**Supply and Demand Factors Affecting**

**Housing Prices in US**

**Introduction:**

I have used quarterly data from 1st January 2000 till date.

We are considering the following national factors for finding out how much the affect the housing prices in US.

* NASDAQ 100 Index
* Producer Price Index by Commodity: Special Indexes: Construction Materials
* Interest Rates and Price Indexes; Commercial Real Estate Price Index, Level
* Producer Price Index by Commodity: Special Indexes: Construction Materials
* Population
* Unemployment Rate
* Per Capita Income
* Mortgage
* Housing units

**Analysis Description:**

All the data was imported in python. Correlation of the features with housing index was calculated. A random forest regression model was trained with housing index as the independent variable and the above features as dependent variables. The model was then used to find out the feature importance.

The ipynb file is included in the zip file.

**Results:**

To find the most important supply and demand factors that affect the housing prices in the US, I created a decision tree regression model in Python. That model is used to find out the importance of all the features in the model.

A few Important Demand Factors are: Population, economic growth, per capita income

A few Important Supply Factors are: Interest Rates, Construction Materials, Housing units

**Further Scope of Improvement:**

For improvement we can consider more features like housing affordability and inflation etc. We can also try using more models like linear regression, XGBregressor and then find feature importance for those models.

**References:**

Data: https://fred.stlouisfed.org/