Why We're Moving to Jupyter

An Exploratory Analysis of the Relationship between Housing Prices and Evictions in the U.S. with Python

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Project 2 Presentation
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Introduction

U.S. house prices to rise at twice the speed of inflation and pay: Reuters poll
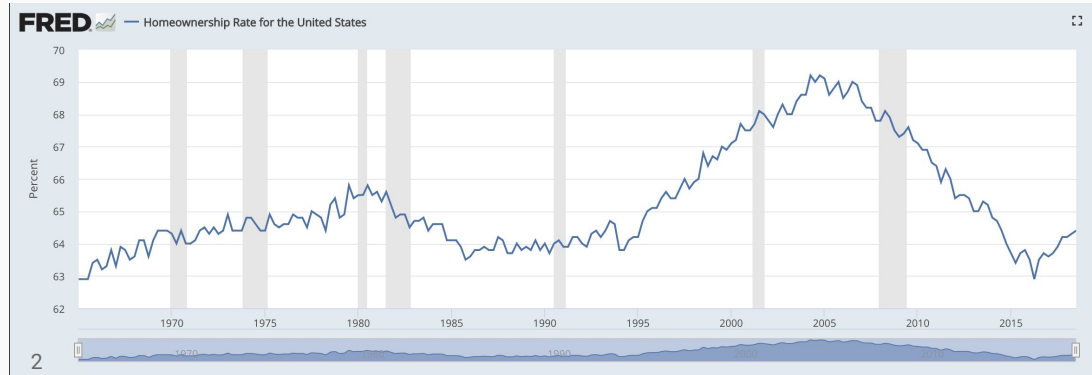
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npr

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First-Ever Evictions Database Shows: 'We're In the Middle Of A Housing Crisis'

1, 2, 3

Questions

1. How does **regional home affordability** relate to **regional rental affordability**?

2. How does **eviction rate change** with **changes in cost of rent**?

Our Analytic Approach

1. Start with **hypotheses** — real estate axioms or economics "common sense"
2. **Filter** and **build dataframe** that allows the most meaning to be extracted
3. **Analyze** relationships between variables of interest **graphically** and **numerically**
4. **Confirm** or **bust** hypothesis
5. **Share** the results

Data Limitations & Assumptions

Question 1

- No common location category between Realtor & Eviction datasets. For this reason, a decoder ring was made to join on counties (Realtor) that are wholly cities (Eviction).
- Cost-of-living variables, such as property tax burden, are not captured in data set.

