



Comparative Analyses of the US Automotive Market

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Thomas Lu, Joanna Yoo, and Shunsuke Kinoshita

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CoPilotTM
Never Buy Solo Again



DataStory





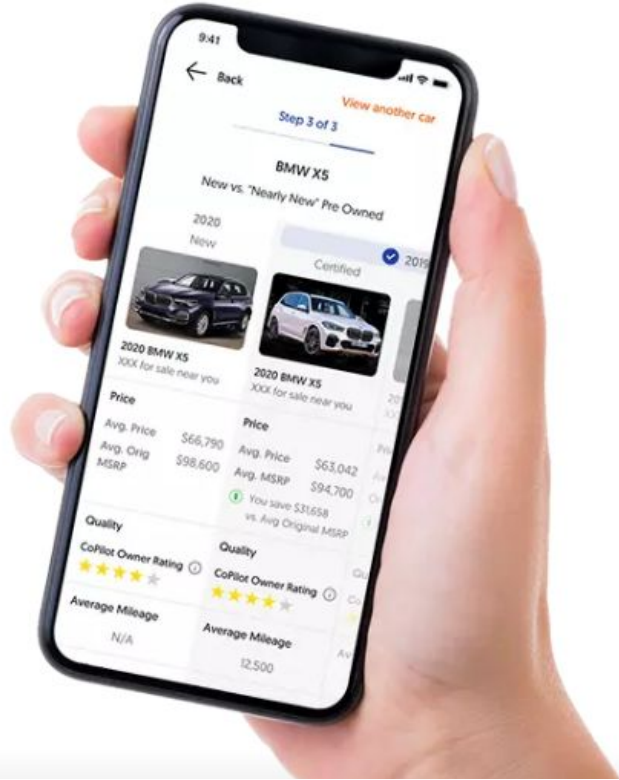
01 Project Overview

Company Introduction

CoPilot Search is an **online car dealership platform**

Their model is **data-driven** analysis for the average person in the market for a vehicle

Focus on constructing a **highly customized** experience that **puts the buyer in control** by providing them with expert advice





Our Task

Work with CoPilot's listing data to **compose whitepapers**

This serves two purposes: **bring CoPilot Search more exposure** and **demonstrate competency** in advertised skills

Decided on two topics: **EV Pricing Analysis** and **Comparison of Regional Prices**



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EV Pricing

Consultants: Avi Mishra,
Kellen Rice, and Sam Guo

Our Goal?

We assessed whether or not there is a “best” time to buy an electric vehicle

By analyzing the most popular electric vehicles in 2020, we can observe whether some months tend to be cheaper than others

This involves various vehicle types, further analysis of yearly models for each type, and even comparison to gas models

We are going to take a deeper dive into our analysis of the Tesla Model S, one of the most popular electric vehicles in the world



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Trim Analysis

Car trims represent slight variation and modifications to the car as decided by the owner. These modifications can include battery sizes, range, dual vs single motor setups, etc.

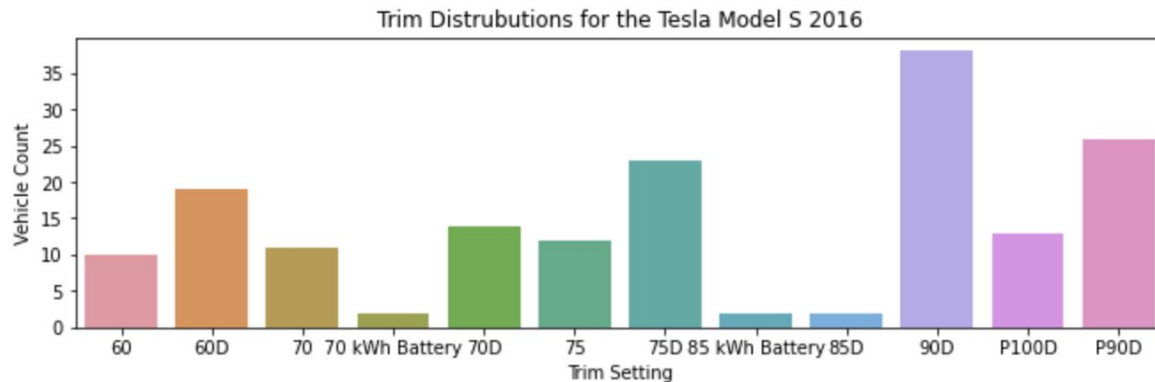
A single car can have many different variations for example the Tesla Model S 2016 includes 60, 60D, 70, 70 kWh Battery, 75, 75D, 85 kWh Battery, 85D, 90D, P100D, P90D

