Avocado Price and Consumption

Final Project

By

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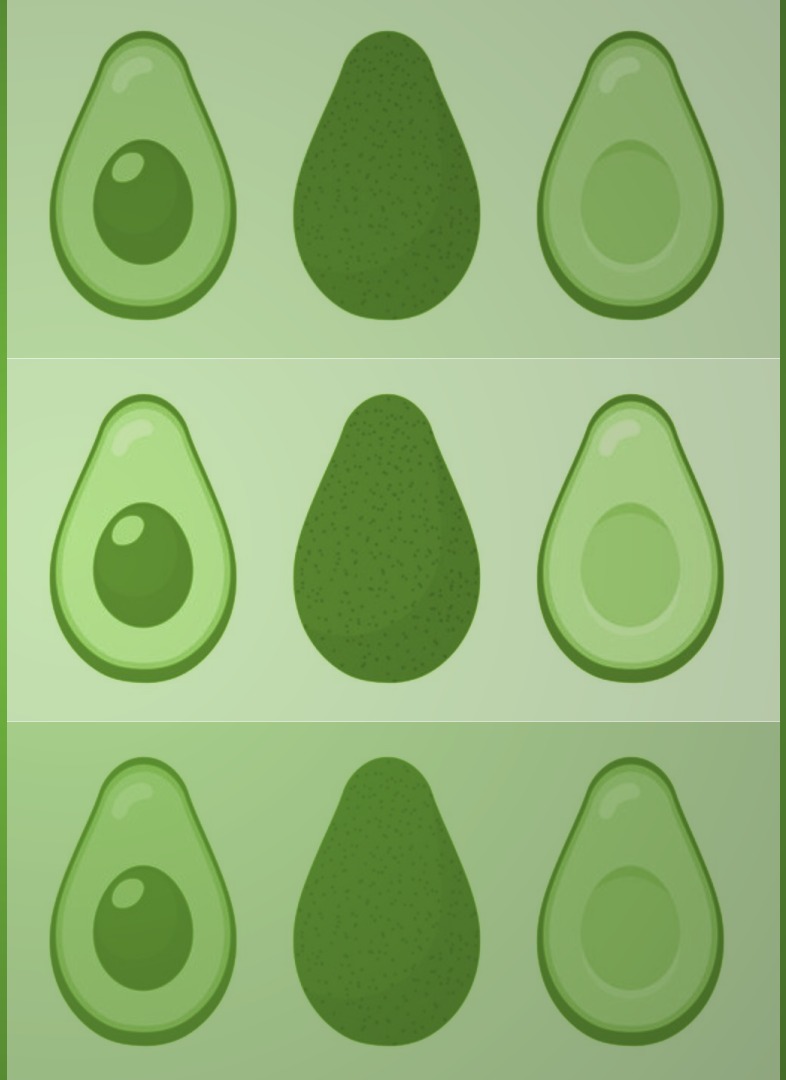


Avocado Consumption

Comparing Prices and Volume of Avocados in three different US Regions

- Boston
- Chicago
- South Carolina

Data Collection Methods

- Downloaded from the Woz-U Github Repo
- CSV File
- Imported using Pandas library
- Original source is from Kaggle

Data Wrangling

- Original dataset contained 18249 rows
- Dataset includes 54 regions
- From the years 2015 to 2018
- A subset of 3 regions was used in the analysis
- Sample size for each region was 338

