Problem Statement – Describe all the factors that could affect residential home prices across the United States over the next 10 years, and how?

Purpose

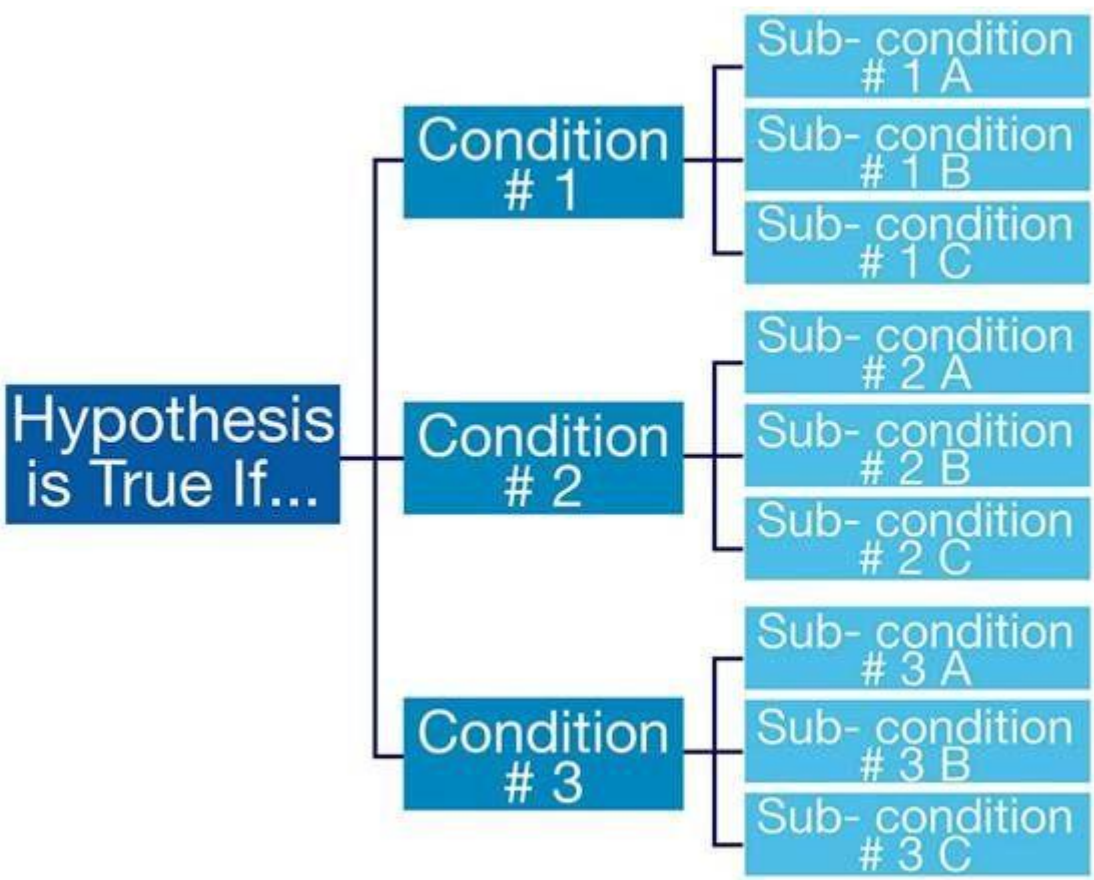
The purpose of this analysis is to develop an idea of the various factors that could affect the housing prices in the United States in the next 10 years. this analysis will be insightful in proper data-based decision-making and in properly optimizing the future cost prediction methods.

