

Car Features and Pricing Analysis Report

Project Description

Overview: This project dives into how different features in cars—like engine horsepower, fuel type, and body style—affect their pricing (MSRP) and popularity. The goal is to help car makers and marketers understand what features customers care about and how these influence the price.

Business Problem: Car companies often wonder what truly drives car pricing. Are customers paying more for performance, fuel efficiency, or brand? This project tries to answer that by analyzing patterns across thousands of car models.

Data Source: The dataset used was titled 'Car Features and MSRP', taken from Kaggle. It includes over 11,000 records and covers attributes like brand, year, engine details, MPG ratings, popularity, and MSRP.

Data Cleaning: To prepare the data, duplicates were removed, missing values were handled (either filled with averages or removed), and numerical columns were formatted correctly. A few new columns like average MPG were also added.

Assumptions: Missing values were assumed to follow trends from similar cars. Popularity was treated as a rough measure of demand. Regression was done using Excel's built-in tools.

Approach

Methods Used: The analysis involved descriptive statistics, charts, trend lines, and basic regression. Excel's pivot tables and scatter plots made it easy to explore patterns.

Why These Methods: These tools allow for quick visual and numerical summaries. They are easy to interpret and well-suited for this kind of exploratory analysis.

Modeling: We used Excel's linear regression features to see how different factors like HP and cylinders affect price.

Challenges: Excel is great for exploration but limited for complex modeling. Also, some features might influence each other, which makes it tricky to isolate effects.

Tech-Stack Used

Tools: The entire analysis was done in Microsoft Excel.

Why Excel: It's user-friendly, widely available, and has built-in tools that work well for quick analysis.

Features Used: We used functions like AVERAGEIFS, COUNTIF, and created pivot tables, line charts, bubble plots, and scatter plots.

Insights

Findings: Cars with higher horsepower are generally priced higher, but they tend to be less fuel efficient. Body styles like convertibles and coupes usually cost more. Brands like Tesla and Porsche have the highest price tags.

Business Relevance: These findings can guide how car companies price their vehicles and what features to promote in different market segments.

Recommendations: Focus on fuel-efficient engines in popular segments and reserve high-performance features for luxury lines. Monitor trends in popularity for better planning.

Results

Visualizations: Charts included MSRP by brand, HP vs MSRP scatter plots, fuel efficiency comparisons, and popularity trends.

Discussion: Visuals clearly showed which features influence pricing the most and how they vary by brand and style.

Limitations: The data didn't cover resale value, location-wise pricing, or promotional offers. Popularity was also not clearly defined.

Future Work: Use tools like Python or Power BI for deeper analysis, or explore how actual selling price compares with MSRP.

Drive Link:

[Project Analyzing the Impact of Car Features on Price and Profitability](#)