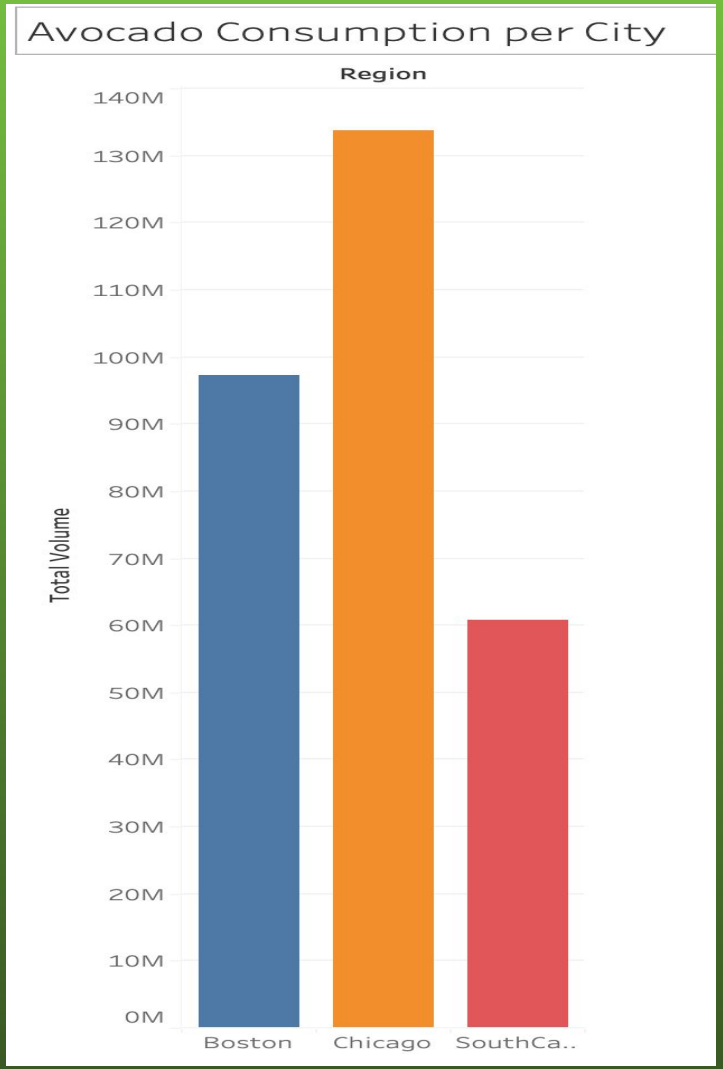
```
df1.region.value_counts()
```

```
Boston          338
Chicago         338
SouthCarolina   338
Name: region, dtype: int64
```

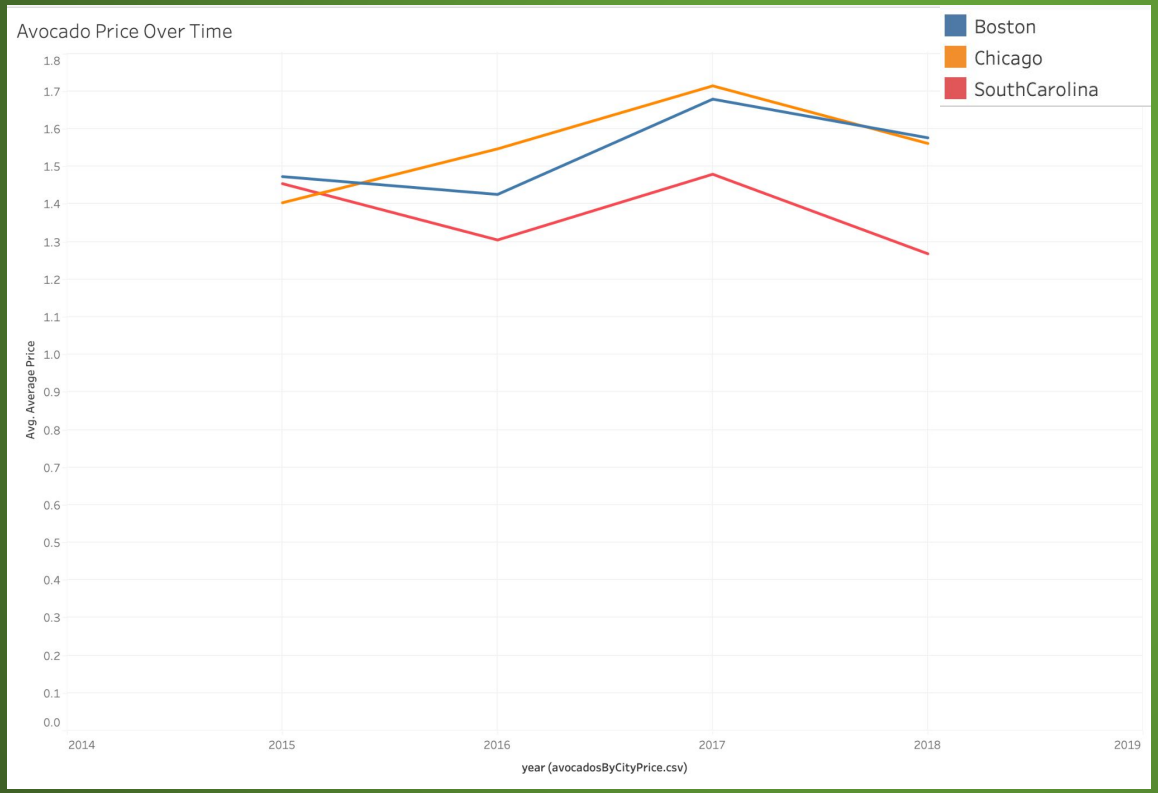
Avocado Consumption per Region

Chicago is in 1st place, Boston in 2nd, and South Carolina in 3rd.

