

IMPACT OF CAR FEATURES

PROJECT DESCRIPTION

- Overview :- This project explores how different car features impact pricing and profitability in the automotive industry. Using data on car models, specifications, and market trends, it aims to provide insights to support better pricing and product development decisions.
- Business Problem :-In today's dynamic automotive market, manufacturers must understand consumer preferences and pricing strategies to maximize profits. This project aims to identify the optimal balance between customer needs, feature offerings, and profitable pricing.

APPROACH

- Data sources :- The main source of data for this project is a dataset called "Car_Data" which was obtained from Trainity. This dataset includes details about over 11,000 car models, such as their make, model, year, engine specifications, transmission type, market category, fuel efficiency, popularity, and manufacturer's suggested retail price(MSRP).
- Data Cleaning and Preprocessing :-Before starting the analysis, I cleaned and processed the data to ensure its accuracy and reliability. This involved tasks like handling missing values, removing duplicates, standardizing data formats, and addressing any inconsistencies or errors in the dataset.

APPROACH

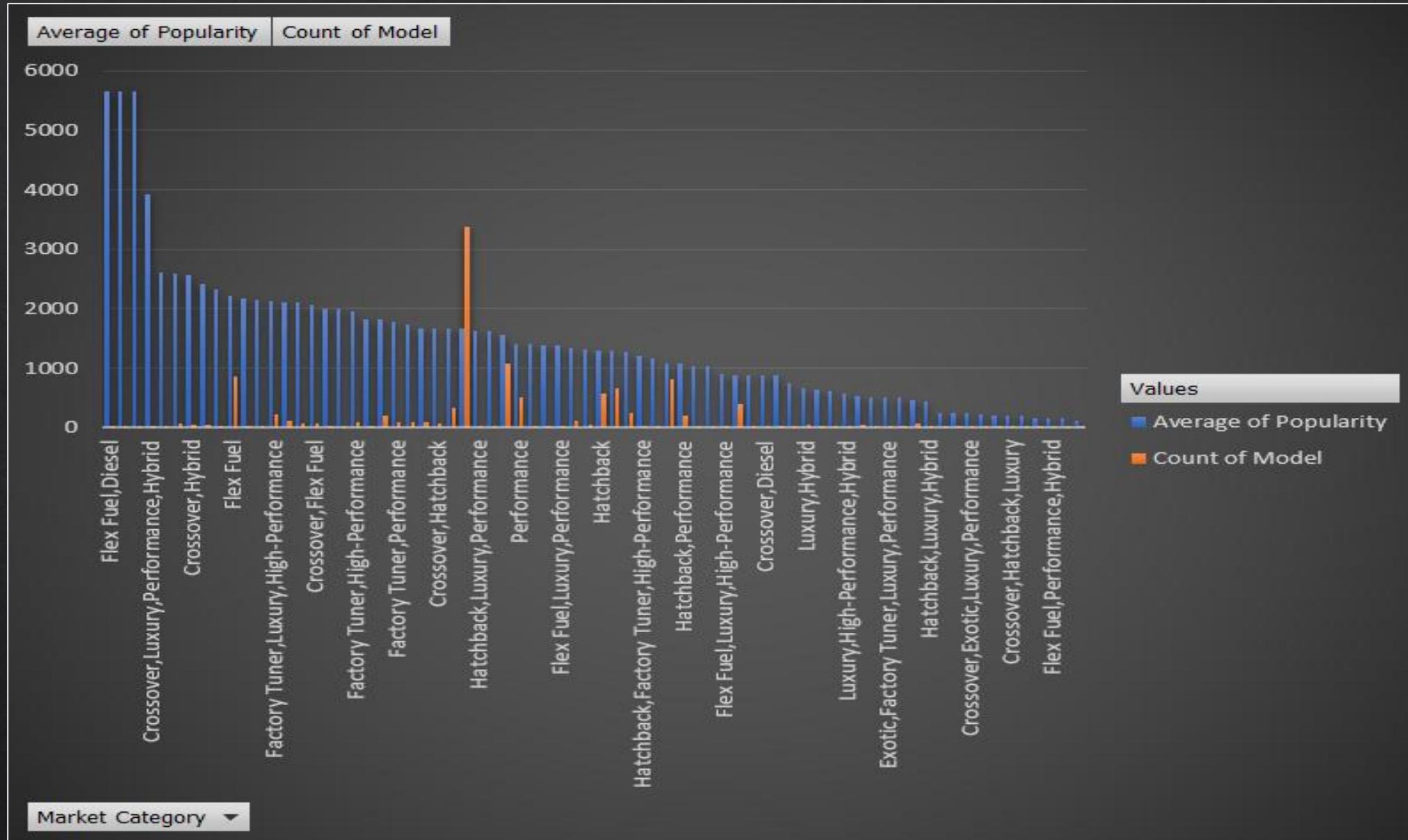
- Analytical Methods :- I used various analytical methods, including descriptive statistics, data visualization, regression analysis, and correlation analysis. These methods helped us uncover patterns, relationships, and insights within the dataset.
- Modeling Techniques :- Regression analysis was utilized to identify the key factors influencing car prices. This technique helps quantify the relationship between independent variables (car features) and the dependent variable (car price). By examining coefficient values, we assessed the relative importance of different features.

