



USA Housing market Analysis

Author: Seshu Miriyala

Class: IST719 Information Visualization

Introduction

Context: Home values skyrocketed to a peak of 24% Year-over-year (yoy) in May of 2021, which is the highest yoy increase ever noted in the U.S. While the home prices are not expected to drop this year, this report shows the trend and expectations in the housing market for 2022.

Data: This data is retrieved from <https://www.kaggle.com/datasets/thuynle/redfin-housing-market-data> which contains a sub set called state_market_tracker.tsv000. This state dataset contains 27078 rows from 2012 till end of 2021 with 58 unique data points.

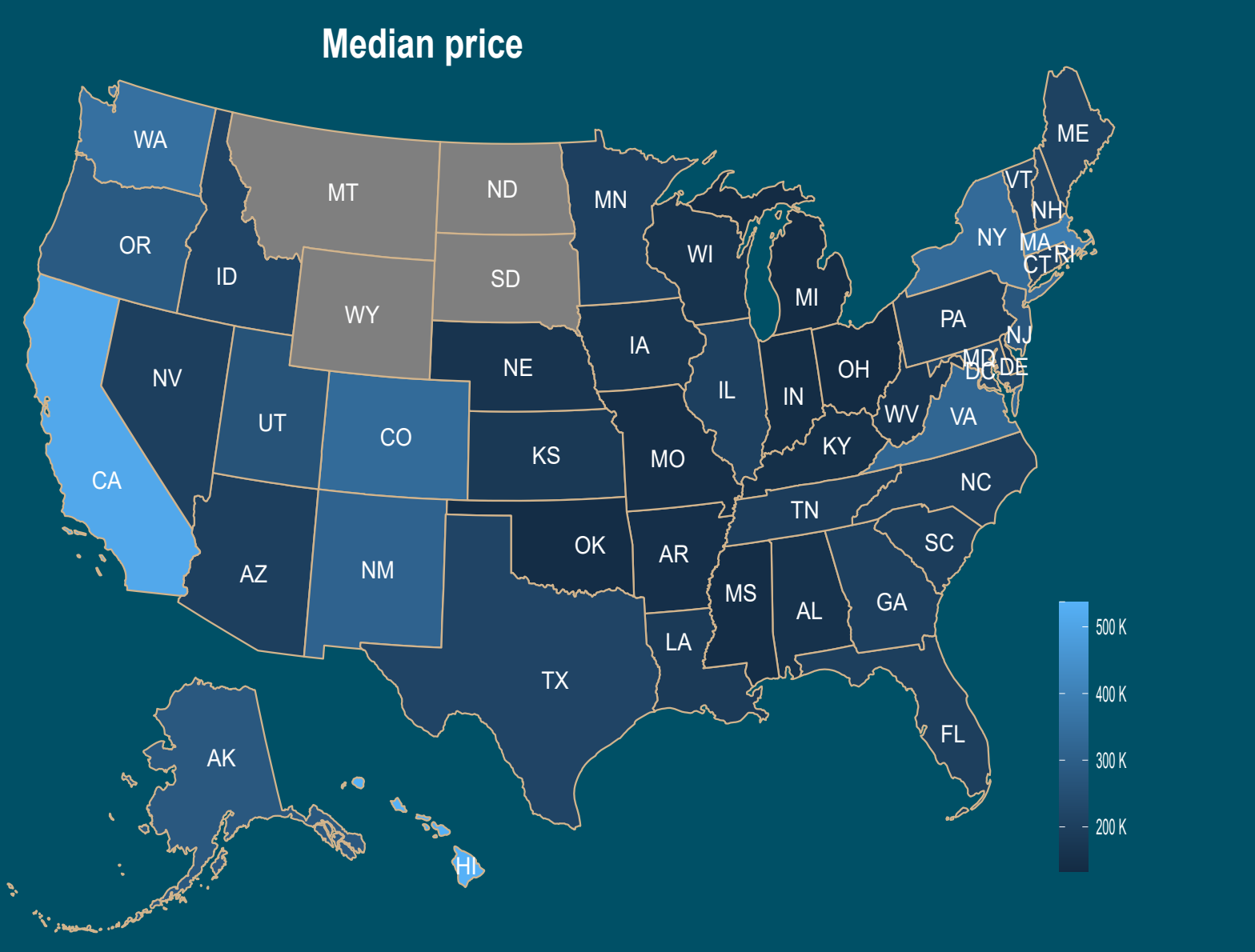
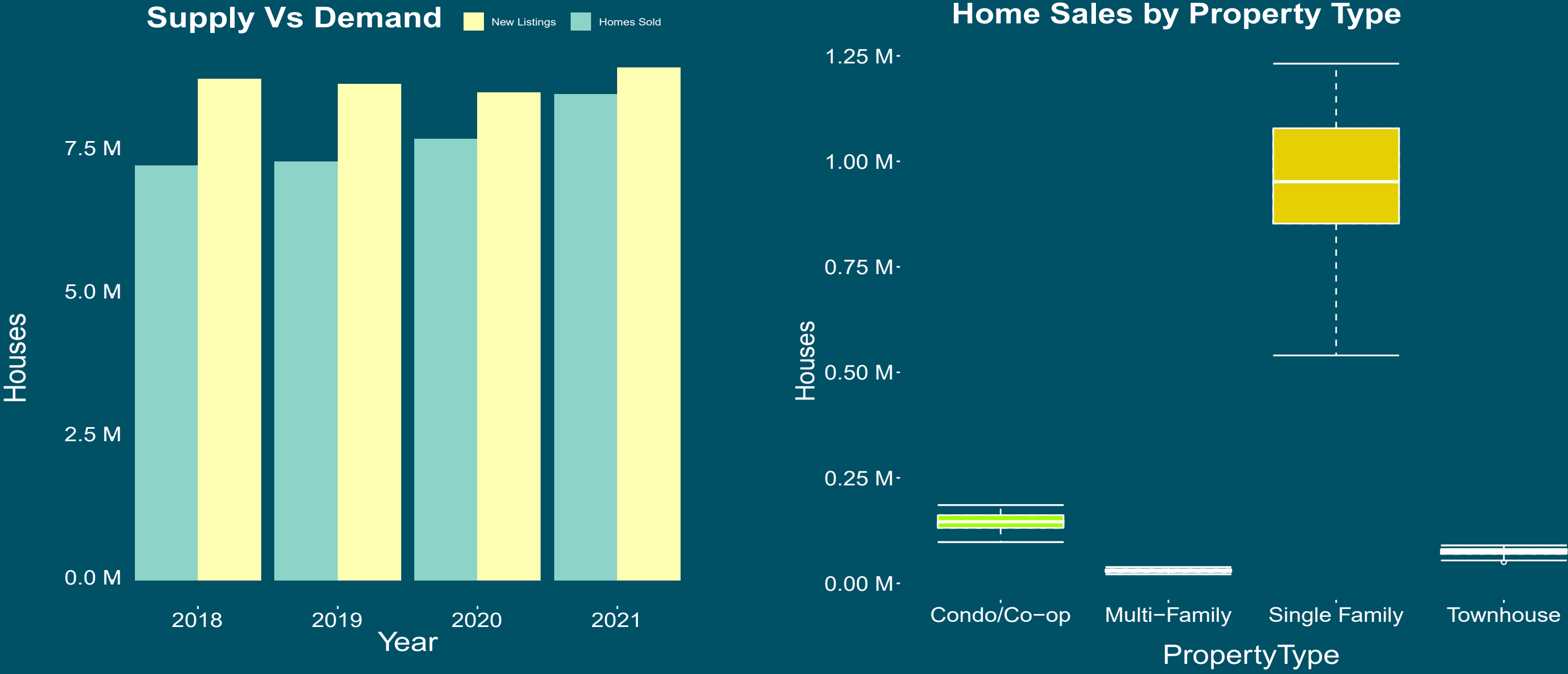
Inspiration and Audience: Housing bubble is one of the major contributors of the 2008 recession. Lower interest rates had brought a lot of to-be buyers into the market to make the dream a reality. But on other-hand declining inventory and growing prices is making difficult to make a decision. This report might be used by the future homebuyers or investors to make such a decision.

Questions:

- Will the home prices keep increasing in 2022?
- Which states have the highest house prices increase?