From year to year, the preferred variation can change drastically

We chose to analyze the most popular trim model by year



Trims - Tesla Model S



Pricing Analysis

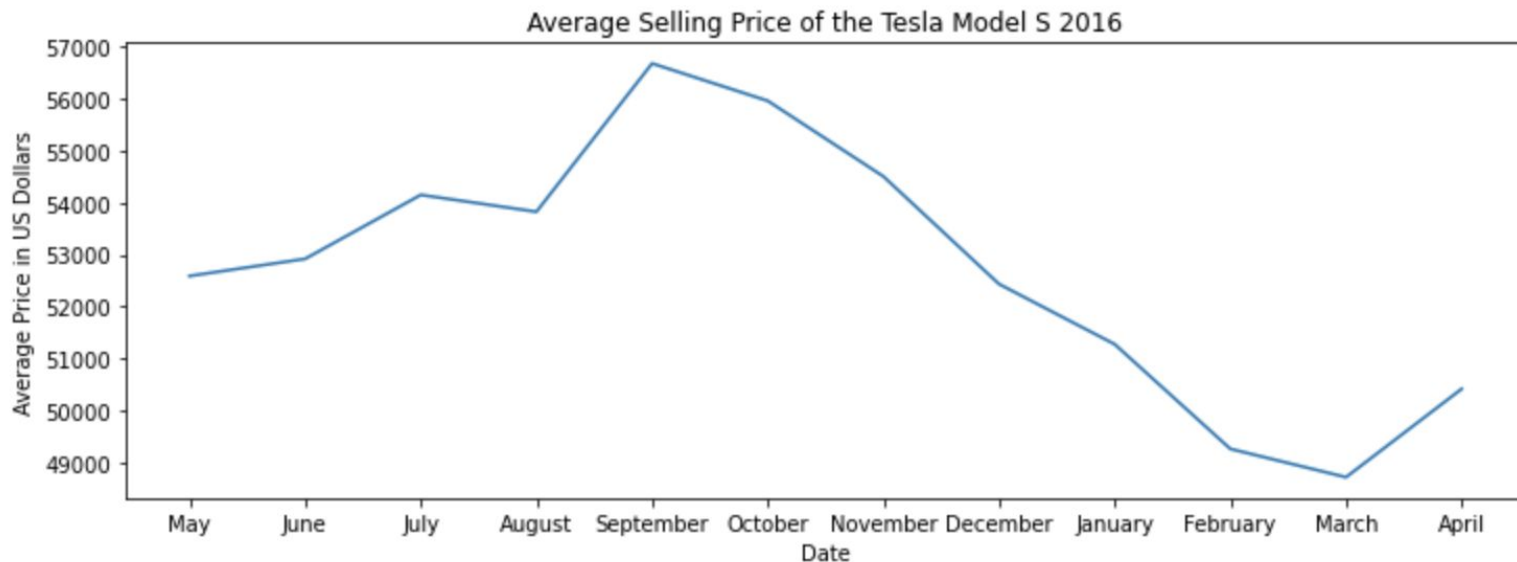
Prices of cars fluctuate greatly based on the year,
type of vehicle, and trim

We want to see if there is correlation between
pricing in different years, broken down by month

We began by looking at pricing from 2015, 2016,
2017, and 2018 from May 1st 2020 through April 1st
2021 so we could minimize the effect of Covid-19 on
our data



Pricing - Tesla Model S 2016



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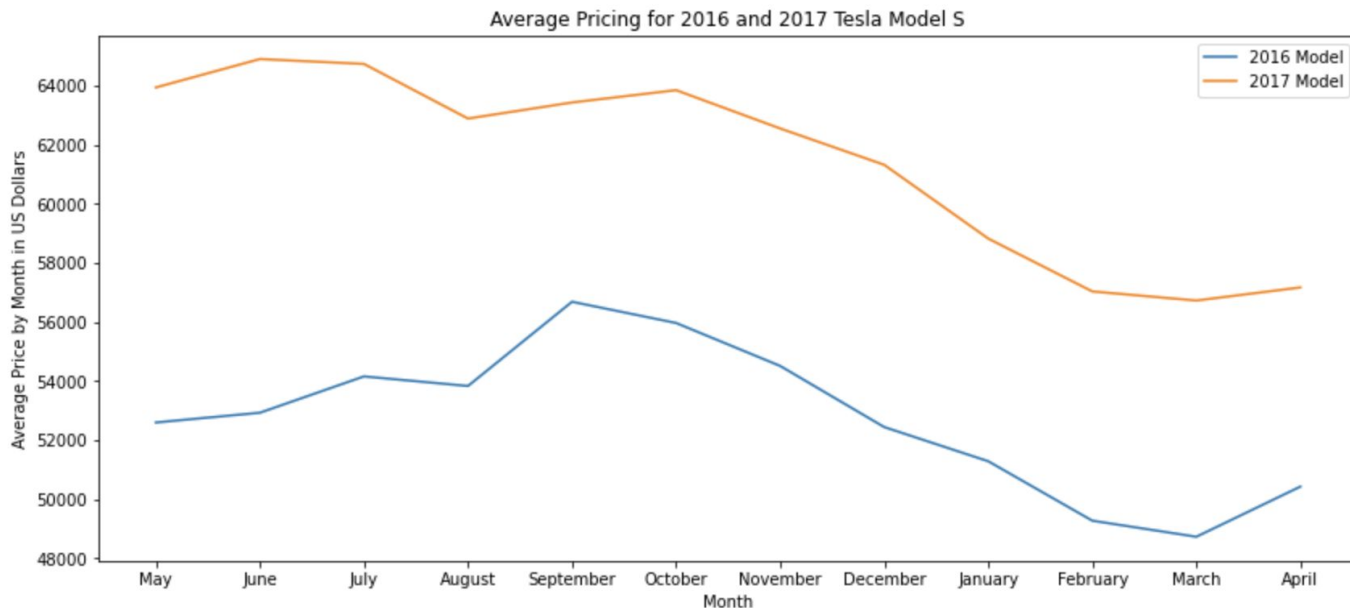
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Pricing - Tesla Model S 2017



