at is separated by Census Tract and there are 116 census tracts for Chatham county, Georgia, alone. The dataset paints a picture of the state of the American people.

**“The ACS is an ongoing annual survey that shows what the U.S. population looks like and how it lives. The ACS helps communities decide where to target services and resources.”**

**-The US Census Bureau**

# Access

US Census data can be accessed in a couple different ways. The data comes in either raw tables, more visualized forms, or synthesized reports.

- 1. Data.census.gov** - The new census database from the US Census Bureau. The site includes modifiable tables, can suggest different data sets, and allows you to explore the data more thoroughly.  
<https://www.socialexplorer.com/a9676d974c/explore>
- 2. Factfinder from the Census Bureau** - The official searchable database from the US Census Bureau, which contains all US Census, ACS, and other survey data from past years.  
<https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>
- 3. Quickfacts** - A more consolidated and summarized site of Census statistics. Also includes map and chart views for visualizations of the data.  
<https://www.census.gov/quickfacts/fact/table/US/PST045218>
- 4. Socialexplorer.com** - An interactive map of Census data. The map has features which allow you to change the location scope and parameters, visualization on the map, and filters.  
<https://www.socialexplorer.com/a9676d974c/explore>

# Standards

Statistics	Census Tract 36.01, Chatham County, Georgia		Census Tract 36.02, Chatham County, Georgia	
<b>SE:A00002. Population Density (Per Sq. Mile)</b>				
Total Population	3,376		4,598	
Population Density (Per Sq. Mile)	2,635.3		4,192.0	
Area (Land)	1.28		1.10	
<b>SE:A02002. Sex by Age</b>				
Total Population:	3,376		4,598	
Male:	1,318	39.0%	2,108	45.9%
Under 5 Years	135	4.0%	213	4.6%
5 to 9 Years	130	3.9%	165	3.6%
10 to 14 Years	67	2.0%	87	1.9%
15 to 17 Years	29	0.9%	120	2.6%
18 to 24 Years	179	5.3%	288	6.3%
25 to 34 Years	265	7.9%	288	6.3%
35 to 44 Years	129	3.8%	245	5.3%
45 to 54 Years	118	3.5%	333	7.2%
55 to 64 Years	184	5.5%	220	4.8%
65 to 74 Years	63	1.9%	79	1.7%
75 to 84 Years	19	0.6%	43	0.9%
85 Years and Over	0	0.0%	27	0.6%
Female:	2,058	61.0%	2,490	54.2%
Under 5 Years	94	2.8%	205	4.5%
5 to 9 Years	177	5.2%	224	4.9%
10 to 14 Years	190	5.6%	39	0.9%
15 to 17 Years	39	1.2%	21	0.5%
18 to 24 Years	297	8.8%	470	10.2%
25 to 34 Years	501	14.8%	351	7.6%
35 to 44 Years	132	3.9%	302	6.6%
45 to 54 Years	179	5.3%	312	6.8%
55 to 64 Years	210	6.5%	265	5.8%

**ACS Dataset Example** - The dataset contains both raw values (such as number of population) and percentage values (such as percent of the population that is 12-17). The data is structured by rows and columns, with each census tract being a column, and different types of data about that area being a row. The rows have hierarchical structure due to the categorizing of the different types of data.

## Distinguishing features of ACS 1-year, 1-year supplemental, 3-year, and 5-year estimates

1-year estimates	1-year supplemental estimates	3-year estimates*	5-year estimates
12 months of collected data <i>Example: 2018 ACS</i>	12 months of collected data <i>Example: 2018 ACS 1-year supplemental estimates</i>	36 months of collected data <i>Example: 2011-2013 ACS 3-year estimates</i>	60 months of collected data <i>Example: 2014-2018 ACS 5-year estimates</i>
1-year estimates <i>Example: 2018 ACS</i>	collected between: January 1, 2018 and December 31, 2018	between: January 1, 2011 and December 31, 2013	between: January 1, 2014 and December 31, 2018
Data for areas with populations of 65,000+	Data for areas with populations of 20,000+	Data for areas with populations of 20,000+	Data for all areas
Smallest sample size	Smallest sample size	Larger sample size than 1-year	Largest sample size
Less reliable than 3-year or 5-year	Less reliable than 5-year	More reliable than 1-year; less reliable than 5-year	Most reliable