South Carolina having less than half of the consumption measure compared to Chicago.

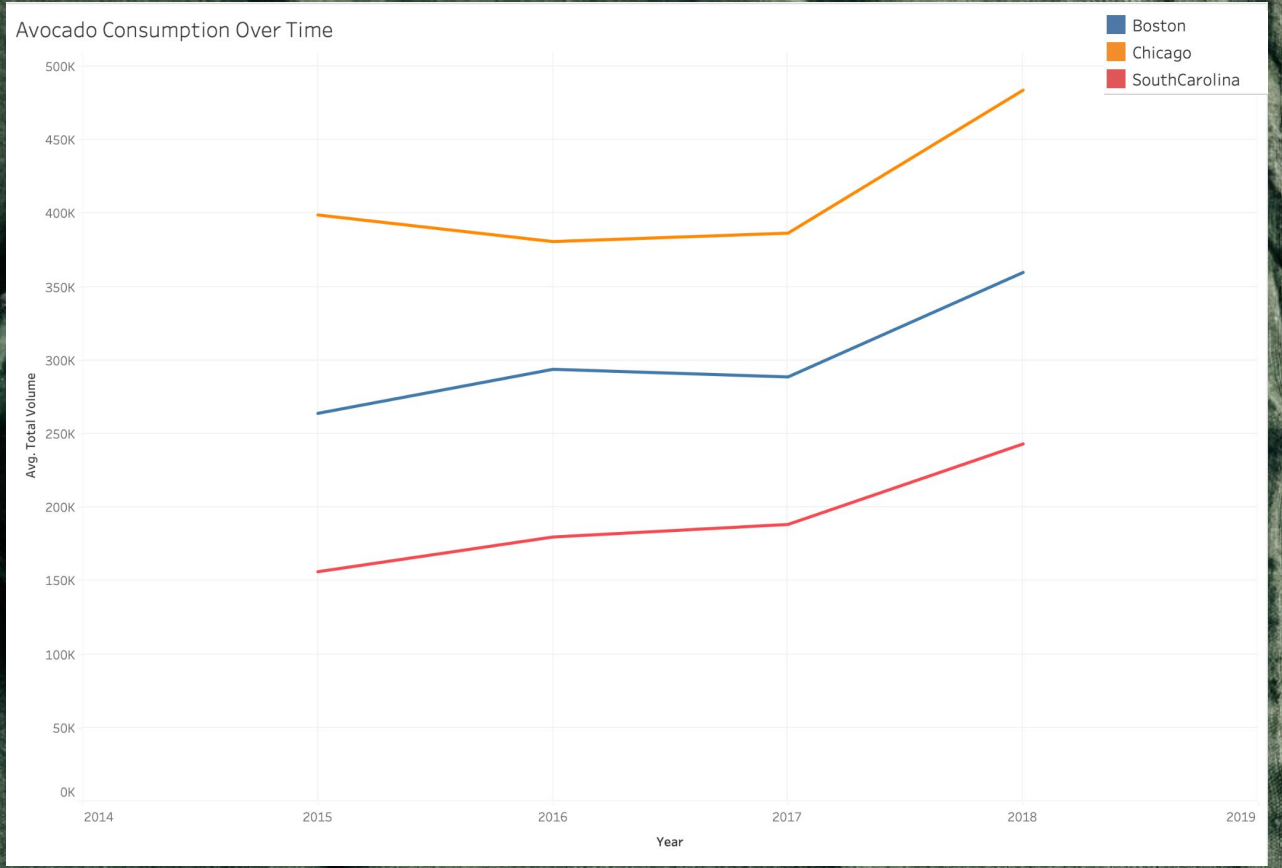


Avocado Prices Over Time



Average avocado price of all 54 regions for all 4 years was $1.41

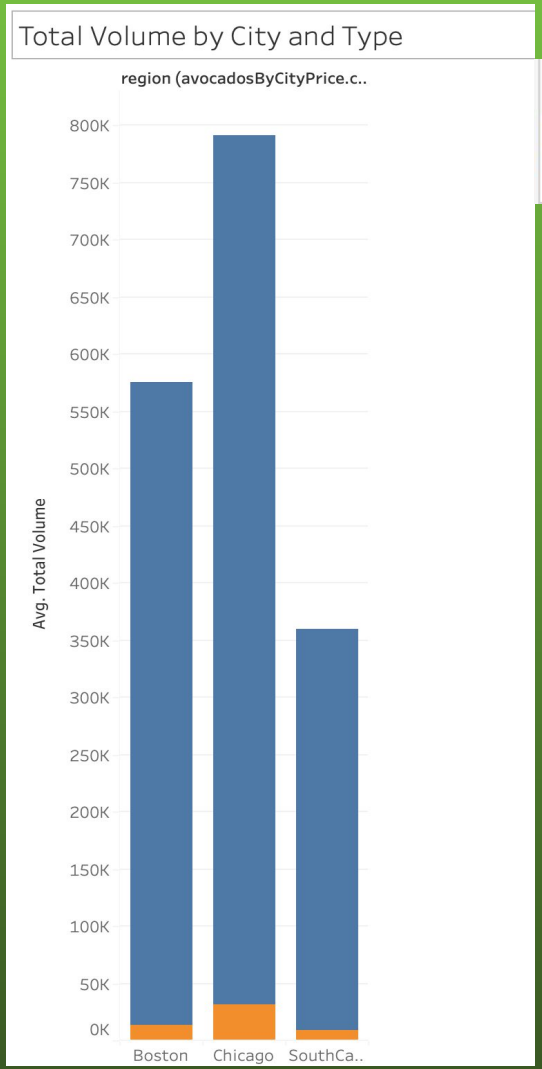
Avocado Consumption Over Time



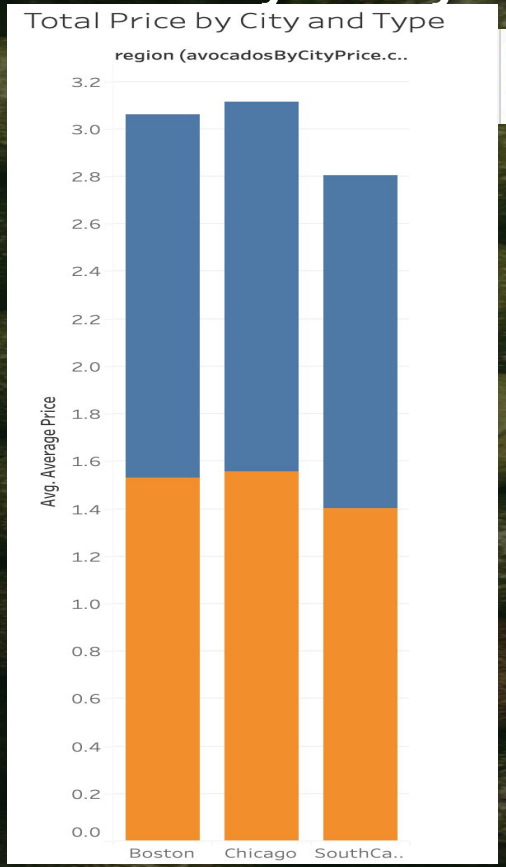
Data Exploration

Total Volume by City

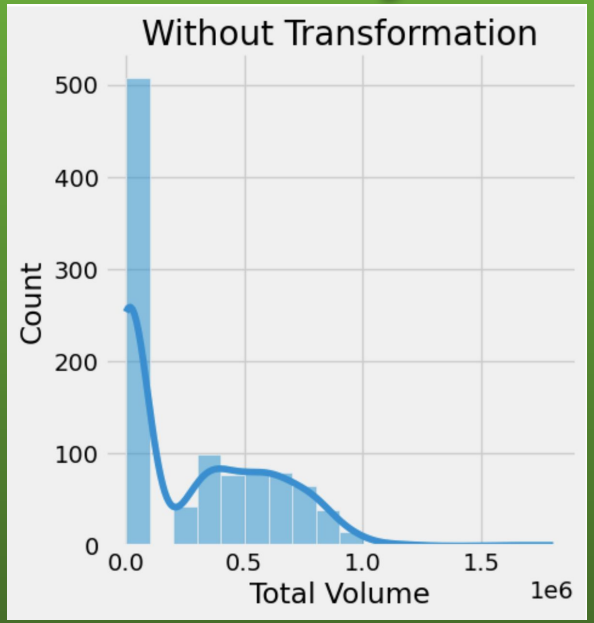