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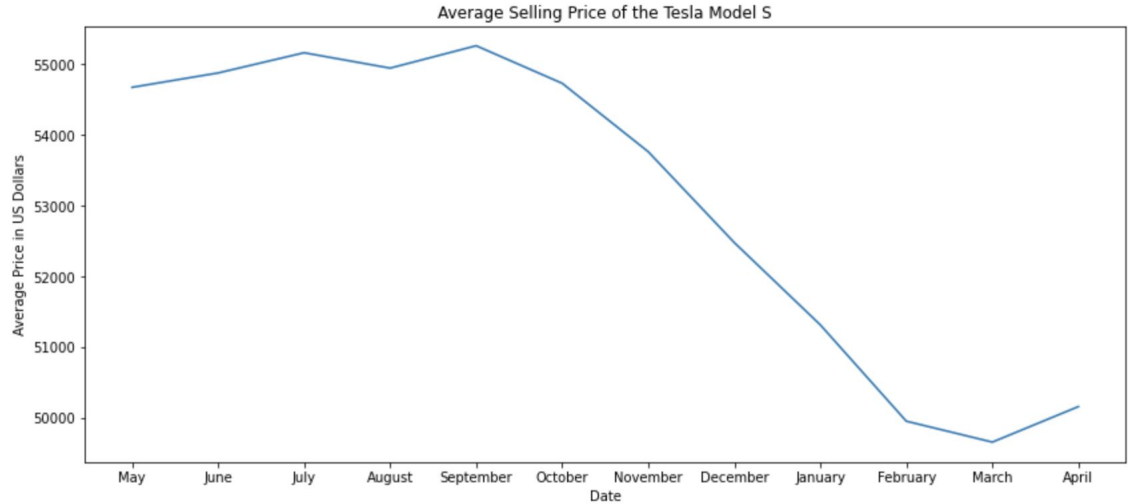
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Average Pricing

We calculated the average price for a Model S, from various years and of the most popular trim settings

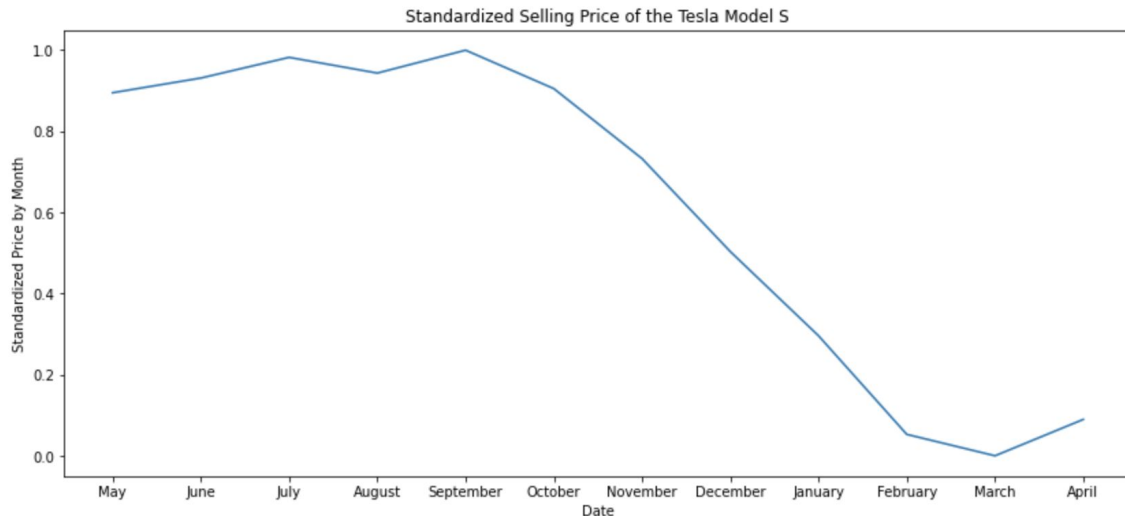


Standardized Pricing

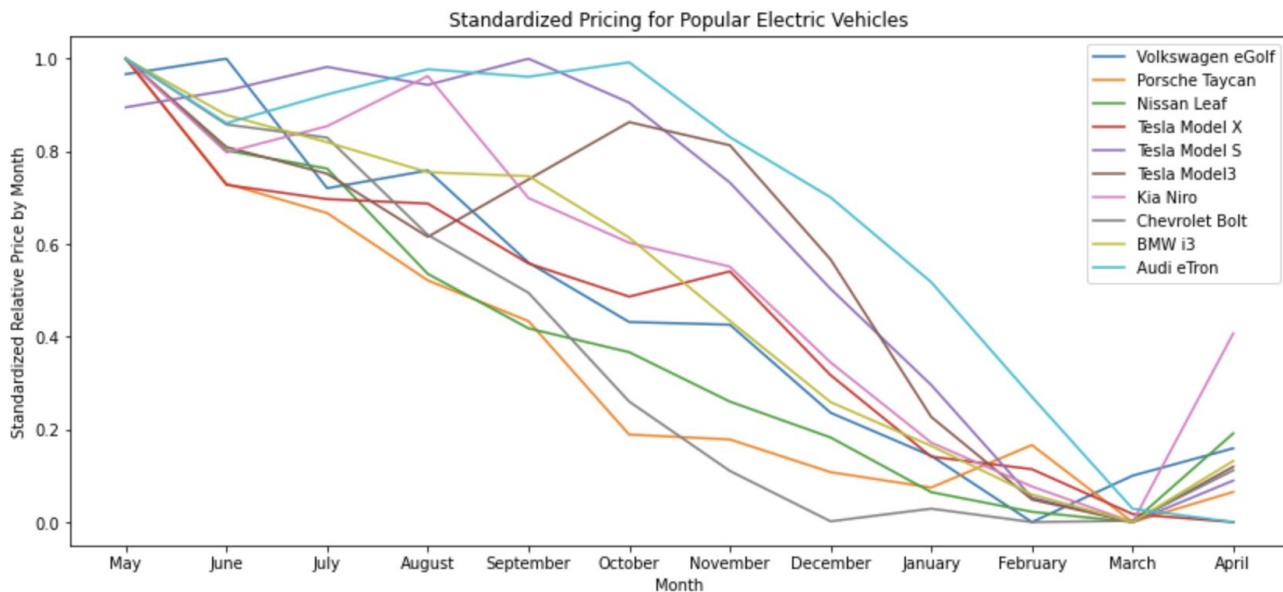
In order to properly compare cars, we needed to standardize our pricing from 0 to 1

