



Data visualization

Group Project
The car market of Armenia



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Introduction

Dataset 1: Scrapped from Hay.car.am

Dataset 2 and 3: Downloaded from Kaggle
(ARM cars and US cars)

Dataset 4: Created for Car maker brands and
their country of origin



Available properties:

- maker
- model
- creation_date
- production_year
- condition
- mileage
- transmission
- side
- color
- price_int





Hypothesis

1

**Mercedes-Benz
is the most
practical choice
in the Armenian
car market.**

2

**Armenians exhibit a
higher inclination
towards vehicles
manufactured in
Germany compared
to cars produced in
other countries**

3

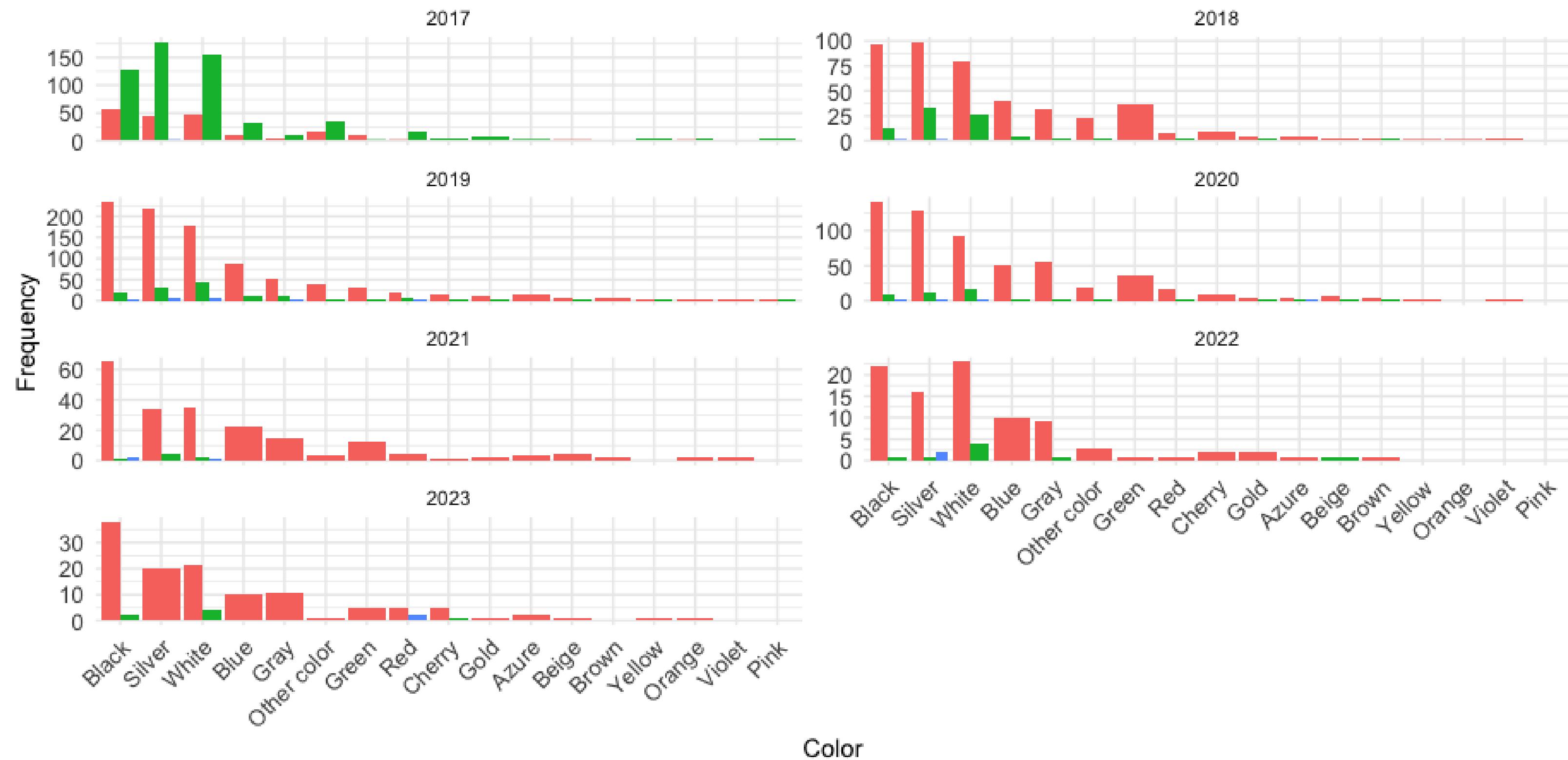
**The market of
Armenian cars are
significantly
different from US
market**