Conventional x Organic

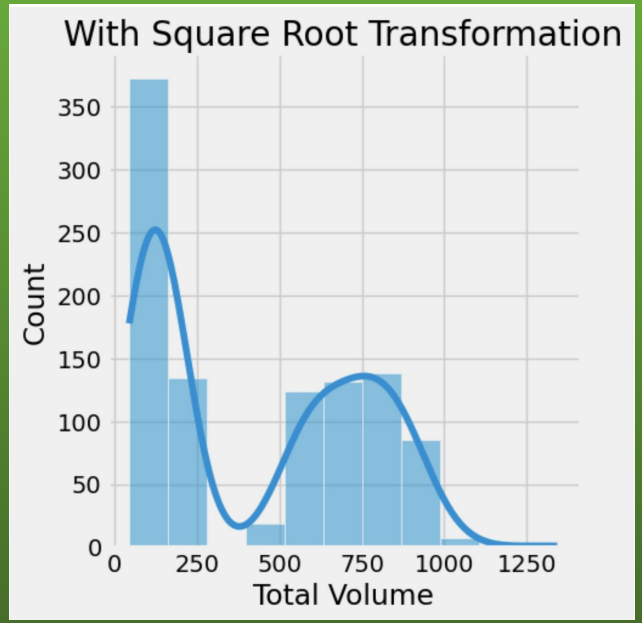


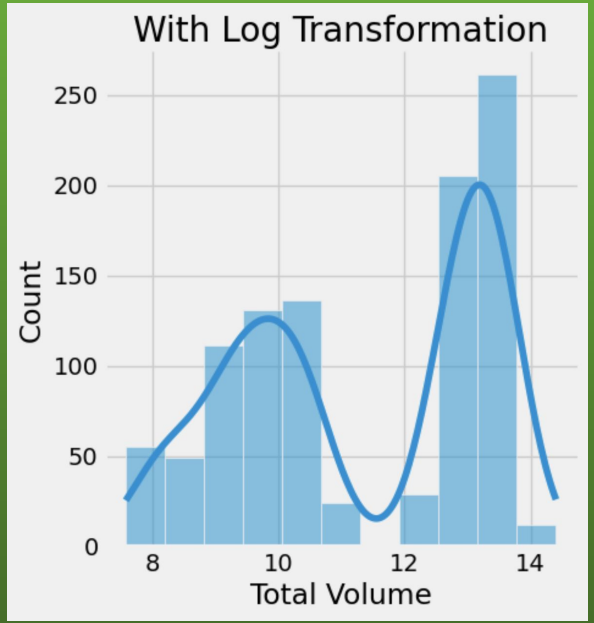
Average Price by City and Type



One-Way ANOVA







Log Transformation normalized the most.

One-Way ANOVA

```
bartlett(df1["Total Volume_log"], df1["regionR"])
```

```
BartlettResult(statistic=681.0293960138611, pvalue=3.990868355374021e-150)
```

The p value is very small and violates this assumption. Will continue.

ANOVA Assumption of Normality - CONT

A Bartlett's test shows that the assumption of homogeneity of variance has been violated. However, we will move forward but be wary of our results.

One-Way ANOVA

- Sample size has at least 20 cases per independent variable.
- No overlap between the groups (cities), and region resting are not related.
- Sphericity is not applicable because it is not a between subjects design.

