Texas Real Estate

Lorela Blaka, Seth Kaufman, and Rashid Karriti

Outline

- **Business Problem**

- **Data and Methods**

- **Findings**

- **Conclusions and Future Steps**

Business Problem

TREI has asked us to identify the top 5 zip codes they should invest in to ensure investment success.
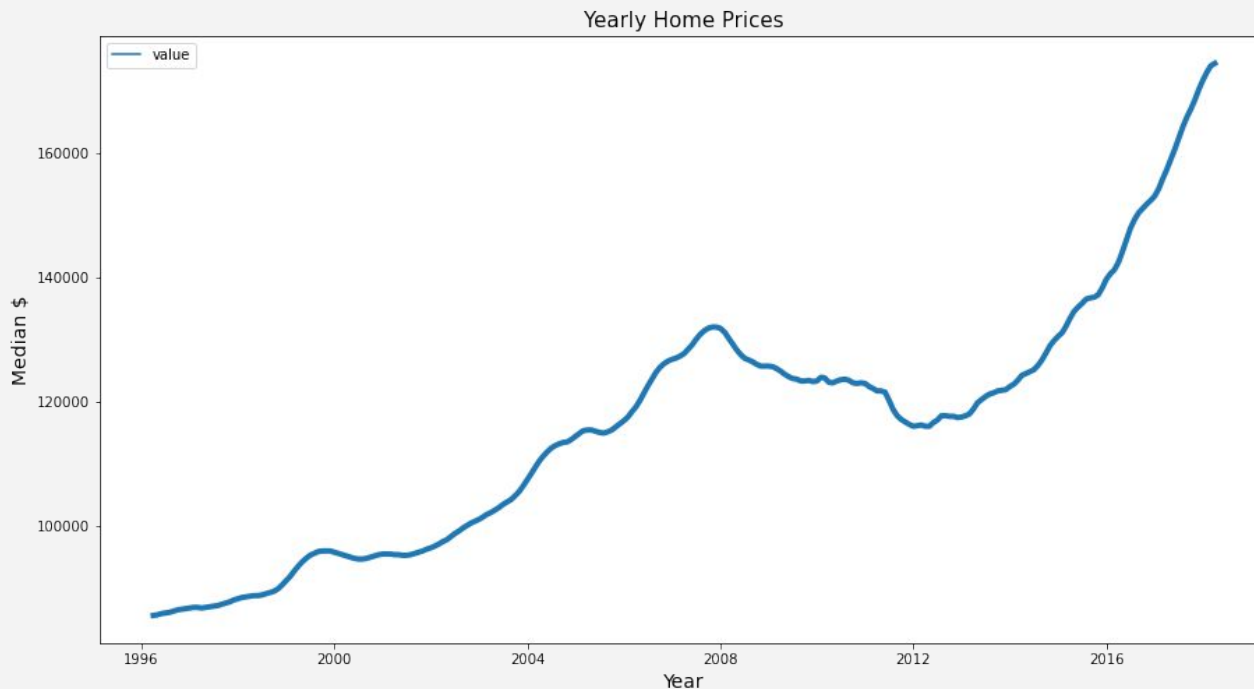
Data and Methods

DATA

- Zillow Housing Data (1996-2018)
- Missouri Census Data Center, Median Family Income (2019)