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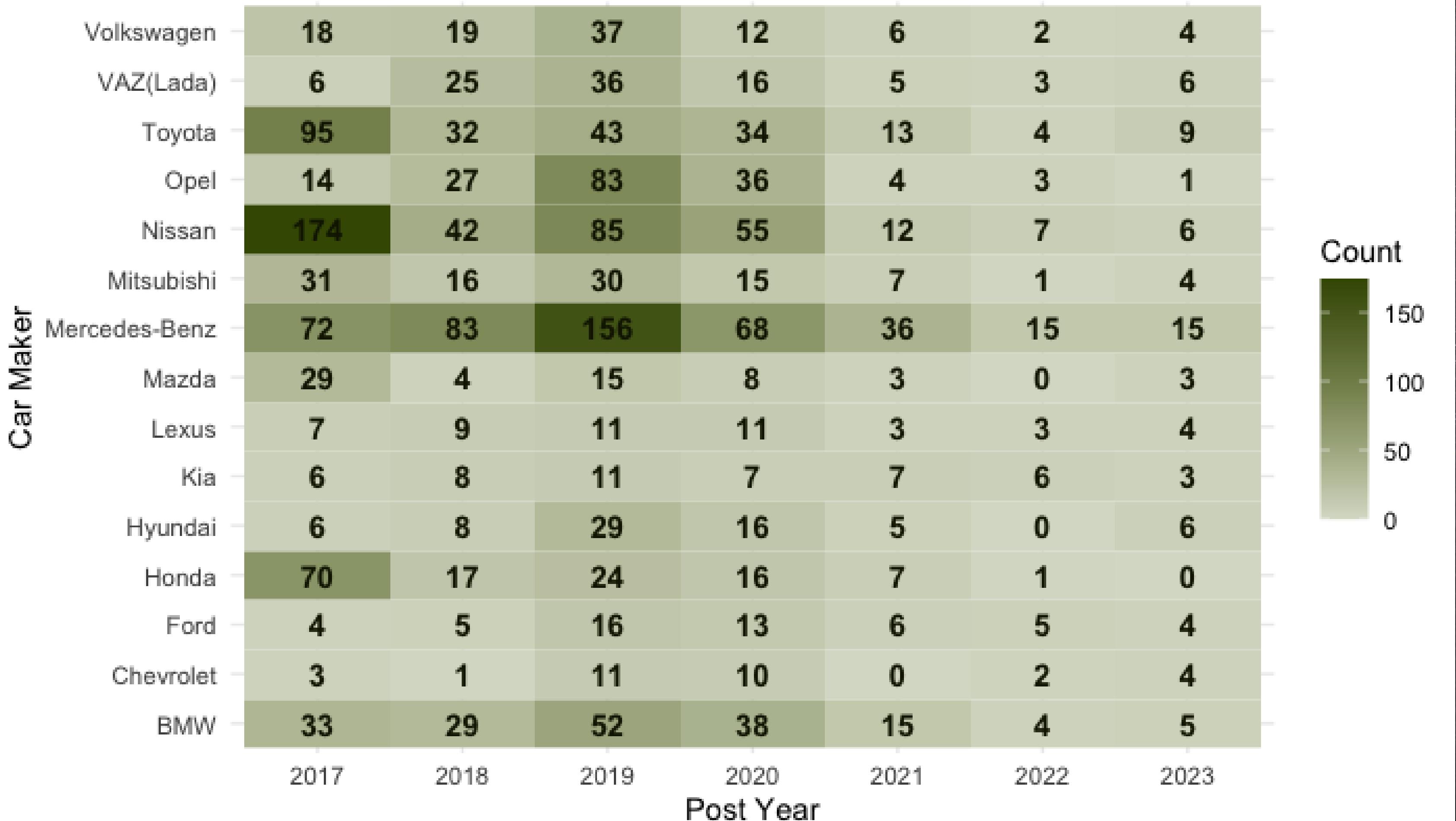
Mercedes-Benz is the most practical
choice in the Armenian car market.