One-Way ANOVA Comparing Region and Volume Sold

ANOVA Results

- ANOVA Result was significant serving as evidence that there was a difference between the average avocado consumption (volume sold) of the three cities.
- There was also a significance in consumption between each city.

region	Total Volume
Boston	287792.854527
Chicago	395569.048846
SouthCarolina	179744.890237

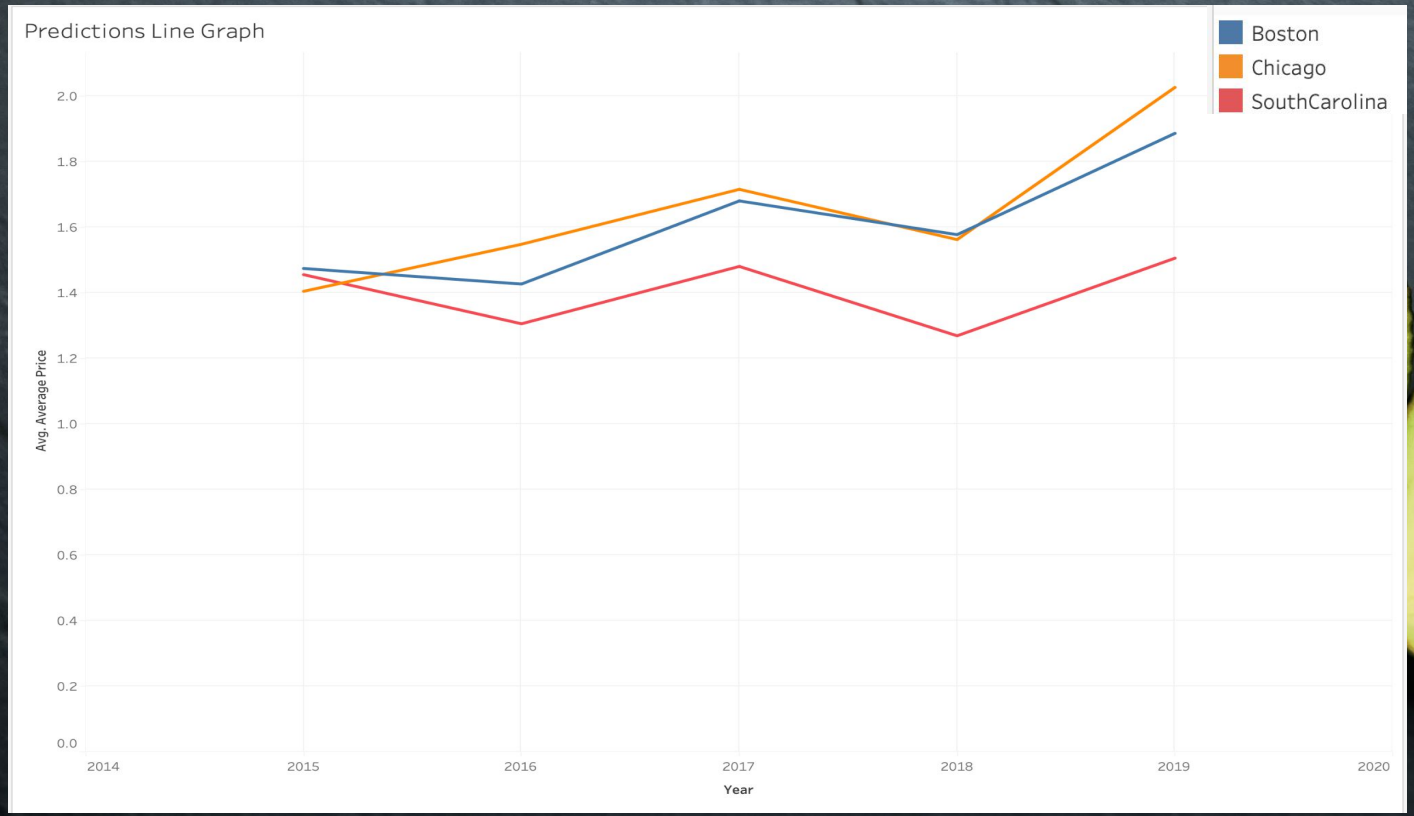
Linear Regression

After doing a linear regression, we have a prediction for the following year (2019) of avocado prices for the three cities we have chosen in the beginning.

However, the R squared is very much out of range, and that will be kept in mind when looking at these results.

```
Boston - Mean squared error: 0.03, R-squared: -4.74
Chicago - Mean squared error: 0.05, R-squared: -923.81
SouthCarolina - Mean squared error: 0.04, R-squared: -112.83
          Region  Year  Predicted_Price
0         Boston  2019         1.885499
1        Chicago  2019         2.025584
2  SouthCarolina  2019         1.504911
```

Predictions and Original Data Line Graph



THANK YOU