**Table from the ACS Data Guide** - This table shows the differences between the 1, 3, and 5-year ACS datasets. It compares the three in terms of what data is included, the scope of the dataset, and the reliability. For our purposes, we will be relying on the 5-year dataset.

<https://census.gov/programs-surveys/acs/guidance/estimates.html>

# Codebook

## Changes in Race Categories



1996-1998

“Black, African Am.”

“Indian (Amer.),”  
“Eskimo,” and “Aleut,”

“Hawaiian”

“Guamanian”

“Multiracial”



1999-2002

“Black, African Am.,  
or Negro”

“American  
Indian or Alaska  
Native.”

“Native Hawaiian.”

“Guamanian or  
Chamorro.”

Mark one or more  
races



2003-2007

“Black or  
African American”



2008-2013

“Black, African  
Am., or Negro.”



2014-2018

“Black or  
African Am.”

Examples were added  
to the “Other Asian”

# Codebook

**Poverty Status** - the Census Bureau uses both income threshold in the past 12 months, the family size and the number of family members under 18 years old (children) to determine if a family or family members live in poverty.

For example, consider a family of three with one child under 18 years of age, interviewed in July 2018 and reporting a total family income of \$14,000 for the last 12 months (July 2017 to June 2018). The base year (1982) threshold for such a family is \$7,765, while the average of the 12 inflation factors is 2.571. Multiplying \$7,765 by 2.571 determines the appropriate poverty threshold for this family type, which is \$19,964. Comparing the family's income of \$14,000 with the poverty threshold shows that the family and all people in the family are considered to have been in poverty.

-  Gather the data of family size and the number of children
-  Decide the threshold of the family income through historical data
-  Compare the threshold with the family income in the past 12 months
-  If the family income is below the threshold, the family is living in poverty. And the child in poverty is also positive

# Codebook

## Mobility

### Number of Available Vehicles

The information can provide insight into vehicle travel and aid in forecasting future travel and its effect on transportation systems. The data also serve to aid in the development of emergency and evacuation planning, special transportation services, and forecasting future energy consumption and needs.

The 1996-1998 ACS question provided a space for the respondent to enter the number of vehicles. Since 1999, the American Community Survey question provided seven pre-coded response categories ranging from “None” to “6 or more.”

\*Exclusions: Motorcycles or other recreational vehicles, dismantled or immobile vehicles, vehicles kept at home but used only for business purposes.

### Travel Time to Work

Travel time to work refers to the total number of minutes that it usually took the worker to get from home to work during the reference week. The elapsed time includes time spent waiting for public transportation, picking up passengers in carpools, and time spent in other activities related to getting to work.

\*Exclusions: Workers who work from home, or respondents indicate they “worked at some time during the reference week.”

# Data Biography

## Allen Hyde

A professor in History and Sociology  
department Georgia Tech

- PhD in Sociology
- contributes his work in the community  
filed of Smart Cities Grant
- Specifically interested in Hudson  
Hill/Woodville area

## His Uses of Data

- He uses 5-year average of ACS from 2013  
to 2017 to minimize the error brought by  
sampling, collecting and processing;
- He is cautious admitting the errors of the  
data because people recognize data as the  
fact;
- In general practice, census tract is a way  
of approximating "block". Block stands for  
too small a unit of measure with less  
significance in value.



If Allen were a journalist, how  
he could use data differently,  
and what can he find?

