ZILLOW HOUSING INVESTMENT ANALYSIS

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PROJECT DEBRIEF

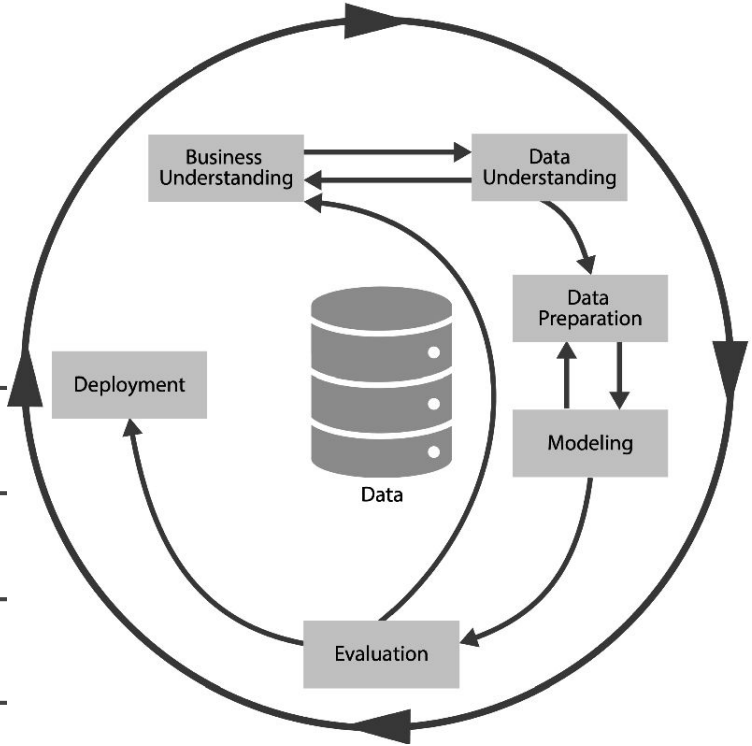
01

OBJECTIVE AND MOTIVATION

Using Zillow's extensive range of data on home values throughout the United States, and many requirements for choosing locations, we will use time series analysis to assist in predicting the most prime investment areas for our new investment partners.

CRISP-DM METHODOLOGY

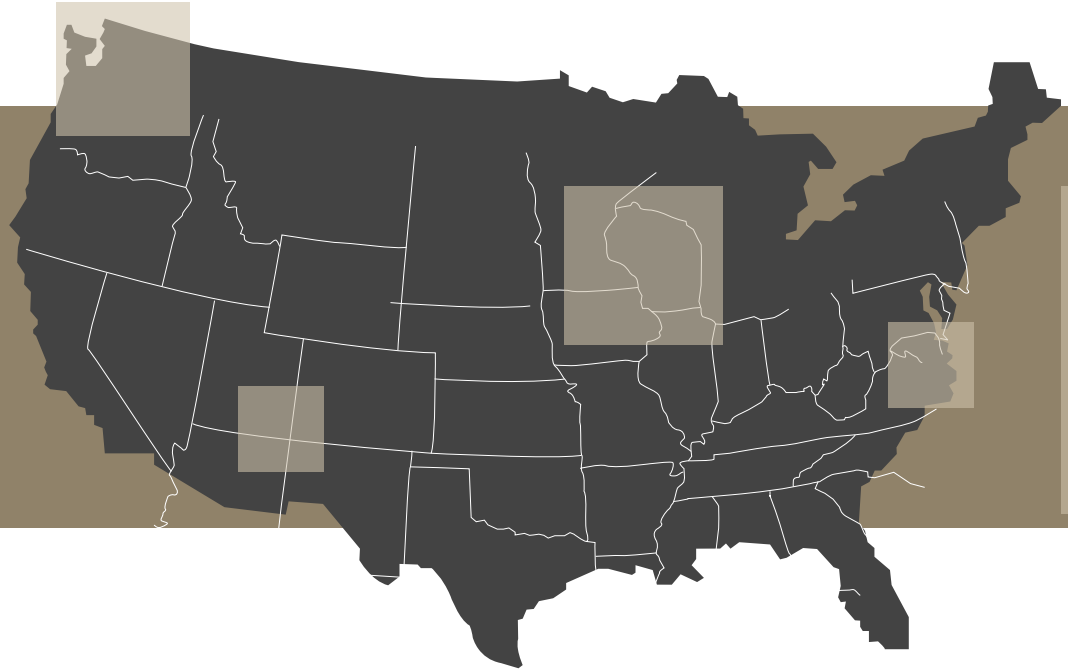
PHASE	MODEL	TASK
Business Understanding	What are we trying to solve?	
Data Understanding	Analysis	
Data Preparation	Engineering and Preprocessing	
Modeling	Using data for future predictions	
Evaluation		Conclusions
Deployment		Investing, Marketing, etc



TOPIC ANALYSIS

02

THE DATA



Numerical:

Home Values for zip codes across the United States for every month from 1997 - 2018

Categorical:

Zip Codes, Counties, State, Size Rank

LOCATION CHARACTERISTICS

URBANIZATION

LARGE POPULATION DENSITY
PEDESTRIAN FRIENDLY
PUBLIC TRANSPORTATION

FOOD AND CULTURE

LARGE VARIETY OF RESTAURANTS AND A RICH CULTURE

CLIMATE FRIENDLY

HIGH POPULATION DENSITY = LOW CARBON EMISSIONS

GROWTH/POPULATION

HIGH CONTINOUS GROWTH ABOVE NATIONAL MEDIAN AVERAGE

CHICAGO, IL

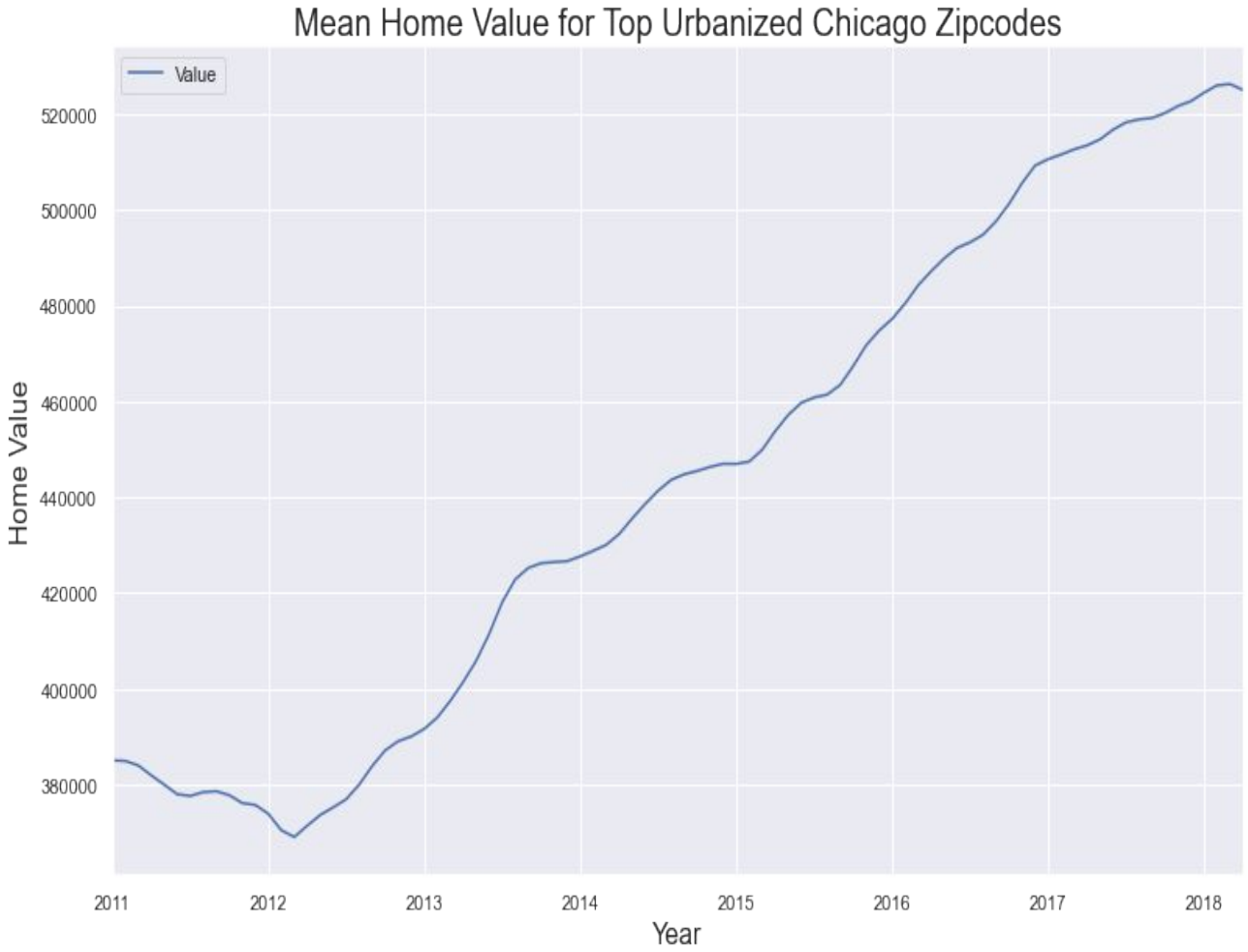
SIDE NOTE: REAL PICTURE TAKEN BY ME!