Bar Plot of Color Frequencies by the Side of the Wheel over the Years

Side of the Wheel Left Right Right to Left

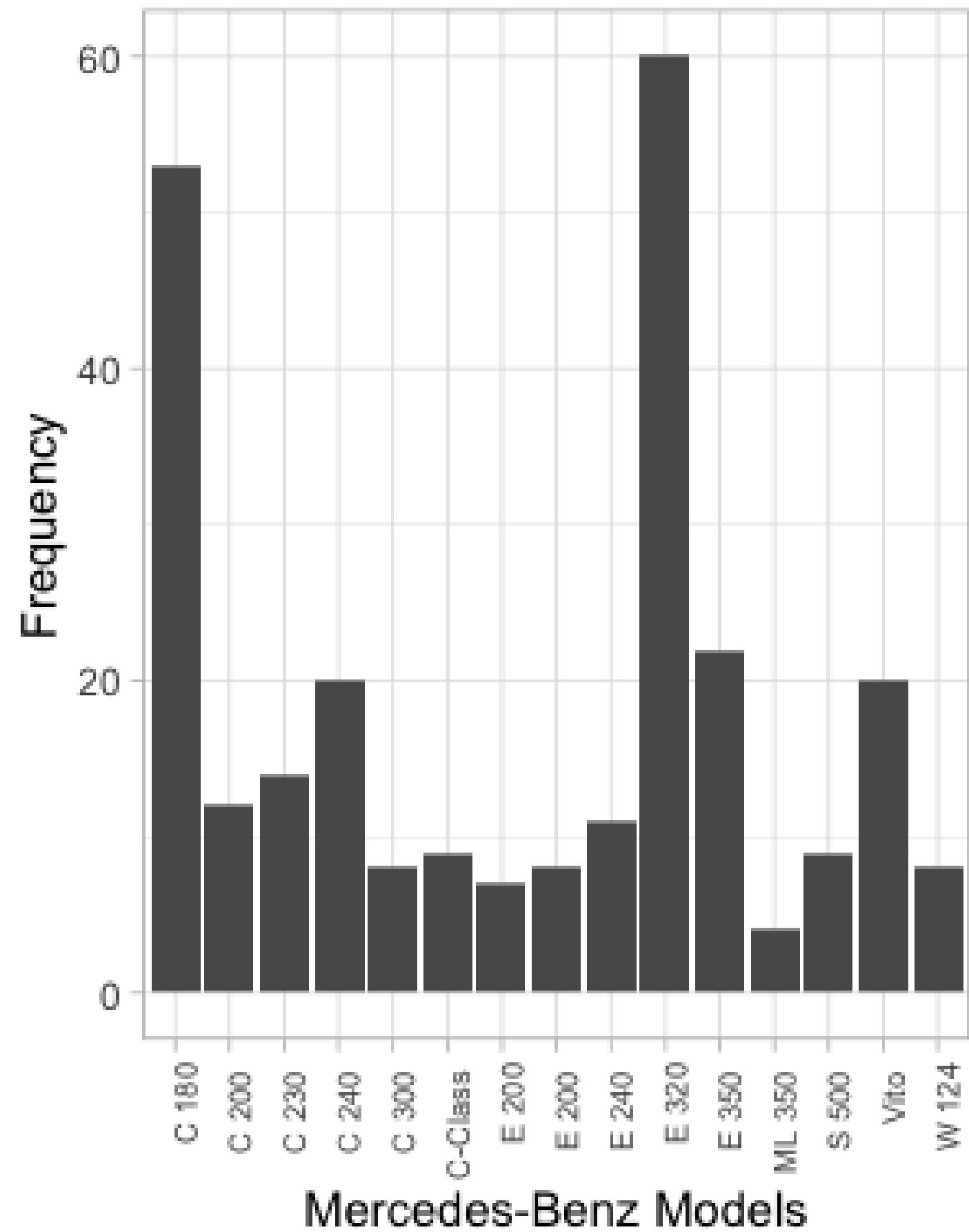


Car Maker vs Post Year - Heatmap

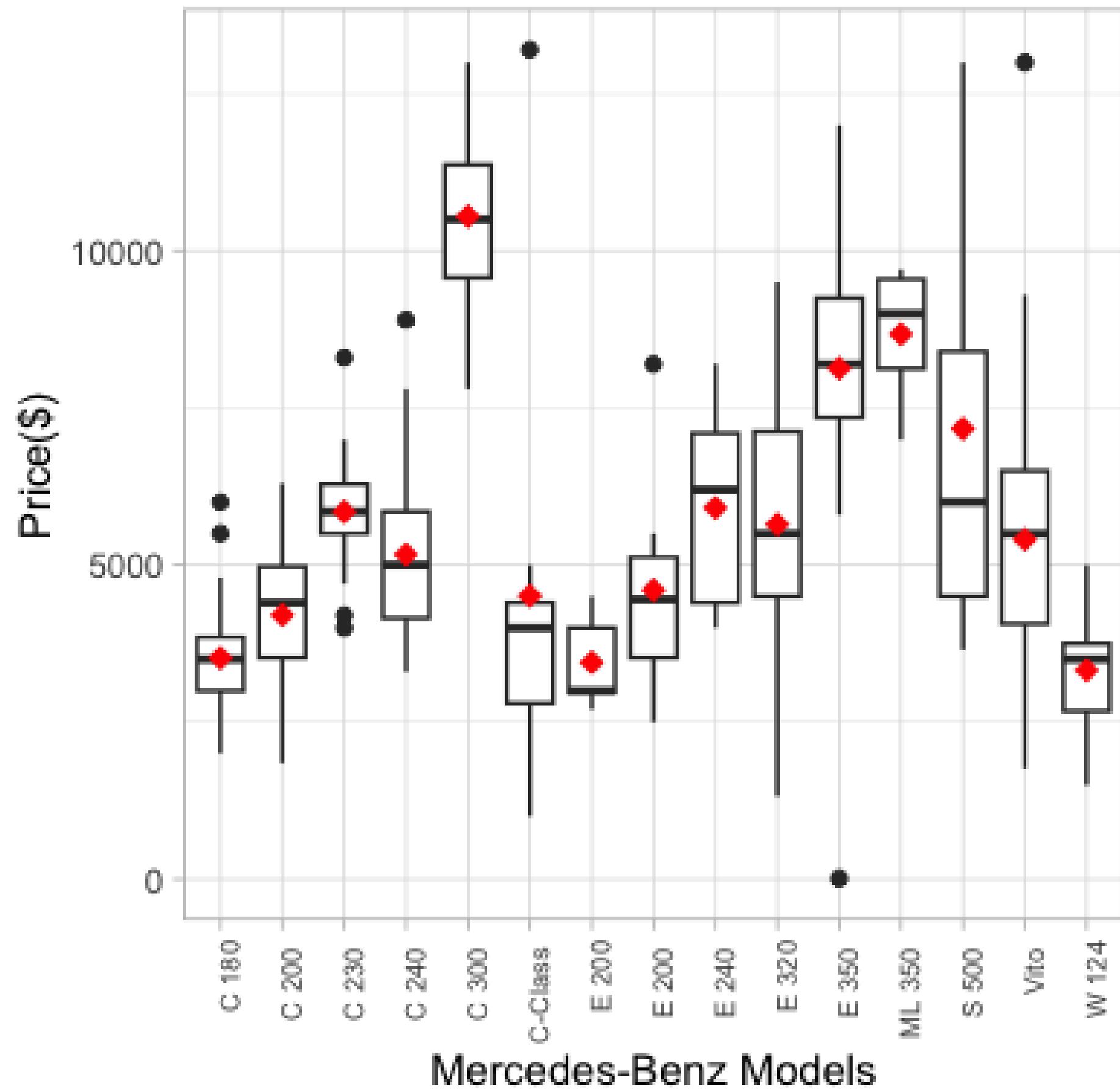


Frequency and Price of Top 15 Mercedes-Benz Models

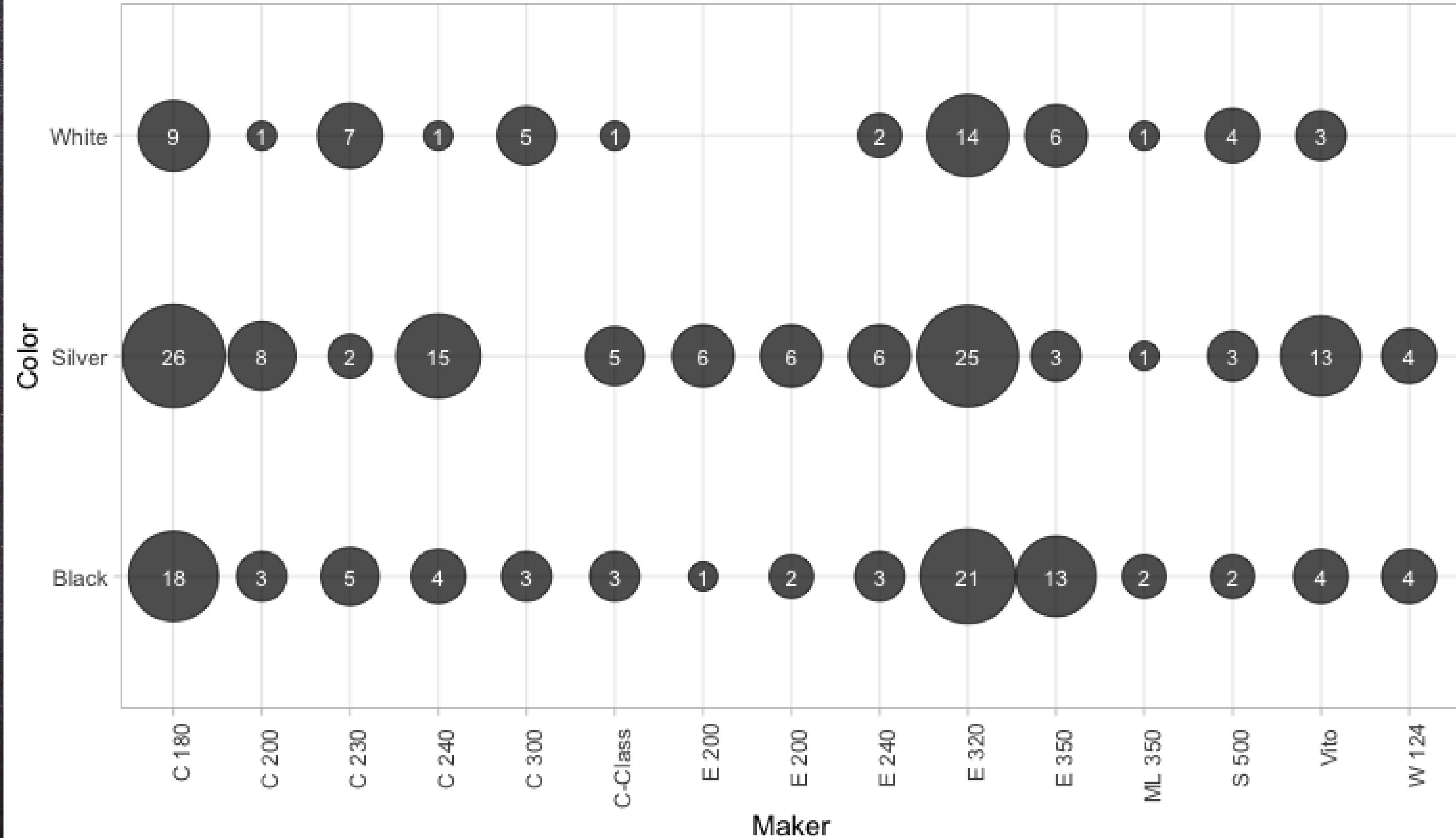
Frequency of Models