METHODS

- Filtering process to define top 5 zip codes
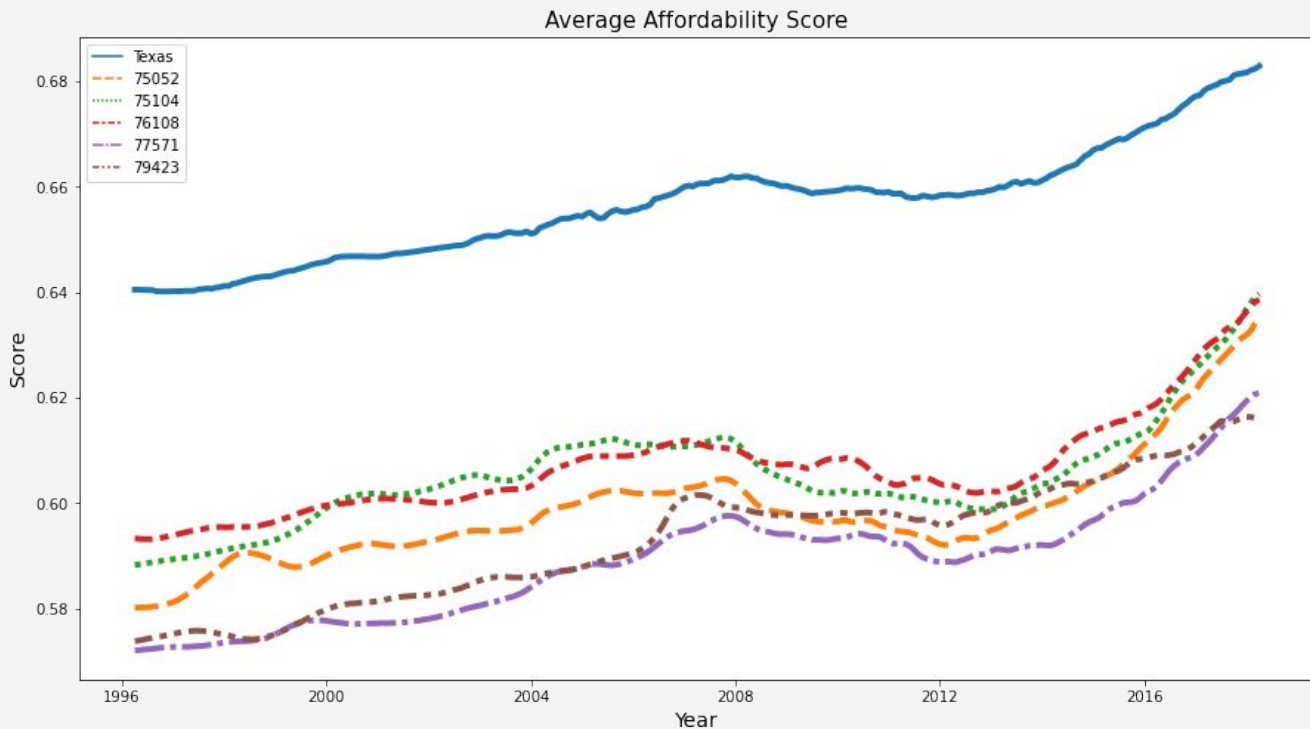- Time series model to predict prices for each of the zip codes

Filtering: Population and Prices

1. Population count above 75th percentile (median: 43k)
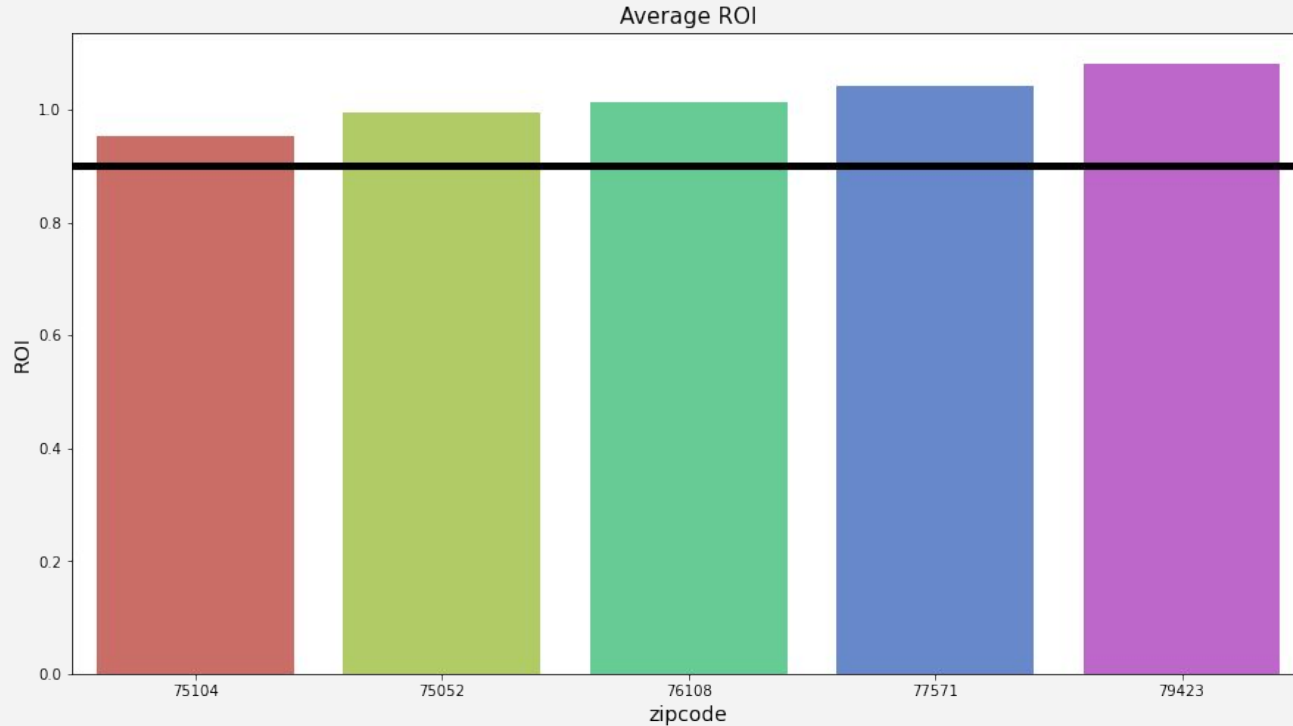2. Median housing prices within IQR (median: $117K)

