

Real Estate In Atlanta Metro Area – Price Trends

Project 1

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Motivation



“Atlanta had the lowest median house price among the 10 fastest-growing metro areas, yet it had the fifth-highest household income. The combination of good wages and low house prices put Atlanta at the top for house affordability. It added 89,013 people in 12 months, making it the third-fastest-growing metro”

Project Objective:

To understand how key demographic parameters are linked to house prices in Atlanta Metropolitan Area.

Questions to Answer

1. *How Atlanta's median house price compare to other fast-growing metro areas in the US.*
2. *Does location in the Atlanta metro area (County) have a direct impact in house pricing? What is the reality within the metro area?*
3. *How prices have change since 2010?*
4. *Is this trend related to population growth?*
5. *How per capital income correlates to house prices?*
6. *Is population increasing in the suburbs? How is this affecting house prices?*

Data Clean Up

House pricing data from Zillow and Census API had available records for all across the United States. This includes house pricing by zip codes, counties, cities and states.

For this analysis we filtered the data by counties in the Atlanta Metro Area.

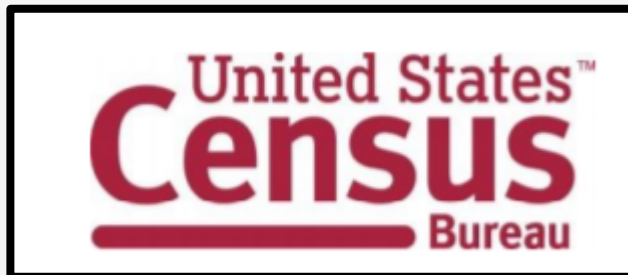
The Atlanta Metro Areas comprises 19 counties

- Barrow
- Bartow
- Carroll
- Cherokee
- Clayton
- Cobb
- Coweta
- Dawson
- Dekalb
- Douglas
- Fayette
- Fulton
- Forsyth
- Gwinnet
- Henry
- Lamar
- Meriwether
- Pickens
- Walton

Data Sources and Data Exploration

For this analysis we looked into demographic data provided by the Census API. From this API we pulled parameters such as population, median age, household income, per capital income, median value housing units and poverty count.

In combination with census API we pull data from Zillow datasets. Zillow provides a series of CSV files with time series data on house pricing by different categories.



Data Analysis

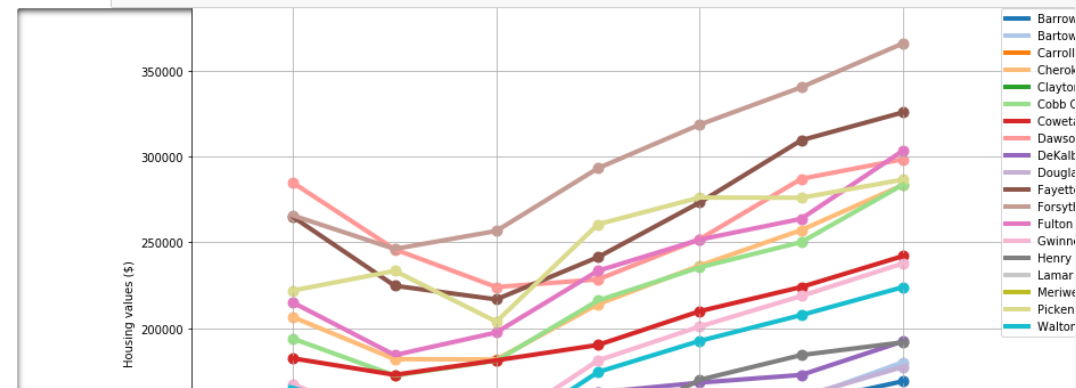
Let's look at the jupyter notebook!!

Out [31]:

Name	MunicipalCodeFIPS	Median Age 2010	Population 2010	Poverty Count 2010	Household Income 2010	Per Capita Income 2010	Median Value Housing Units 2010	Median Age 2011	Population 2011	Poverty Count 2011	...	Median Value Housing Units 2016	Zillow Median Value Housing 2010	Zillow Value H
Barrow County, Georgia	13	32.9	66359.0	8295.0	48958.0	20882.0	138900.0	33.1	68061	8912	...	123200.0	130150.000000	101891.
Bartow County, Georgia	15	36.1	97423.0	13472.0	49216.0	22241.0	146800.0	36.2	98905	15076	...	128200.0	135982.375000	121733.
Carroll County, Georgia	45	33.2	109227.0	18339.0	45559.0	20523.0	139900.0	33.5	110292	19253	...	113700.0	116294.583333	92822.
Cherokee County, Georgia	57	35.7	206283.0	15143.0	66320.0	30217.0	201900.0	36.1	211316	16113	...	204400.0	206352.166667	181889.
Clayton County, Georgia	63	31.1	260156.0	42408.0	43311.0	18958.0	127800.0	31.3	260756	46881	...	86700.0	68775.000000	52012.
Cobb County, Georgia	67	34.9	677402.0	71201.0	65522.0	33110.0	211000.0	35.2	684468	76183	...	205600.0	193800.000000	172334.
Coweta County, Georgia	77	36.1	121528.0	12317.0	61550.0	26161.0	177900.0	36.4	124695	13724	...	182300.0	182328.708333	172737.
Dawson County, Georgia	85	40.7	21758.0	2584.0	51128.0	25557.0	201400.0	40.3	22121	2949	...	196400.0	284610.625000	245852.

```
value_housing = zillow_census_data[['Zillow Median Value Housing 2010',  
    'Zillow Median Value Housing 2011',  
    'Zillow Median Value Housing 2012',  
    'Zillow Median Value Housing 2013',  
    'Zillow Median Value Housing 2014',  
    'Zillow Median Value Housing 2015',  
    'Zillow Median Value Housing 2016']  
].astype('float')
```

