Californians on the Move

Presented by

Team 7

Team 7

- Jenifer Hwang: Population, Migration and Poverty
- Daniel Kim: Unemployment, Demographics (i.e., race)
- Natalia Karimova: Rent and Housing
- Hossein Esteaneh: Transportation /Traffic Congestion
- Sara McLean: Household Income, Gini Co-efficient

Project Description and Scope

- More Californians are leaving the state than migrating into the state. Following these data points, we set out to prove this statement:
    - increased poverty levels
    - increased population
    - Transportation/traffic congestion (time to/from work)
    - unemployment rates
    - reduced incomes (per capita income levels)
    - higher income inequality
    - higher housing costs
    - higher taxes

- Population Scope Baseline: California

- Population Competitive View: Colorado, Florida, Idaho, Oregon, Texas
    - 5 states chosen based on migration data and supporting articles of top states Californians moving to

- Time Frame: 5 year time frame 2013-2018

Research Q & A

- What are the top reasons people are leaving California?

- Does unemployment affect population movement out of California?

- Do rent and housing price increases affect population movement?

- Do transportation/traffic congestion times (travel to/from work) affect population movement?

- Does income level affect population movement?

- What are the demographics (specifically race) of the population movement?

Data Set and Supporting Findings

- api.census.gov/
  - Transportation; Population; Incomes; Housing Costs; Taxation; Populations
- Supporting findings
  - https://www.economy.com/united-states/net-migration
  - https://www.nytimes.com/2020/01/09/upshot/american-population-slowdown.html
  - https://www.prb.org/usdata/indicator/migration/map/state/2010/
  - https://www.census.gov/library/stories/2019/04/moves-from-south-west-dominate-recent-migration-flows.html
  - https://www.ocregister.com/2019/10/31/190122-more-people-left-california-last-year-vs-arrived-a-38-jump/
  - https://showmehome.com/unpacking-californias-migration-trends/
  - https://www.ppic.org/press-release/whos-movin-out-of-california/
  - https://www.latimes.com/california/story/2019-12-21/california-population-continues-to-decline-with-state-emigration-a-major-factor
  - https://next10.org/sites/default/files/California-Migration-Final2.pdf

Data Exploration

Data Clean Up Process

Data Source:

Census API Collection.

American Community Survey 5-Year Data (ACS5)

2013 – 2018 years

```
for y in years:

    c = Census(api_key, year=y)

    #Give Names for your Groups
    median_rent_data = c.acs5.get(("NAME", "B01003_001E","B19301_001E", "B17001_002E",
                        "B25071_001E","B25092_002E", "B25092_003E",
                        "B08101_001E", "B08303_001E",
                        "B02001_001E", "B02001_002E", "B02001_003E", "B02001_004E","B02001_005E","B23025_005E"),
                    {'for': 'state: 06, 08, 12, 16, 41, 48'})
```

	Year	State Name	State Number	Population	Per Capita Income	Poverty Count	Rent(%)	House with mortgage(%)	House without mortgage(%)	Mean of Trans by Age	Travel Time to Work	Race Total	White alone	Block or African American alone
0	2013	California	06	37659181.0	29527.0	5885417.0	33.7	29.2	11.3	16290887.0	15437979.0	37659181.0	23467167.0	2255372.0
1	2013	Colorado	08	5119329.0	31109.0	660874.0	30.9	24.0	10.2	2494794.0	2331060.0	5119329.0	4301096.0	203755.0
2	2013	Florida	12	19091156.0	26236.0	3052807.0	34.9	28.0	13.6	8094220.0	7706393.0	19091156.0	14568521.0	3056152.0
3	2013	Idaho	16	1583364.0	22568.0	240298.0	29.8	24.1	10.2	684393.0	645127.0	1583364.0	1455692.0	8957.0
4	2013	Oregon	41	3868721.0	26809.0	614778.0	32.2	26.2	12.8	1700451.0	1591348.0	3868721.0	3297149.0	70328.0

Data Exploration

Additional (not api) data from Census:

State-to-state migration (Tables) -

https://www.census.gov/data/tables/time-series/demo/geographic-mobility/state-to-state-migration.html
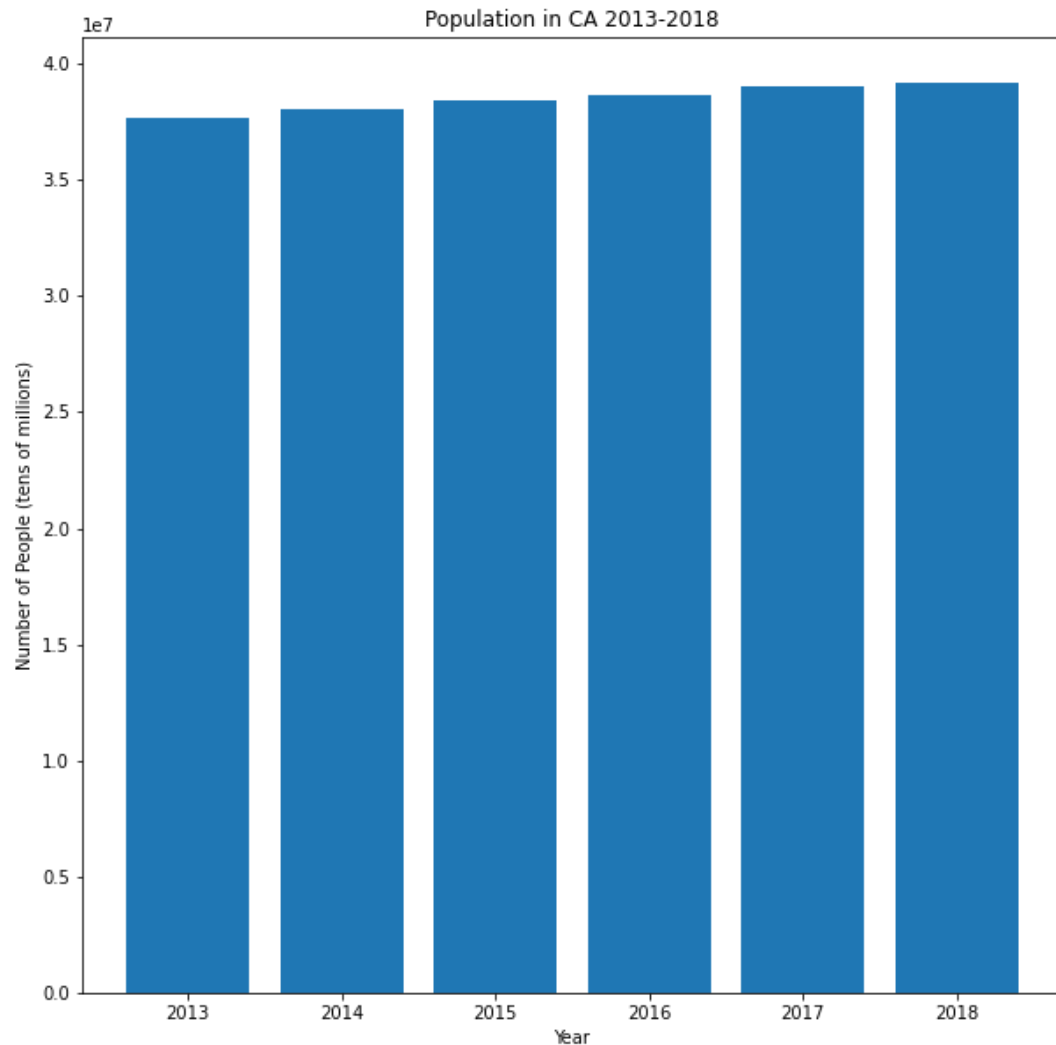
Process:

VBA script was generated to collect necessary data for all states (2013-2018).