Question 2

- Median gross rent and median household income update quinquennially, except for between 2009-11, so we observe relationship in this window
- Filtered out metropolitan areas with population > 100,000 due to concentrate analysis on areas where volatility wasn't super high due to low number
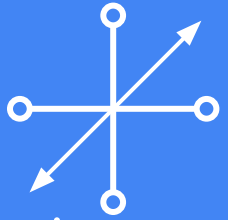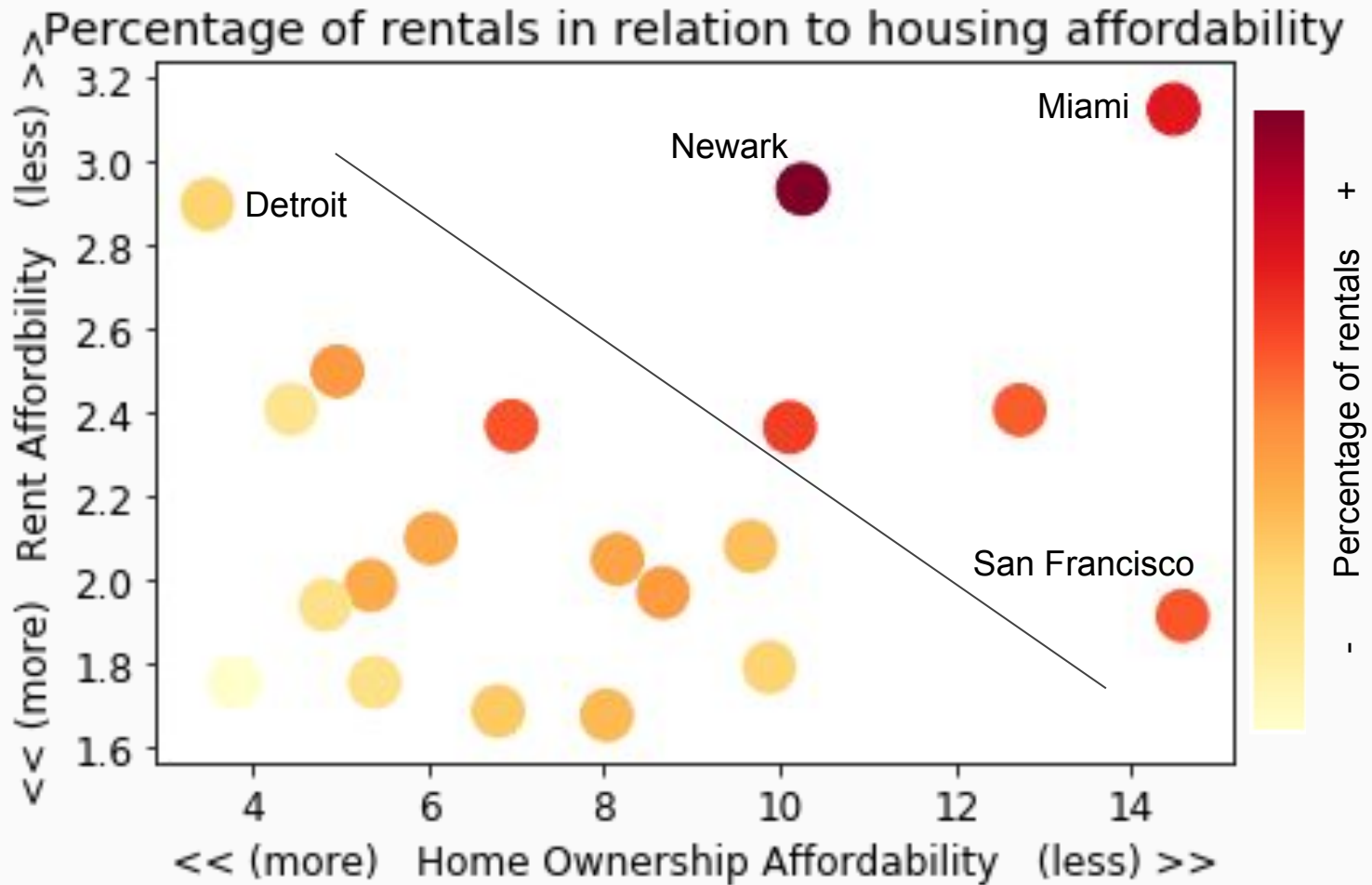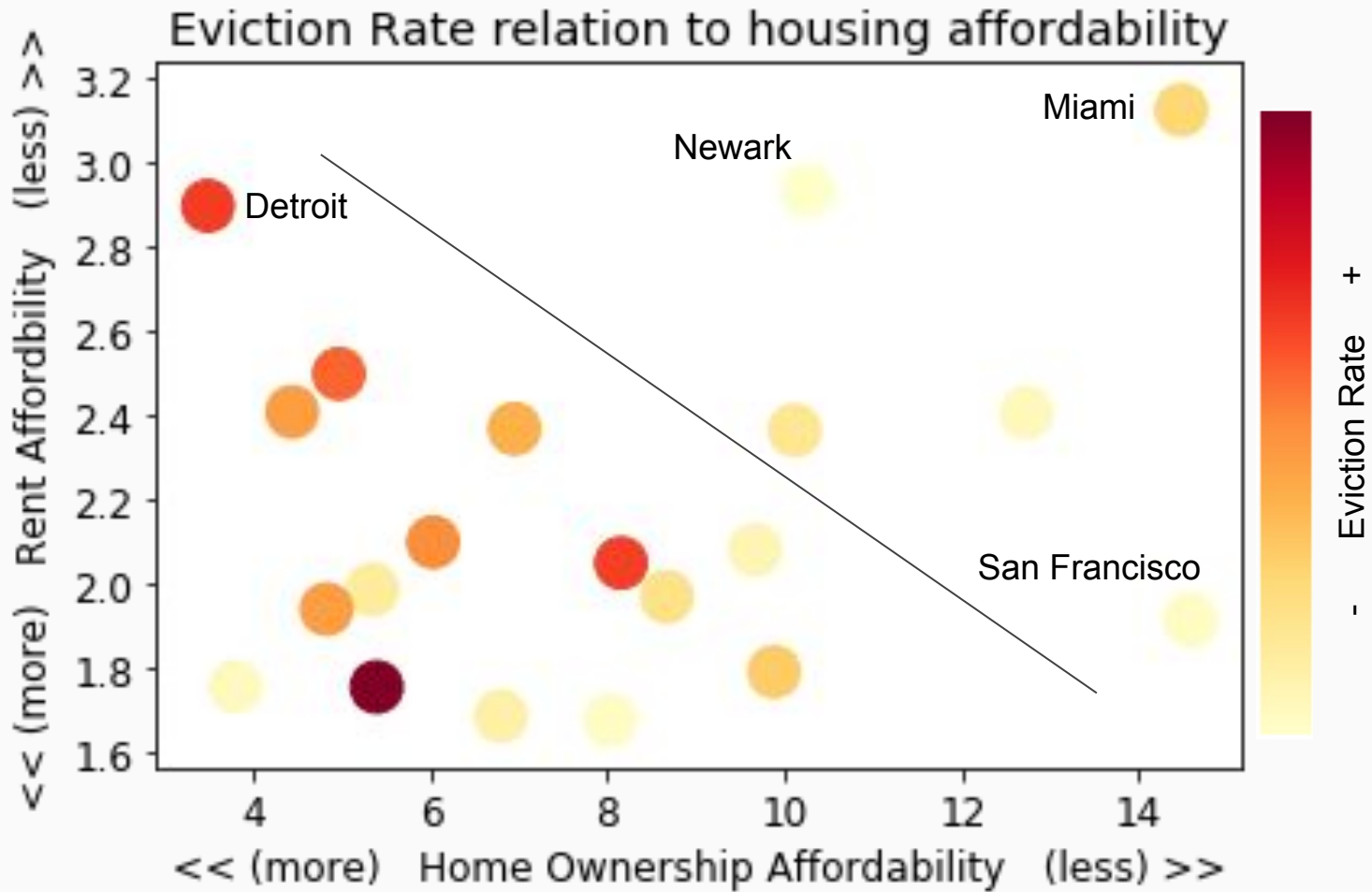
Hypothesis 1:
Regions where home ownership is relatively expensive will be relatively less affordable for renters. This will manifest in a higher rates of rental and rental eviction rates.