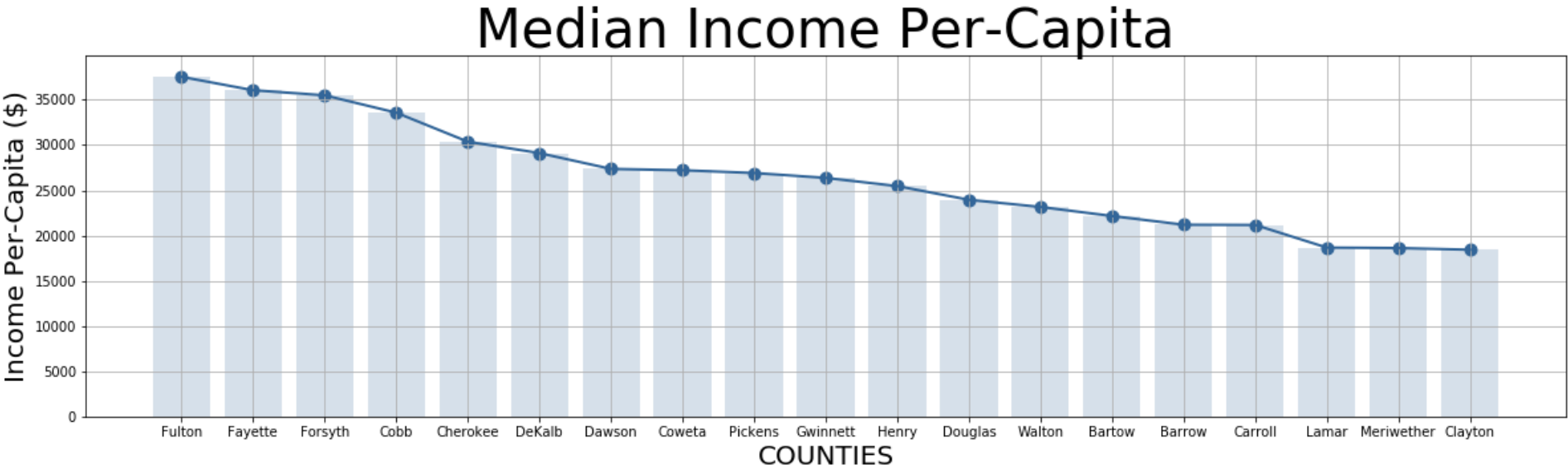
```
print_plot(value_housing, years, "Zillow Median Value Housing", "years", "Housing values ($)", (2009
```