Obtained CSV file was merged with the main DataFrame by State and Year.

|	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P
2	Table 1. State-to-State Migration Flows[1]: 2018											Table 1. State-to-State Migration Flows[1]: 2018				
3	Dataset: 2018 American Community Survey 1-Year Estimates											Dataset: 2018 American Community Survey 1-Year Estimates				
4	Universe: Population 1 year and over											Universe: Population 1 year and over				
5																
6		Population 1 year and over		Same house 1 year ago		Same state of residence 1 year ago		Different state of residence 1 year ago					Different state of residence 1 year ago (continued)			
7								Total		Alabama			Alaska		Arizona	
8	Current residence in	Estimate	MOE	Estimate	MOE	Estimate	MOE	Estimate	MOE	Estimate	MOE	Current residence in	Estimate	MOE	Estimate	MOE
9																
10	United States[2]	323,531,965	+/- 28,863	278,079,469	+/- 191,887	35,921,585	+/- 160,760	7,571,282	+/- 77,765	98,194	+/- 7,723	United States[2]	39,246	+/- 3,869	179,586	+/- 12,115
11																
12	Alabama	4,832,358	+/- 3,328	4,173,026	+/- 19,530	534,914	+/- 18,557	109,301	+/- 9,827	N/A	N/A	Alabama	419	+/- 384	1,915	+/- 975
13	Alaska	727,164	+/- 1,214	608,707	+/- 7,474	81,229	+/- 5,883	32,099	+/- 4,643	518	+/- 404	Alaska	N/A	N/A	910	+/- 537
14	Arizona	7,090,137	+/- 4,507	5,887,700	+/- 28,309	888,452	+/- 25,934	273,714	+/- 15,128	2,801	+/- 2,049	Arizona	2,743	+/- 1,352	N/A	N/A
15	Arkansas	2,975,961	+/- 3,093	2,539,294	+/- 19,535	354,774	+/- 17,489	73,179	+/- 7,023	438	+/- 343	Arkansas	413	+/- 455	602	+/- 442
16	California	39,114,889	+/- 11,156	34,232,867	+/- 55,636	4,092,388	+/- 50,349	501,023	+/- 17,029	4,591	+/- 1,570	California	2,155	+/- 756	33,670	+/- 4,112
17																

Population and Migration Findings

Over the years, population has been increasing.
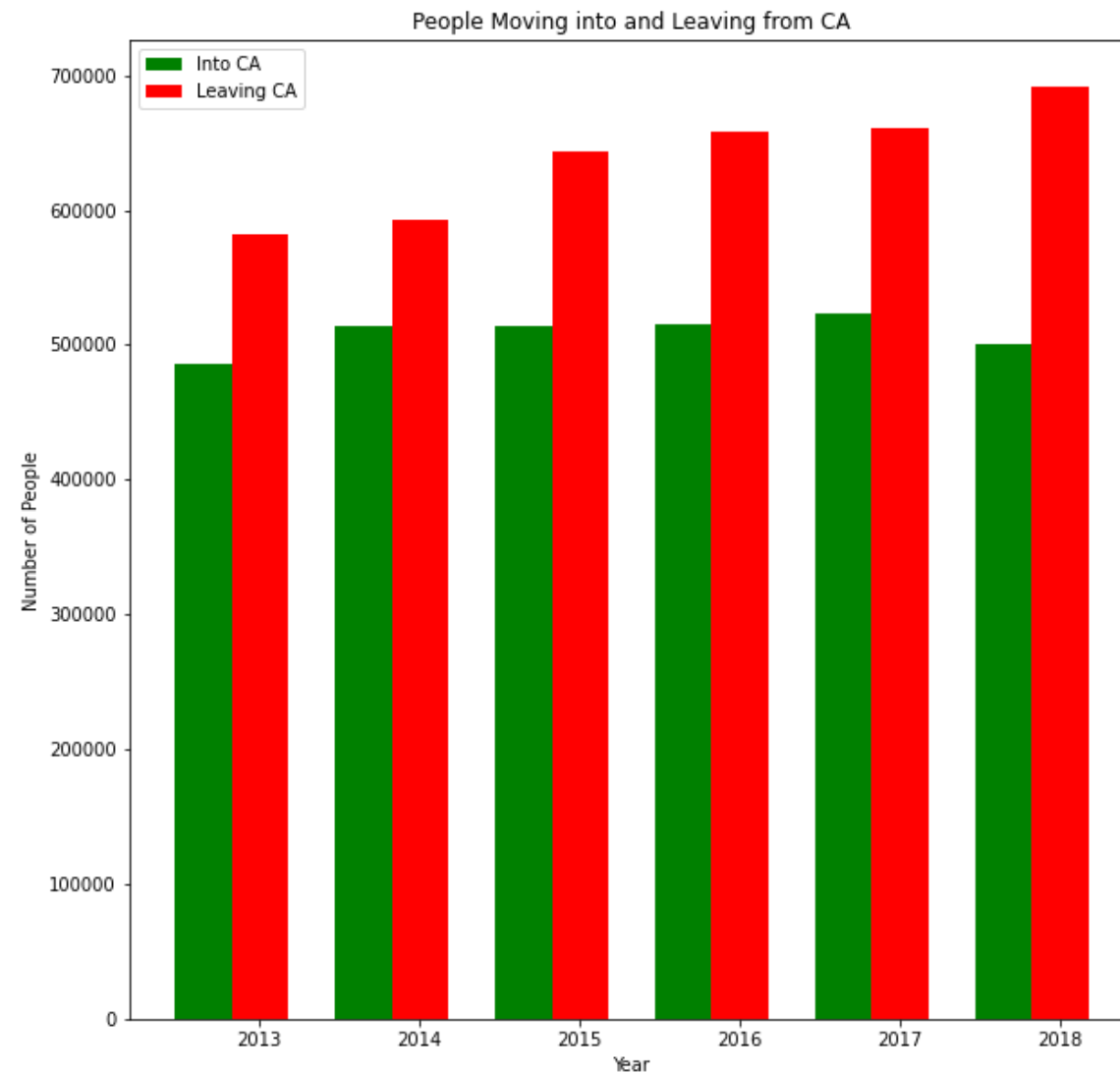
Even though, population in the overall state has been increasing, more people over the years have been moving out of CA.

Population and Demographics

- From 2013 to 2018 there are no significant change on demographics. Only Asian population is moderately increased compare to other races.