Approach

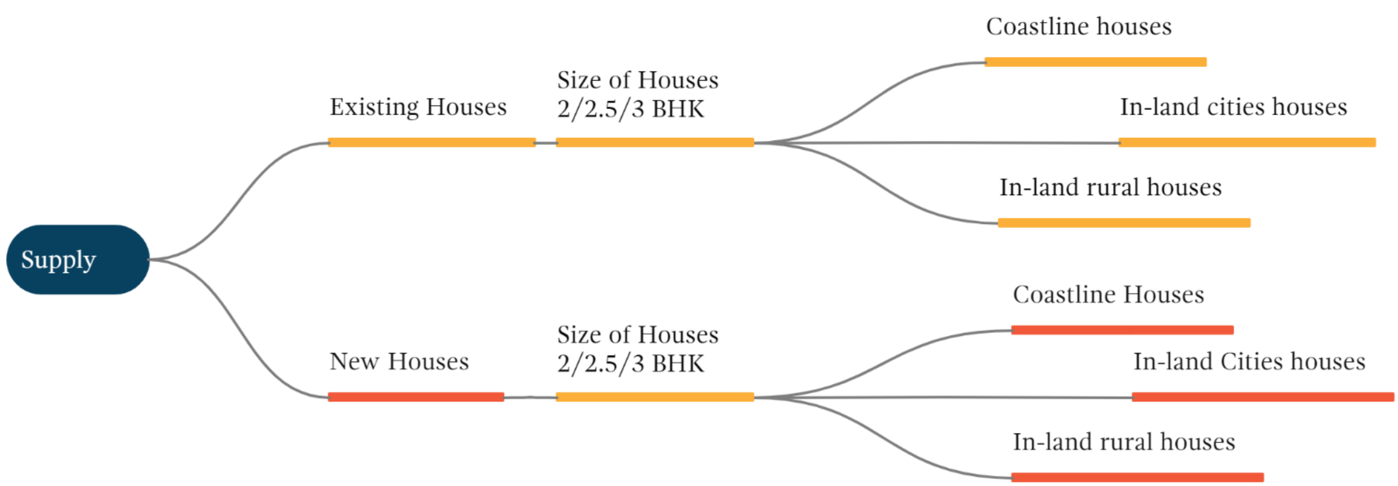
Various factors like supply & demand, economic status of the US citizens, the impact of government policies on those economies, social status. Gross Domestic Product (GDP), Consumer Price Index(CPI).

Methodology – MECE (Mutually Exclusive Collectively Exhaustive)

MECE is a principle used by management consulting firms to describe a way of organizing information. The MECE principle suggests that to understand and fix any large problem, you need to understand your options by sorting them into categories that are: Mutually Exclusive– Items can only fit into one category at a time and Collectively Exhaustive – All items can fit into one of the categories.



Effect on Housing Prices due to Supply and Demand



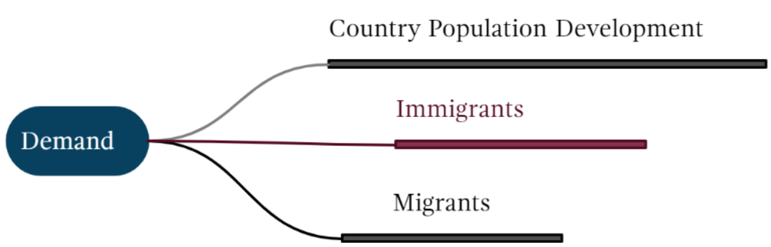


Fig. 1 Supply & Demand Chart

The relationship of residential housing prices and supply and demand can be understood by The Law of Supply & Demand

The law of demand states that quantity purchased varies inversely with price. In other words, the higher the price, the lower the quantity demanded. This occurs because of diminishing marginal utility. That is, consumers use the first units of an economic good they purchase to serve their most urgent needs first, and use each additional unit of the good to serve successively lower-valued ends.

The law of supply is the microeconomic law that states that, all other factors being equal, as the price of a good or service increases, the quantity of goods or services that suppliers offer will increase, and vice versa. The law of supply says that as the price of an item goes up, suppliers will attempt to maximize their profits by increasing the quantity offered for sale.

Demand:

(i) Country Population Development

To understand the effect on demand due to population increase can be analyzed through the following graphs.