Otherwise it would be difficult to compare \$15,000 Kia's to \$50,000 Porsche's

Remember our primary focus is on evaluating relative trends, not net pricing trends



All Model Pricing Graph



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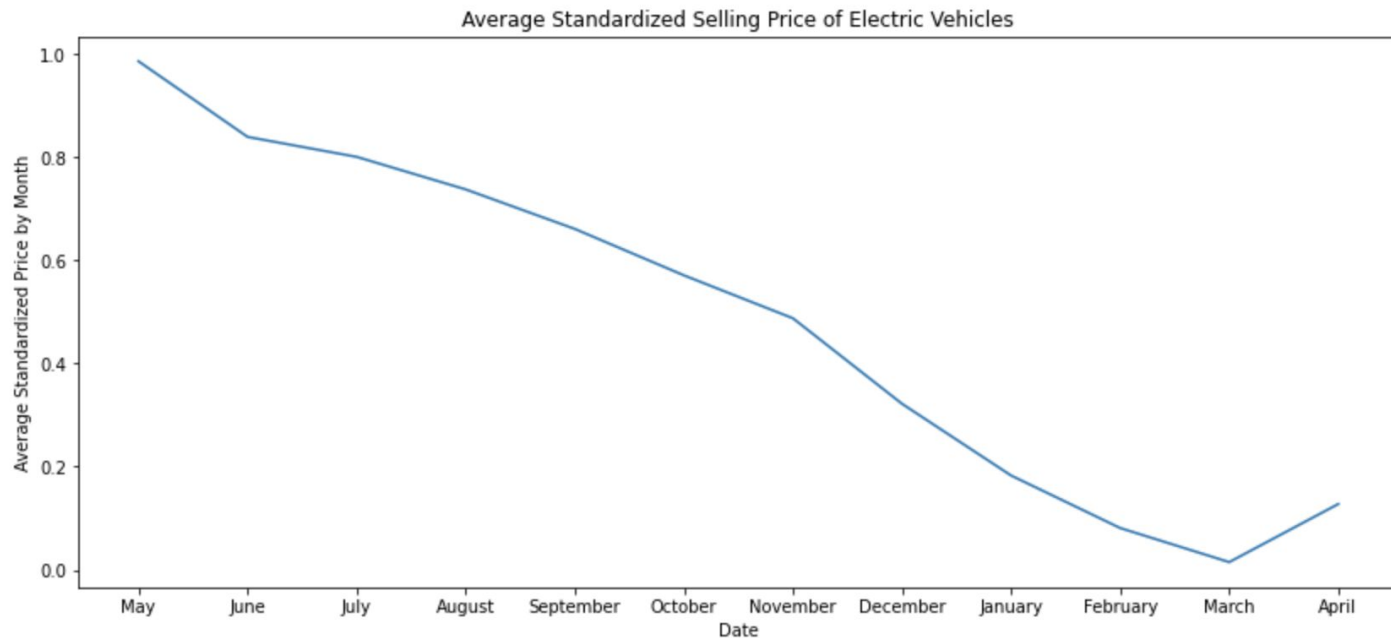
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Average Standardized Pricing for EVs



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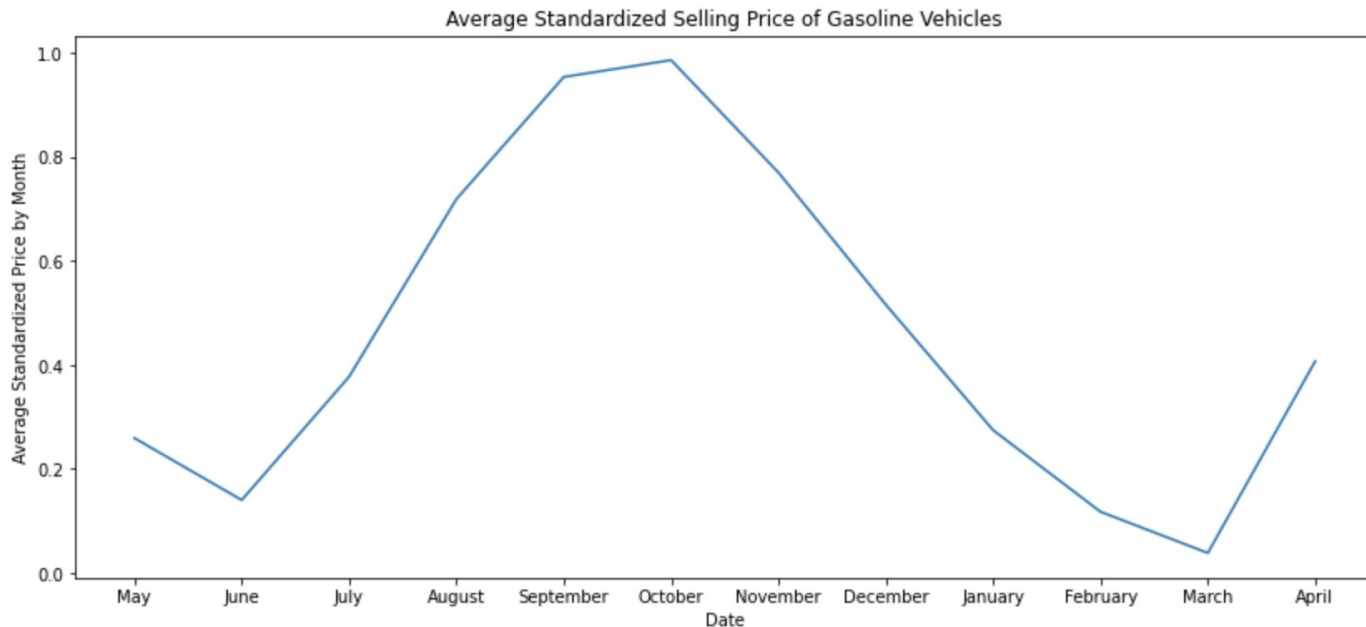
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Average Standardized Pricing for Gas Vehicles