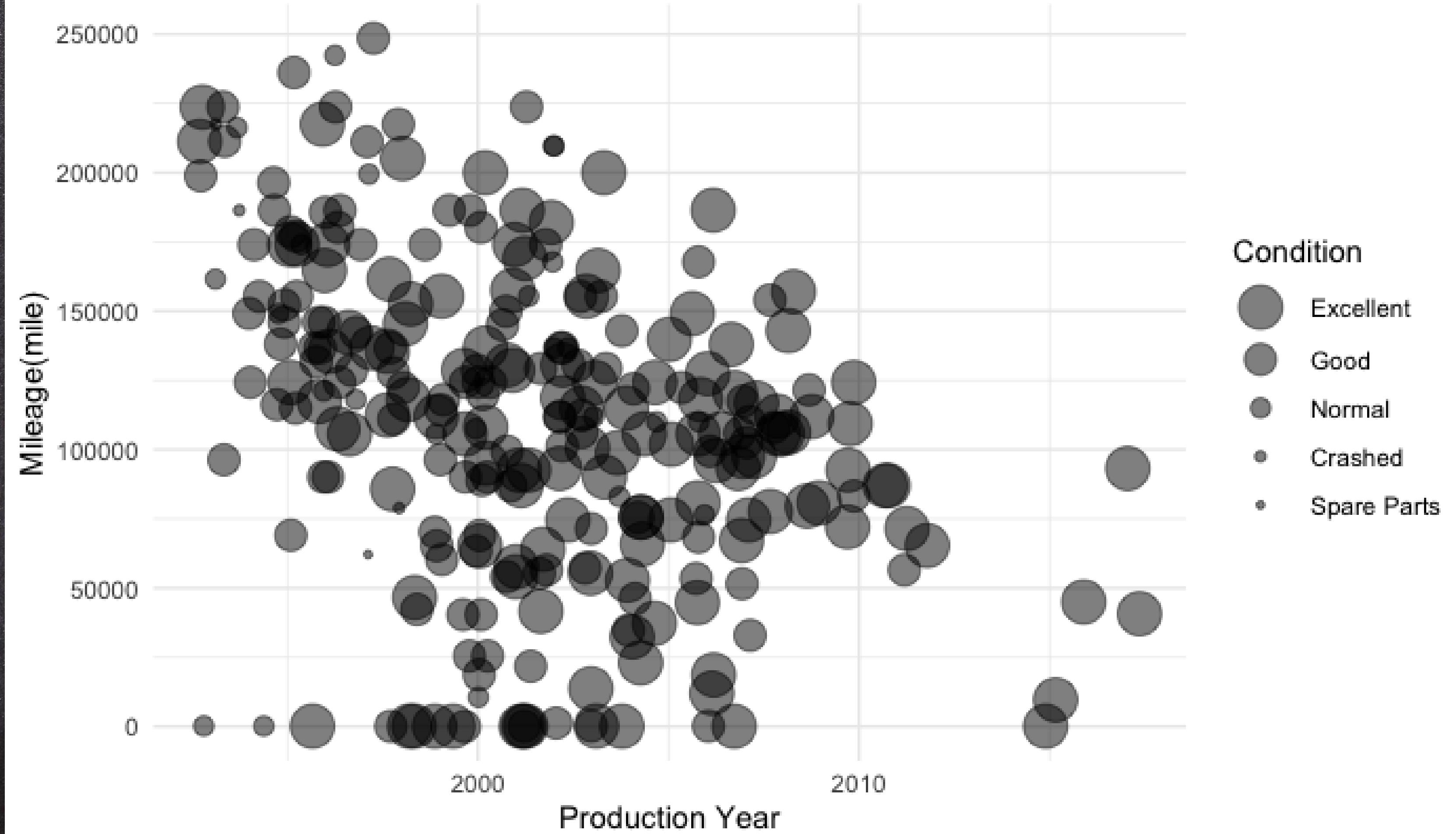
Price of Models



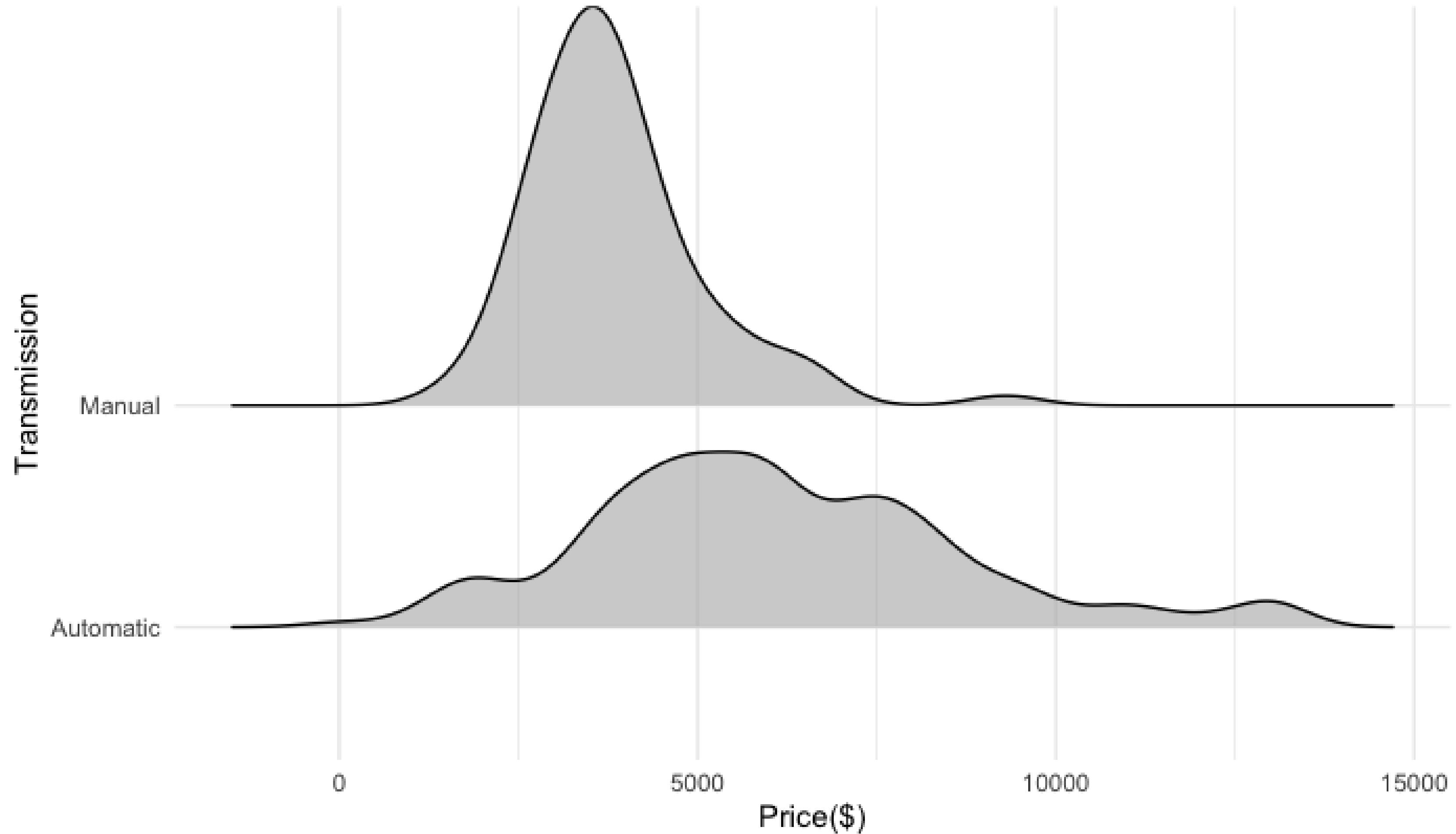
Bubble Plot for Top 15 Mercedes-Benz Models by Color



Scatter Plot of Production Year vs Mileage with Condition



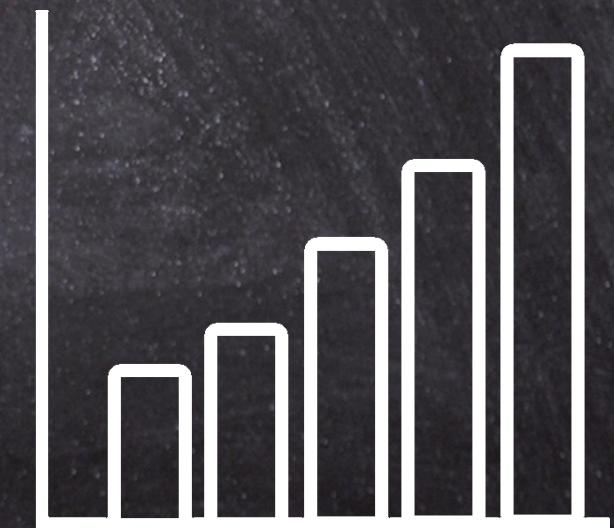
Ridge Plot of Transmission vs Price





Hypothesis conclusion

To sum up, Armenians are more inclined to sell left-sided black, white, and silver cars. Moreover, Mercedes- Benz models are prominent in the market and have a wide range of prices and relatively less driven cars. As a result, Mercedes-Benz is considered a very practical, affordable, and comfortable choice in the Armenian market by considering many factors.