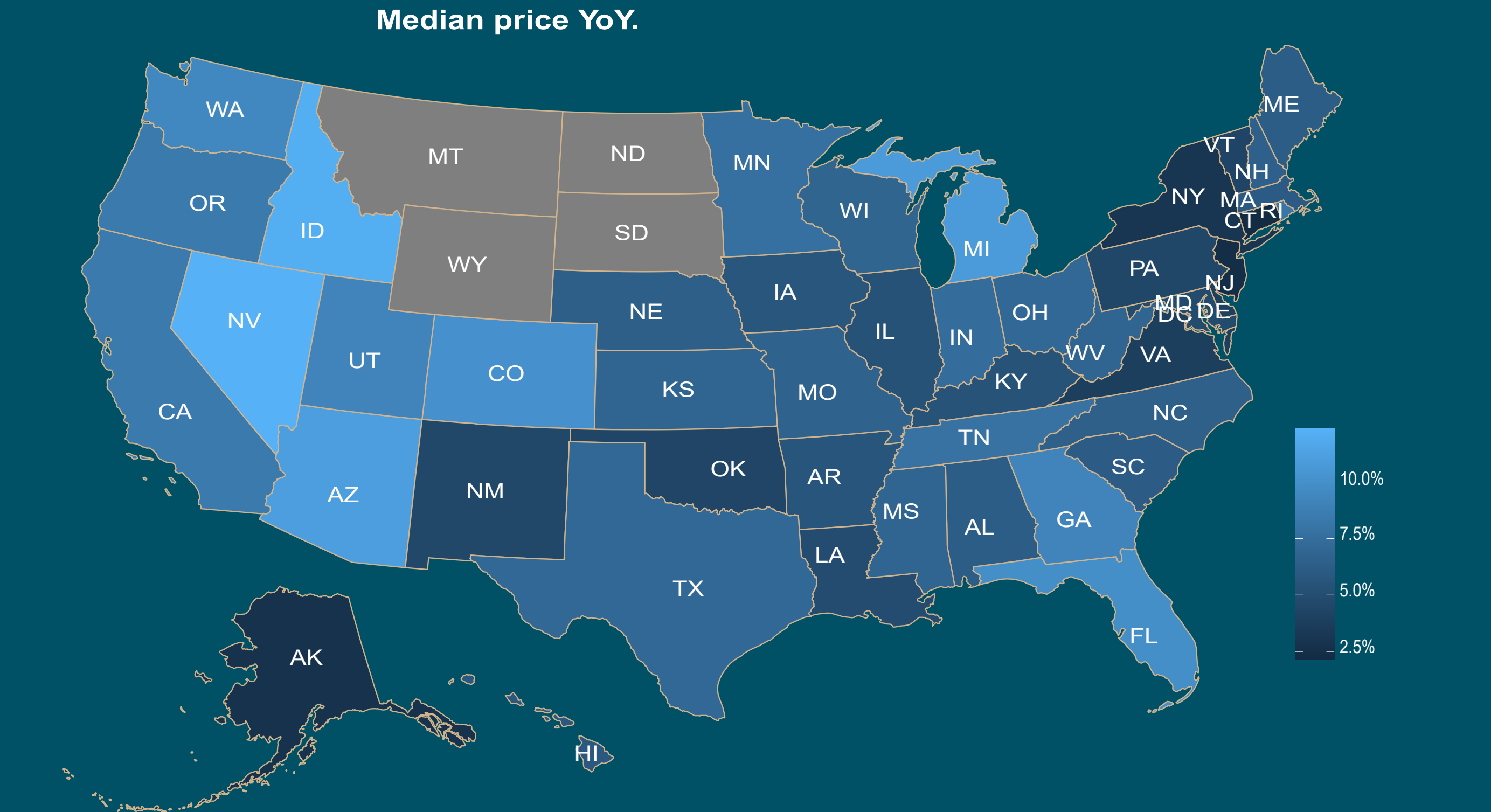
R-Packages: ggplot2, dplyr, usmap, lubridate, scales, Rcolorbrewer, ggthemes, ggrepel, maps, mapproj, plotrix, tidyverse