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Conclusions

March is the BEST time to buy

Winter is also a Great Time to Buy

For Gas Powered Cars, unlike Electric Vehicles, steer clear of September and October

Some Possible Explanations:

Demand is at its lowest during the month of March

Fall and Winter Holidays like Black Friday and Christmas tend to see better car deals

New Gas Powered Cars are released on a rigid schedule (August-September) so prices are highest then

But for many companies, these are some of their first electric vehicles, and they lack a fixed time of release





03

Which Cities Overpay for Cars?

Consultants: Shunsuke Kinoshita,
Joanna Yoo, Thomas Lu

Our Goal?

—
We wanted to see which US cities pay more for their cars compared to the national average

—
We also wanted to find trends based on geography and demographics

—
We will make more analysis into demographics, wealth, and price distributions per model of car, but are waiting for more data



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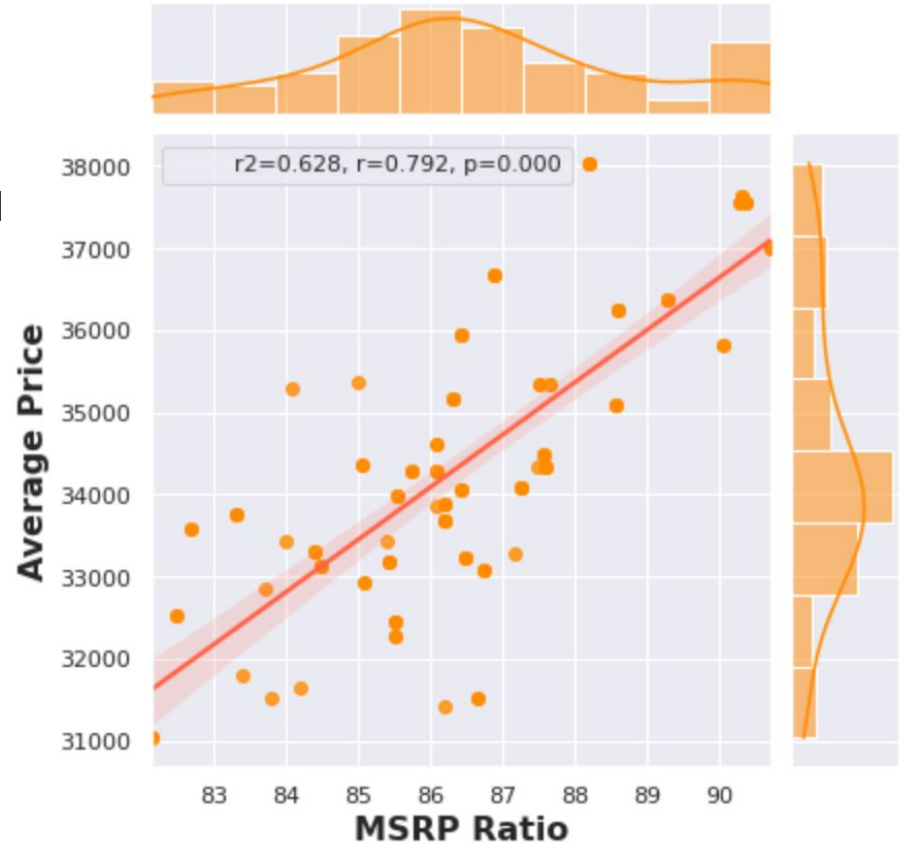