TECH-STACK USED

Our primary tool for analysis was Microsoft Excel because of its versatility in handling data manipulation, analysis, and visualization tasks. Excel's built-in functions, pivot tables, and charting capabilities facilitated the exploration and interpretation of the dataset.

INSIGHTS

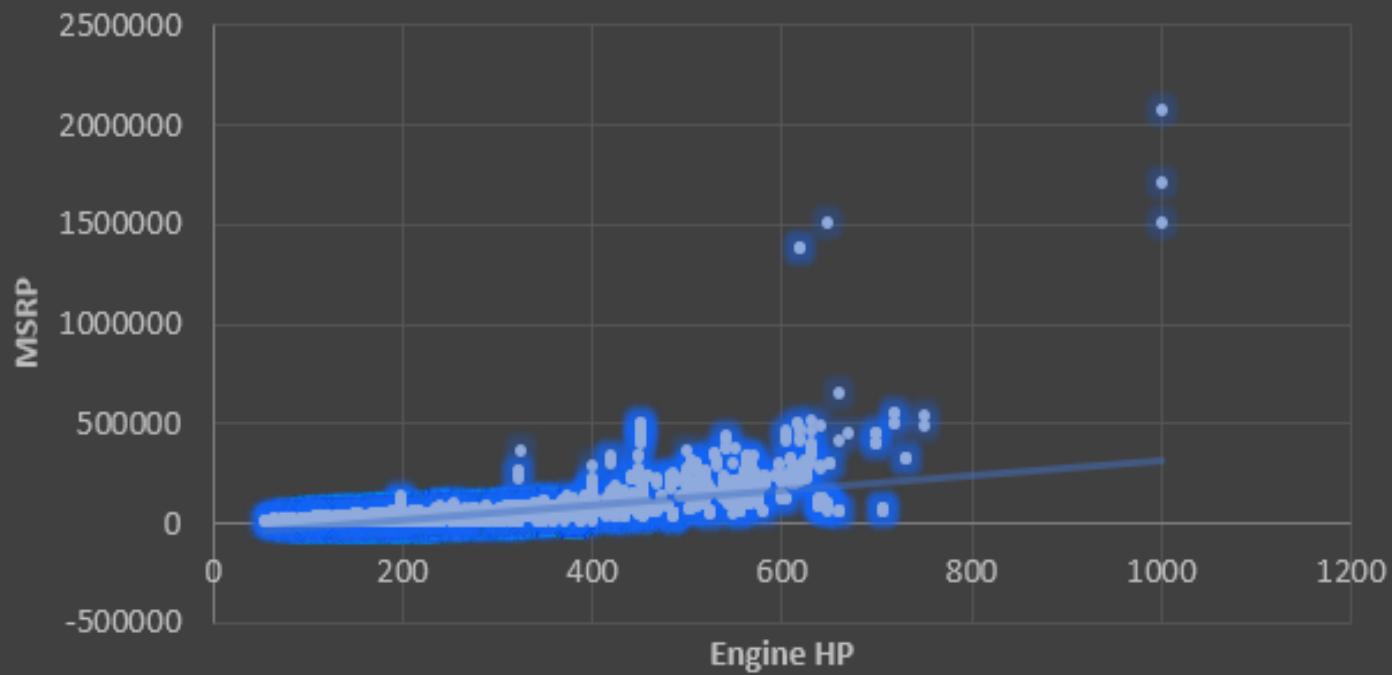
1. How does the popularity of a car model vary across different market categories?