## His Findings

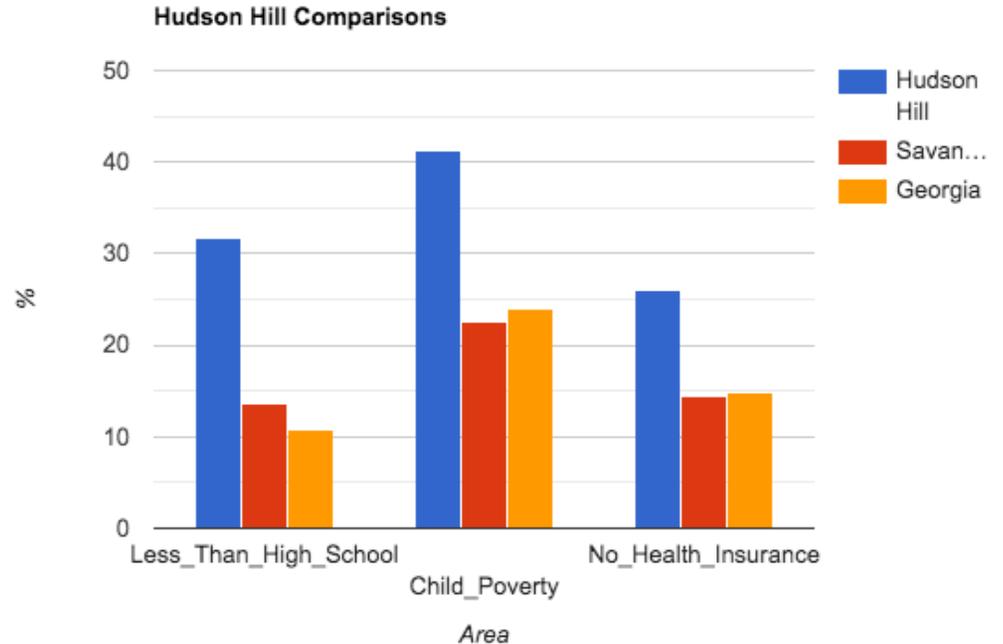
“

The big thing that stood out (in Hudson Hill  
and Woodville area) is that child poverty is really  
high. There are a lot of children in this  
neighborhood, and they have a higher  
probability of being poor. There are also a lot of  
single parent households in this neighborhood.  
That means that if there is flooding, children will  
be at a really high risk.”

# Visualization

## Hudson Hill Comparisons Bar Graph

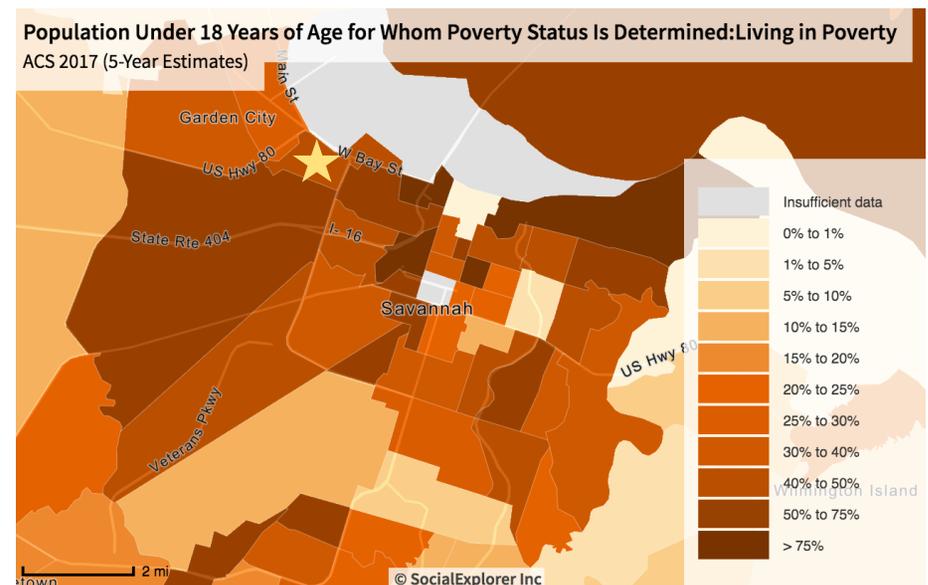
This graph compares three major indicators of social vulnerability for the census tract of Hudson Hill, the city of Savannah, and the state of Georgia. The three indicators are “Less than high school degree”, “Child poverty”, and “Having no health insurance”. The percentages for all three of these values are very similar for Savannah and Georgia, but there is a noticeable difference between the Hudson Hill area bars and the adjacent two.