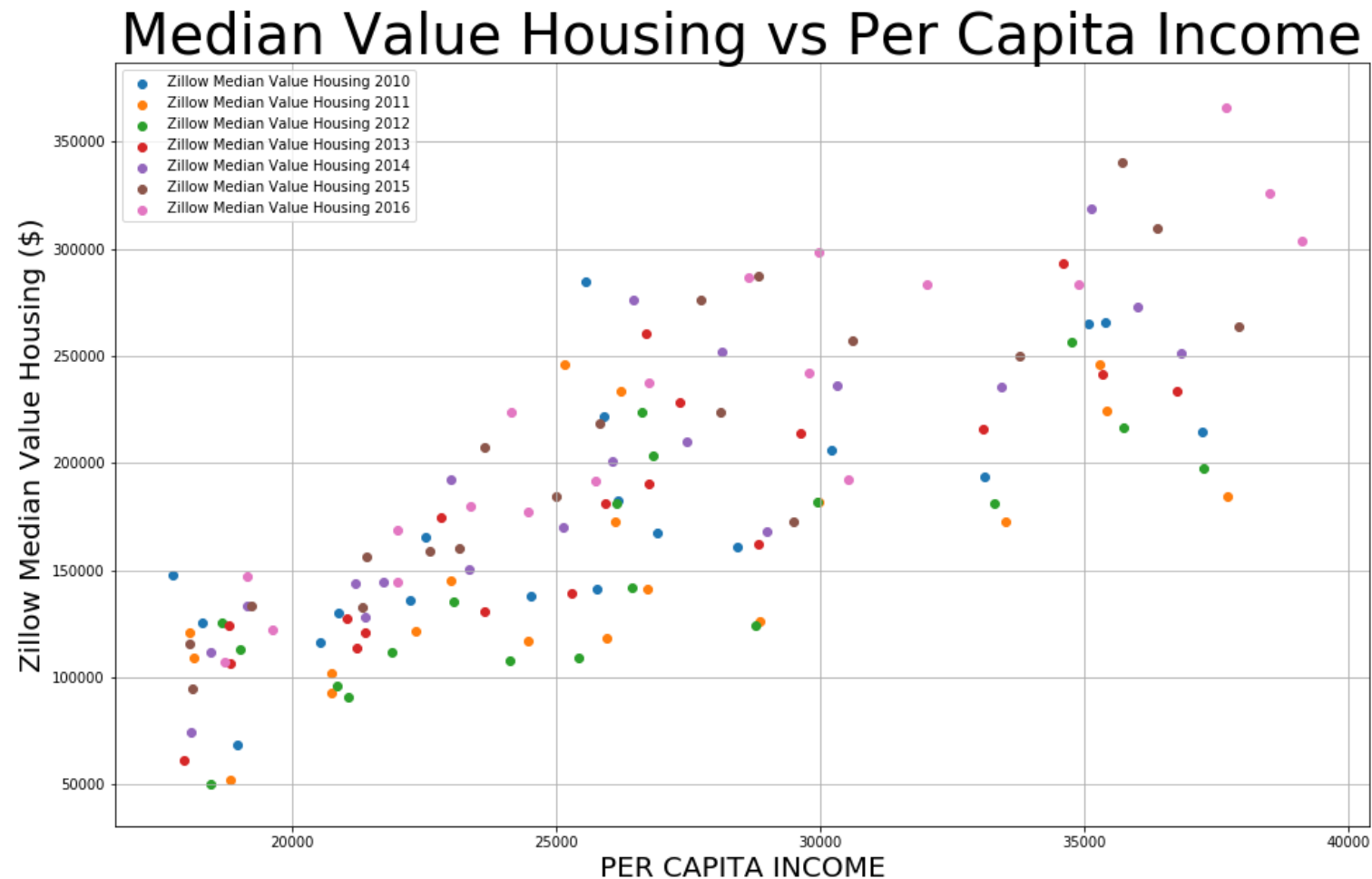
In [10]:

```
value_housing = zillow_census_data[['Median Value Housing Units 2010',  
    'Median Value Housing Units 2011',
```

How per capital income correlates to house prices?



How per capital income correlates to house prices?