INSIGHTS

2. What is the relationship between a car's engine power and its price?

Relationship between a car's engine power and price

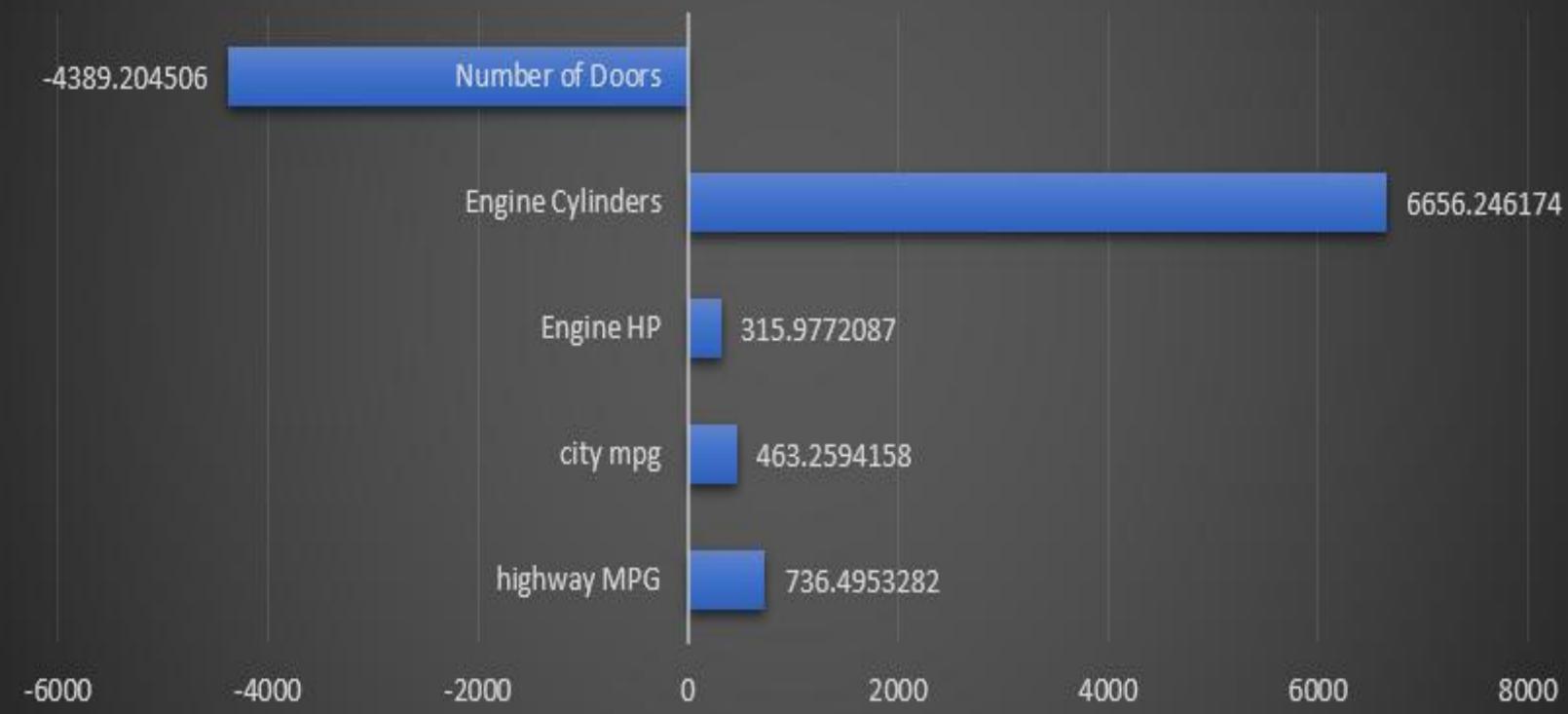


INSIGHTS

3. Which car features are most important in determining a car's price?

Output -: Engine cylinders are the most important feature in determining a car's price.