## Social Explorer Poverty Map

For a geographic frame of reference, the census tract map of Chatham County is included to the right. The yellow star indicates the Hudson Hill tract. As indicated, this tract has about 40% of its population under age 18 living in poverty. Interestingly, if you look at the adult poverty, aged 18-64, the percentage is only 20%. You can see that the tract to the west of Hudson Hill has lower child poverty rates, but the other two surrounding tracts have extremely high rates.

<https://www.socialexplorer.com/a9676d974c/explore>



# Visualization

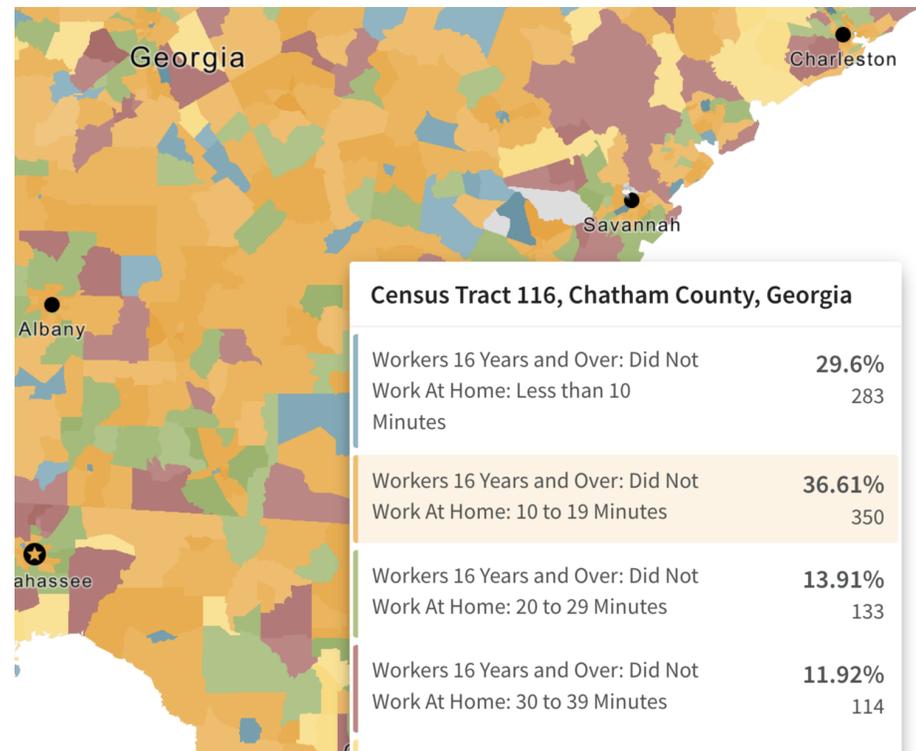
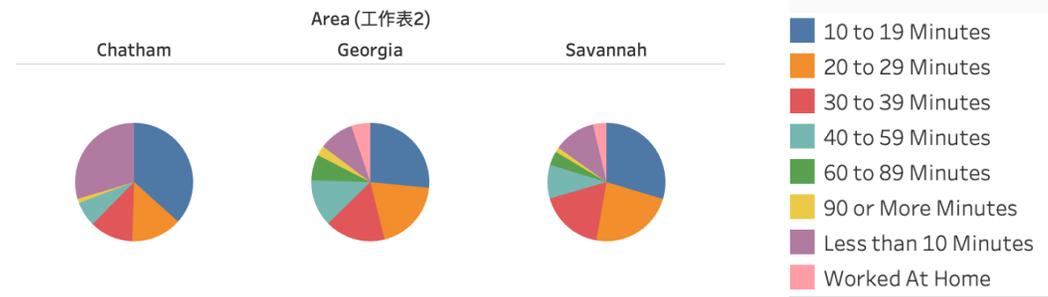
## Travel Time for Work Comparison

Hudson Hill and Woodville in Chatham stands out with and little amount of time commuting. The pattern is self-explanatory for people who live in small neighborhood tend to work close to their home.