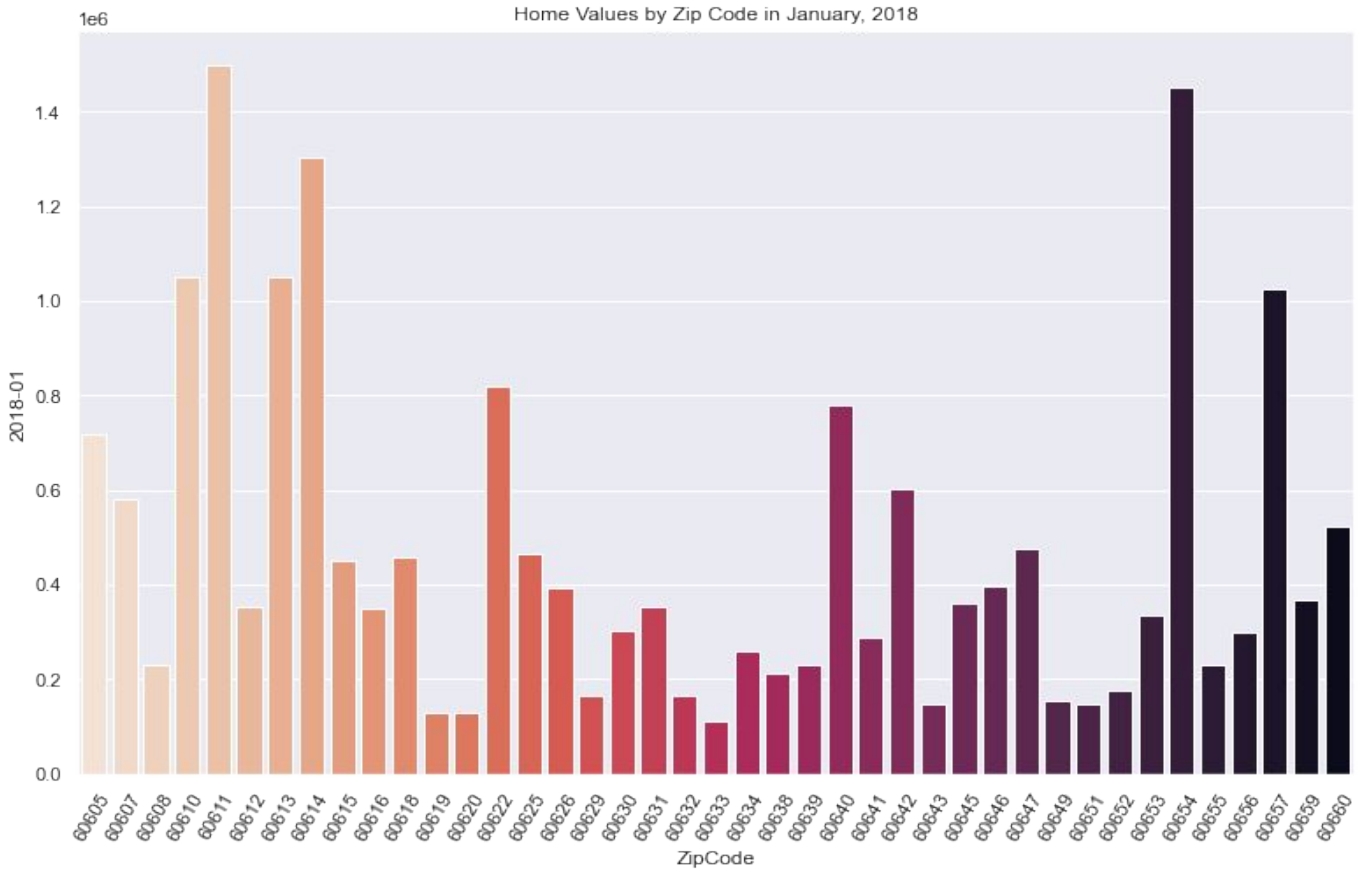
8,124

Restaurants, bars and coffee shops

Residents can walk to an average of 5 within 5 minutes

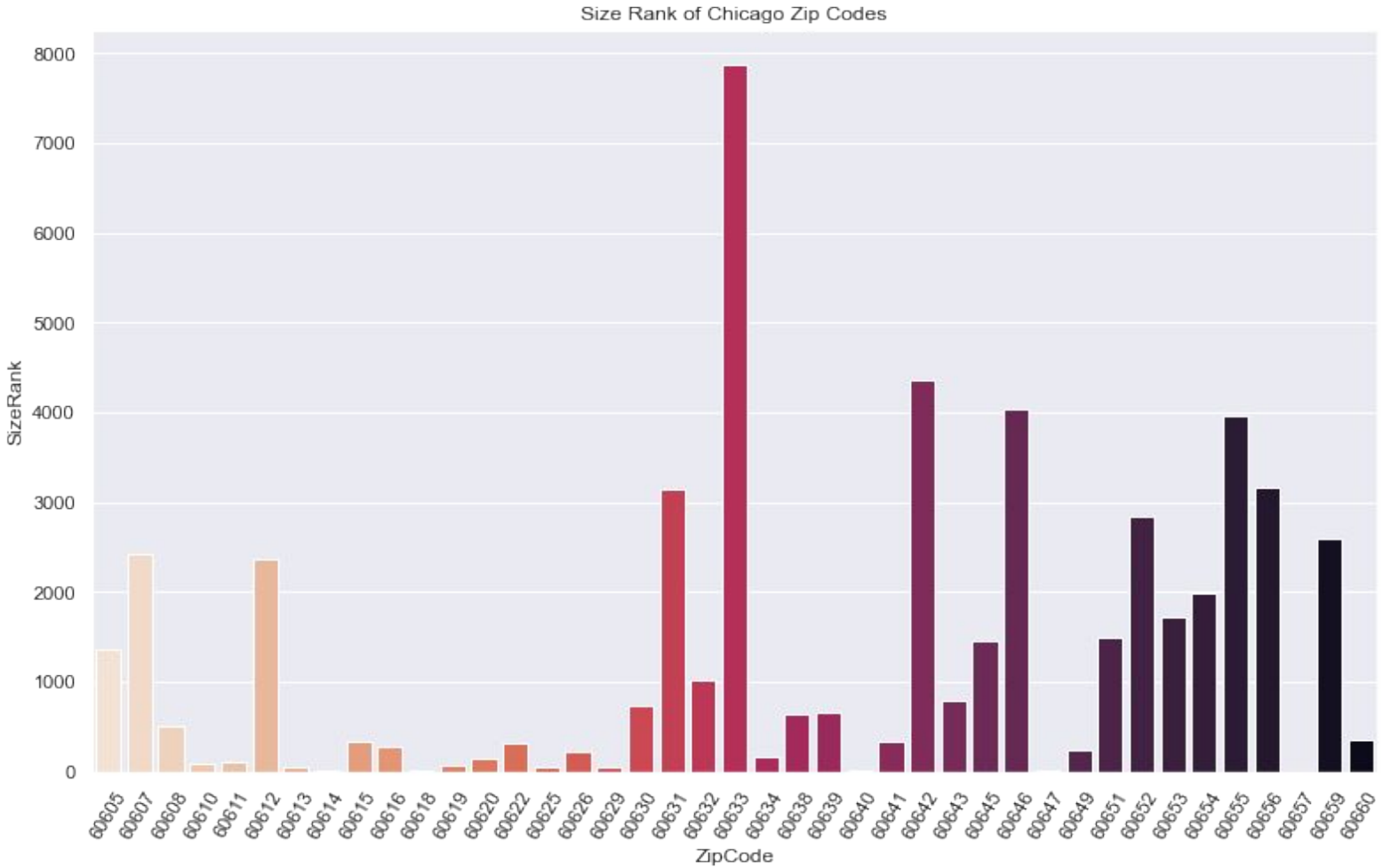
What does Chicago's home value growth look like?