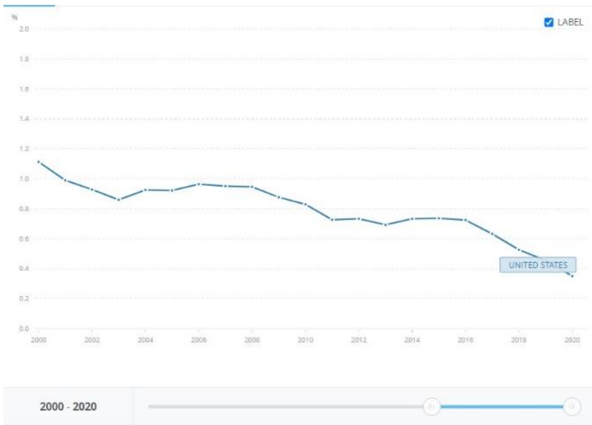


Fig. 2 Annual Population Growth Rate 2000-2020

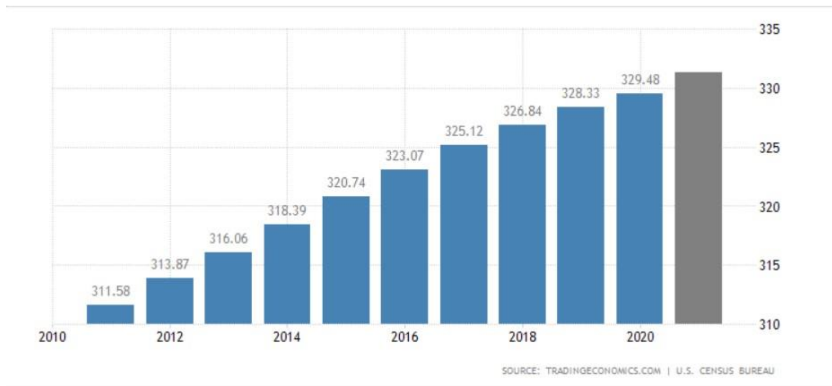


Fig. 3 Population Graph 2010-2020

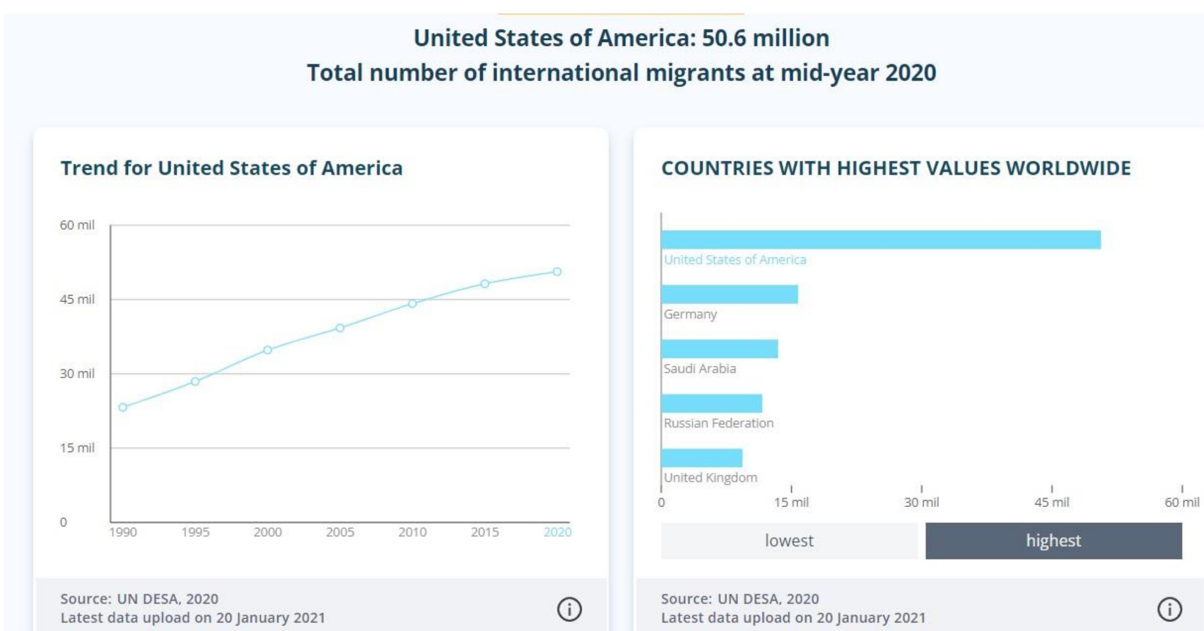
From the annual population growth rate, population growth rate is declining from 2000 to 2020, this implies that the population increase has been declining over the years. If this trend follows for next 10 years, then we can say that the population increase will not play a major role in determining the prices of residential housing prices. As per data the **growth rate** of US was **0.351** in 2020.