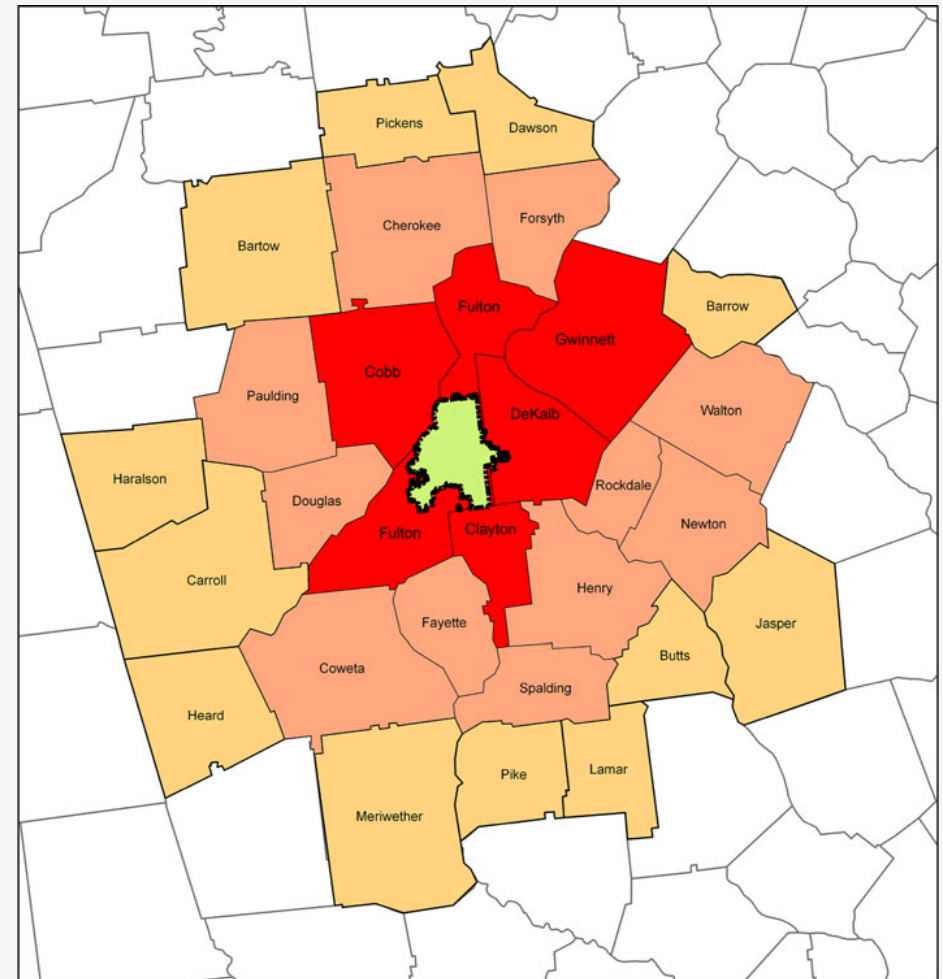
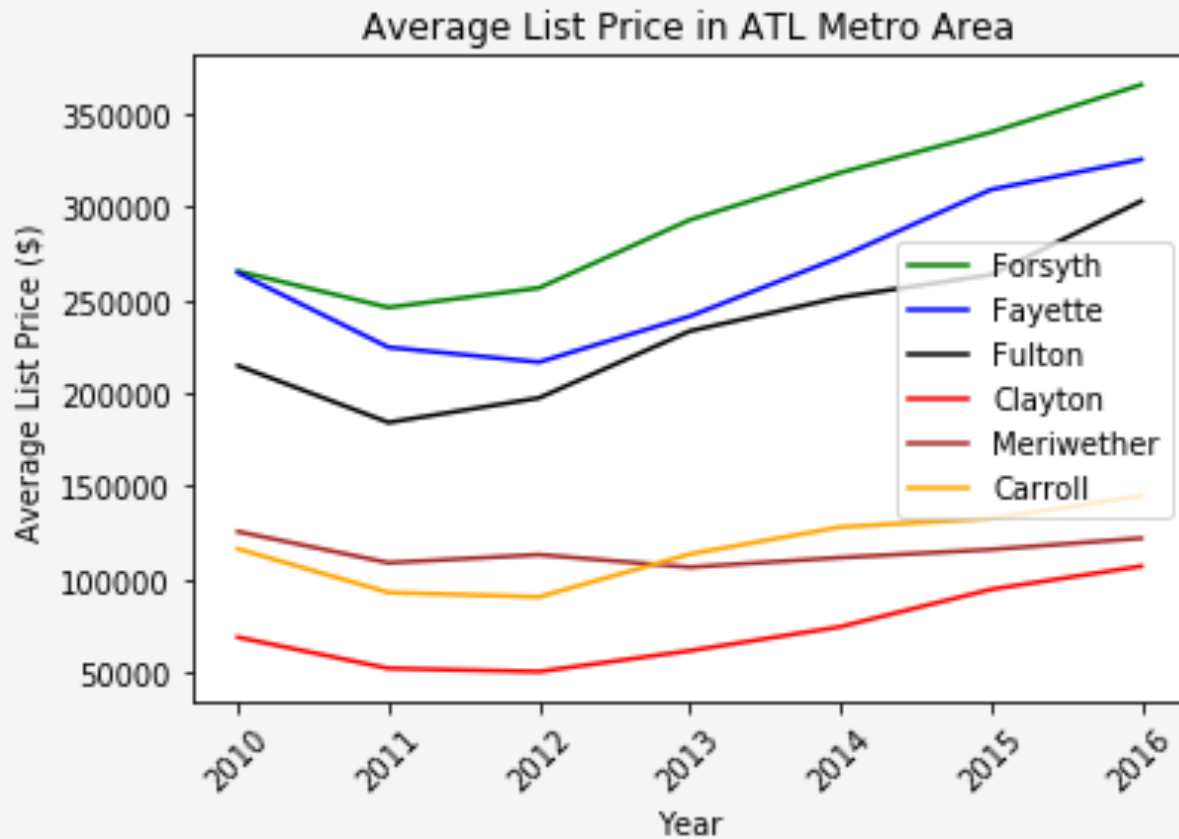
How Atlanta's median house price compare to other fast-growing metro areas in the US?

Metro Area	Median House Price 2018
Atlanta	244,466\$
Houston	293,064\$
Dallas	298,371\$
Washington, DC	421,974\$
Austin	291,780\$
Tampa	260,600\$
Phoenix	265,000\$
Orlando	282,947\$
Riverside	723,347\$
Seattle	490,000\$

