

Analysing the Impact of Recession on Automobile Sales

Creating Visualization

This project is set to analyse an historical data of an automobile sales company to derive insight on how sales were affected during times of recession.

The data consists of the following attributes: *(Date, Year, Month, Recession, Consumer Confidence, Seasonality Weight, Price, Advertising Expenditure, Competition, GDP, Growth Rate, unemployment rate, Automobile Sales, Vehicle Type, City)*

The aim is to provide visualisations that interprets findings upon analysing the data and finding how certain factors affects the sales of the automobiles during recession and non recession periods.

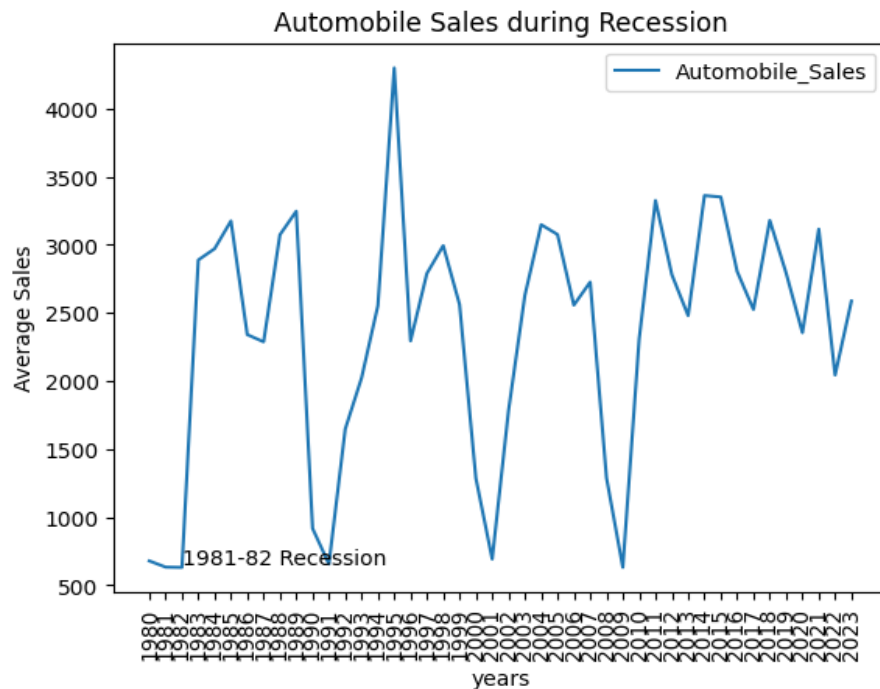
Method used.

- Downloaded an already cleaned dataset which was artificially created for the purpose of the project.
- Developed a Line chart using the functionality of pandas to show how automobile sales fluctuate from year to year.
- Plot different lines for categories of vehicle type and analyse the trend to find out if there is a noticeable difference in sales trends between different vehicle types during recession periods.
- Used the functionality of Seaborn Library to create a visualization to compare the sales trend per vehicle type for a recession period with a non-recession period.
- Used sub plotting to compare the variations in GDP during recession and non-recession period by developing line plots for each period.
- Developed a Bubble plot for displaying the impact of seasonality on Automobile Sales.
- Used the functionality of Matplotlib to develop a scatter plot to identify the correlation between average vehicle price relate to the sales volume during recessions.
- Created a pie chart to display the portion of advertising expenditure of the company during recession and non-recession periods.
- Developed a pie chart to display the total Advertisement expenditure for each vehicle type during recession period.
- Developed a countplot to analyse the effect of the unemployment rate on vehicle type and sales during the Recession Period.