Relationship of variables with car price



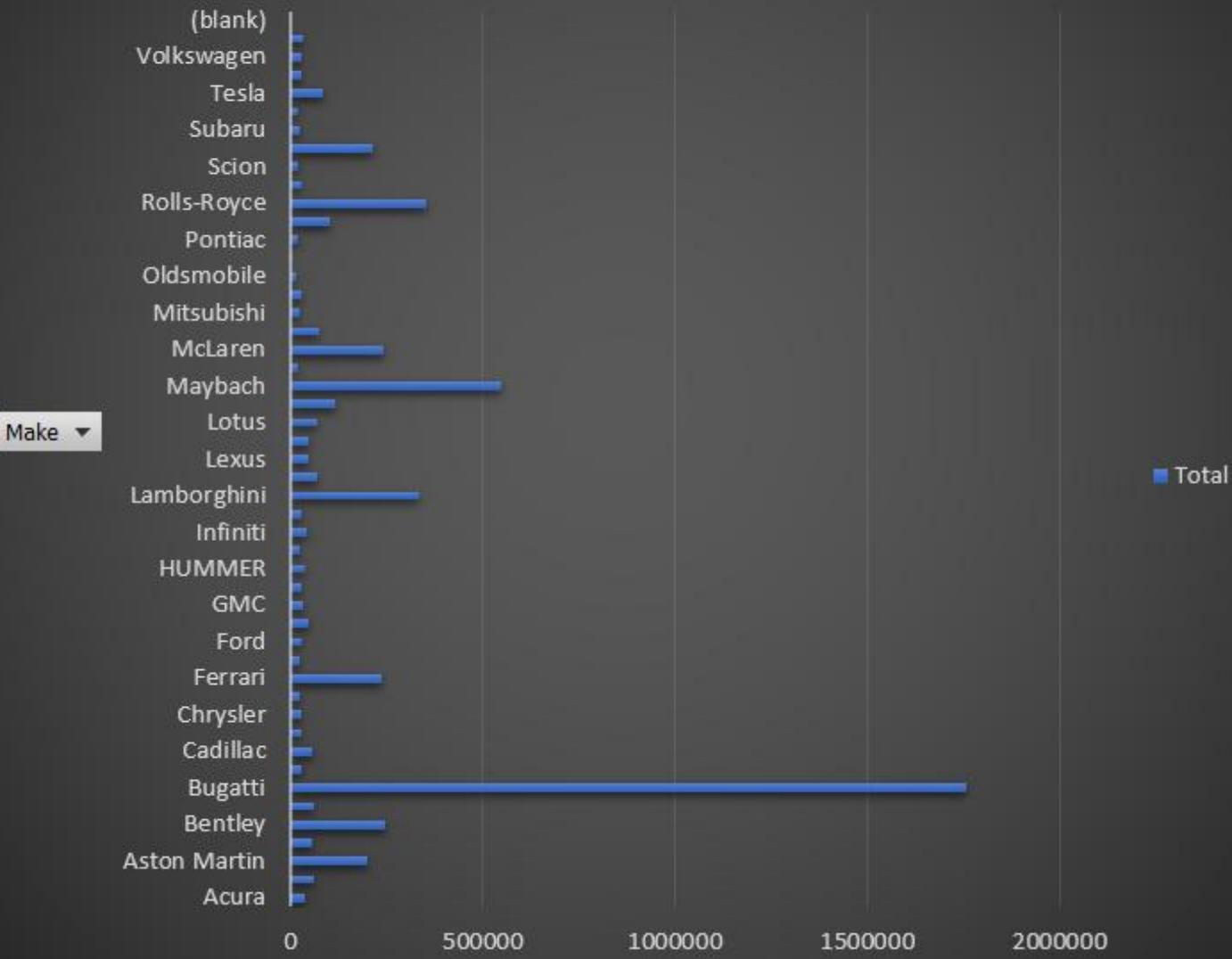
INSIGHTS

4. How does the average price of a car vary across different manufacturers?

Average of MSRP

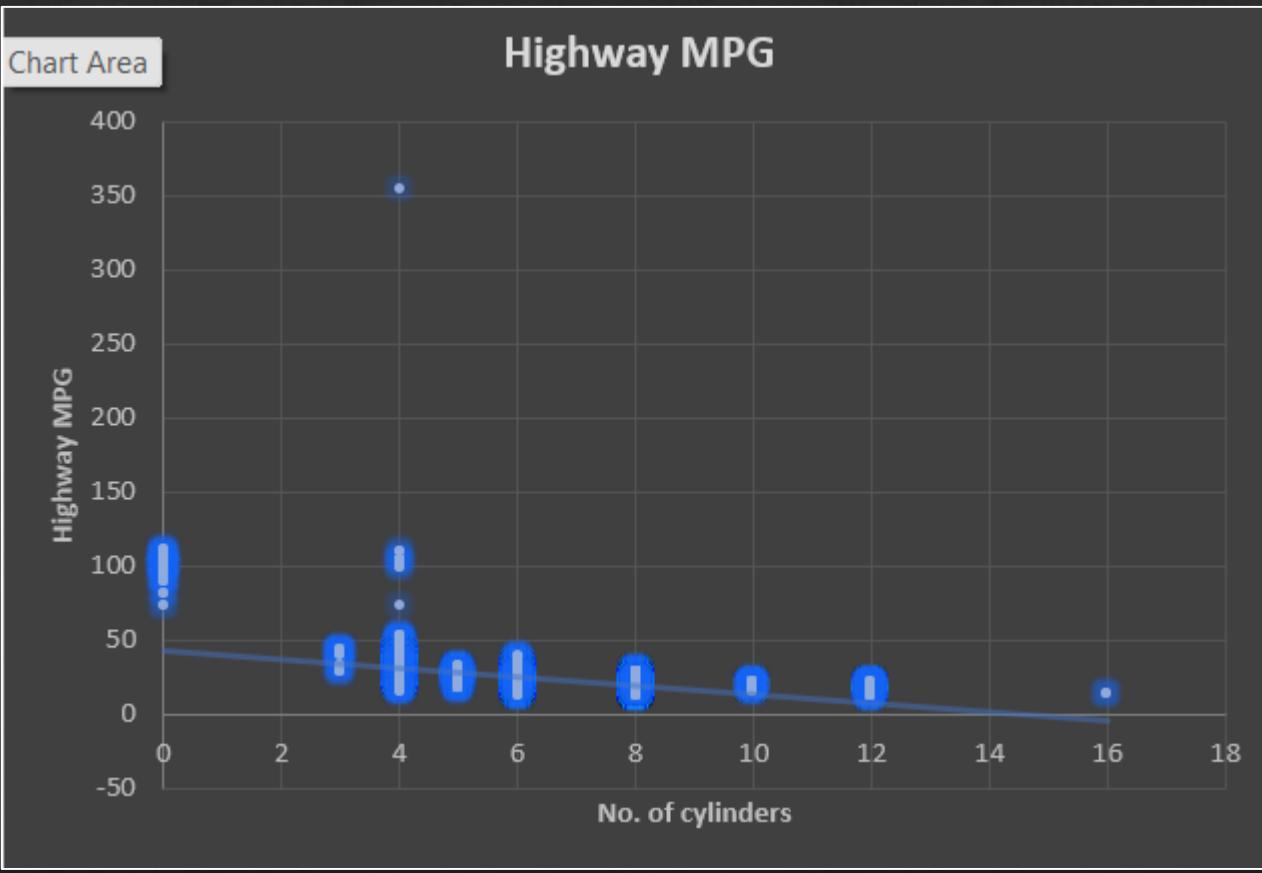
Chart Area

Average Price of a car



INSIGHTS