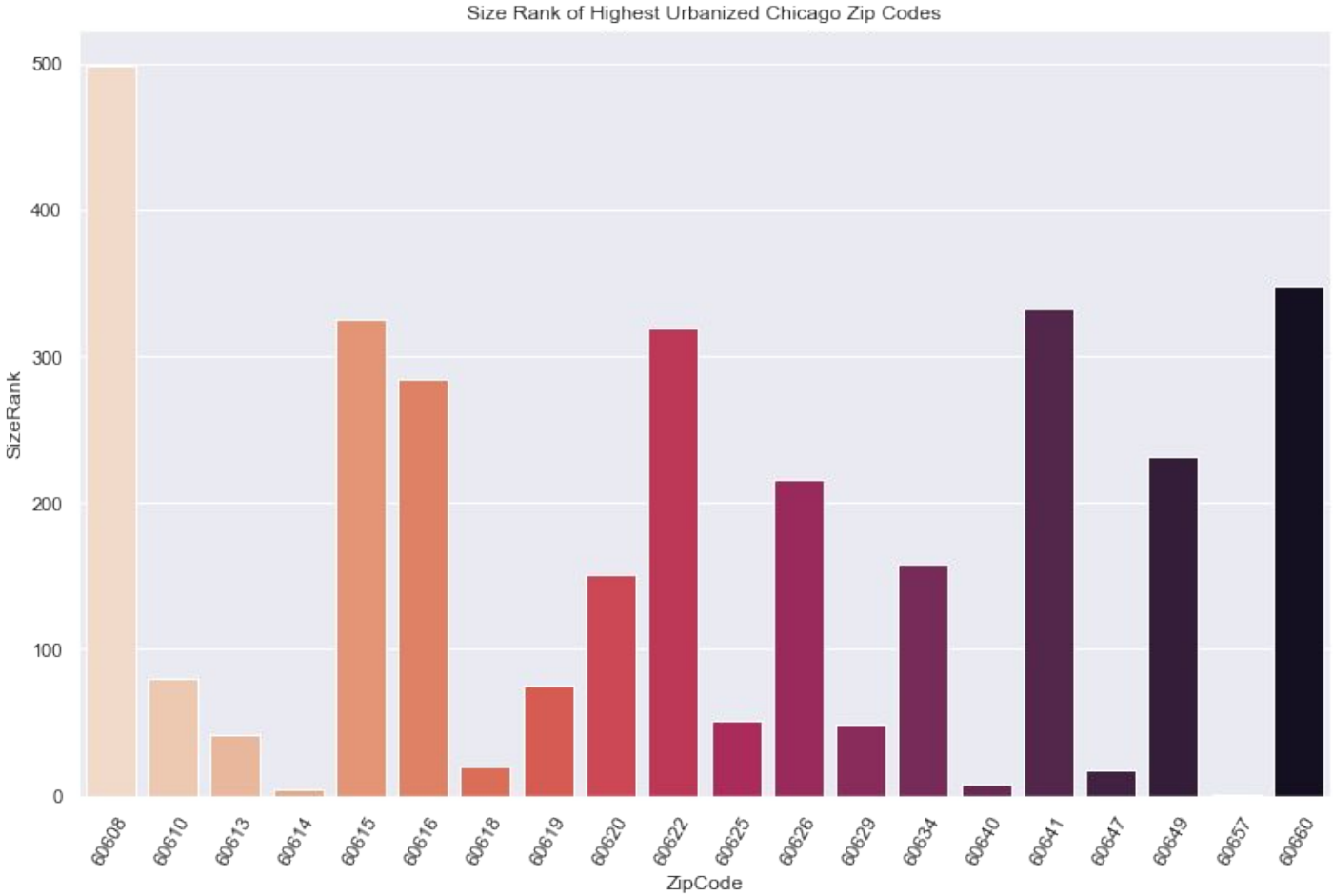




ROGERS PARK
CHICAGO LAWN
GOLD COAST
LOGAN SQUARE
UKRAINIAN VILLAGE
WEST LOOP
UPTOWN
WICKER PARK
RAVENSWOOD
LOGAN SQUARE
BOYSTOWN
LINCOLN SQUARE
SOUTH LOOP
UPTOWN
HUMBOLDT PARK
ANDERSONVILLE

HOW SHOULD WE CHOOSE ZIP CODES?