- We found that growth of Asian population seems the reason of growing California's population.
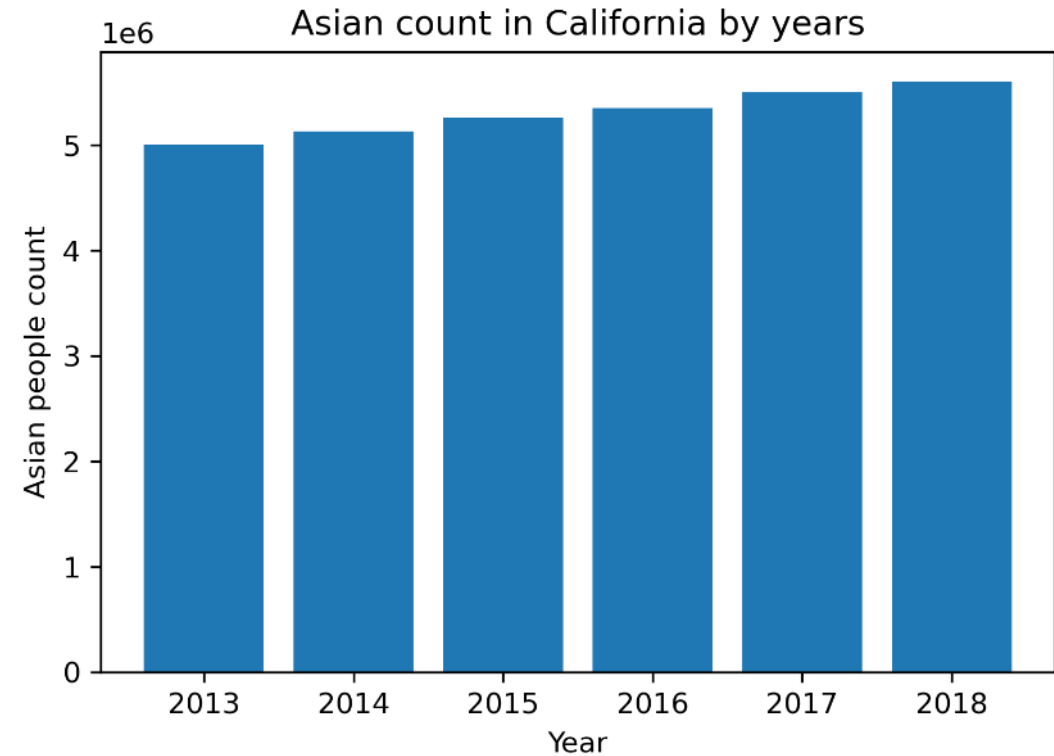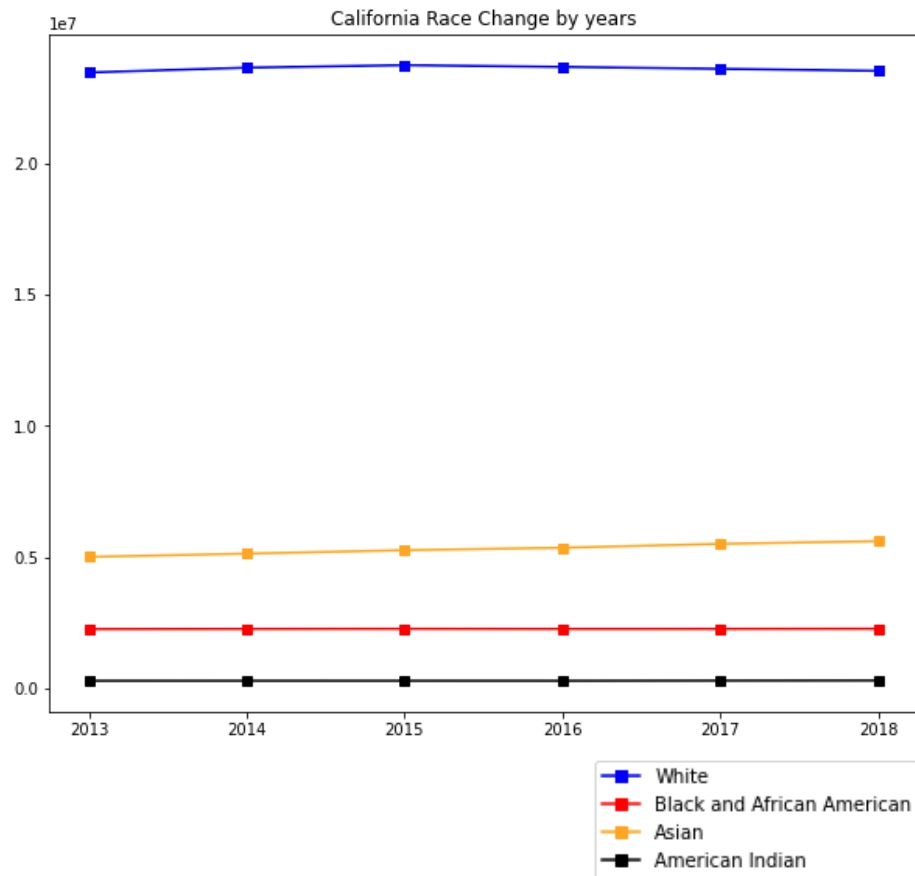
Population and Unemployment Findings

- California unemployment count is decreasing by years.

- Based on census data, California's unemployment count declines more than other states.

California Unemployment count
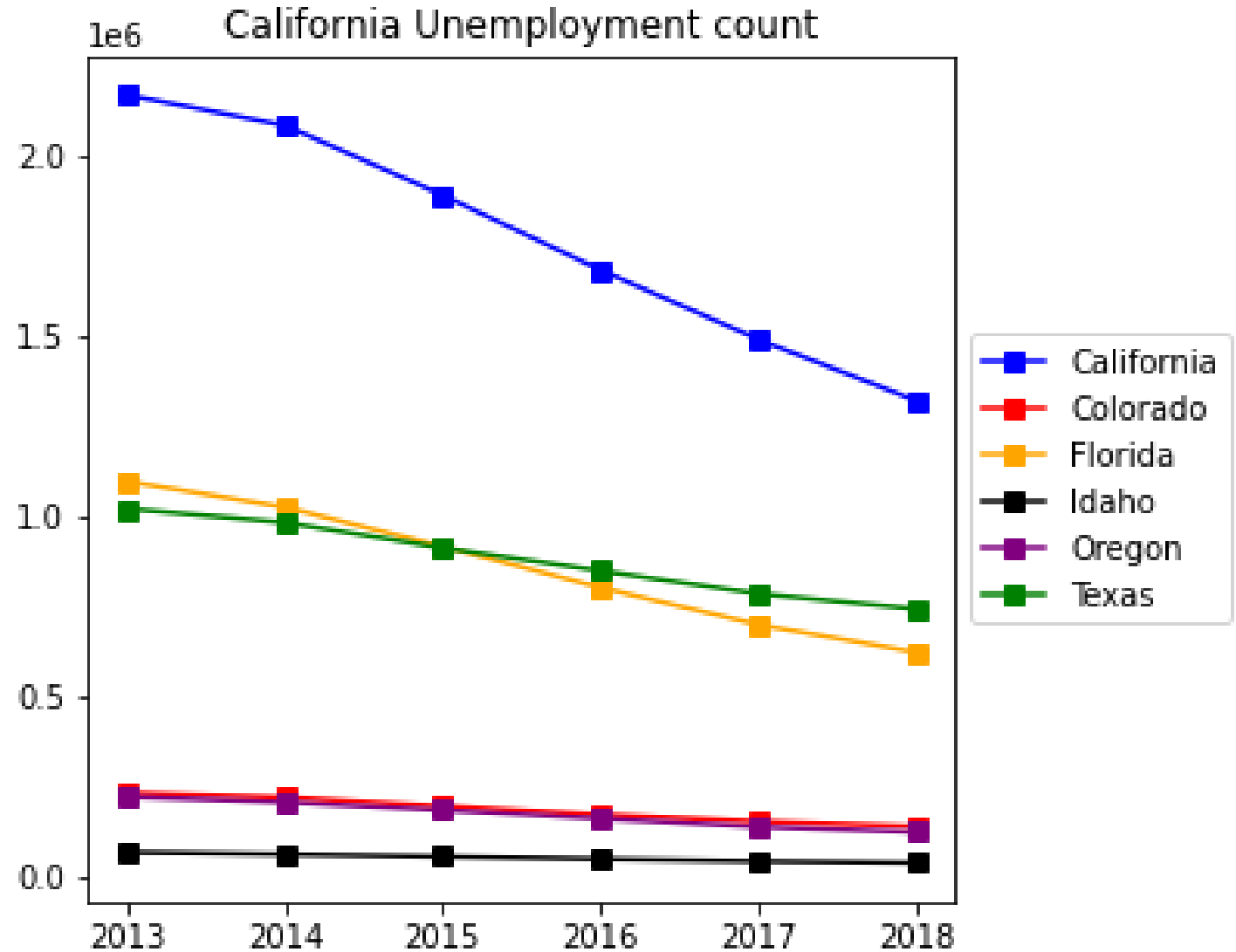
Population and Unemployment Findings