The population growth stats clearly demonstrate the decrease in population growth rate.

Year	**Population difference (in millions)**
2012-2014	4.81
2014-2016	4.68
2016-2018	3.77
2018-2020	2.64

(ii) **Migrants**

The number of migrants also affects the residential housing prices.



From the data It can be observed that every year, around 1 million migrants join the overall population of US. Also, the increase in migrant’s growth rate also being positive increases the overall population of US.

(iii) Immigrants

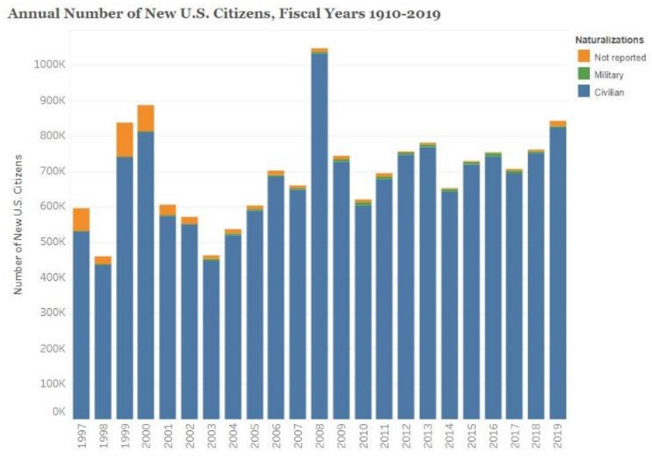


Fig. 4 Annual no. of New US citizens 1997-2019

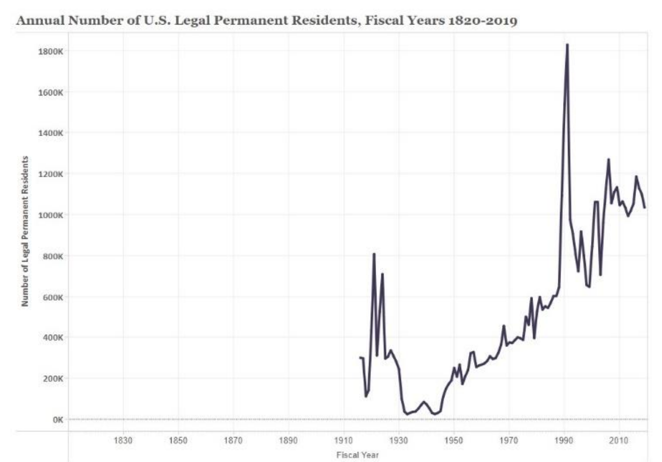


Fig. 5 Annual Legal Permanent Residents 1915-2019

From the above data every year around 1 million new residents were added.

The overall effect of population on demand can be interpreted with the help of total overall population growth due to the above-mentioned categories.

Combining all the elements to 1 population, there is a significant increase in the population of US.

Supply:

(i) New Houses Built every year.

Average Sales Price of New Manufactured Homes Sold or Intended for Sale by Size of Home by State

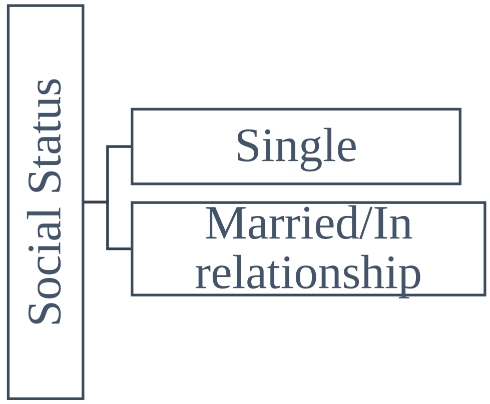
2014 - 2020

(Dollars)