Housing affordability across 20 major US cities
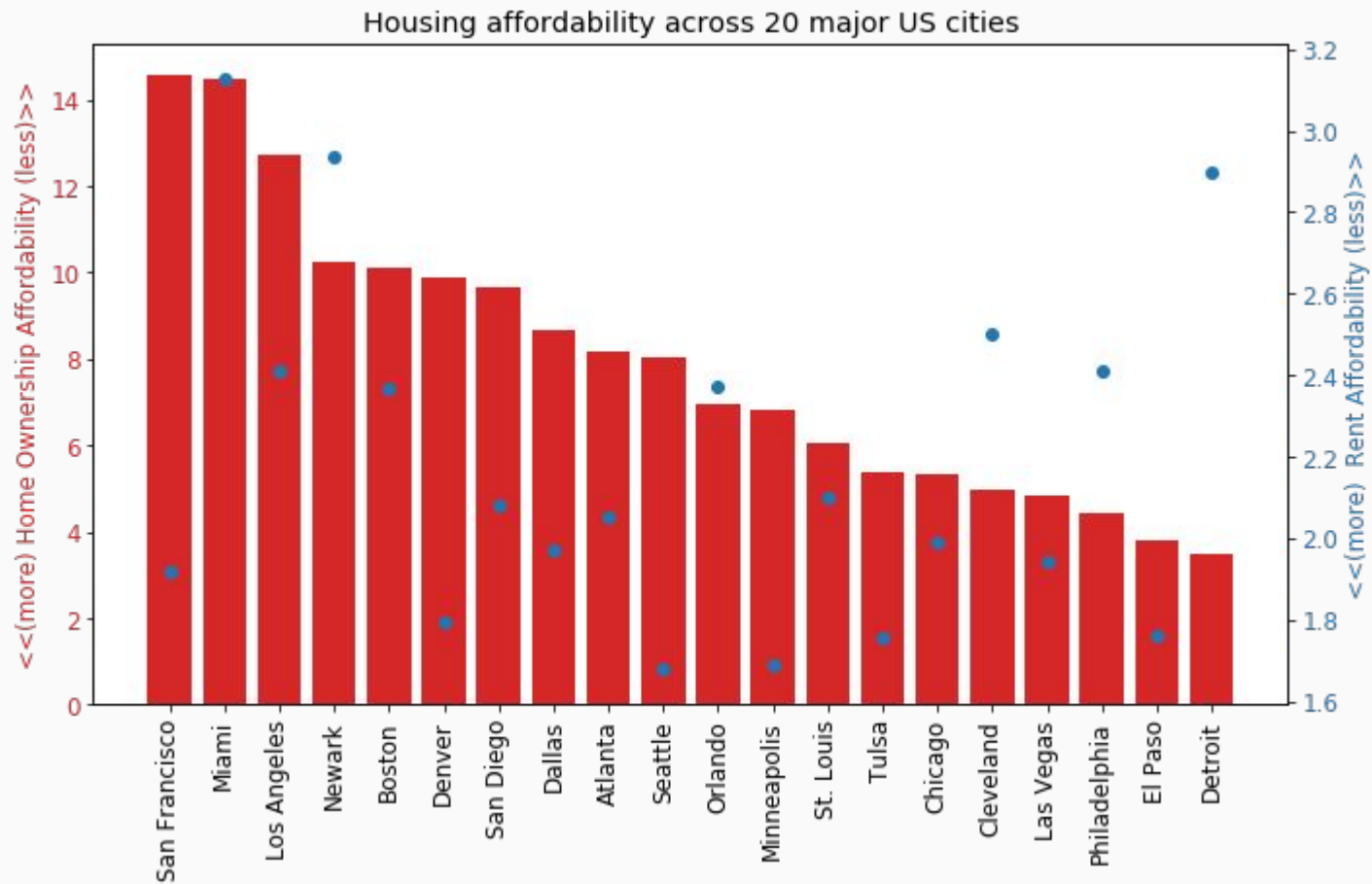
Rent affordability shows little relation to Home Ownership affordability on the aggregate