- California population is growing

- Count of leaving California is growing

- Unemployment count is decreasing

- We found that population and unemployment count indicate a negative correlation.

- Therefore, we conclude that unemployment is not the reason of people leaving California.
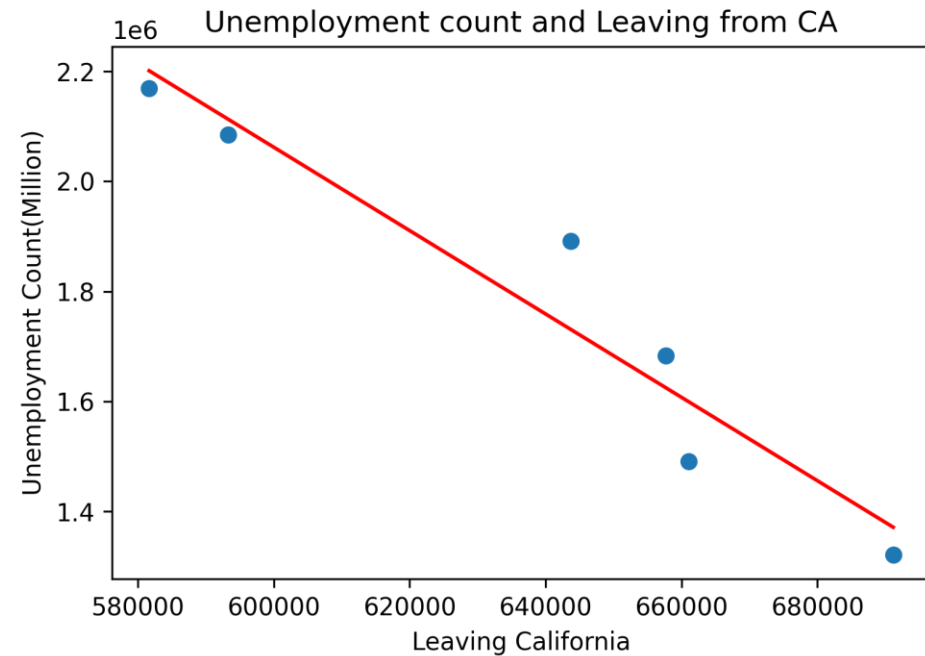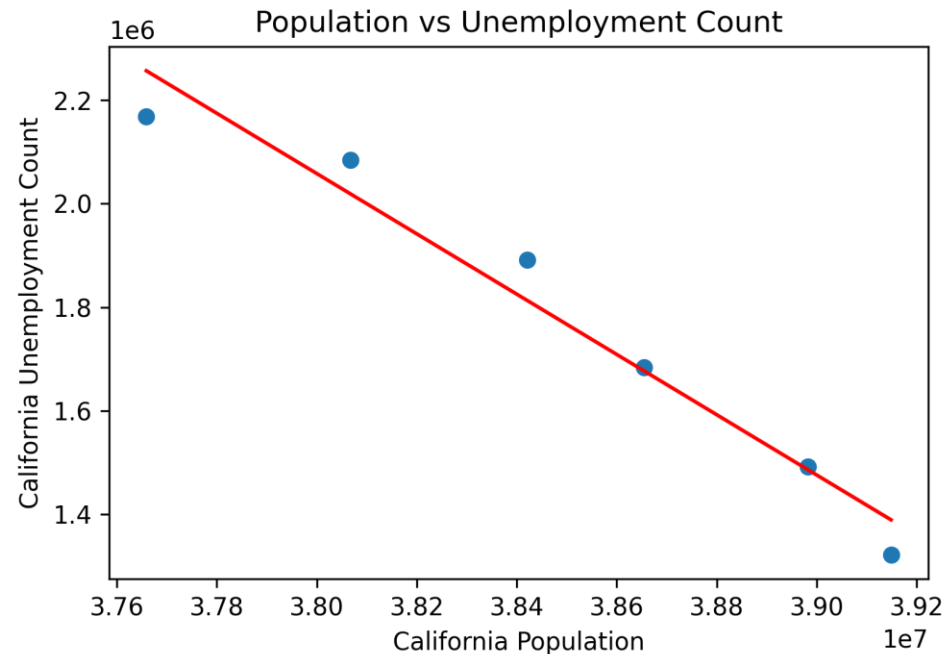
Transportation/Traffic Congestion (travel time to & from work)
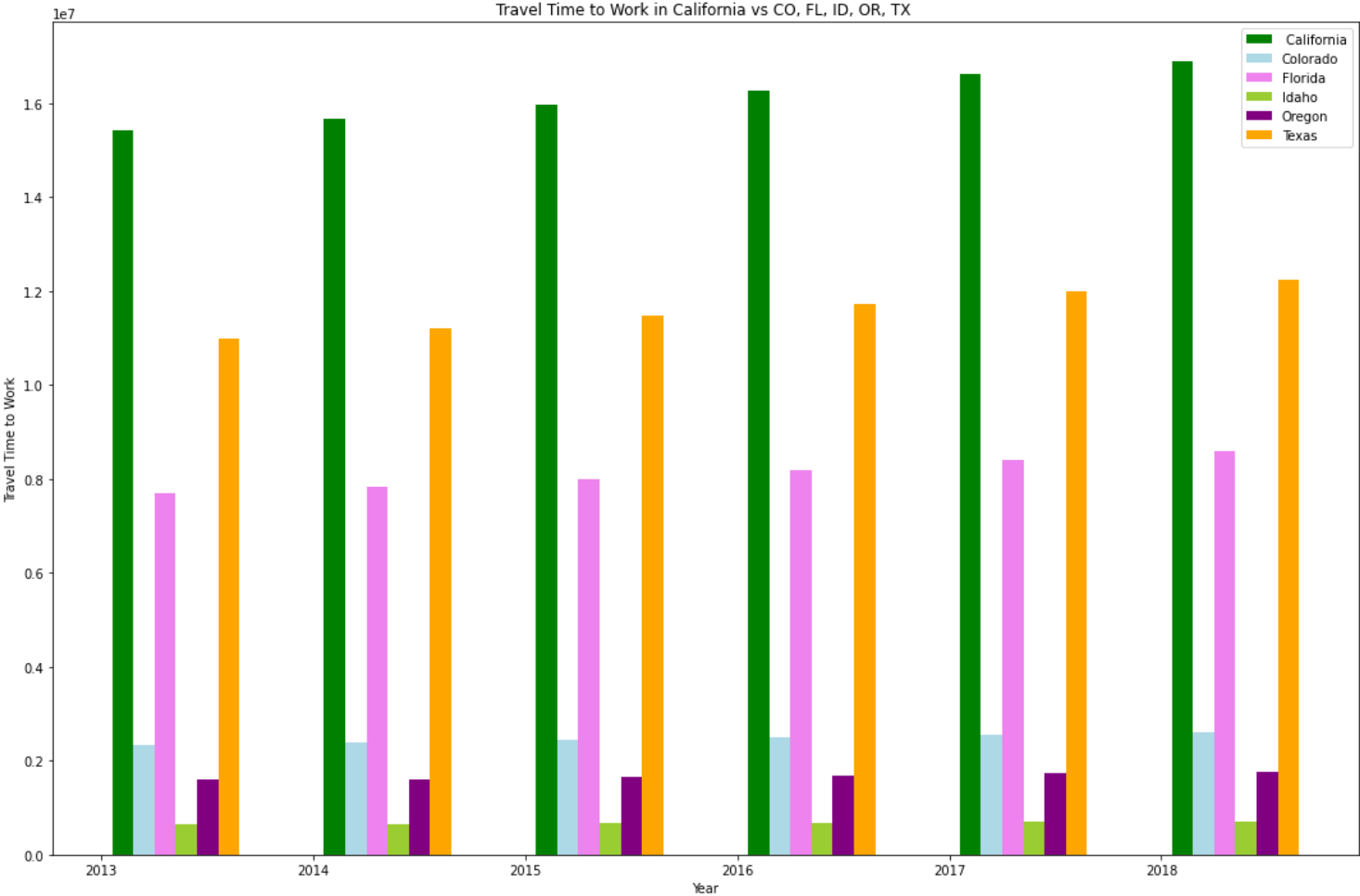
6 States Travel Time% in (2018)
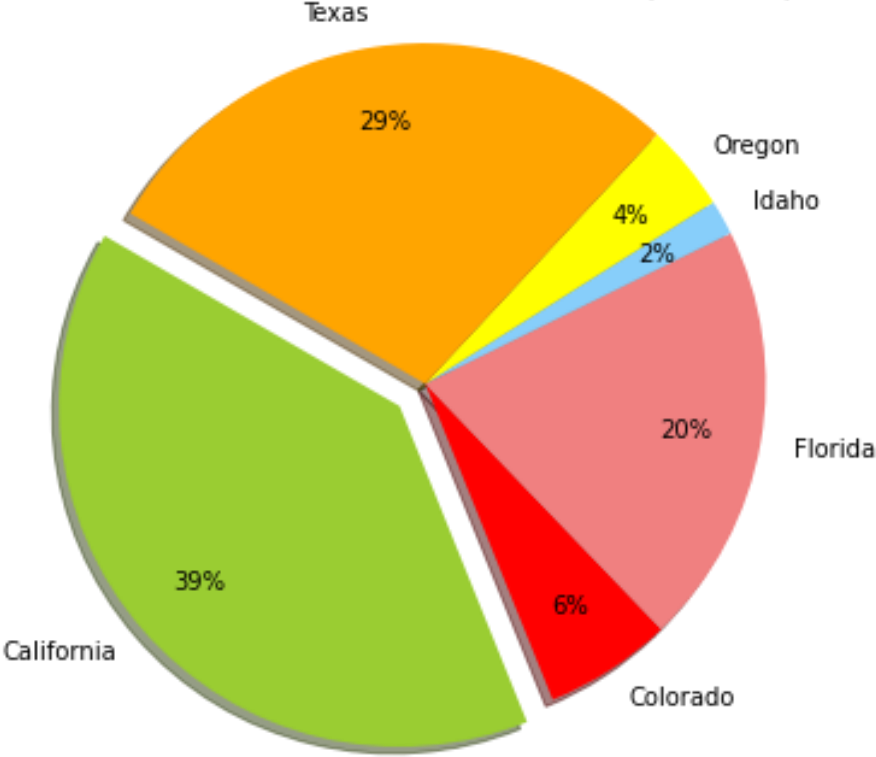
Travel time to work could be one of the reason people are leaving California compare with other five states. In these graphs we can see that people spend more time to travel to work instead of being with their family. Texas and Florida have more travel time to work after California, and Idaho is the lowest. In this pie graph we could see people in California spend the most travel time to work and Idaho with the lowest .