5. What is the relationship between fuel efficiency and the number of cylinders in a car's engine?

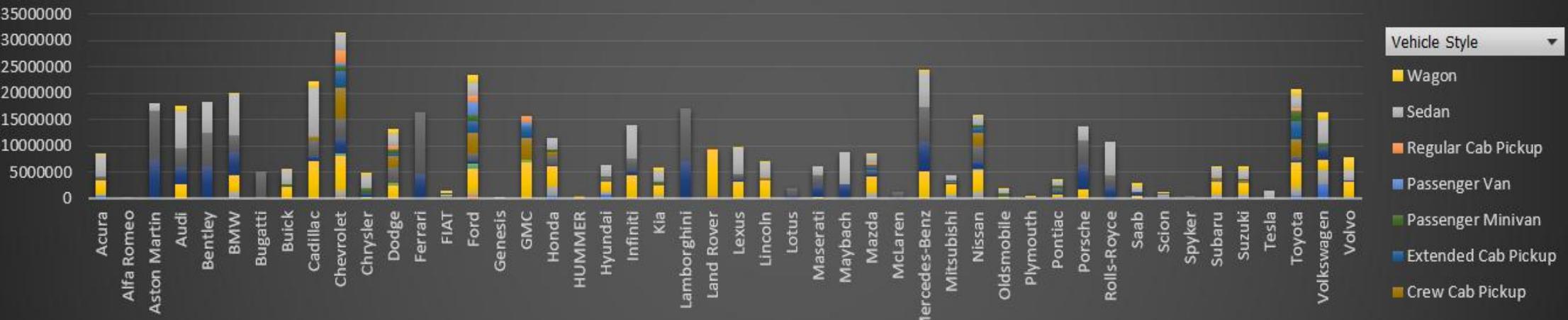


DASHBOARD

1. How does the distribution of car prices vary by brand and body style?

Sum of MSRP

1.1 Distribution of car prices by brand and body style