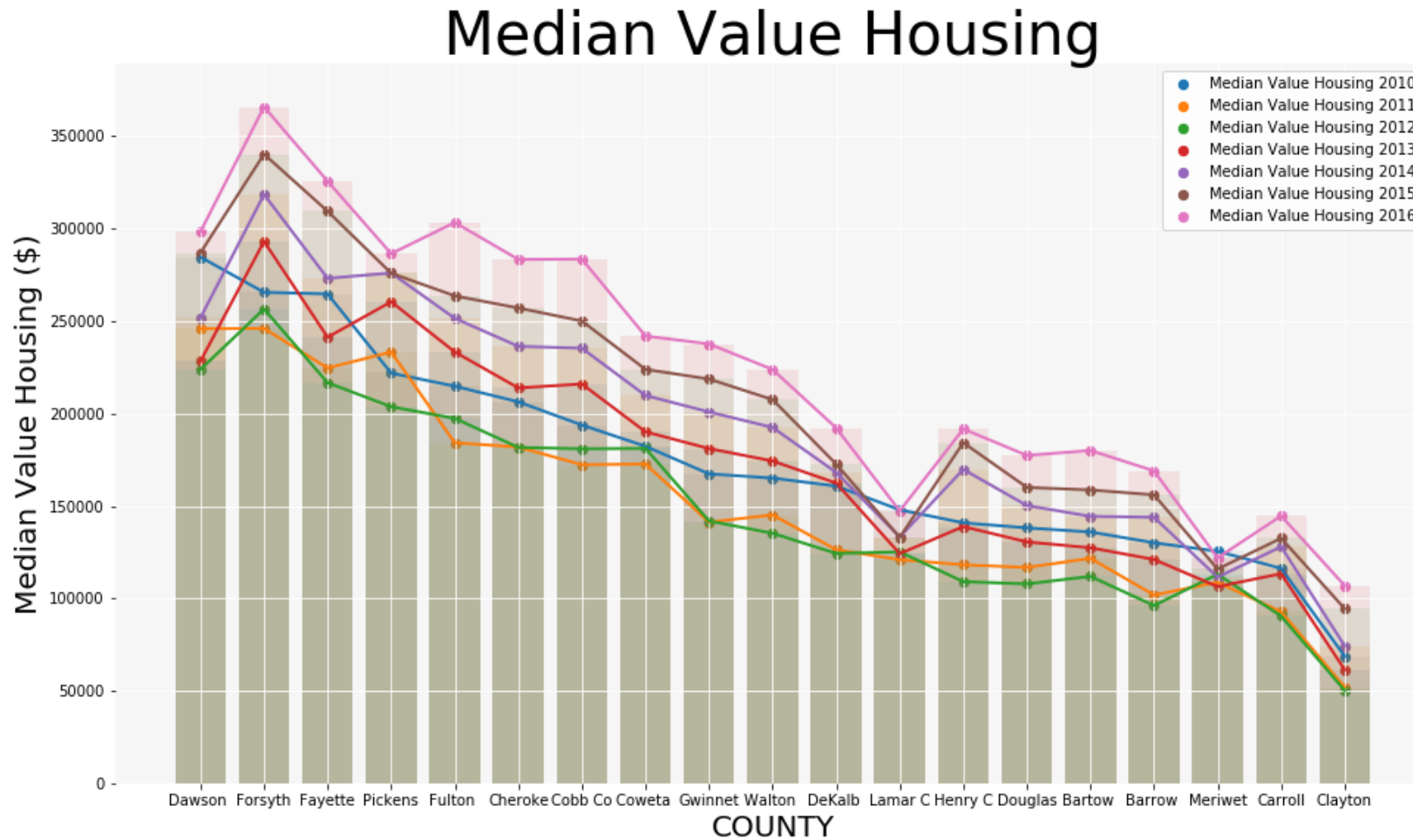
Atlanta is one of the three fastest growing metropolitan areas with relatively affordable home prices!!

Location in the metro area

1. Does location in the Atlanta metro area (County) have a direct impact in house pricing?

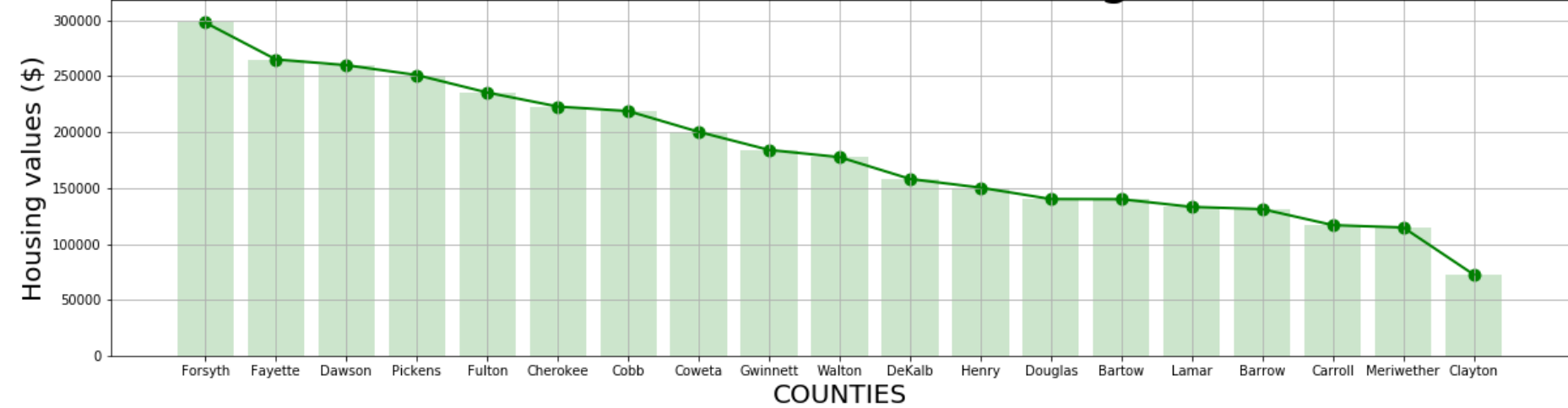


How prices have change since 2010?