Poverty Rate Findings

Poverty Rate has been decreasing over the years but it could be indicator of change in inflation.

Poverty Rate in CA 2013-2018
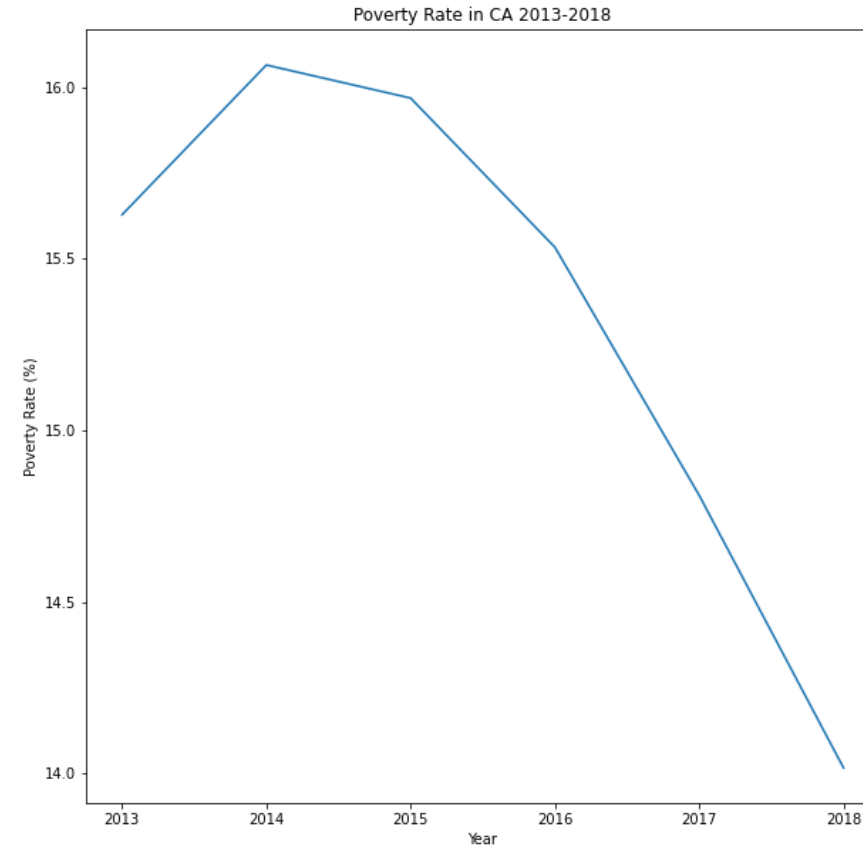
Per Capita Income

Per Capita Income is used to evaluate the standard of living and quality of life. It is calculated by Income divided by Population.

Even though the Per Capita Income is increasing it does not necessarily mean that the standard of living is increasing as well.

The Per Capita Income does not take into account inflation changes over the years. The Census calculated these numbers using the 2017 inflation adjusted numbers.