Percentage of rentals in relation to housing affordability

Renting is more prevalent in areas where home ownership is less affordable.
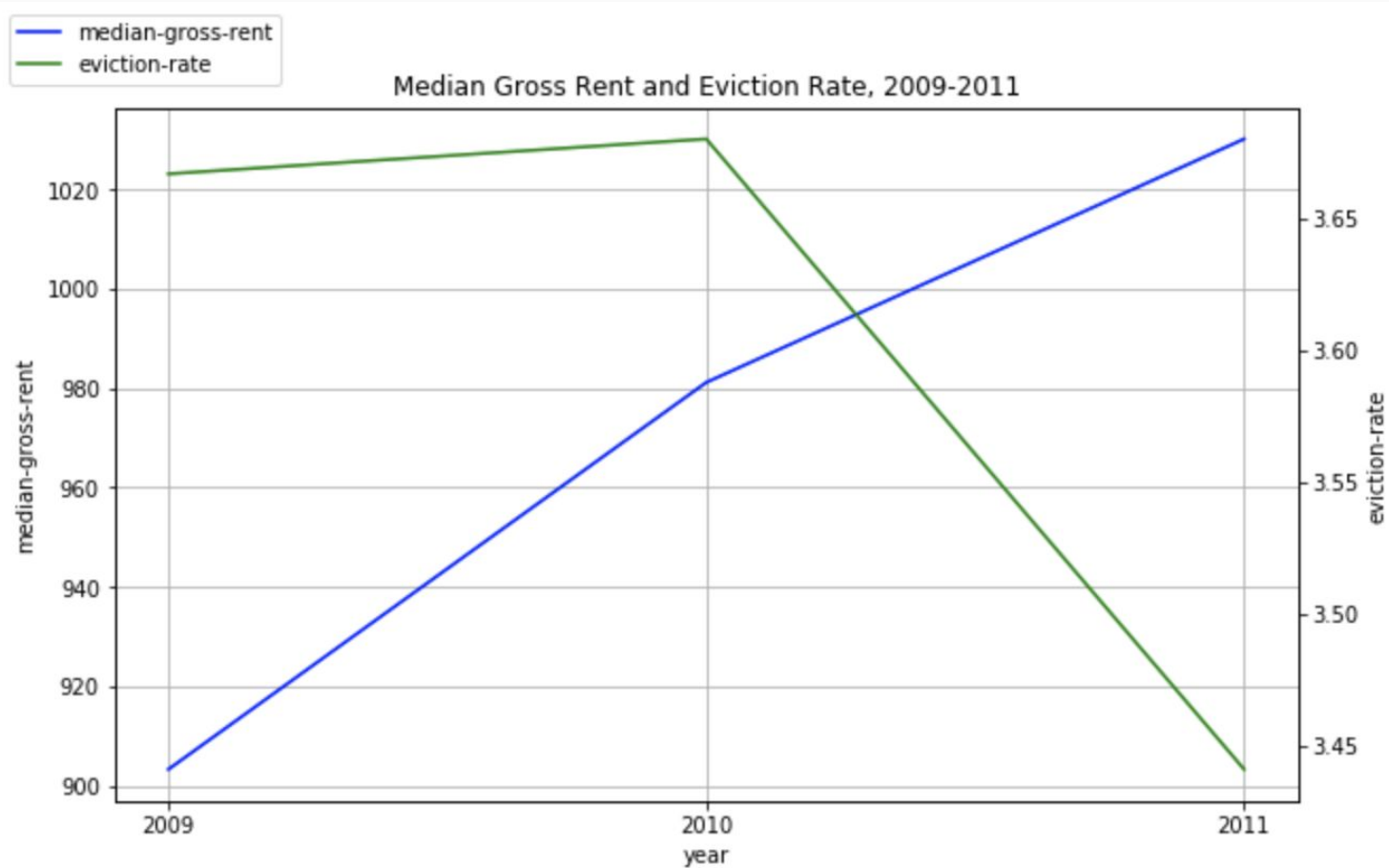
Eviction rates are higher in areas with more affordable housing.