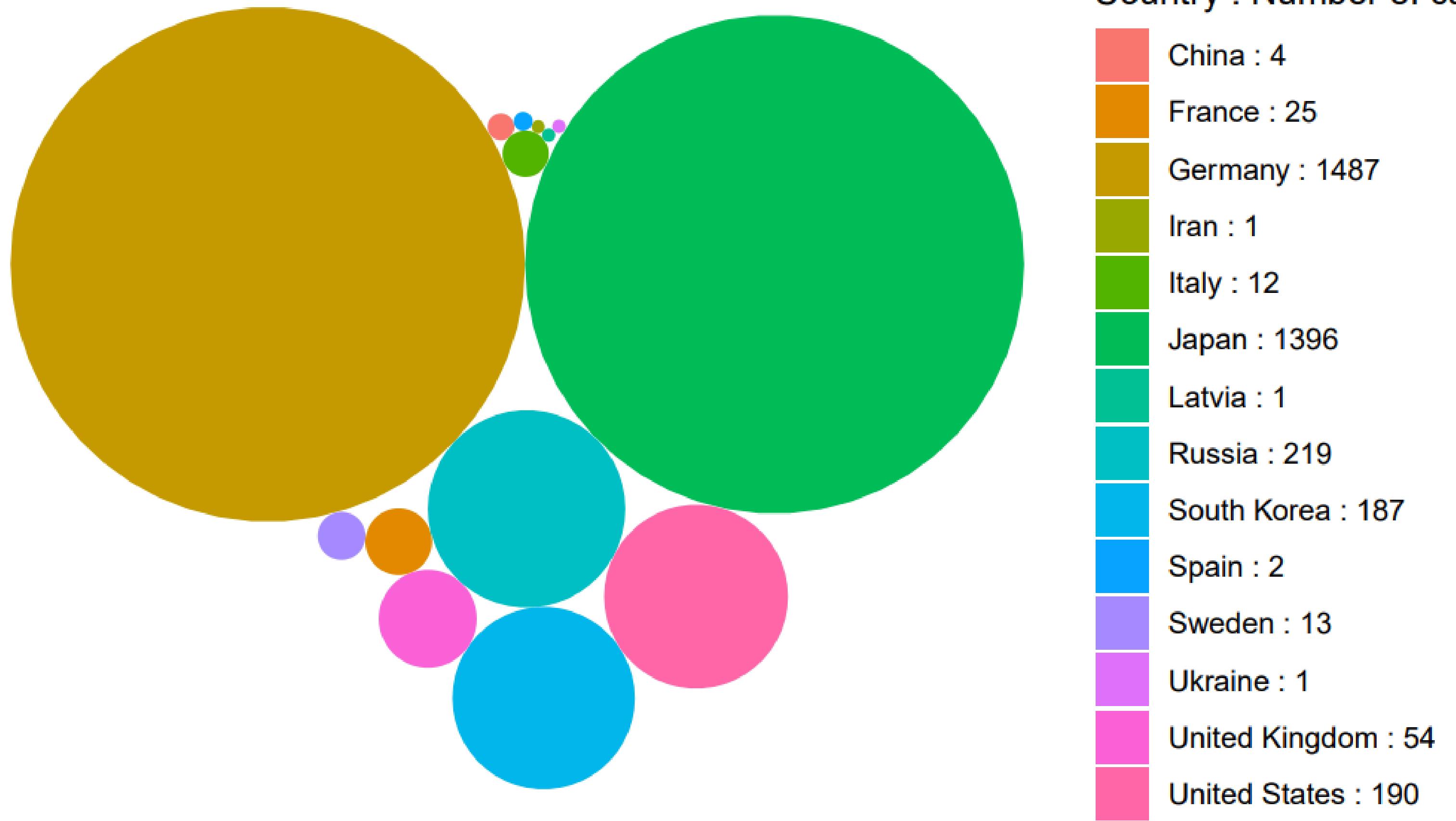


#2

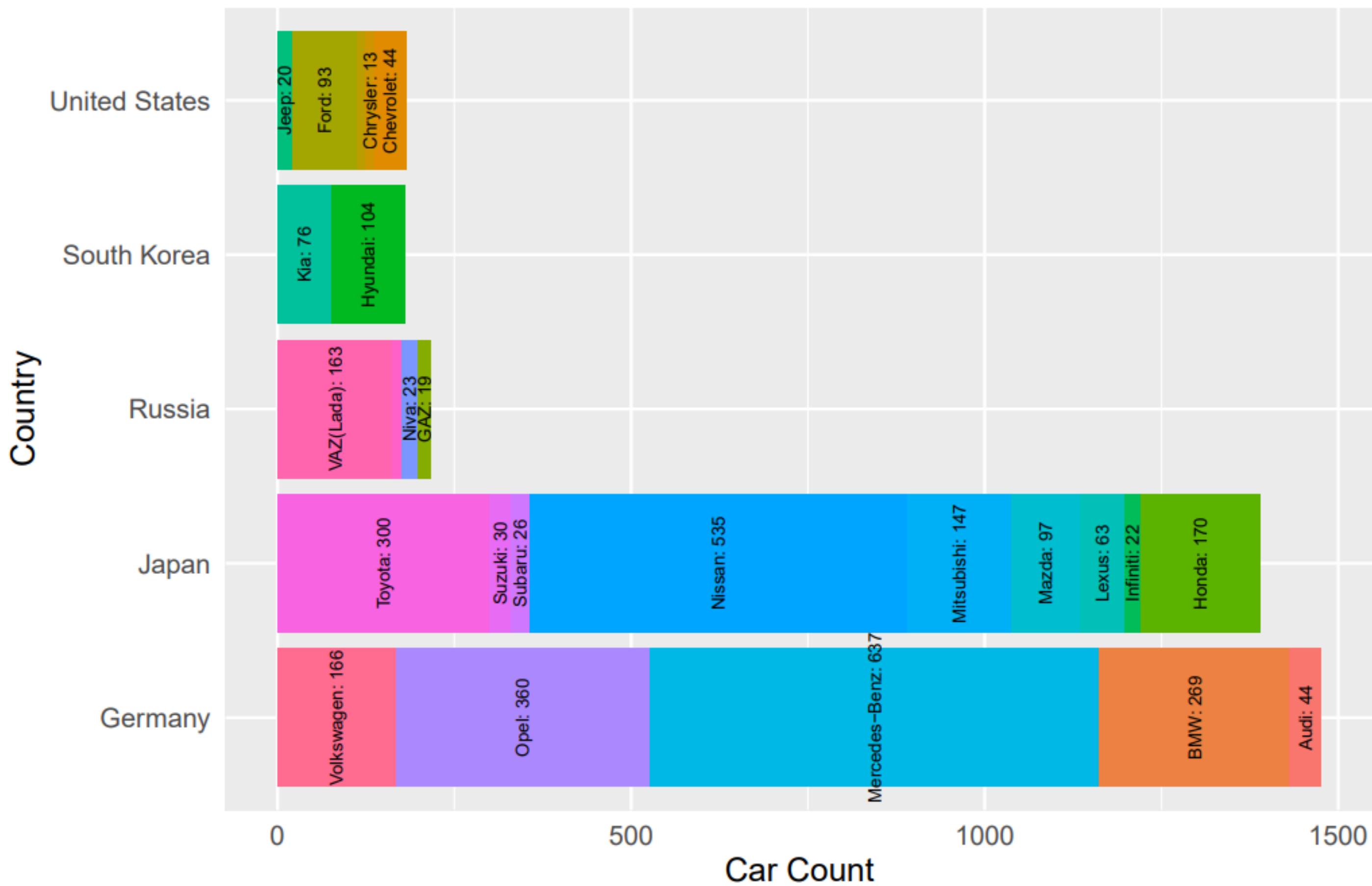
**Armenians exhibit a higher inclination
towards vehicles manufactured in Germany
compared to cars produced in other
countries**