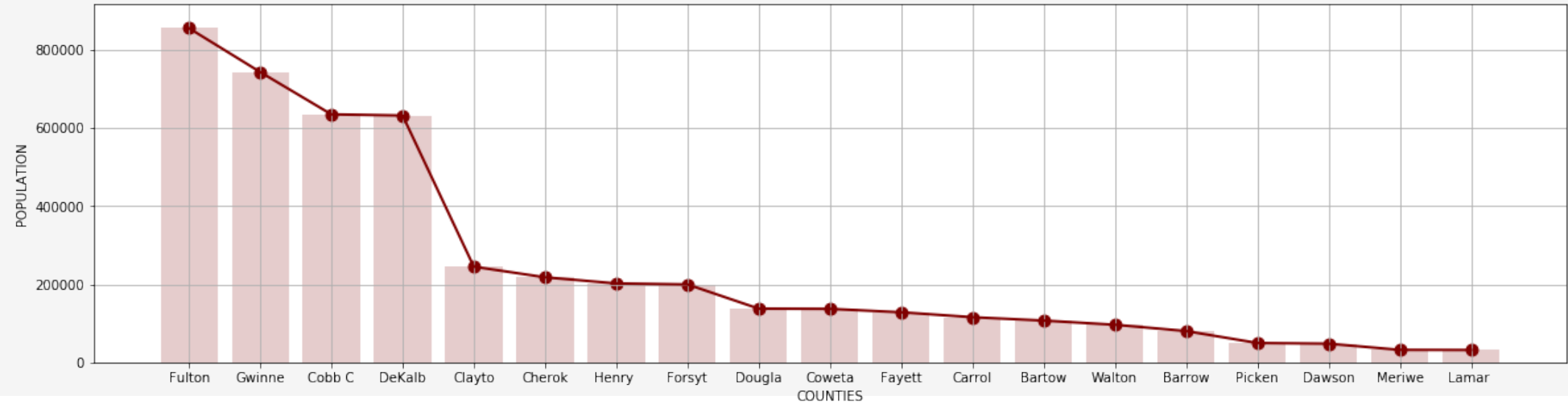


How population by county could impact house prices?