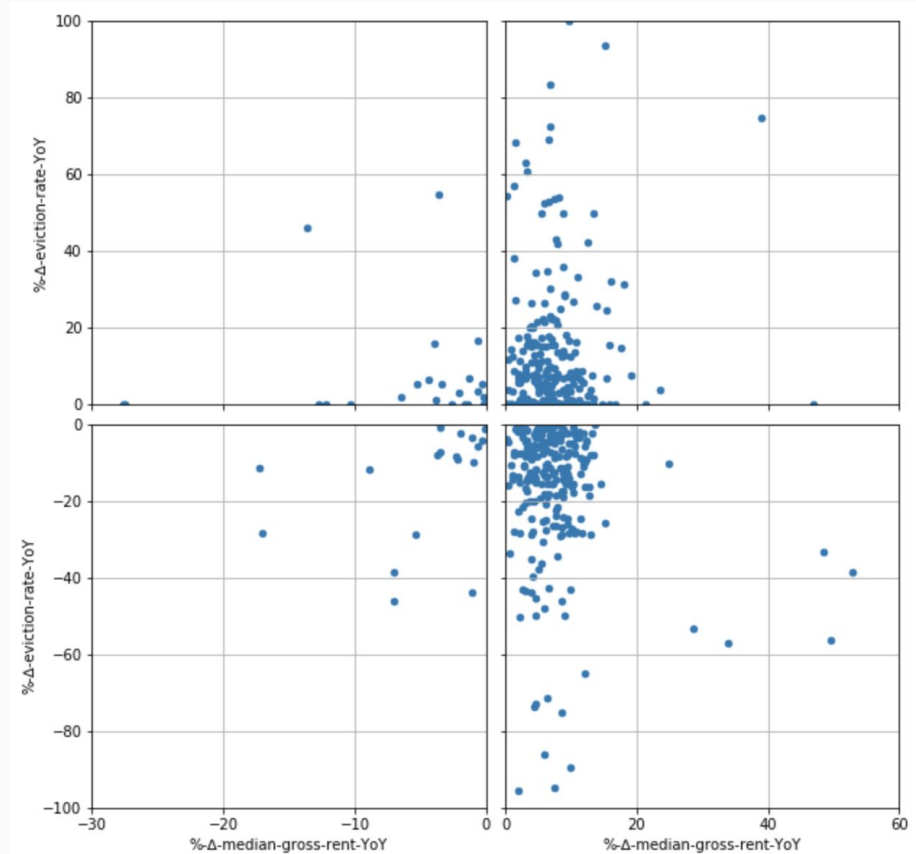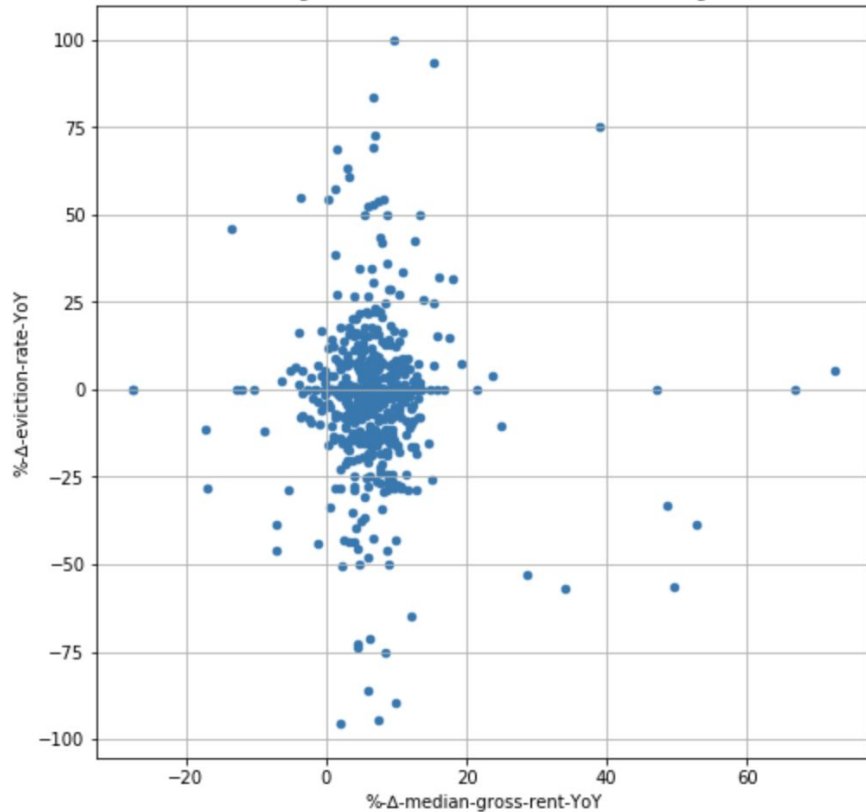# Hypothesis 2:

When cost of rent changes, eviction rate changes proportionately in the same direction

Median Gross Rent and Eviction Rate, 2009-2011

Median gross rent increased steadily over this period; eviction rate increases first year and then sharply dipped in 2011