From the social explorer map, Hudson Hill and Woodville is more representative of northern Savannah where large portion of people tend to travel 10-19 minutes to their work. And it remains valid for the majority of Atlanta.

Yet, from the pie chart, it can be told that “majority” has its variation from approximate a quarter to nearly half.

Travel Time for Work Comprison



# Visualization

## Vehicle Availability Comparison

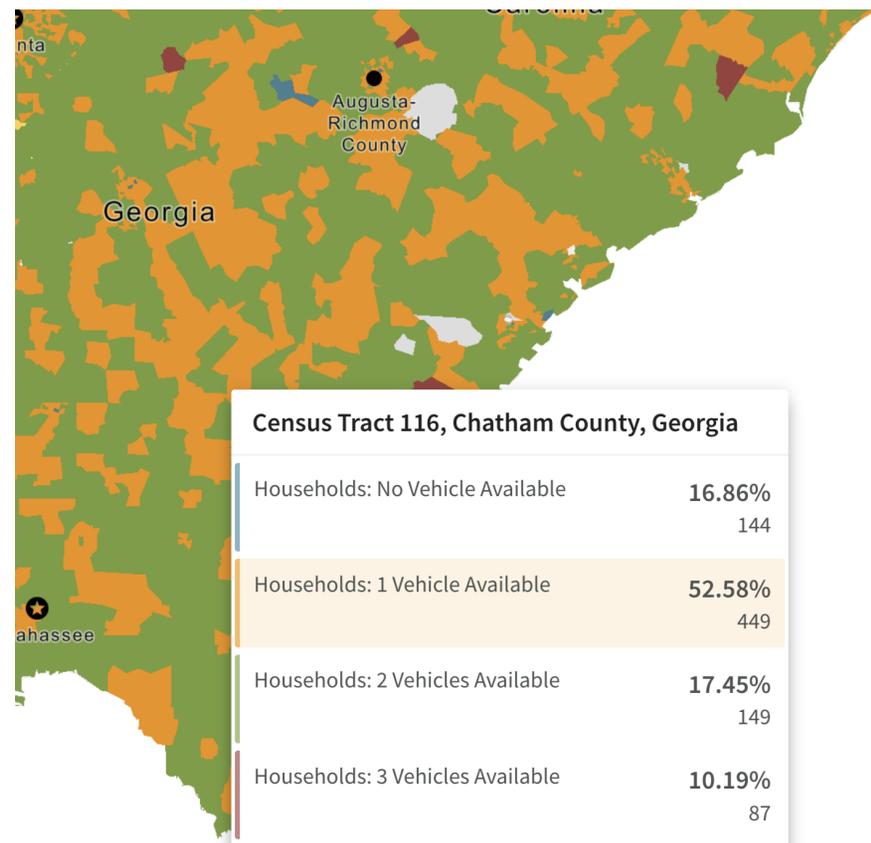
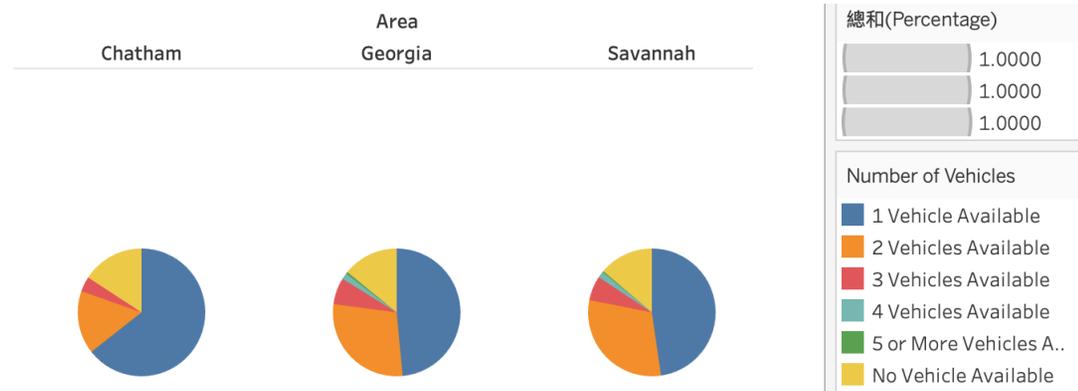
As shown in the pie chart, Hudson Hill and Woodville in Chatham is significant for dominant group of households which own 1 vehicle. The story can be continued from the last comparison. Excessive use of vehicles may not be not necessary if people work close to their home.