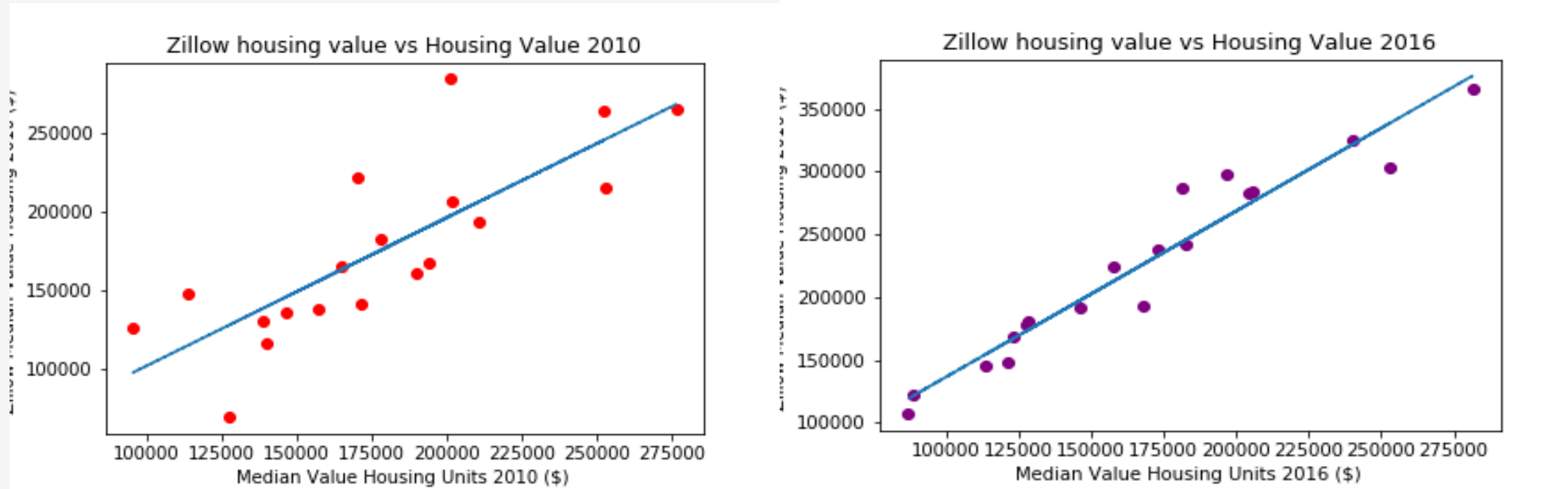
Median Value Housing



Census Population

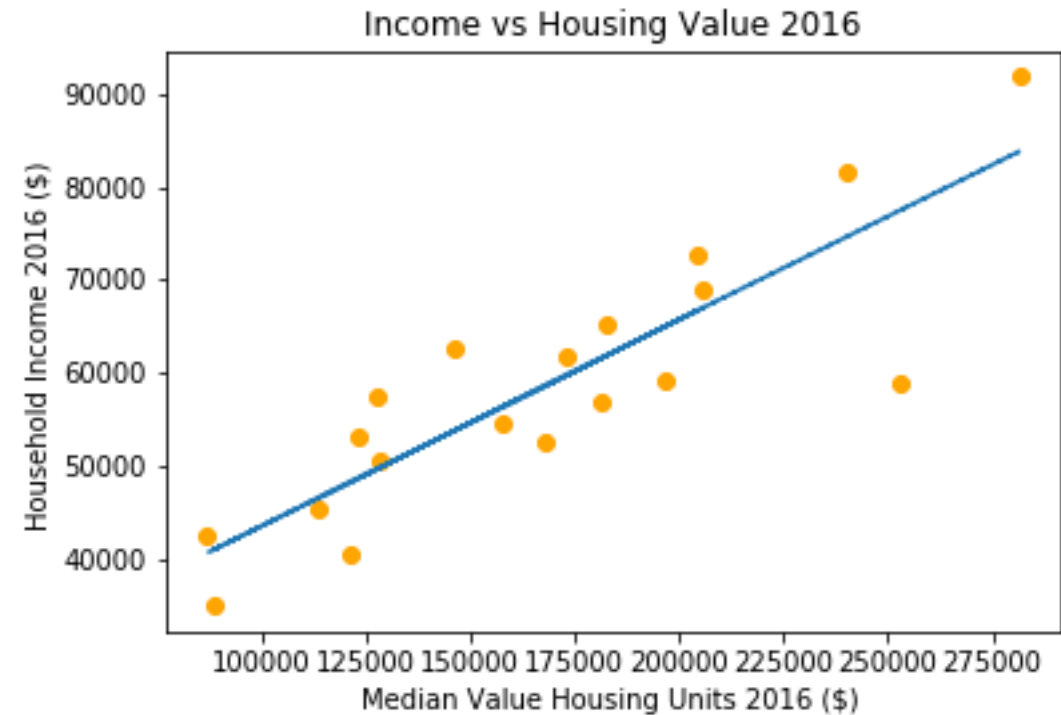
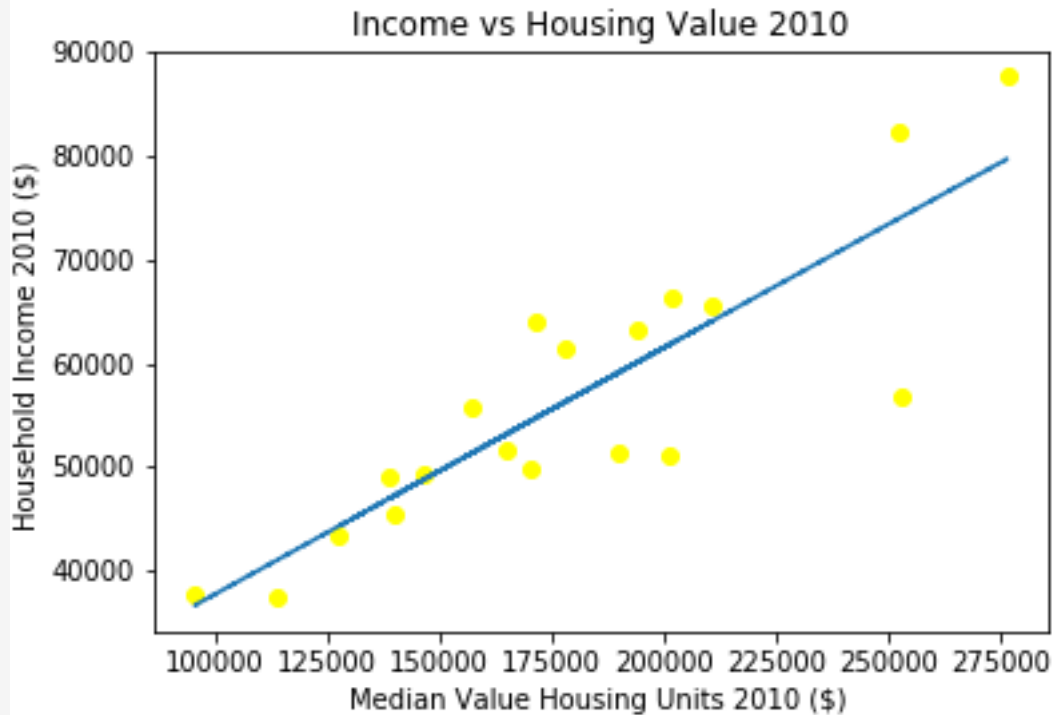