Data Distribution



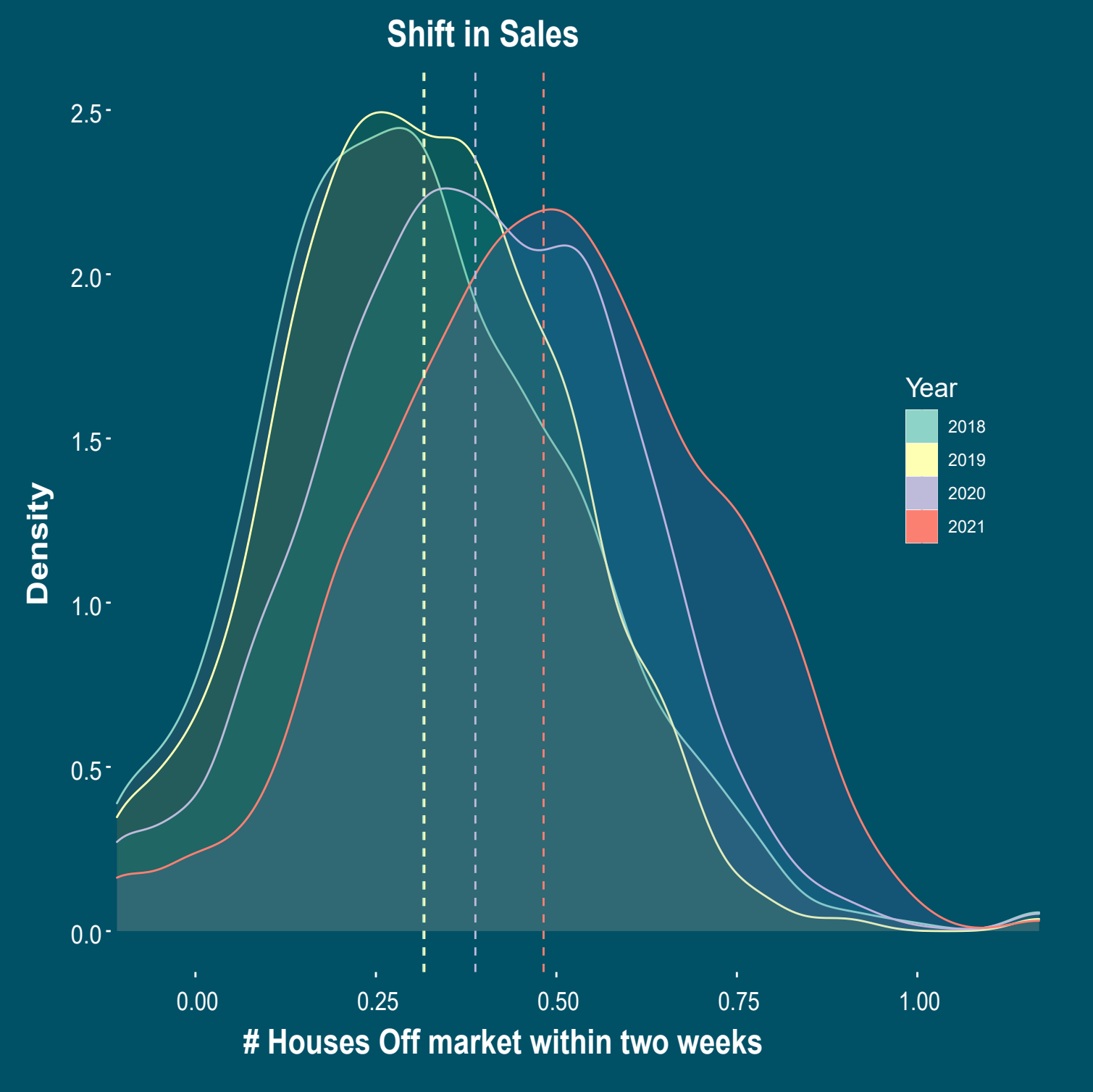
Supply Vs Demand chart states that the demand for houses is strong every year while the supply of houses (new or used) entering the market is relatively weak over past 4 years. *Home Sales by Property Type* chart shows that the demand for Single Family houses is very high (almost equal to the combined demand of Condos, Multi-Family and Townhouses). From the *Median price* map above it is clear that Hawaii, California and New York have properties with high values.