Results and Conclusions

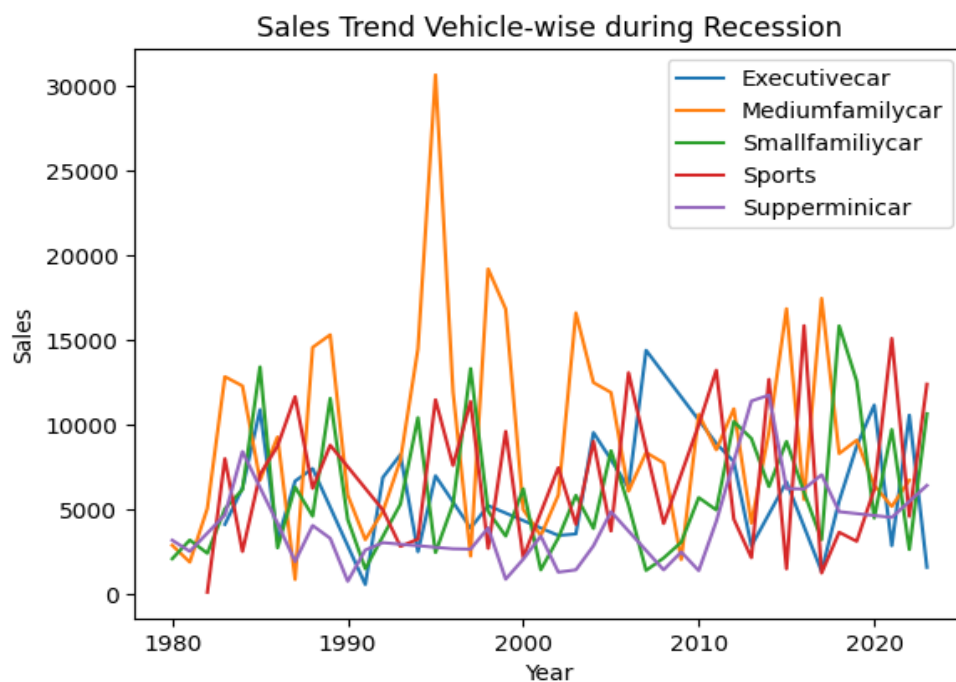
After close analysis of the company's data I made the following conclusions

- The fig below shows how the companies sales fluctuate from year to year pertaining to the range of years understudy.



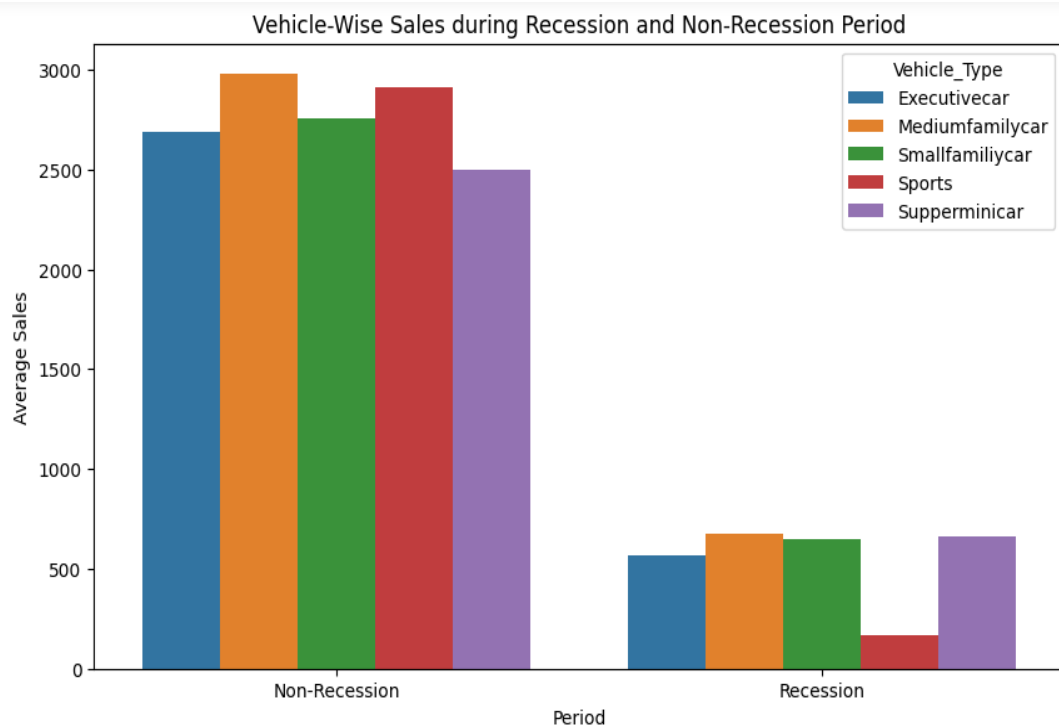
Observation made was that there was a rapid increase in sales from 1991 to 1995