Yearly Home Prices

Filtering: Affordability Scores

Affordability scores above the 80th percentile

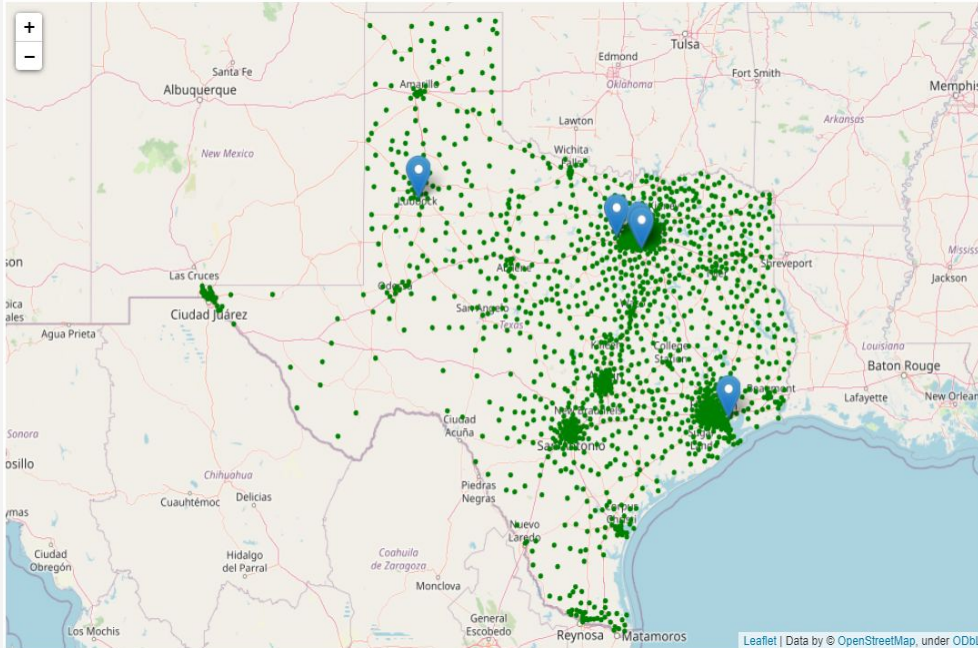Average Affordability Score

Filtering: ROI

Ranked by highest ROI

Top 5 Zip Codes

Fort Worth (Dallas area)