Per Capita Income in CA 2013-2018
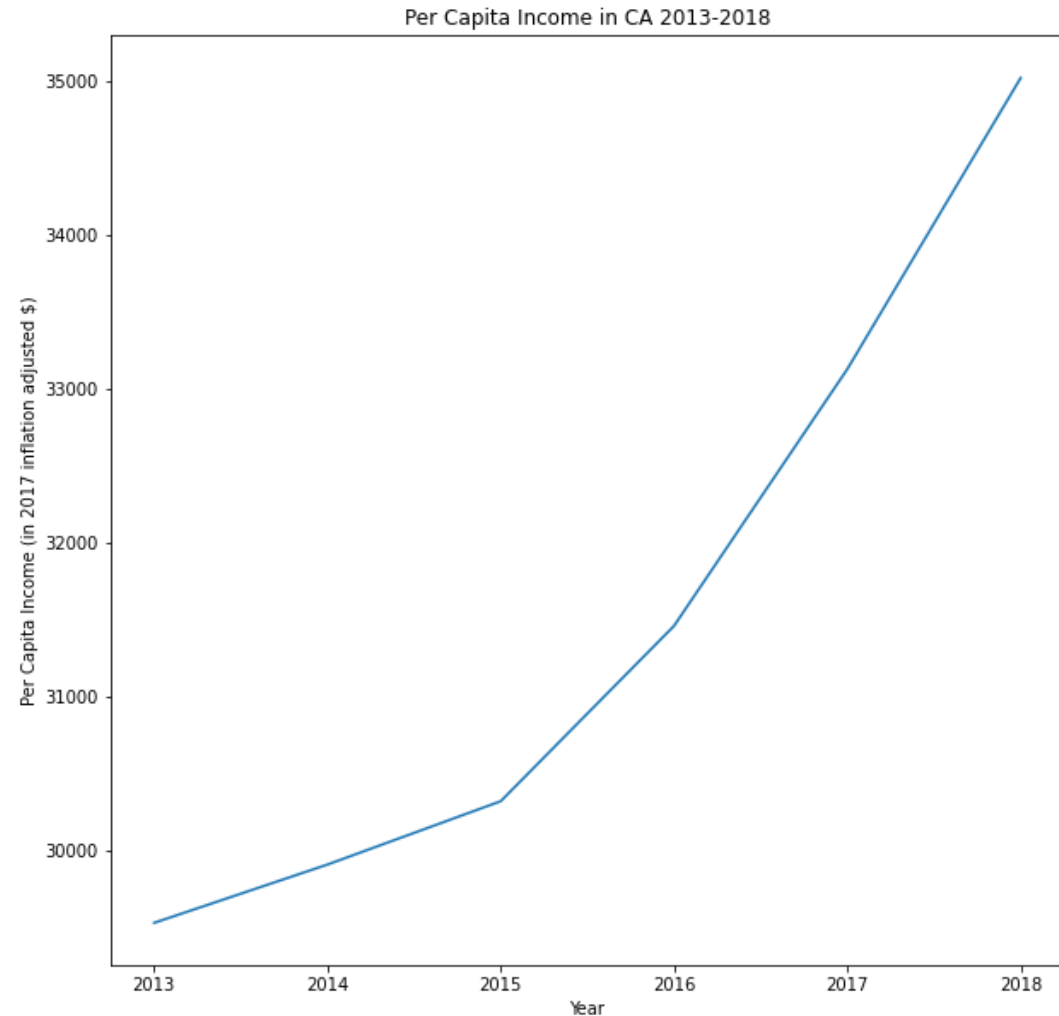
Median Household Income

Median household income from US Census highlights that California leads in income among the 5 competing states and US average

California shows higher incomes compared to USA average and 5 competing states over 5 year data span
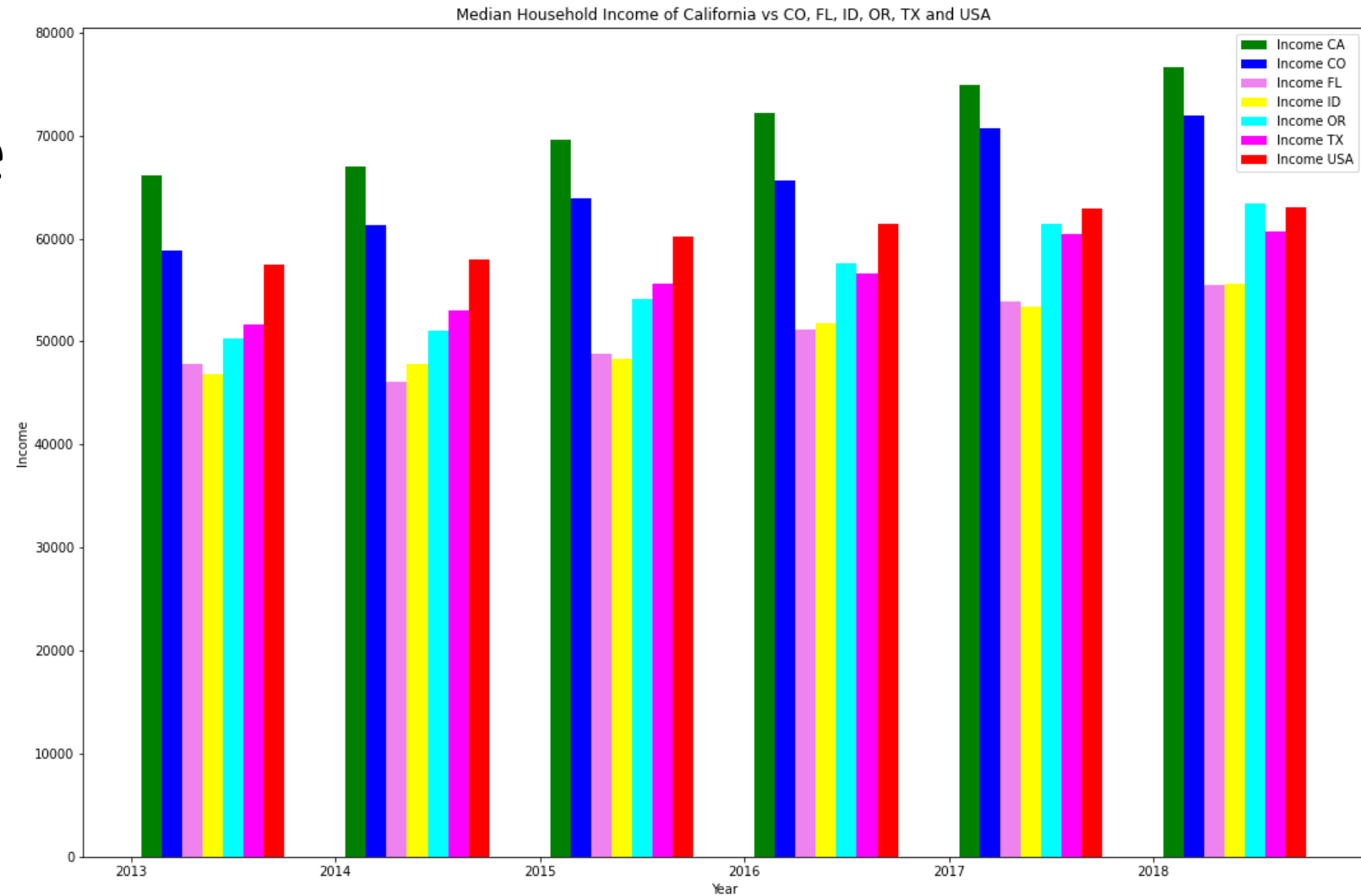
Household Income and ACS Gini co-efficient