Our Data

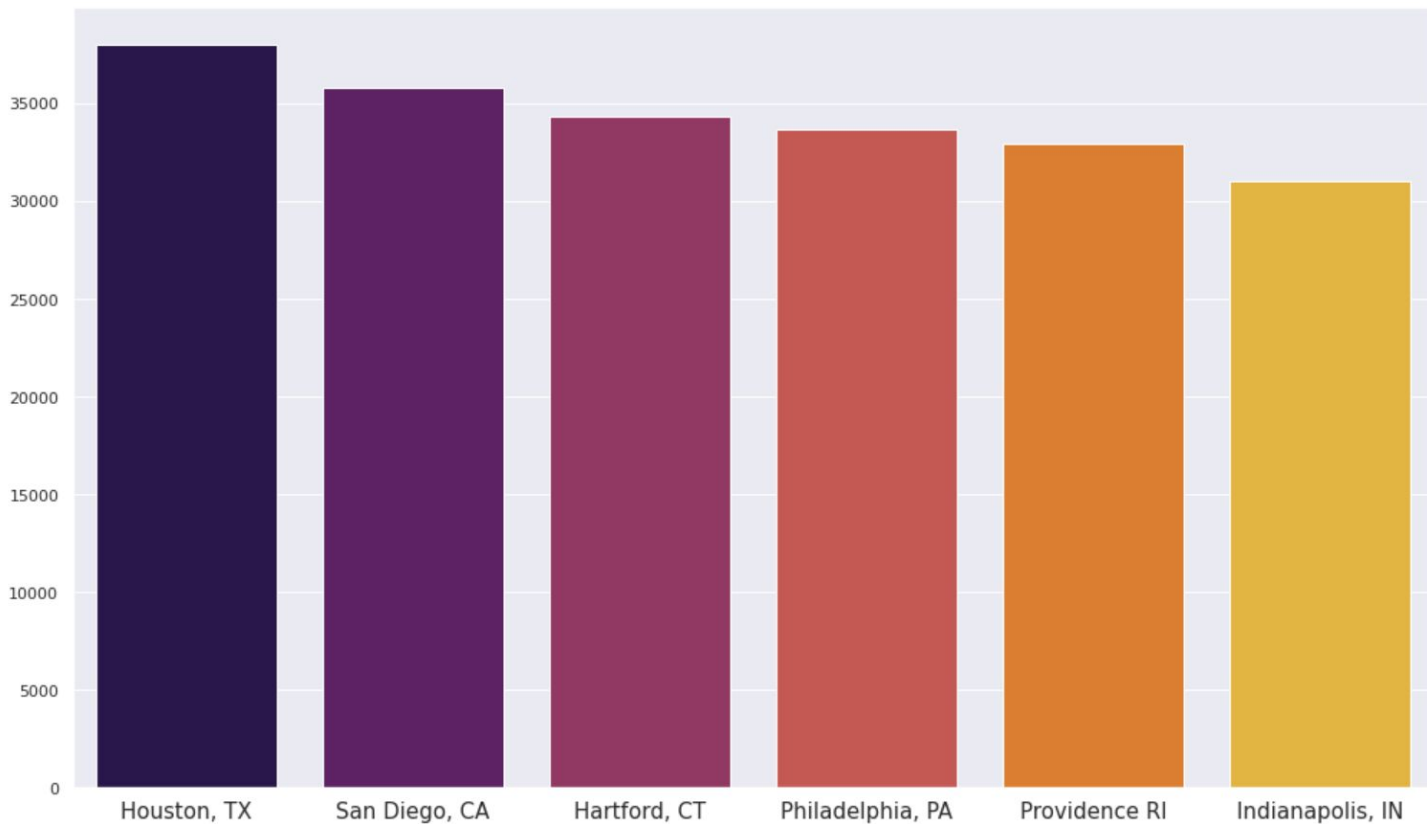
We were only given “Average Price” and “MSRP Ratio” for a few general metropolitan areas.

We combined this metropolitan area table with outside data about geographical and population statistics for each city

We are working on finding demographic and income data



Average Price by Metro Area



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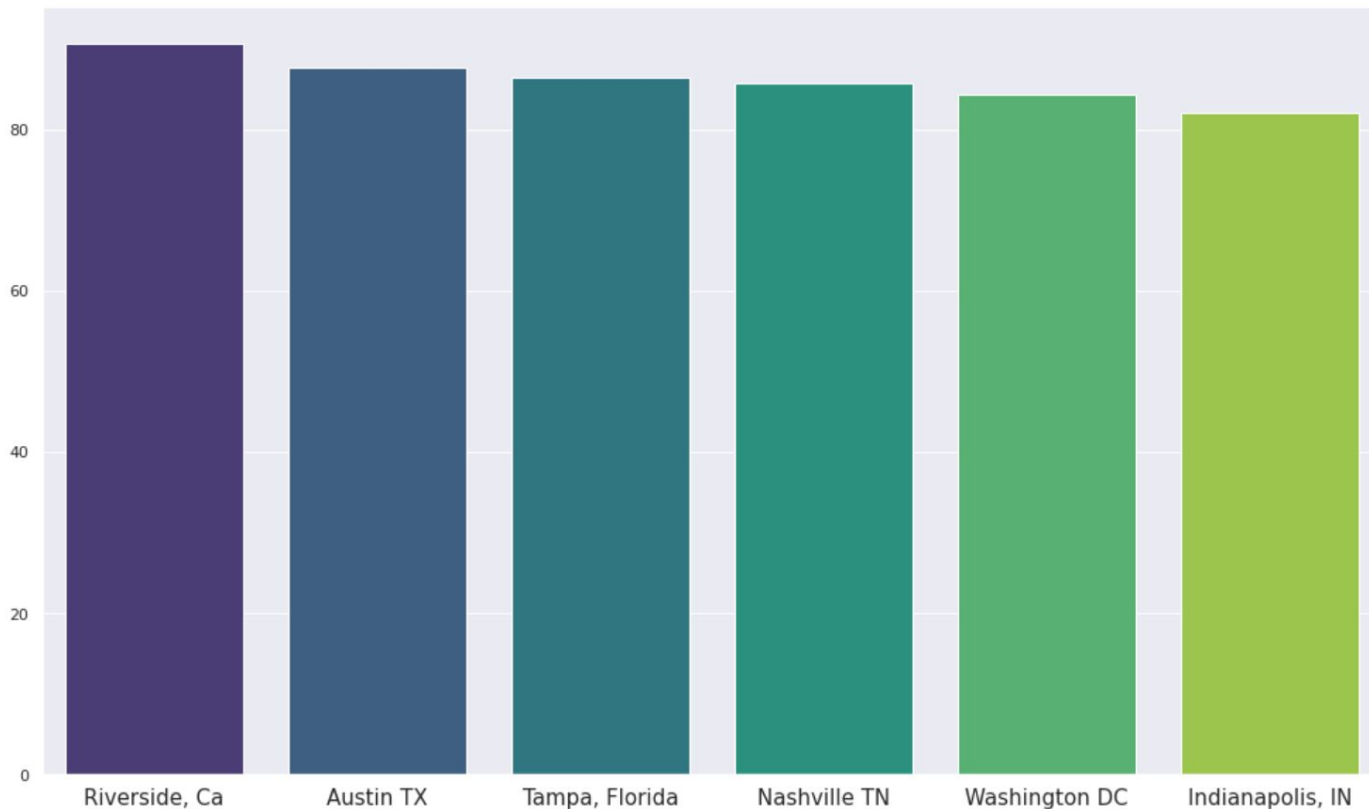
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MSRP Ratio by Metro Area