Median Price increase per state



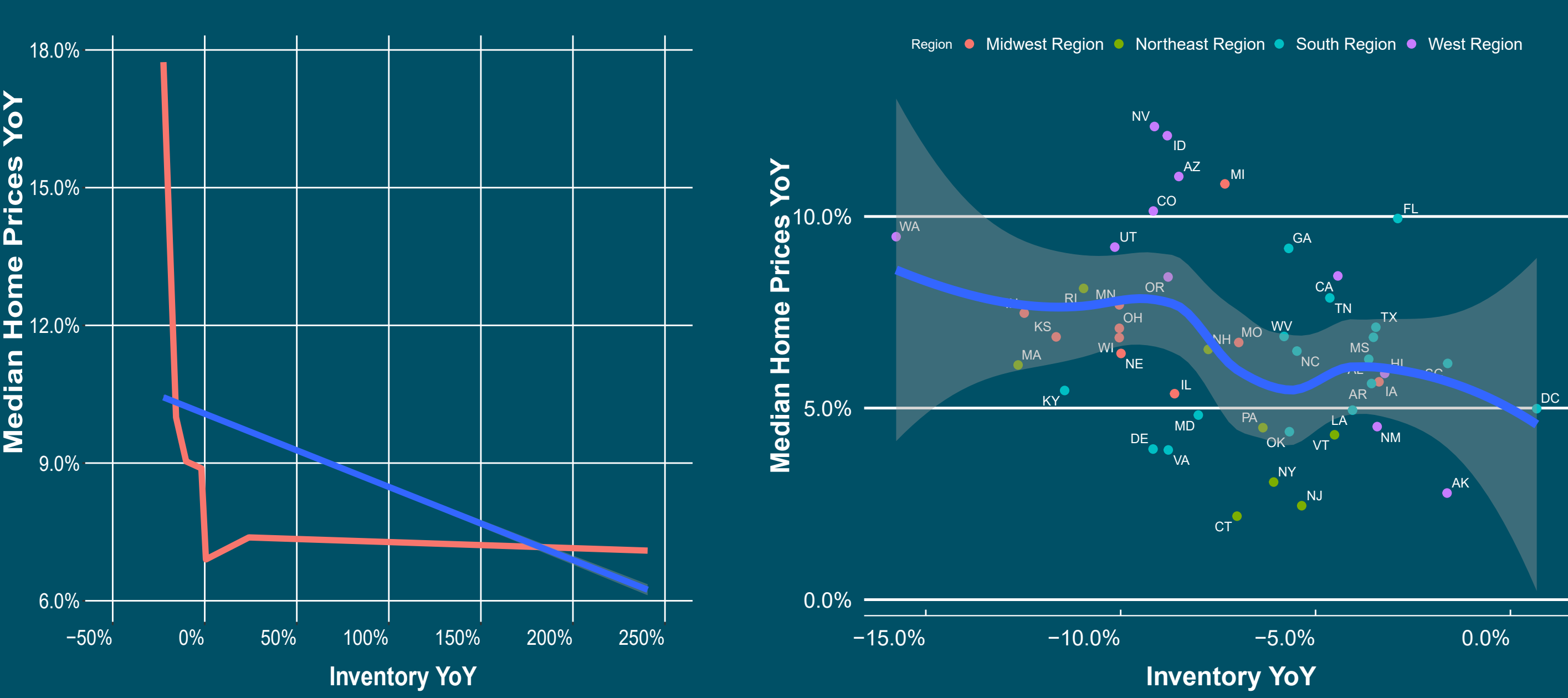
From the *Median price YoY* map Nevada, Idaho, Arizona and Michigan have recorded highest average increase in property rates year-over-year.

Price Trend



As the above chart shows that houses are being sold at a faster rate each year as the mean is shifting to a higher number. This tells that the demand for the house market is strong.

Inventory vs Median Price



Though median sale price seems to be increasing with decrease in inventory of homes, the decrease is more significant when the growth in inventory is less than zero (0%). This is also evident from the second plot that most of the states whose inventory growth is less than 0% are above the mean. There seems to be a huge increase in the median price among western states and southern states.

Based on the analysis and from the charts, we have the following points.

- Price tend to increase when inventory is low
- Demand is strong since COVID and inventory has slowed down since. If Supply does not increase then it might lead to further boom in real estate industry.
- As construction times tend to increase because of COVID fuelled by supply-chain issues, the slow growth in inventory might continue for some time.

It is more likely that prices might go up further at least in the first half of 2022.