- To find any noticeable difference in sales trends between different vehicle types during recession periods, the visualization below was created.



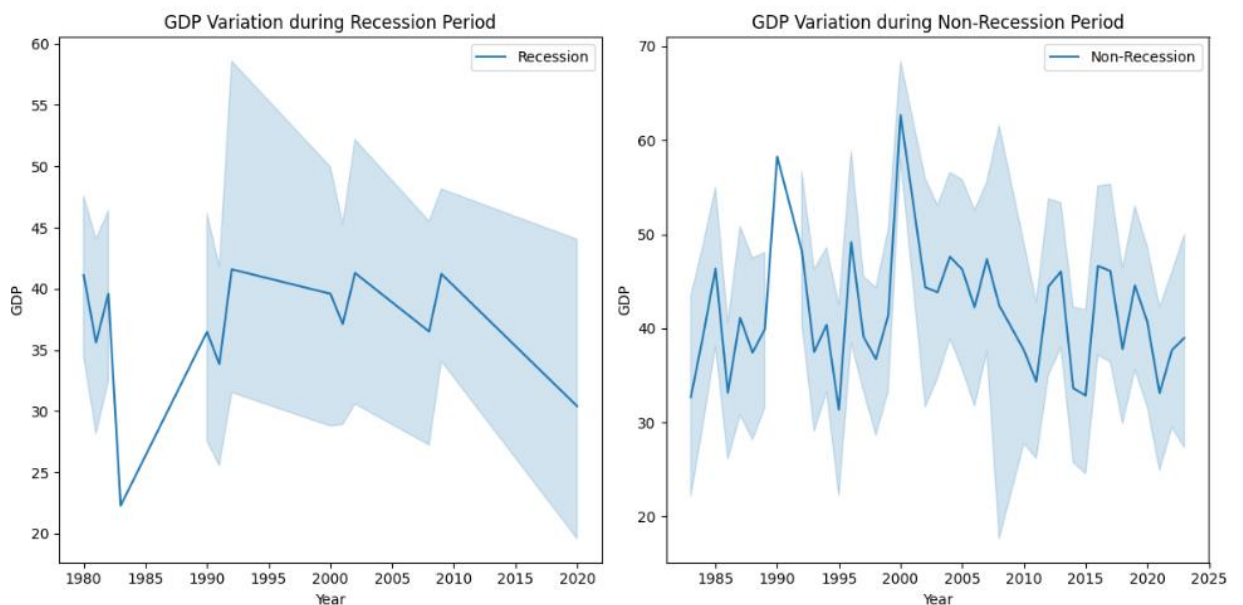
From this plot, we can understand that during recession period, the sales for 'Sports type vehicles' declined because of the high cost of the vehicle. while sales of the superminicar and smallfamilycar increased.

- The graph below indicate the comparison of the sales of different vehicle types during a recession and a non-recession period.



From this plot, we can understand that there is a drastic decline in the overall sales of the automobiles during recession.