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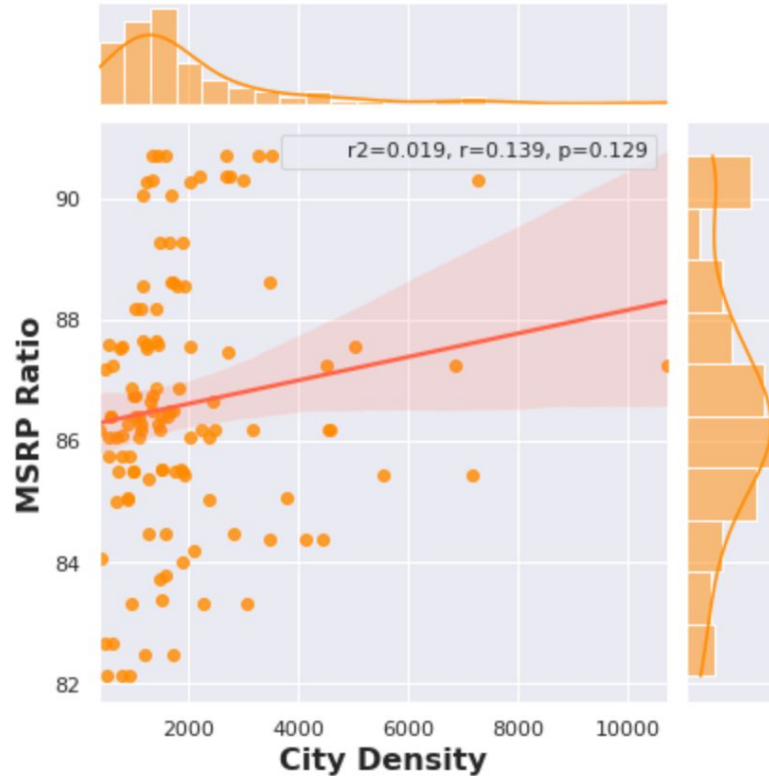
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Pricing Trends by City Density



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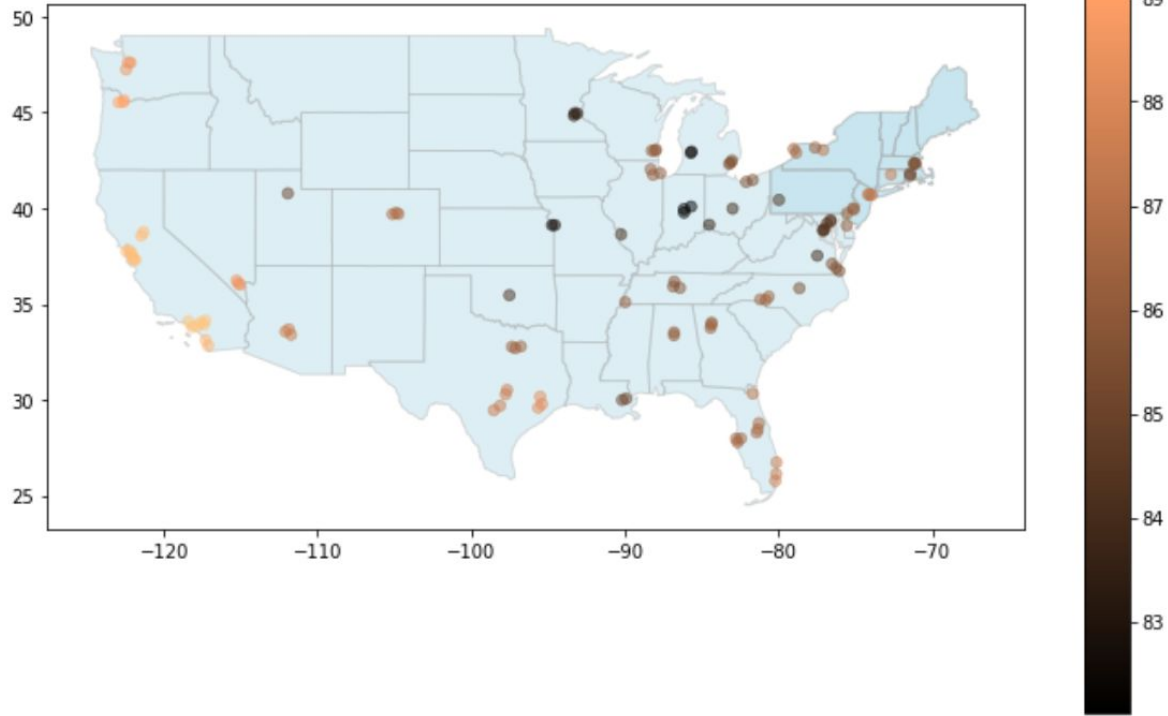
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MSRP Ratio by Location