Can Zillow be trusted in the Real estate market



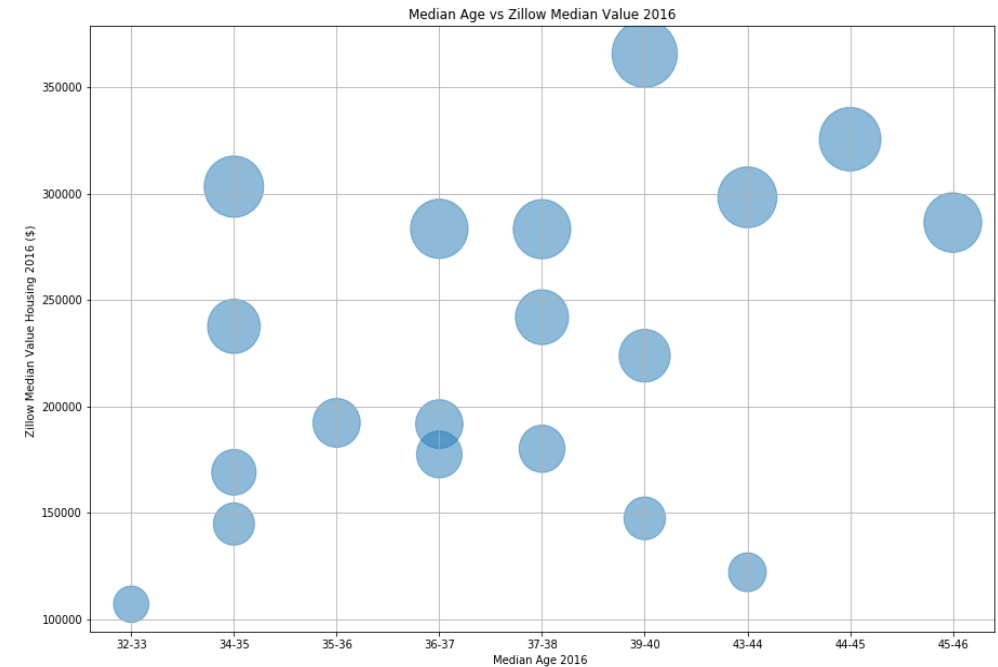
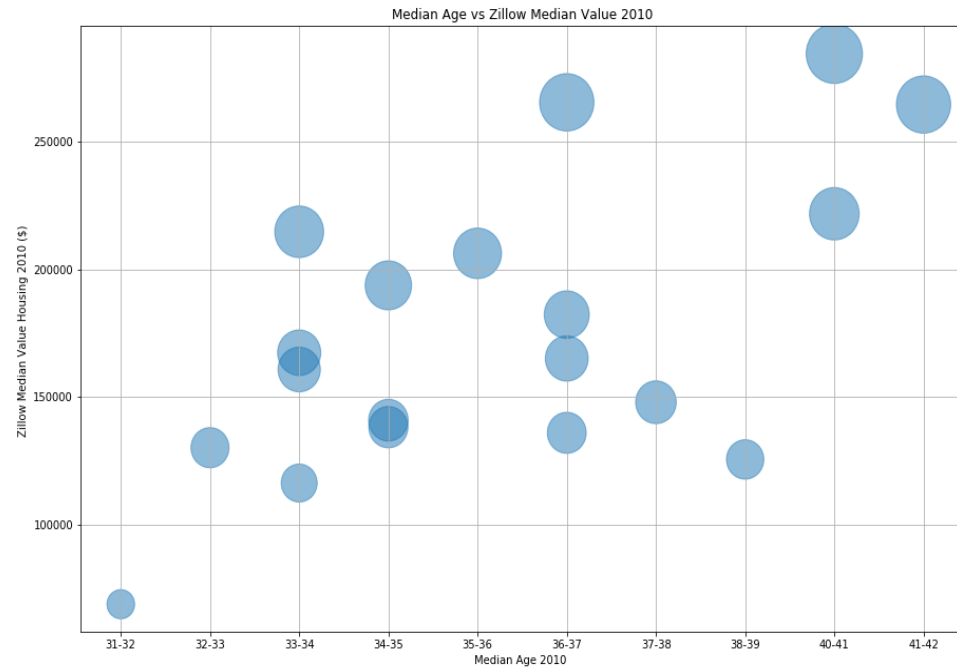
Over the years , Zillow's Market analysis of the housing prices is very close to the median pricing as the outliers are closer to the trend line.

How house hold income correlates to house prices?



- The outliers in 2016 moves closer to the trendline indicating housing market is increasing based on the income.
- Greater y intercept for 2016 compared to 2010.

Is there a correlation between Age & Zillow Housing



Summary

Results were as expected. However, we hoped we would be able to identify a trend between how population has evolved in the Atlanta metro area over the time. For this, we needed additional data points in order to find actual relationships.

The other restriction we had was that since our data is based on Census API , we had access only till 2016.

We believe that more research needs to be done. Maybe using other indicators

From this data we can infer that house prices could continue to grow as the metro area keeps *positioning as a city with attractive salaries*.

Post Mortem

We wanted to look for additional correlations such as type of House and its characteristics (1, 2 or 3 bedrooms, garage, lot, etc) but the data was not available in our sources.

Similar information was found but the data corresponded to house pricing in Ames, Iowa. A possible assumption we wanted to use, was to identify correlations between house characteristics using such data then calculate an adjustment factor based different city (something similar to scaling factors).

Machine Learning

Front-End



Back-End