ACS Gini co-efficient: measure of income inequality calculated by US Census

- 0: closer to zero (0) represents perfect equality

- 1: closer to one(1) represents perfect inequality

California show higher income inequality than 5 competing states and USA average

While California shows higher incomes over 5 competing states, there is higher income inequality among the population compared to 5 competing states and USA average
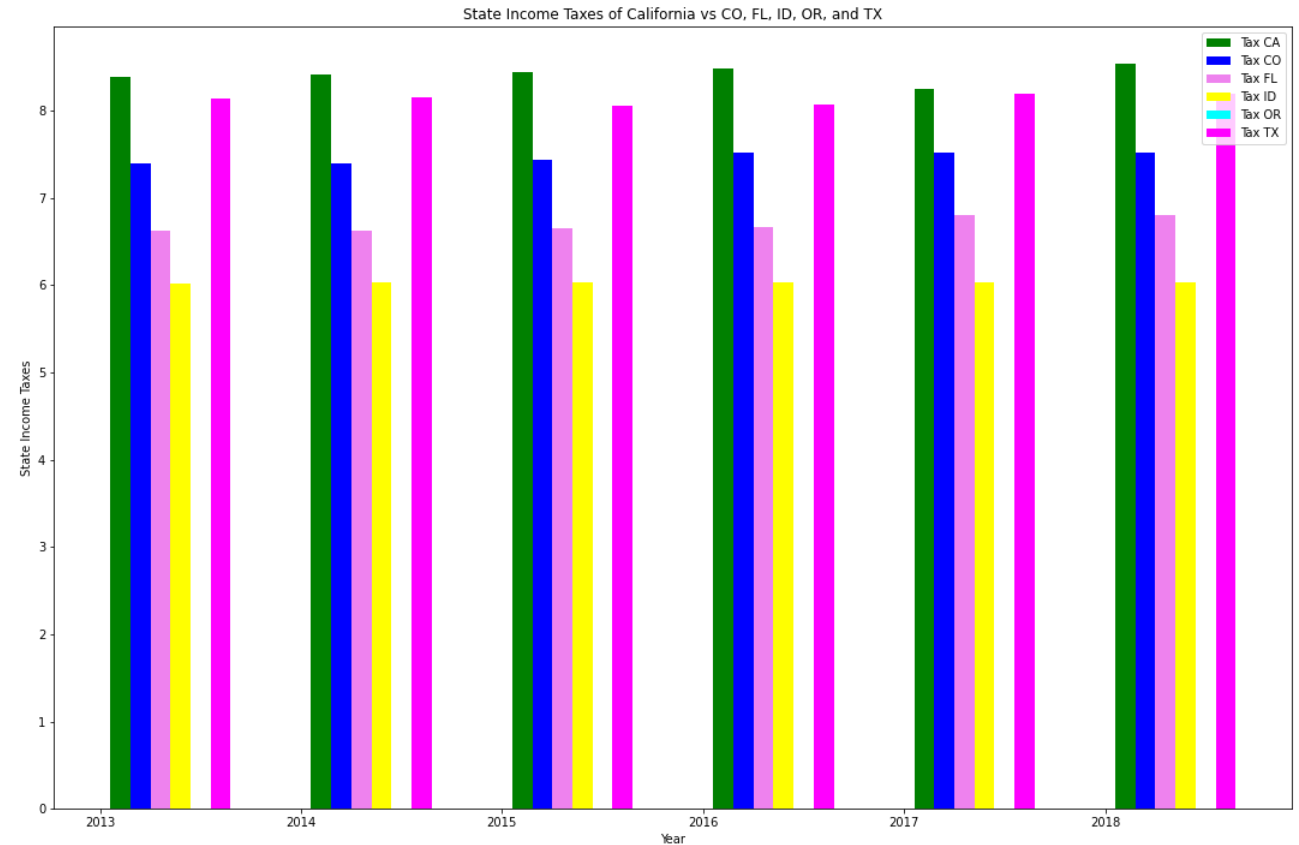

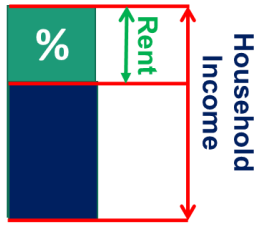Gini Co-Efficient of California vs CO, FL, ID, OR, TX and USA
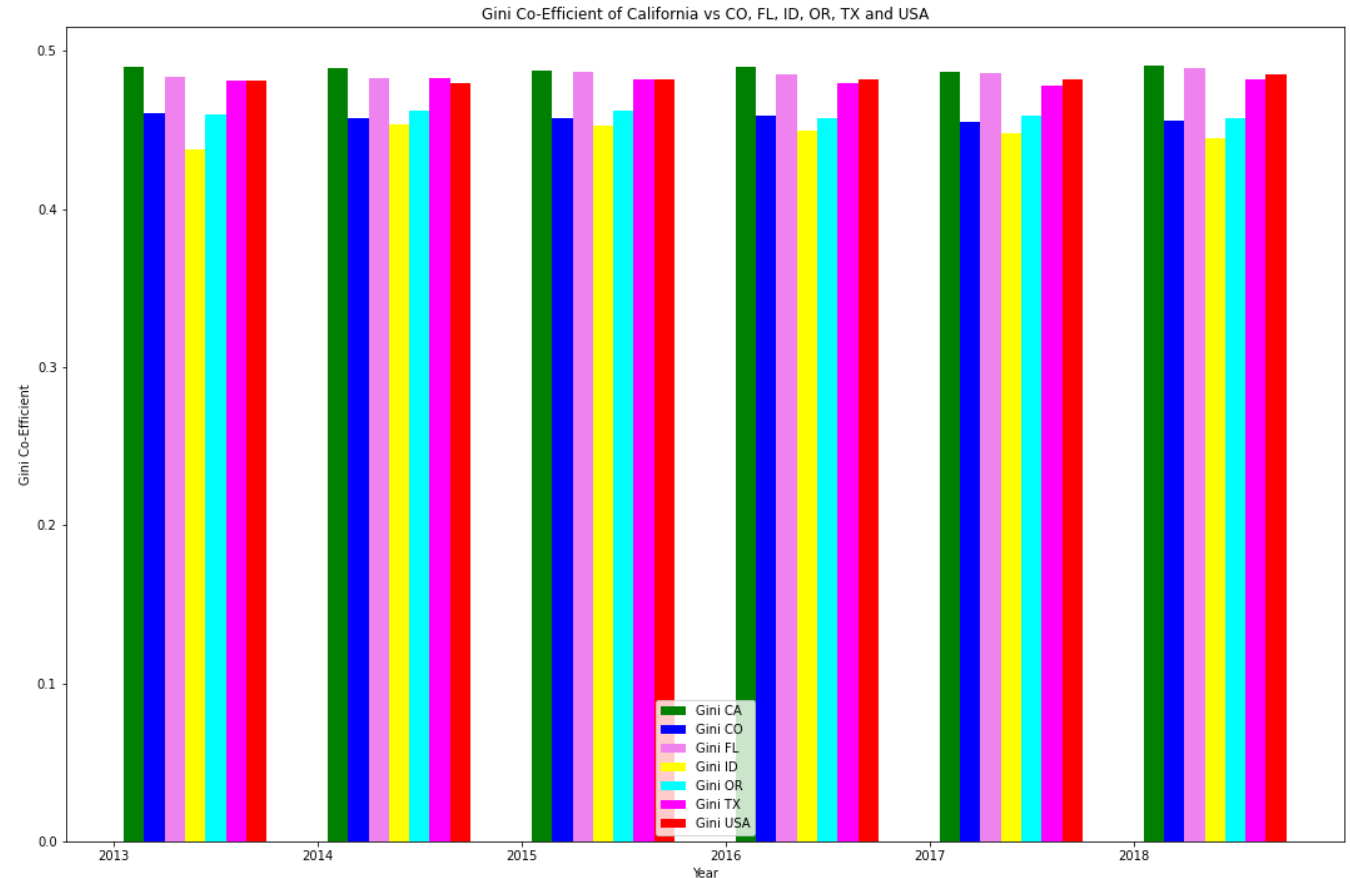
Household Income and State Tax Data