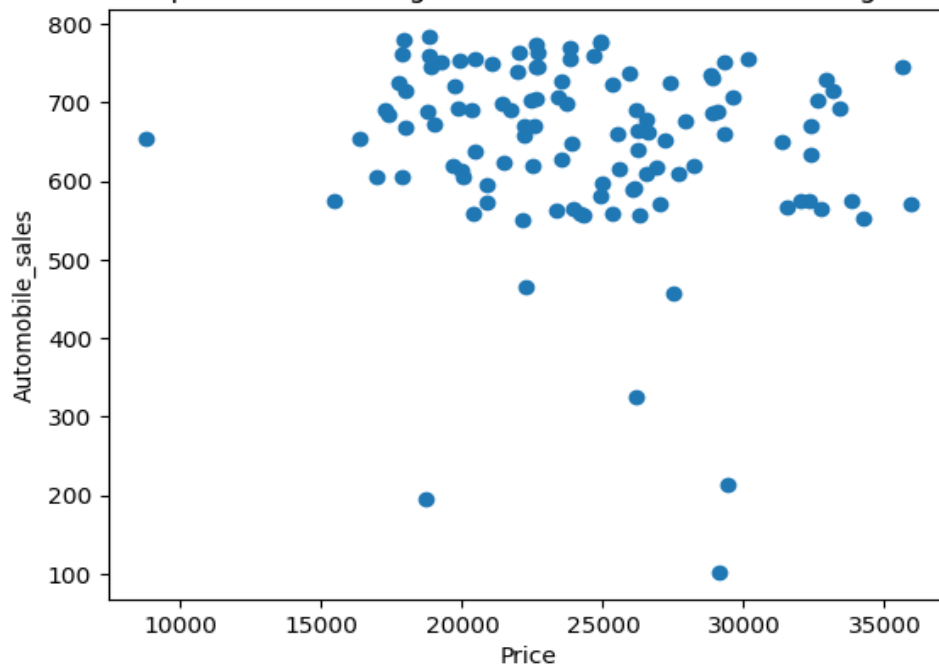
- Now I go ahead to Compare the variations in GDP during recession and non-recession in the below diagram.



From this plot, it is evident that during recession, the GDP of the country was in a low range, might have affected the overall sales

- Identifying the correlation between average vehicle price and the sales volume during recessions.

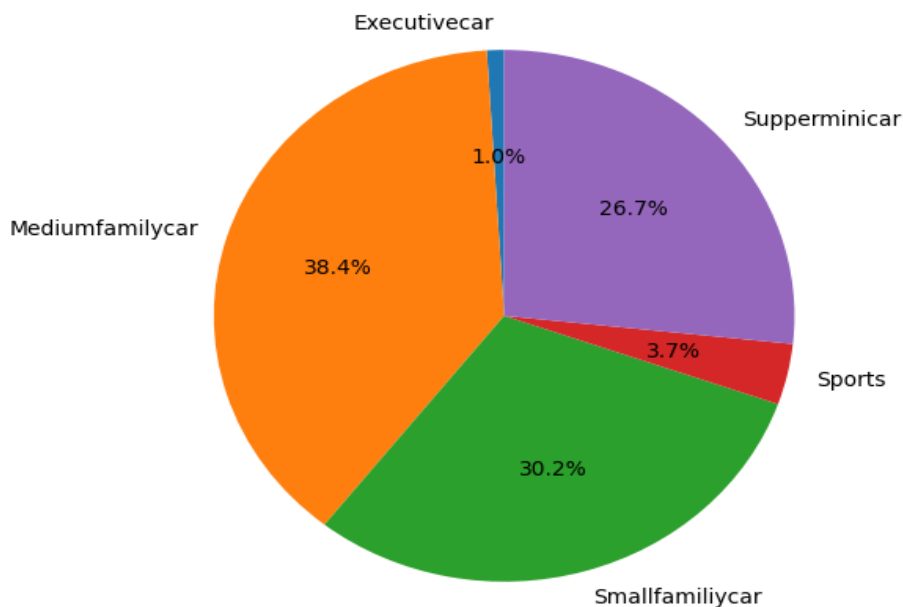
Relationship between Average Vehicle Price and Sales during Recessions