Proportion of car maker countries

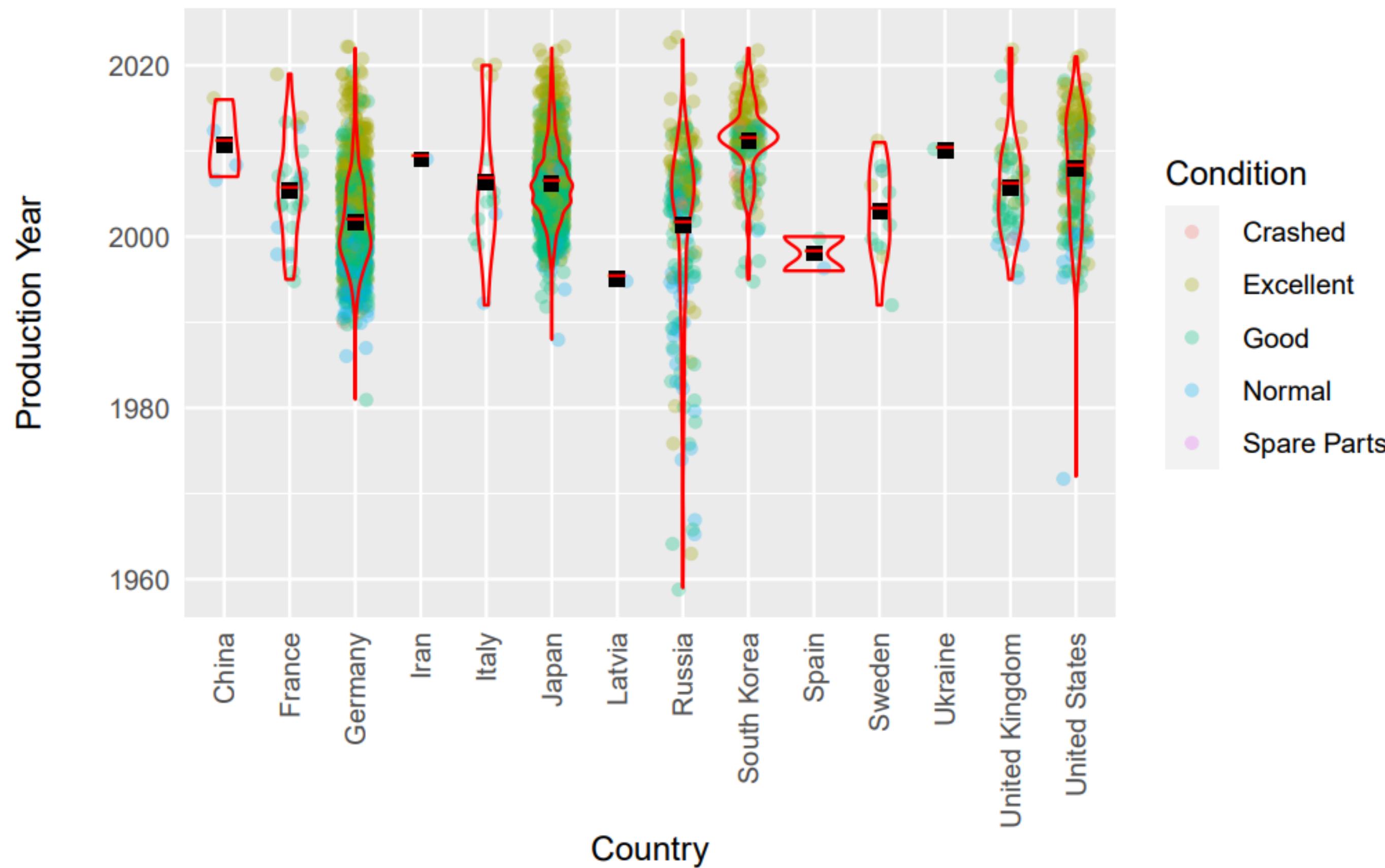
Country : Number of cars



Car Counts by Maker and Country for Top 25 Makers



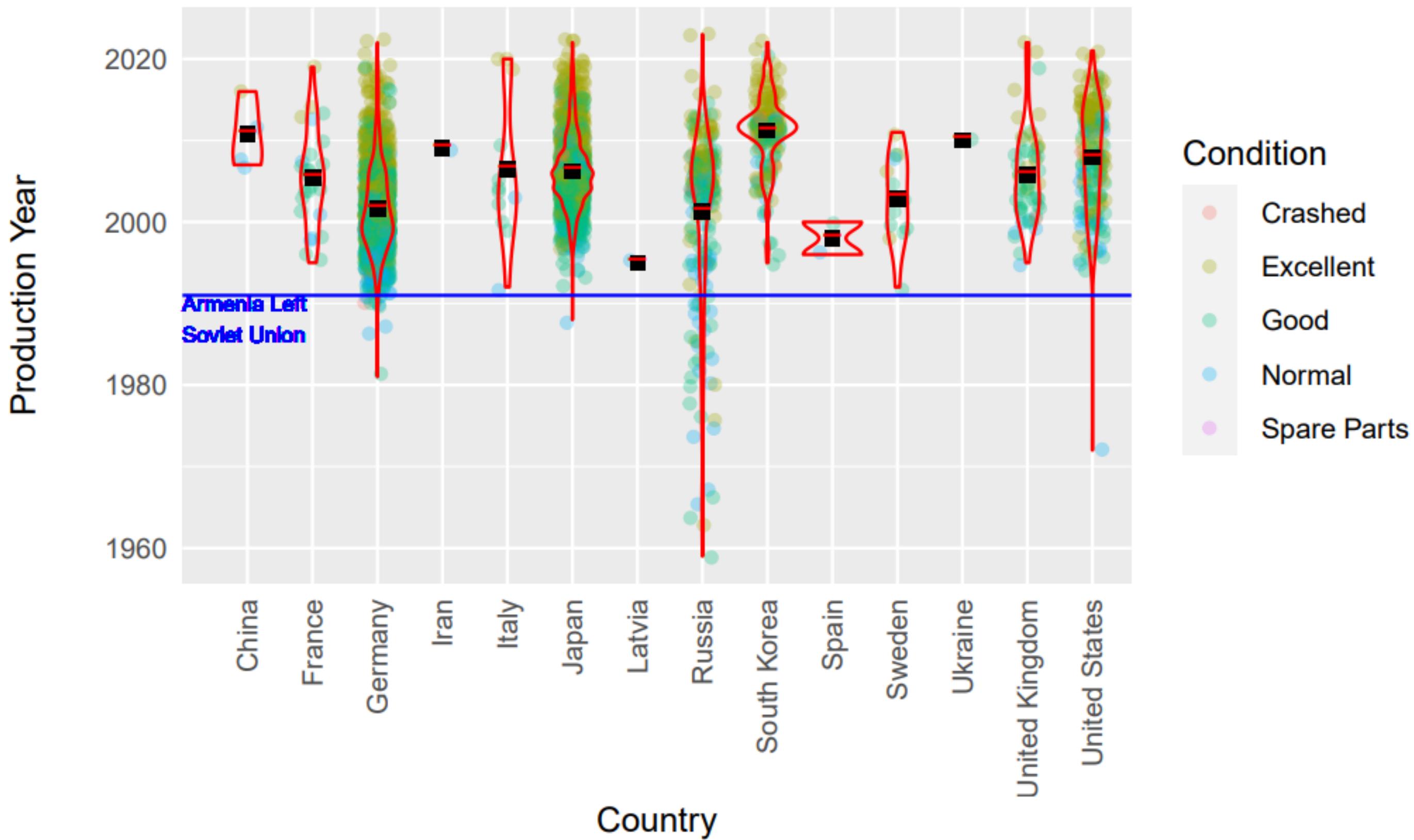