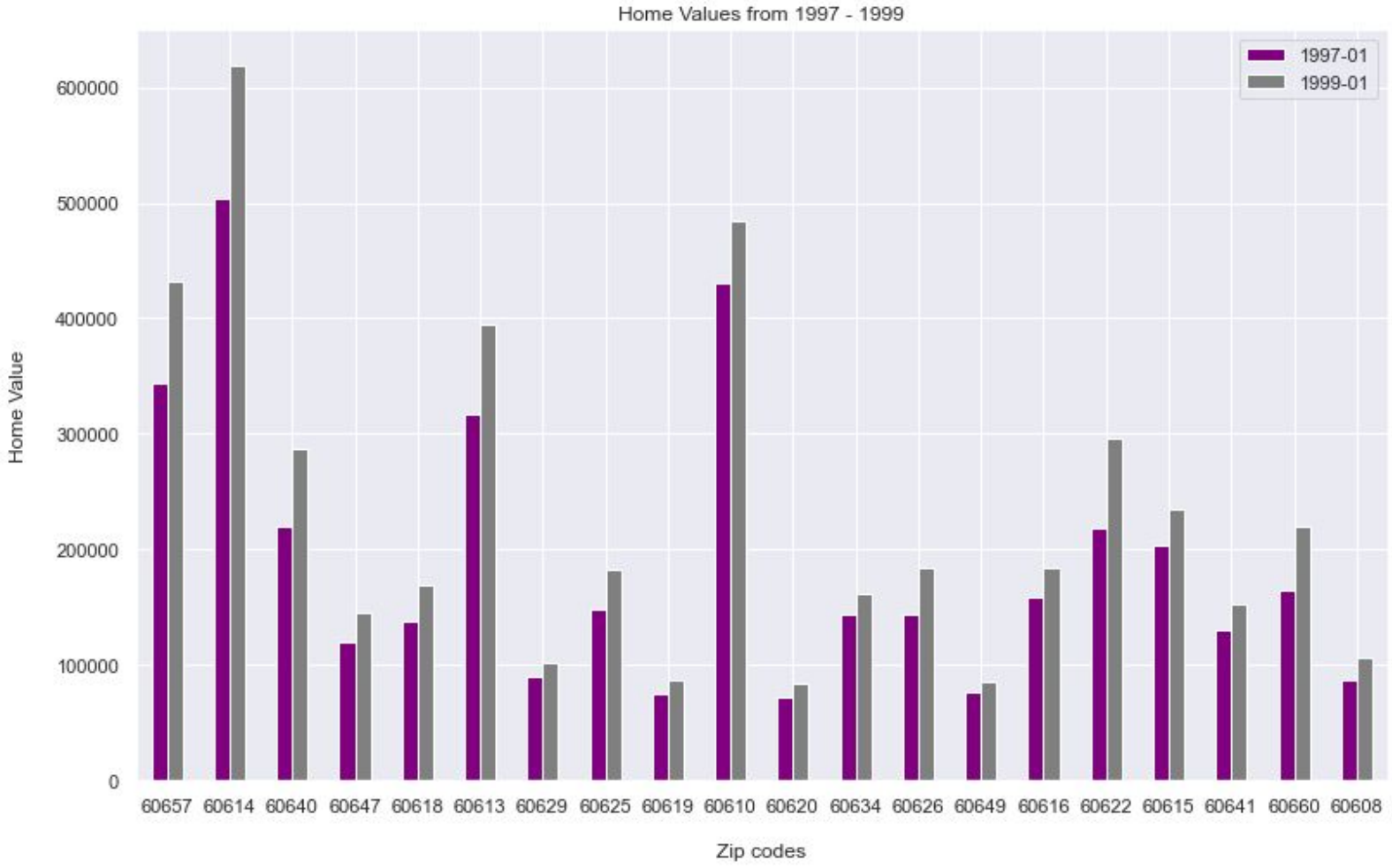




HIGHLY URBANIZED ZIP CODES

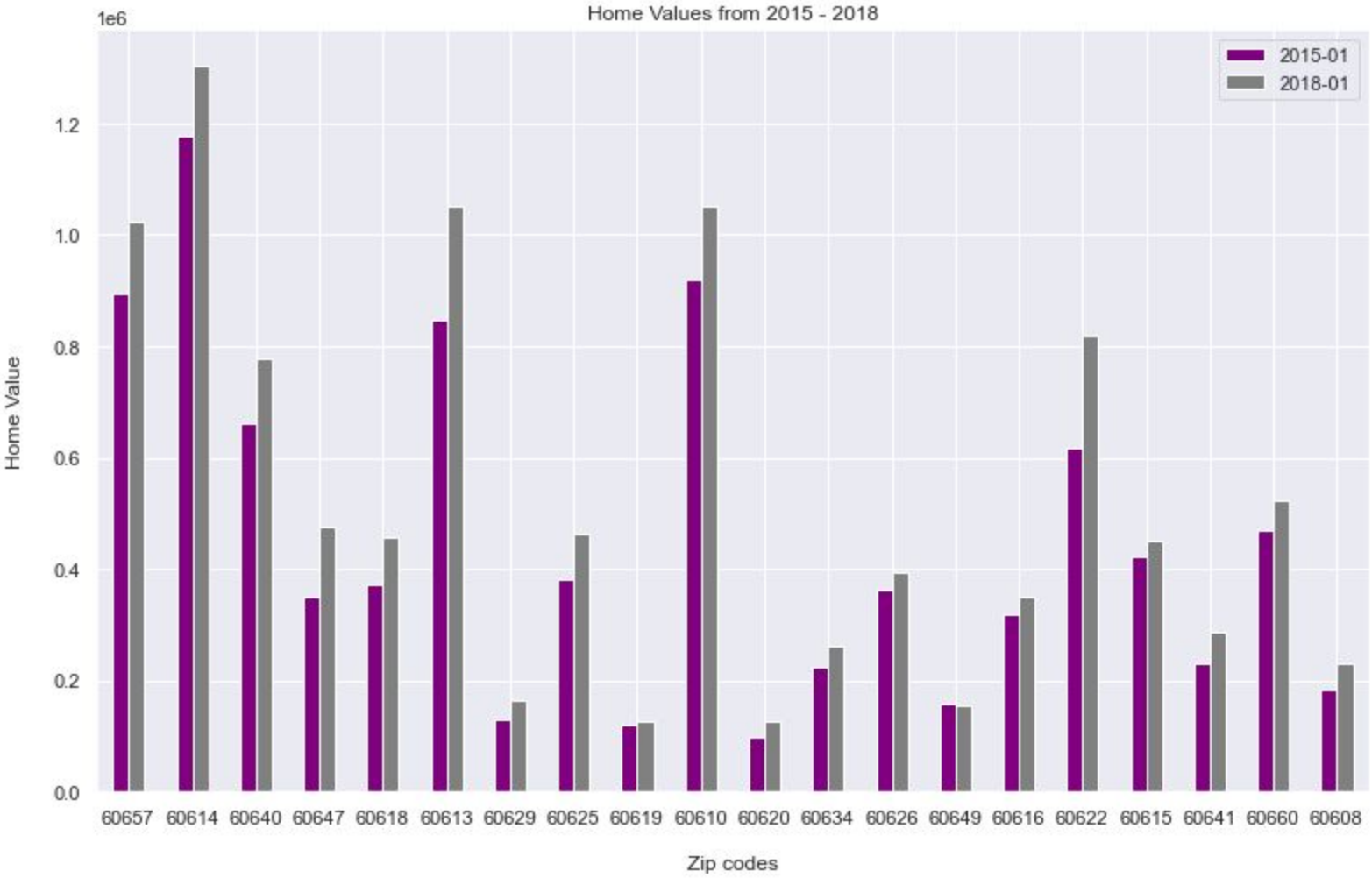
DATA ANALYSIS

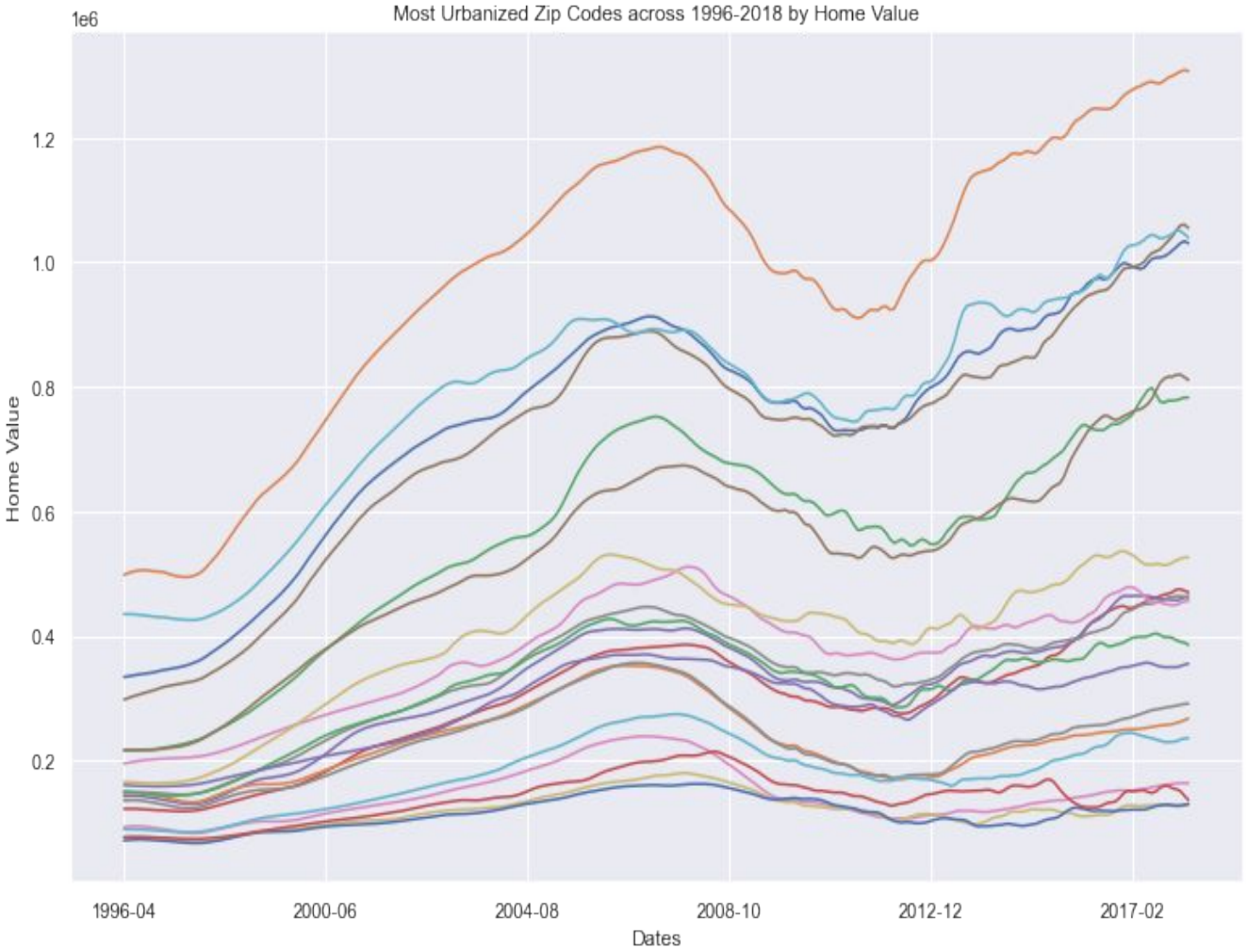
03



TIME SPAN VALUES COMPARISON

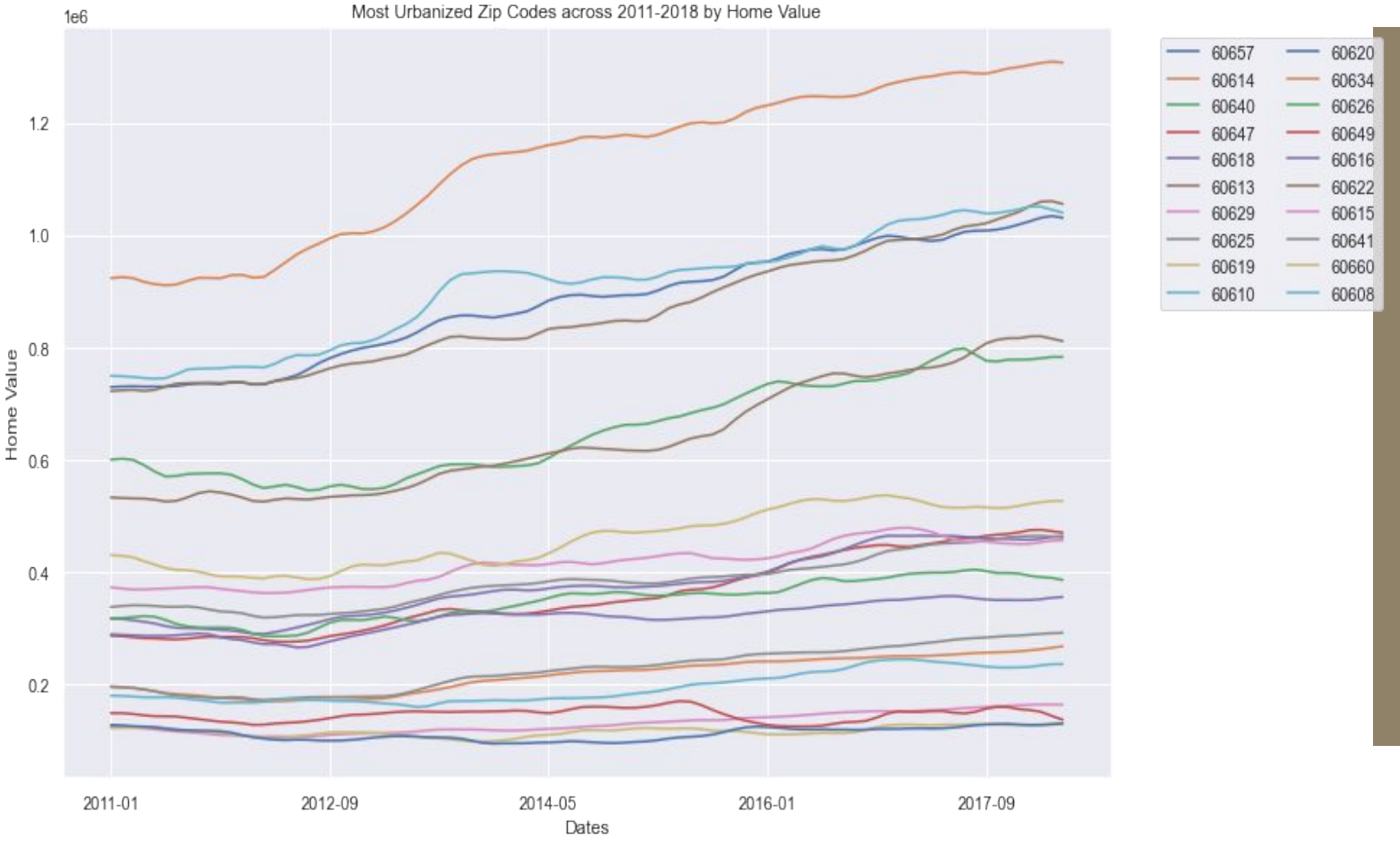
TIME SPAN VALUES COMPARISON




Most Urbanized Zip Codes across 1996-2018 by Home Value
1e6
1.2
1.0
0.8
0.6
0.4
0.2
Home Value
1996-04
2000-06
2004-08
2008-10
2012-12
2017-02
Dates
60657
60614
60640
60647
60618
60613
60629
60625
60619
60610
60620
60634
60626
60649
60616
60622
60615
60641
60660
60608

TIME SPAN

ECONOMIC CRASH ANOMALY


Most Urbanized Zip Codes across 2011-2018 by Home Value
1e6
1.2
1.0
0.8
0.6
0.4
0.2
Home Value
2011-01
2012-09
2014-05
2016-01
2017-09
Dates
60657
60614
60640
60647
60618
60613
60629
60625
60619
60610
60620
60634
60626
60649
60616
60622
60615
60641
60660
60608