Region, Divison, and State	2020 Total[1]	2020 Single	2020 Double	2019 Total[1]	2019 Single	2019 Double	2018 Total[1]	2018 Single	2018 Double	2017 Total[1]	2017 Single	2017 Double	2016 Total[1]	2016 Single	2016 Double	2015 Total[1]	2015 Single	2015 Double	2014 Total[1]	2014 Single	2014 Double
United States	87,000	57,300	108,500	81,900	53,200	104,000	78,500	52,400	99,500	71,900	48,300	92,800	70,600	46,700	89,500	68,000	45,600	86,700	65,300	45,000	82,000

As per the US Manufactured Housing Survey prices of newly built house irrespective of their region are increasing every year with the demand factors. Resources being limited and constant increase of population at a constant rate (with decreasing growth rate % and a about constant population growth), the prices of homes irrespective of their location and increasing.

Social Status:



There are numerous financial and non-financial reasons why one would expect marital status to be relevant in tenure choices. Life course triggers such as marriage and child birth, are found to be a strong predictor of movement within housing market. Furthermore, the attributes of married couple could lend themselves to stronger preferences for home ownership than do the attributes of unmarried couples.

For, example, married coupes may be less inclined to move frequently because both partners may have ties to the area, and they would therefore have stronger preference for home ownership than a one-person household.

An economic perspective

1. **Married couples have greater financial capability.**
2. **Couples save more than single individual and are more likely to have higher level of net worth.**
3. **Marriage can be positively associated with social capital, the accumulation of which can result in opportunities that lead to savings.**
4. **Married couples commonly have access to benefits like health and life insurance, that promote savings and enable them to consider home ownership.**

These economic considerations lead us to expect that marriage can help potential home owners overcome borrowing constraints that limit ownership opportunities. We therefore expect marriage will be found to increase the rate of home ownership.

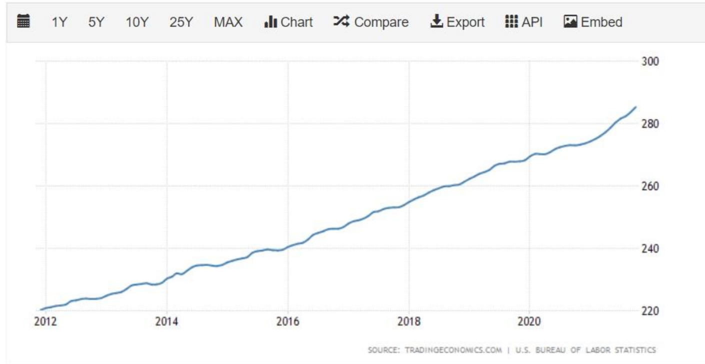
External Factors

(i) Consumer Price Index

The Consumer Price Index (CPI) is a measure that examines the weighted average of prices of a basket of consumer goods and services, such as transportation, food, and medical care. It is calculated by taking price changes for each item in the predetermined basket of goods and averaging them. Changes in the CPI are used to assess price changes associated with the cost of living.

The CPI is one of the most frequently used statistics for identifying periods of inflation or deflation. It may be compared with the producer price index (PPI), which instead of considering prices paid by consumers looks at what businesses pay for inputs.

The 10 years data of US CPI is:



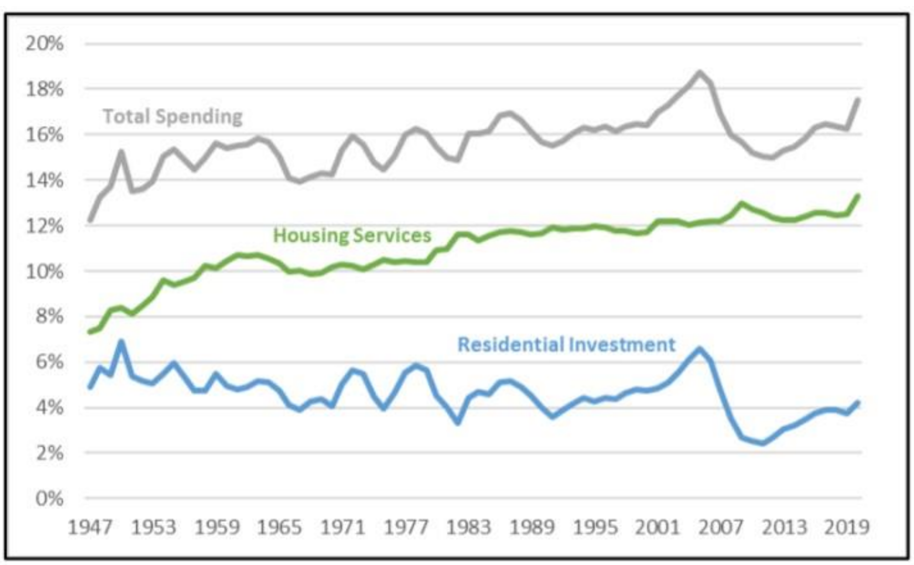
In last 10 years CPI in continuously increasing
CPI is used for predatory analysis of housing prices
As the data suggest in next 10 years CPI will increase to maybe 320 which means its going to increase the purchasing power of new clients. Or in other words, the housing prices will tend to increase in next 10 years at a steady rate unless some other factors may overpower it.