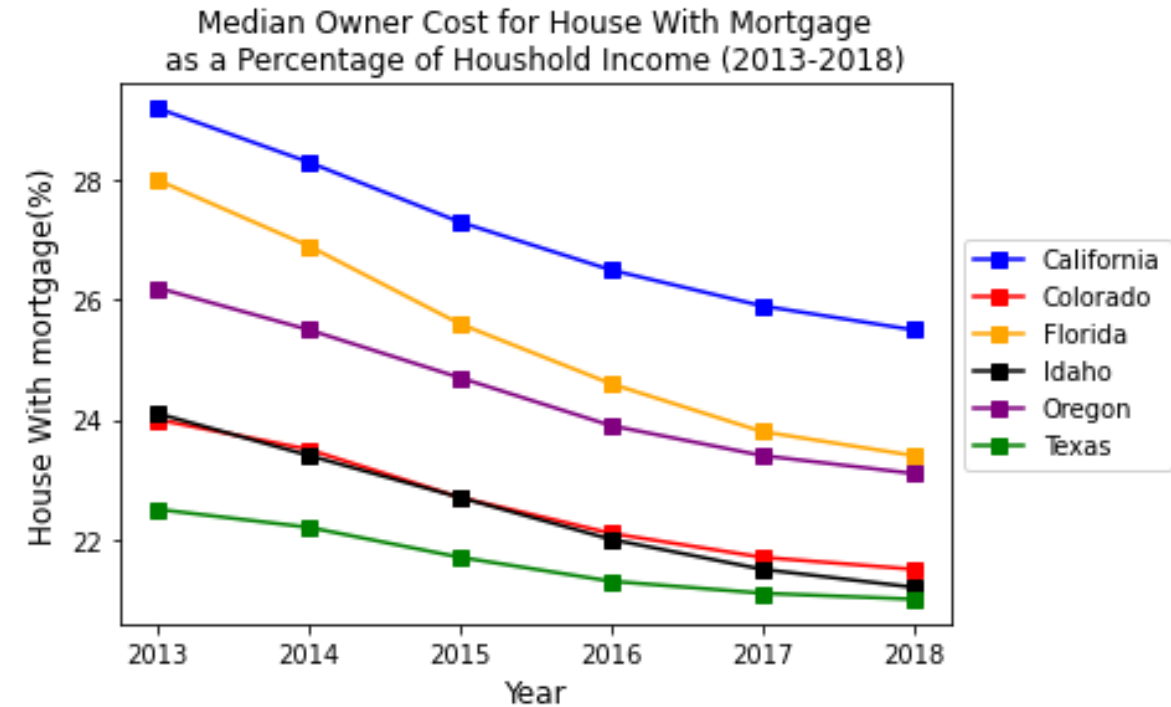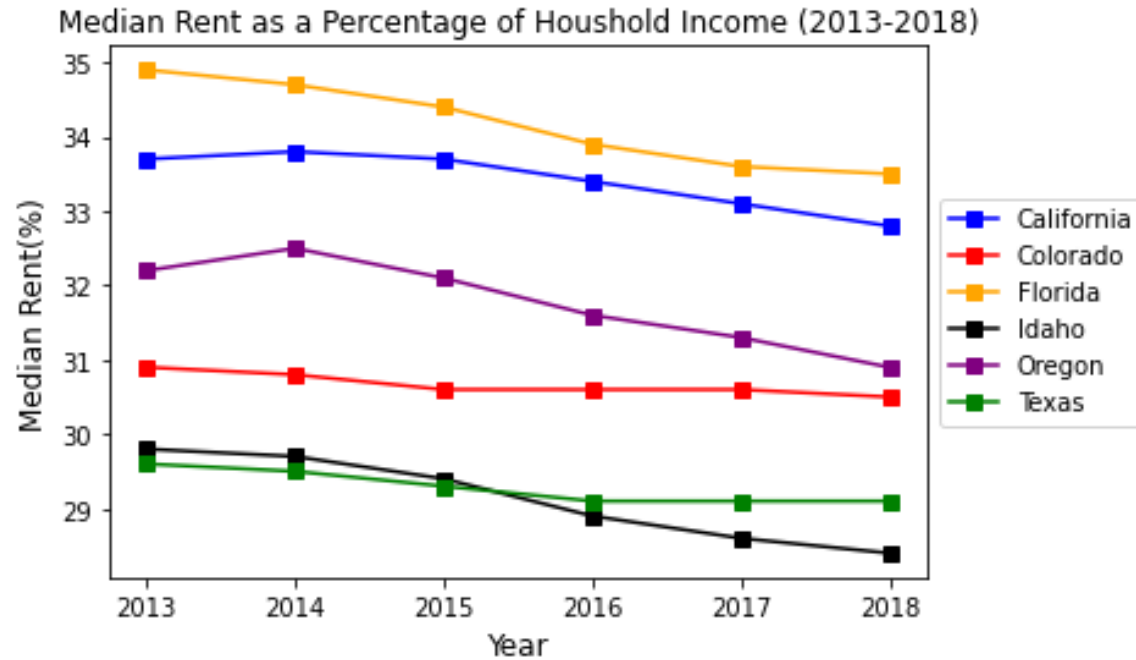State Tax Data: represents % state tax households pay within CA and 5 competing states

California pays higher state taxes than 5 competing states

While California has higher incomes, more goes to taxes than other states

Migration vs Rent & Housing Findings

- Both California and Florida have higher rent.
- California is the most expensive state to buy a house with mortgage.
- The most attractive states to have property is ID, TX and CO.

We found a weak positive correlation between migration from CA due to a housing prices (r-value = 0.45).
So, there are another reasons why people prefer to move out from CA.

Summary of Findings and Conclusions

- 1. General Conclusions and What Findings Mean
- The information gathered from the US Census confirms our hypothesis that money inequality, expensive housing and traffic congestion are a few of many factors that are leading Californians to leave the state.
- Implications: These are not the only factors beyond those covered in the US Census that are reasons why people may be leaving.
- 2. Difficulties
- We faced difficulties in using some of the US Census API data as it wouldn't always lead where we needed for information. Many hours were needed to locate some of the necessary data used for the project.
- 3. Additional Questions
- We would include more states and more years if we had more time. We would also look to add more variables into the data set including immigration data into California, birth rates, climate change including fire disasters, education expenses, other deciding factors for leaving California.