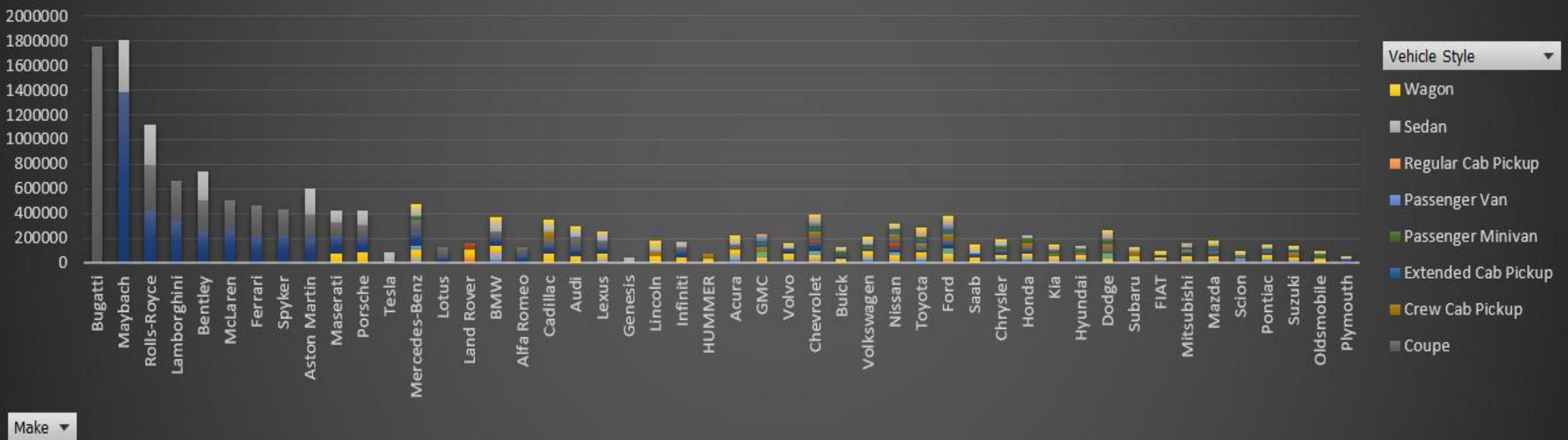
Make ▾

DASHBOARD

2. Which car brands have the highest and lowest average MSRPs, and how does this vary by body style?

Average of MSRP

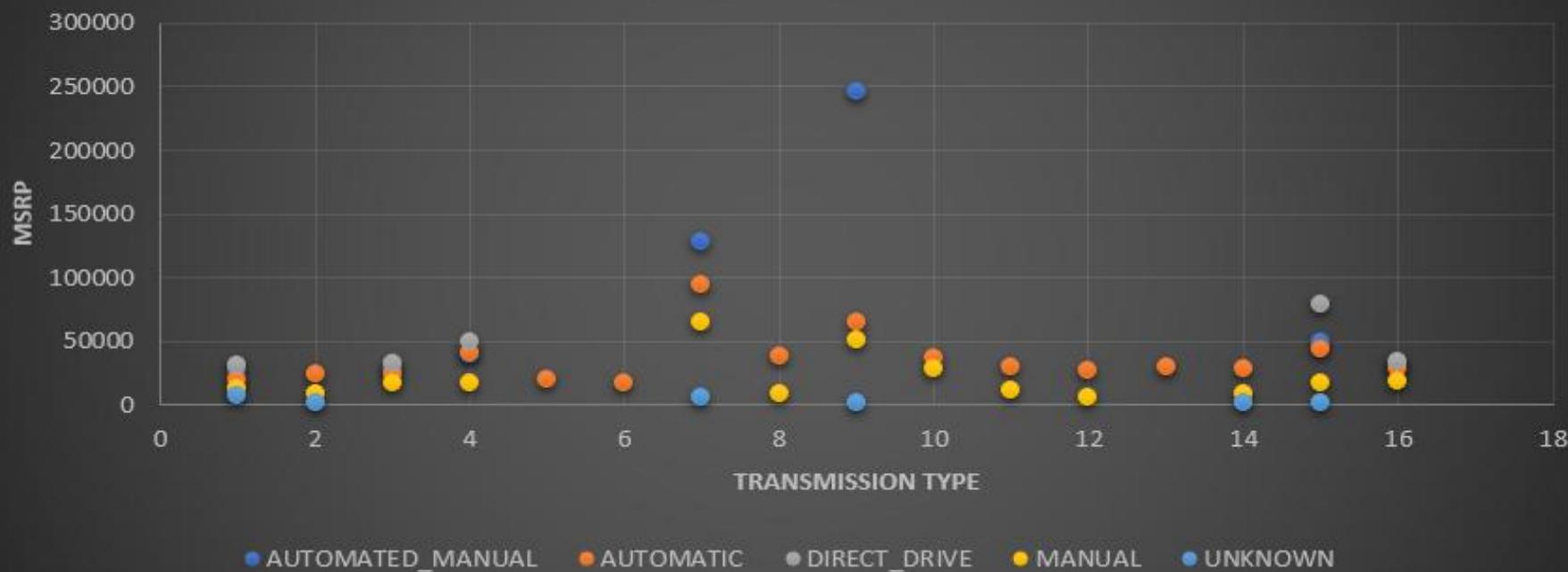
2.2 Car Brands having highest and lowest average MSRPs