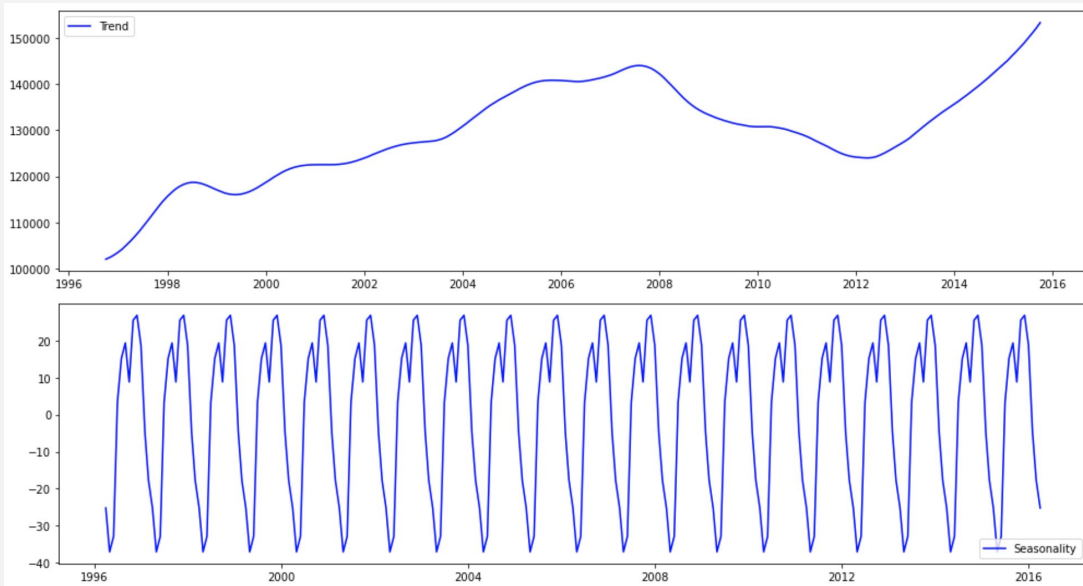Grand Prairie (Dallas area)

Cedar Hill (Dallas area)

La Porte (Houston area)

Lubbock (Northern area)

Model Approach

- Used 1996-2015 prices to train our model, so it can predict 2016-2018 prices
- Analyzed pricing behaviors for each zip code

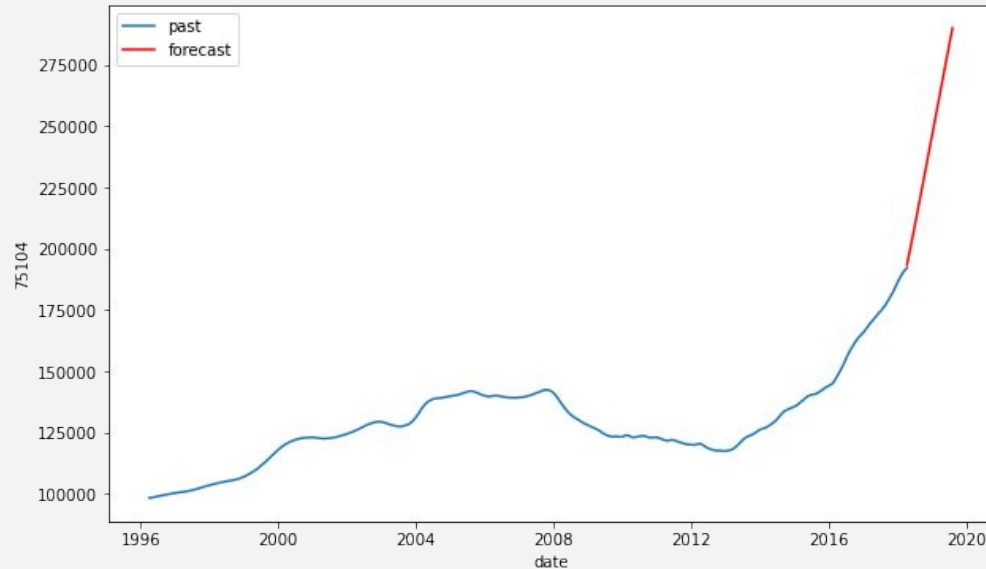**Trend Analysis for one zip code** (linear and seasonal) :

Model Process

Best performing models: SARIMAX and ARIMA Model

Model Validation: RMSE

Predictions for one zip code (ARIMA Model):

Model Results

Across all zip codes, Test and train RMSE prediction were off by $6,500 on average

Zip Code	Model	Train RMSE	Test RMSE
75052	ARIMA	$7,295	$4,572
75104	SARIMAX	$8,088	$8,363
76108	ARIMA	$5,920	$8,480
77571	SARIMAX	$6,227	$8,722
79423	SARIMAX	$5,153	$2,420

Conclusions & Future Steps

Based on affordability score and ROI, we believe that these top 5 zip codes are the best investment

Moving forward...

1. Optimize SARIMAX model

2. Expand model to work for other states

3. Get model to forecast more than a few years

Thank You!

Lorela Blaka

GitHub: lblaka

Email: lblaka@gmail.com

Rashid Karriti

GitHub: rhk48:

Email: rhk48@georgetown.edu

Seth Kaufman

GitHub: SethKauf

Email: sethkaufman7@gmail.com