There is not much correlation

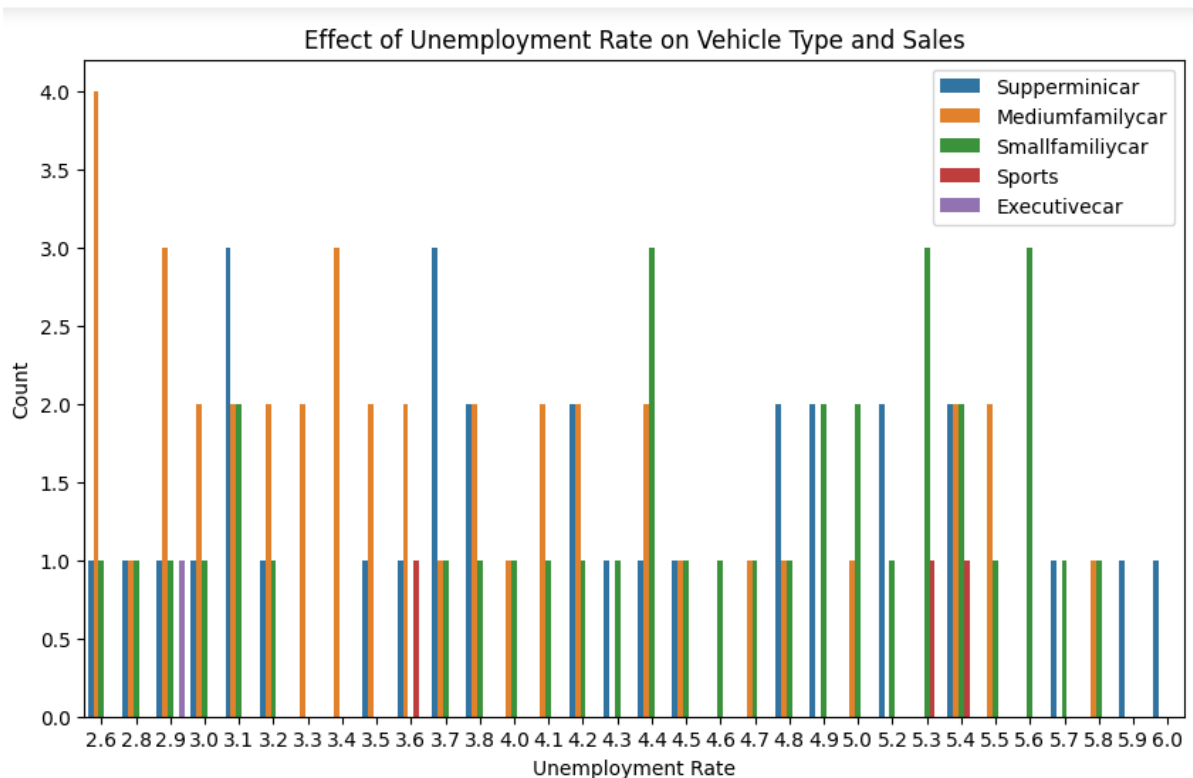
- Displaying and analysing the total Advertisement expenditure for each vehicle type during recession period.

Share of Each Vehicle Type in Total Sales during Recessions



From the chart above,during recession the advertisements were mostly focused on low price range vehicle

- Analyzing the effect of the unemployment rate on vehicle type and sales during the Recession Period



During recession, buying pattern changed the sales of low range vehicle like superminicar, smallfamilycar and Mediumminicar

Recommendation

- During analysis it is noticeable that sales were significantly low during recession period.
- The GDP is a factor that affected sales during the recession periods therefore working on raising the GDP will like raise the sales of the vehicles
- There is little to no relationship between the vehicle prices and sales hence it should not be an area of focus
- Increasing unemployment rate affects the sales of the low range vehicles like superminicar, smallfamilycar and Mediumminicar hence more effort should be placed on the sales of such vehicles during those times.