DASHBOARD

3. How do the different feature such as transmission type affect the MSRP, and how does this vary by body style?

Relationship between MSRP and Transmission type



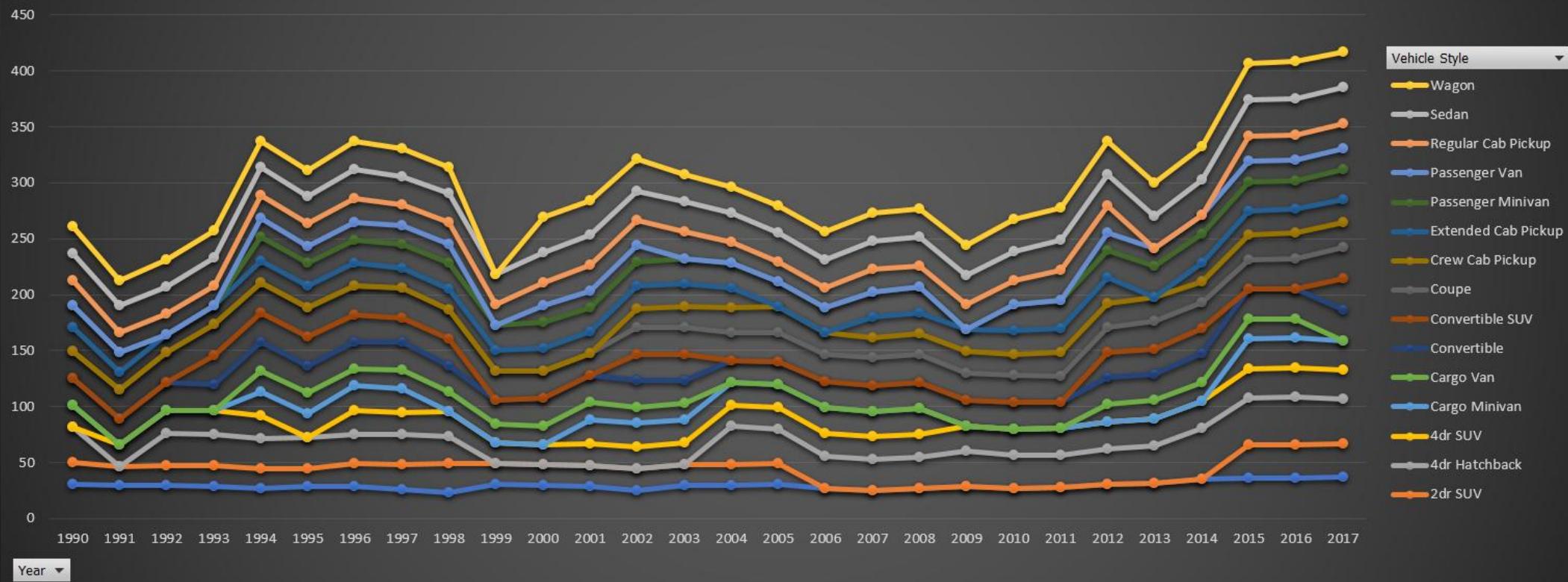
DASHBOARD

4. How does the fuel efficiency of cars vary across different body styles and model years?

Chart Area

highway MPG

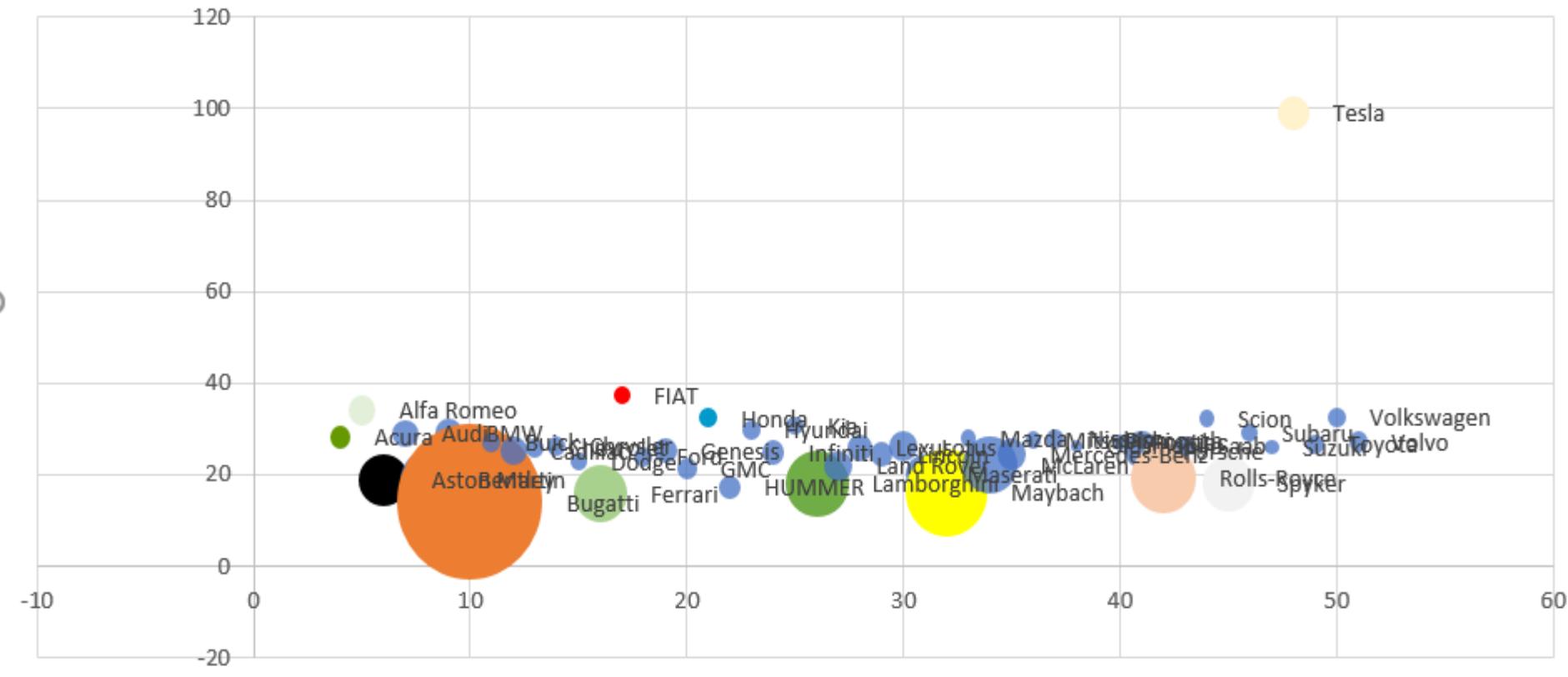
4.4 Fuel Efficiency of cars vary across different body styles and model years



DASHBOARD

5. How does the car's horsepower, MPG, and price vary across different Brands?

Car's Horsepower, MPG, and price across different brands



RESULT

Pivot tables, scatter plots, and bar charts were used to present analysis results. These visual tools enhance clarity, making it easier for stakeholders to interpret insights and support informed decision-making.

The analysis offers valuable insights into consumer preferences, pricing patterns, and market trends. These findings can help car manufacturers make strategic decisions to boost profitability and stay competitive.

Overall, the insights gained from this analysis provide valuable guidance for car manufacturers seeking to optimize pricing and product development strategies in a rapidly changing market landscape.

Excel sheet link

https://docs.google.com/spreadsheets/d/1ReLi986g0zQP1M1KYPOGg6RIzoVj_sRM/edit?usp=drive_link&ouid=114615499307515143340&rtpof=true&sd=true