Socialexploro tells a slightly different story in terms of representiveness of Hudson Hill and Woodville of Georgia. The state is covered with even portion of 1-vehicle-available households and 2-vehicle-available households.

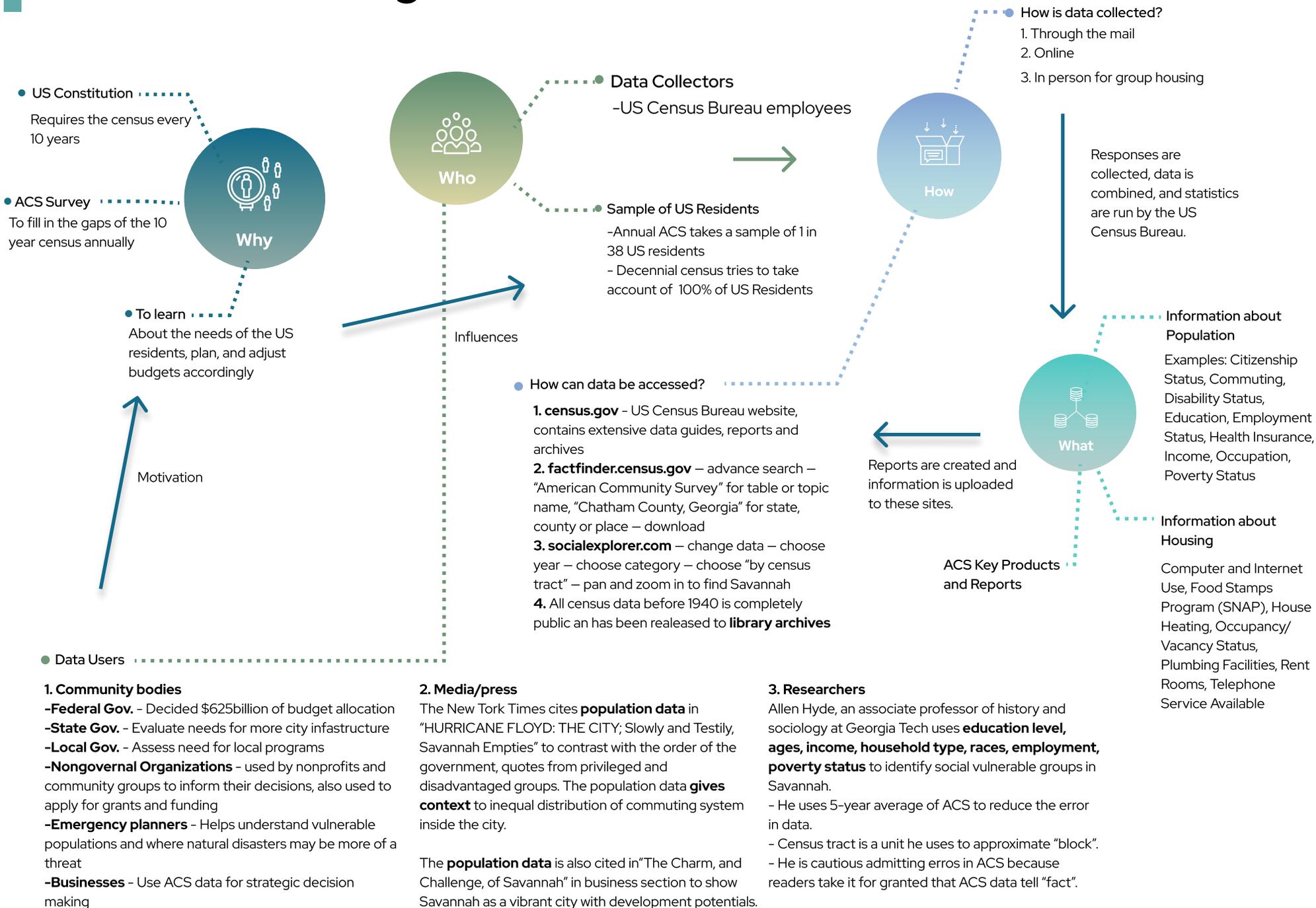
The different conclusions drawn from the pie chart and map may guide us to dig into the difference of distribution of households across census tract.