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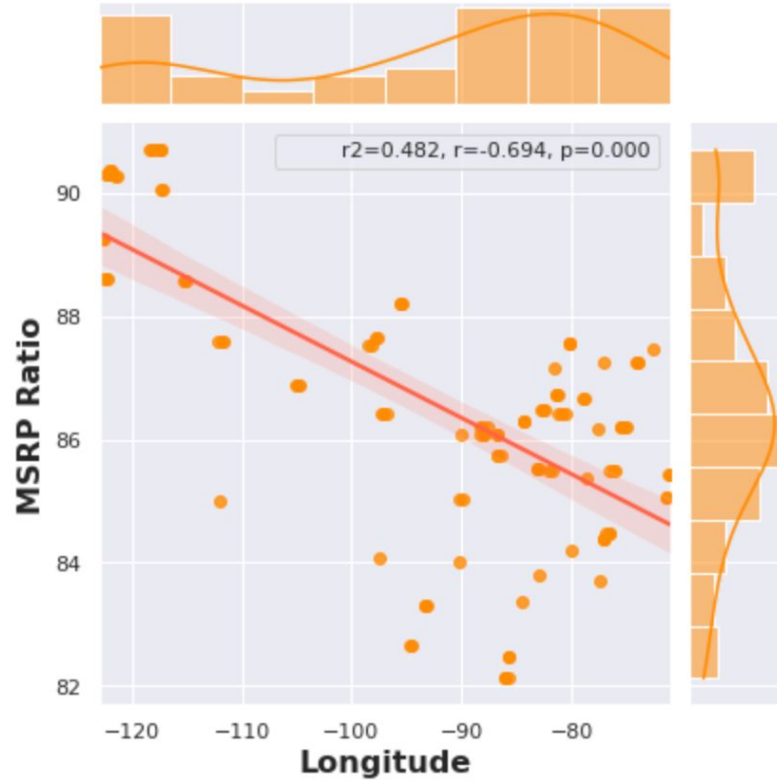
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Pricing Trends by Longitude



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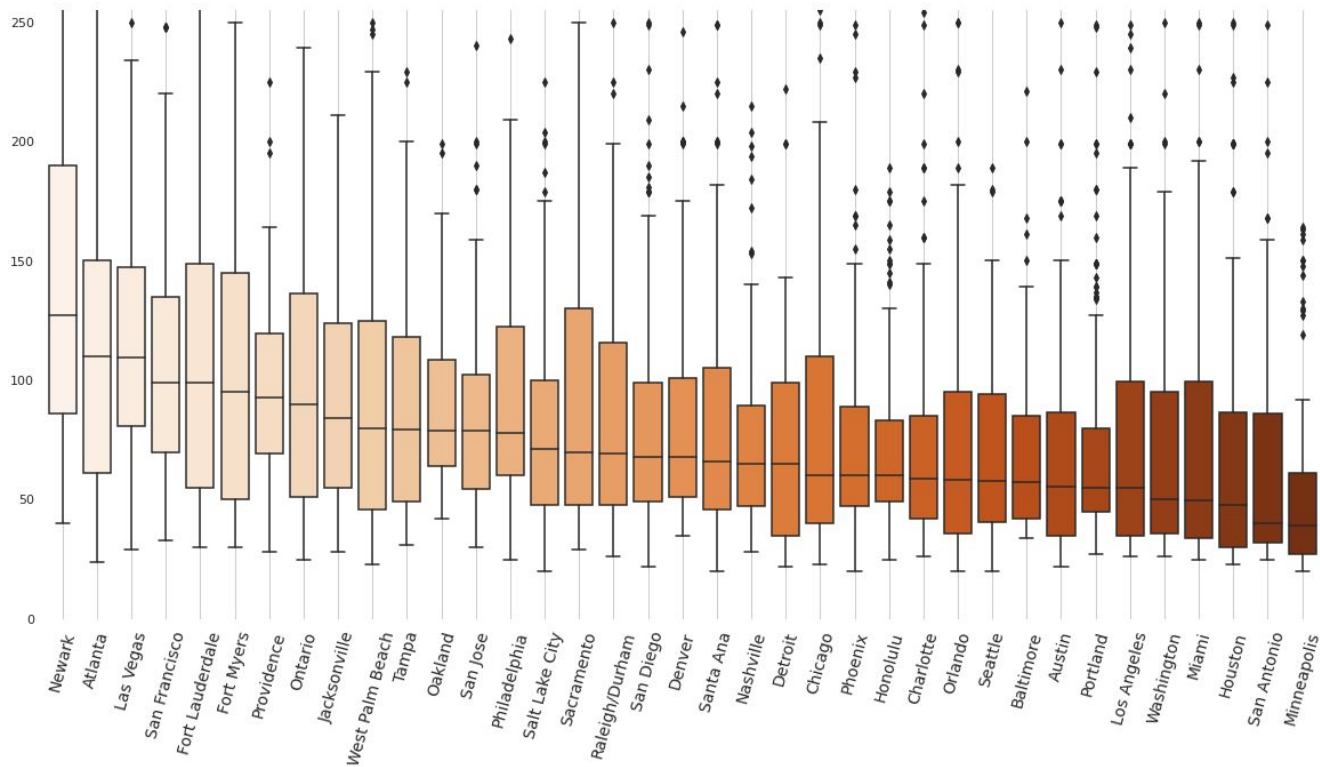
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Daily Car Rental Cost in Airport Cities



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Conclusions

Prices seem to rise the further west we go ($r^2 = 0.48$)

City density and population seems to not explain much of the difference in prices ($p > 0.1$)





04 Q&A

Thanks for listening!