(ii) Gross Domestic Product

The housing market is incorporated into gross domestic product (GDP), the prominent measure of economic activity, in two ways. First, GDP includes all spending on the construction of new single- and multi-family structures, residential remodeling, and brokers' fees, which is referred to as residential fixed investment. As of 2020, spending on residential fixed investment was about $885 billion, accounting for about 4.2% of GDP. Second, GDP includes all spending on housing services, which includes renters' rents and utilities and homeowners' imputed rent and utility payments. As of 2020, spending on housing services was about $2.8trillion, accounting for 13.3% of GDP. Taken together, spending within the housing market accounted for 17.5% of GDP in 2020. As shown in Figure 1, housing's share of GDP has generally trended upwards, with the notable exception of the housing market crash in 2007. Between 2000 and 2005, residential investment grew rapidly before declining even more rapidly as the housing bubble burst residential investment has remained well below its peak both in real terms and as a percentage of GDP. Despite a steep drop in total housing spending, both in real terms and as a percentage of GDP, spending on housing services continued to rise as a percentage of GDP through this period. Housing's share of GDP has still not reached its 2005 peak.

Housing's combined contribution to GDP generally averages 15-18%, and occurs in two basic ways:

- **Residential investment** (averaging roughly 3-5% of GDP), which includes construction of new single-family and multifamily structures, residential remodeling, production of manufactured homes, and brokers' fees.
- **Consumption spending on housing services** (averaging roughly 12-13% of GDP), which includes gross rents and utilities paid by renters, as well as owners' imputed rents and utility payments.



Total Spending in Housing Market As a percentage of GDP

Conclusion:

Price of any commodity is directly affected by its demand and supply. The commodity we are talking about is the "House" which an evergreen commodity, everyone dreams of their own beautiful house they would call it their "Home". The affordability of this commodity is dependent on many variables. In this analysis we analyzed how demand affect the pricing. In demand we analyzed that the increase in population affect the demand, now the population of US comprises of 3 categories, the native Americans, the immigrants and the migrants. From the Annual Growth Rate census from 2000-2020 the growth rate has been decreased which means there is not a great increase in population or any condition of population outburst rather it is declining that means population is increasing with a steady rate. Also, we compared the population difference of successive years which clearly supports the decline in growth rate.

Apart from the country's own population, US also accepts immigrants, also some of them tend to get a permanent US citizenship, around 2 million people adds on to the population of US, which is also increasing per year, increasing overall the population of US.

Supply of houses is also increasing due to the fact the population increase affects directly the demand. The data for US survey shows that the housing prices are increasing every-year irrespective of the location and other factors. Even if we consider a rural region the prices are increasing not as steadily as in urban areas, but the increment over the span of 10 or more year will be significant and worth a discussion.

New studies shows that marital status of individual also plays an important role in influencing the costs of houses. The dependencies of the couples over matters of economy and their ties towards the idea of stability in their life influence their movement and house to house movement, whereas for an individual its easy for him/her to move according their preferences and their choice of standard of living.

Other external factors that we have considered are GDP and CPI both of them influence the housing prices as their historical data is used to make government policies which can influence the housing prices. Both of them can be used to determine the standard of living of its citizens and results in increase or decrease of prices.

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