## Can you think of other reasons?

Number of Vehicles Available Comparison



# Data Life Cycle



# Uses

HURRICANE FLOYD: THE CITY

## *HURRICANE FLOYD: THE CITY; Slowly and Testily, Savannah Empties*

By David Firestone

Sept. 15, 1999



This news also cites the population data to give context of evacuation during Hurricane Floyd in Savannah. It aims to give contrast of the huge load of evacuation work and order. By connecting the data with quotes by Savannah residents, the article gives praise to organization by the government. However, the article also gives voice to people in disadvantage who do not have access to public transportation to break the seemingly orderly scene. The contrast is obvious to raise awareness of inequality during evacuation.

<https://www.nytimes.com/1999/09/15/us/hurricane-floyd-the-city-slowly-and-testily-savannah-empties.html?searchResultPosition=50>

# Sources

ACS “Why we ask each question”:

<https://www.census.gov/acs/www/about/why-we-ask-each-question/index.php>

Census “data guides”:

<https://census.gov/programs-surveys/acs/guidance/estimates.html>

Census General Handbook

[https://census.gov/content/dam/Census/library/publications/2018/acs/acs\\_general\\_handbook\\_2018\\_ch03.pdf](https://census.gov/content/dam/Census/library/publications/2018/acs/acs_general_handbook_2018_ch03.pdf)

Chatham county census tract map - socialexplorer.com:

<https://www.socialexplorer.com/a9676d974c/explore>

Data guide from social explorer(which is where the .xls is pulled from):

[https://www.socialexplorer.com/data/ACS2017\\_5yr/documentation/d3bf310c-1d05-41cb-b21e-706067ce086d#d3bf310c-1d05-41cb-b21e-706067ce086d%22%20target=%22\\_blank%22%20class=%22doc\\_ExternalLink](https://www.socialexplorer.com/data/ACS2017_5yr/documentation/d3bf310c-1d05-41cb-b21e-706067ce086d#d3bf310c-1d05-41cb-b21e-706067ce086d%22%20target=%22_blank%22%20class=%22doc_ExternalLink)

Factfinder:

<https://factfinder.census.gov/faces/nav/jsf/pages/index.xhtml>

New York Times Article

<https://www.nytimes.com/1999/09/15/us/hurricane-floyd-the-city-slowly-and-testily-savannah-empties.html?seArchResultPosition=50>

# Author Background

This data guide was prepared by Xiangqi Liu and Mikako Munch, both students at Georgia Institute of Technology. Xiangqi is a candidate in the Masters program of Digital Media and Mikako is a candidate in the Masters program of Industrial Design.