Eviction Rate % Change YoY vs. Median Gross Rent % Change YoY, 2009-2011

While YoY median gross rent generally increases, YoY eviction rates didn't tend to increase or decrease

Average YoY Δ Median Gross Rent

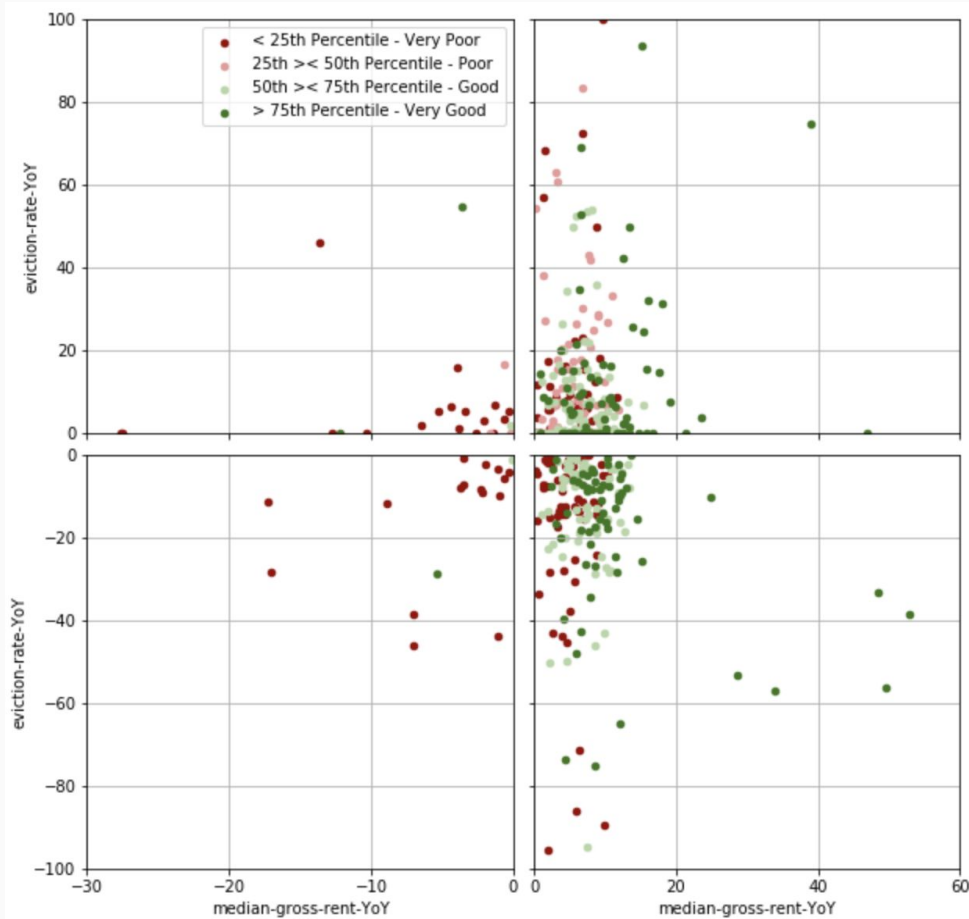# 6.5%

Positive % Δ Median Gross Rent

93%

Average YoY Δ Eviction Rate

-1.9%

Positive % Δ Eviction Rate

53%

median-household-income-YoY-categories	% Cases in which Eviction Rate Increased
< 25th percentile -- very poor	46%
25th >< 50th percentile -- poor	53%
50th >< 75th percentile -- good	57%
> 75th percentile -- very good	56%

Metro areas with poor Δs in YoY income less likely to see eviction rate increase than areas with good YoY Δ in income

Conclusion

Hypothesis 1: Partial
Regions where home ownership is relatively expensive will be relatively less affordable for renters (disproven). This will manifest in a higher rates of rental (supported) and rental eviction rates (disproven).

Hypothesis 2: Rejected
Changes in rent are not positively correlated with changes in eviction rate between 2009-11. Changes in income also don't correlate in the expected direction with changes in eviction rate.

Thank you!
Questions?