TIME SPAN

MODEL AND PREDICTIONS

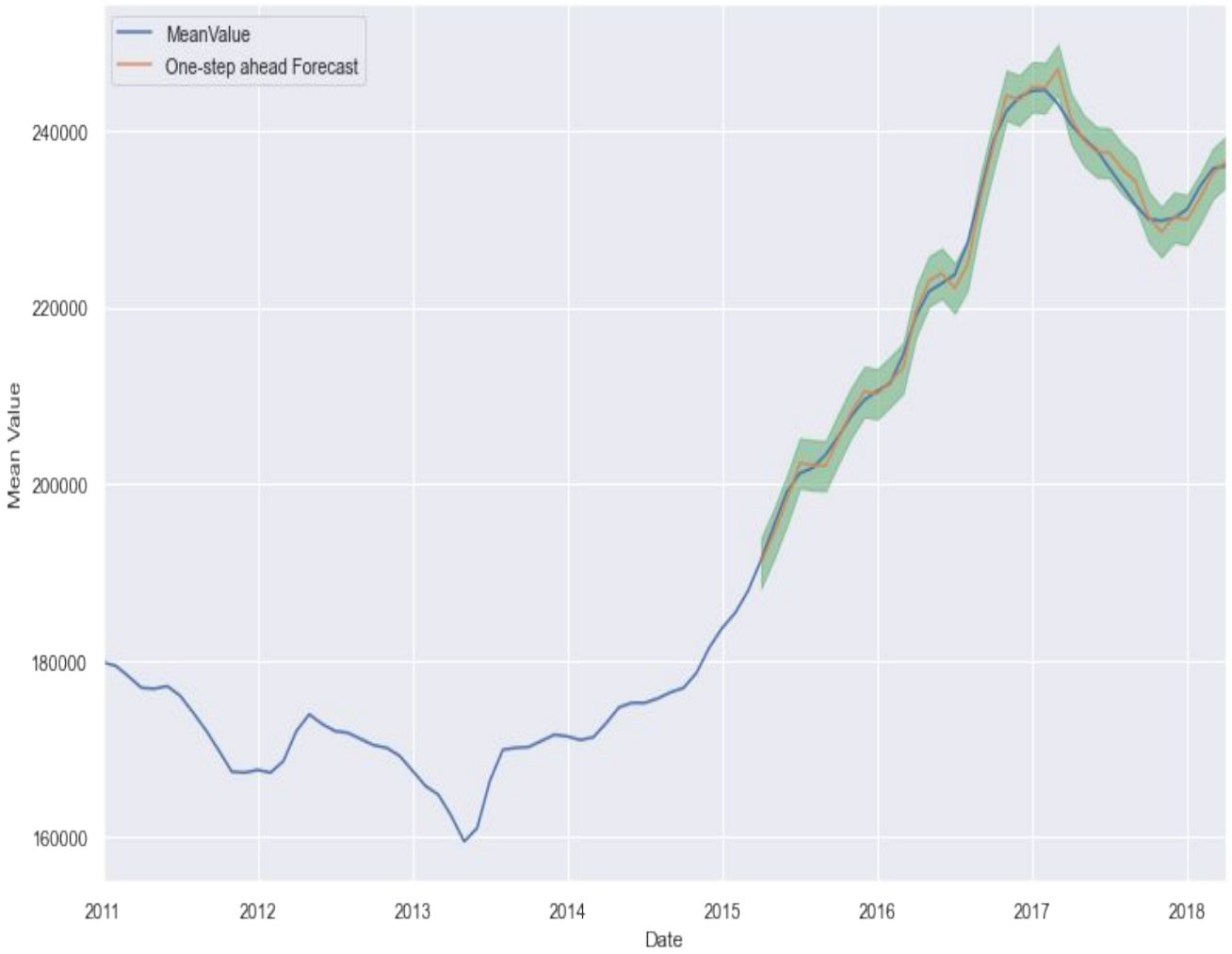
04

THE CRITERIA

CHICAGO	LOCATION
TOP 50%	HIGHLY URBANIZED ZIP CODES
2011 - 2018	HOME VALUE SPAN

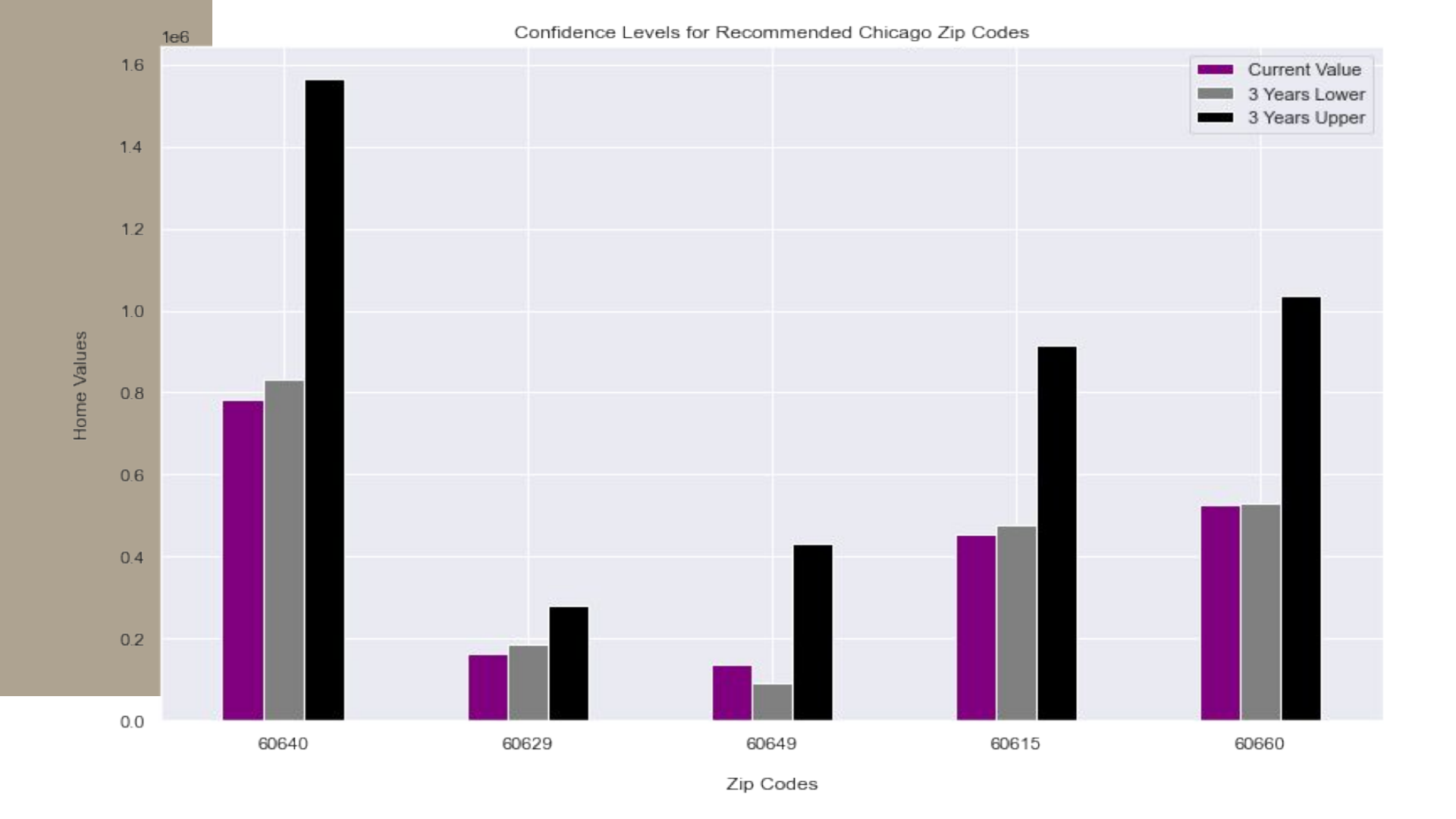
SARIMAX MODEL

- Decomposable time series model that accounts for trends, seasonality.



3 YEAR PREDICTED RETURNS AND HOME VALUES

	SOUTH SHORE 60649	UPTOWN 60640	KENWOOD 60615	CHICAGO LAWN 60629	EDGEWATER 60660
3 Year ROI	57.5%	21.6%	18%	6.14%	5.63%
Home Value	$215,483	$951,809	$538,407	$173,850	$215,483


Confidence Levels for Recommended Chicago Zip Codes
1e6
1.6
1.4
1.2
1.0
0.8
0.6
0.4
0.2
0.0
Home Values
Current Value
3 Years Lower
3 Years Upper
60640
60629
60649
60615
60660
Zip Codes

“Eventually, I think Chicago will be the most beautiful great city left in the world.” -
Frank Lloyd Wright

FUTURE PROJECTS

OUR TEAM THANKS YOU!