Scatter Plot of Car Production Year by Country Colored by Car Condition



Scatter Plot of Car Production Year by Country

Colored by Car Condition

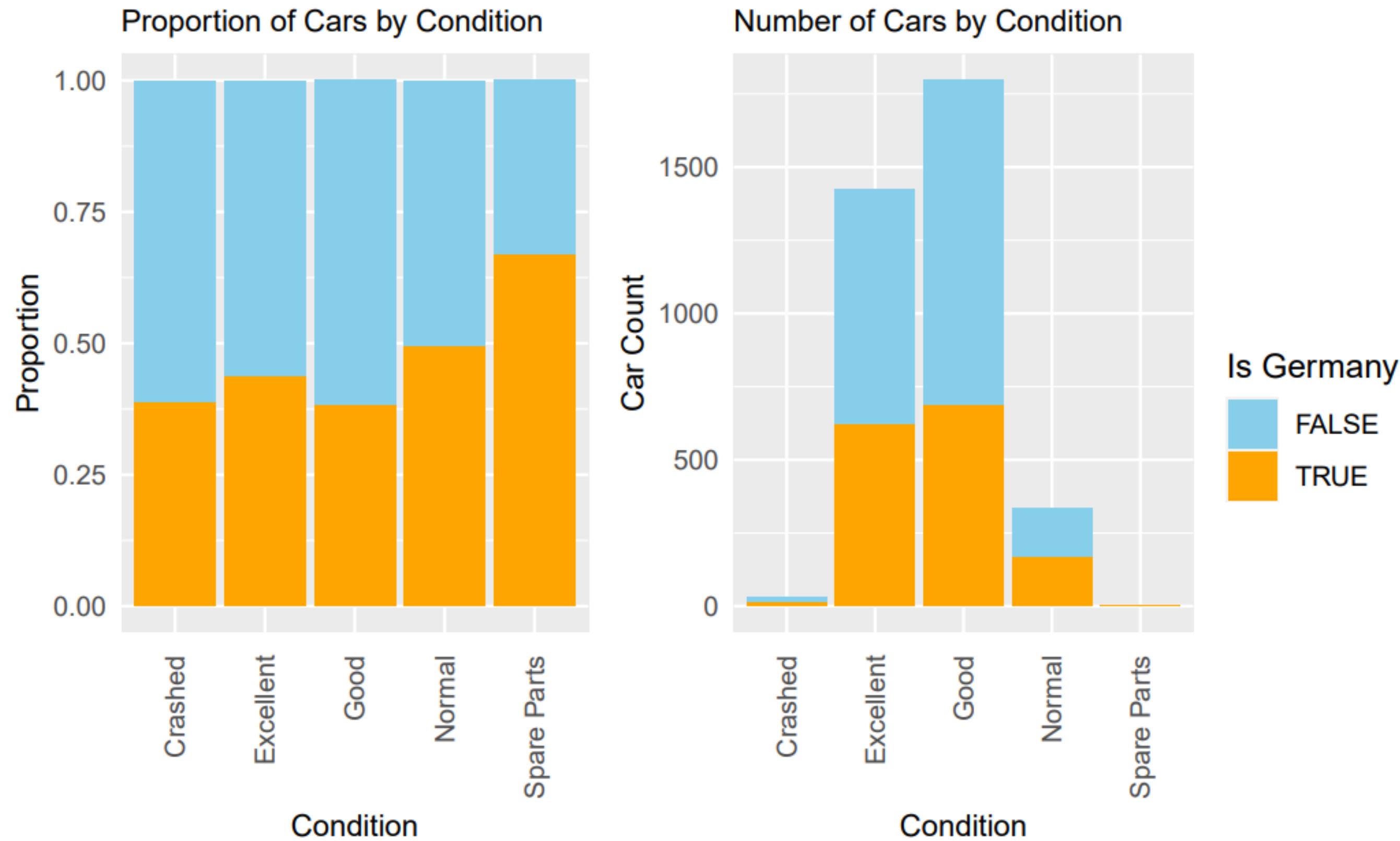
Time Armenia Left Soviet Union marked with blue line



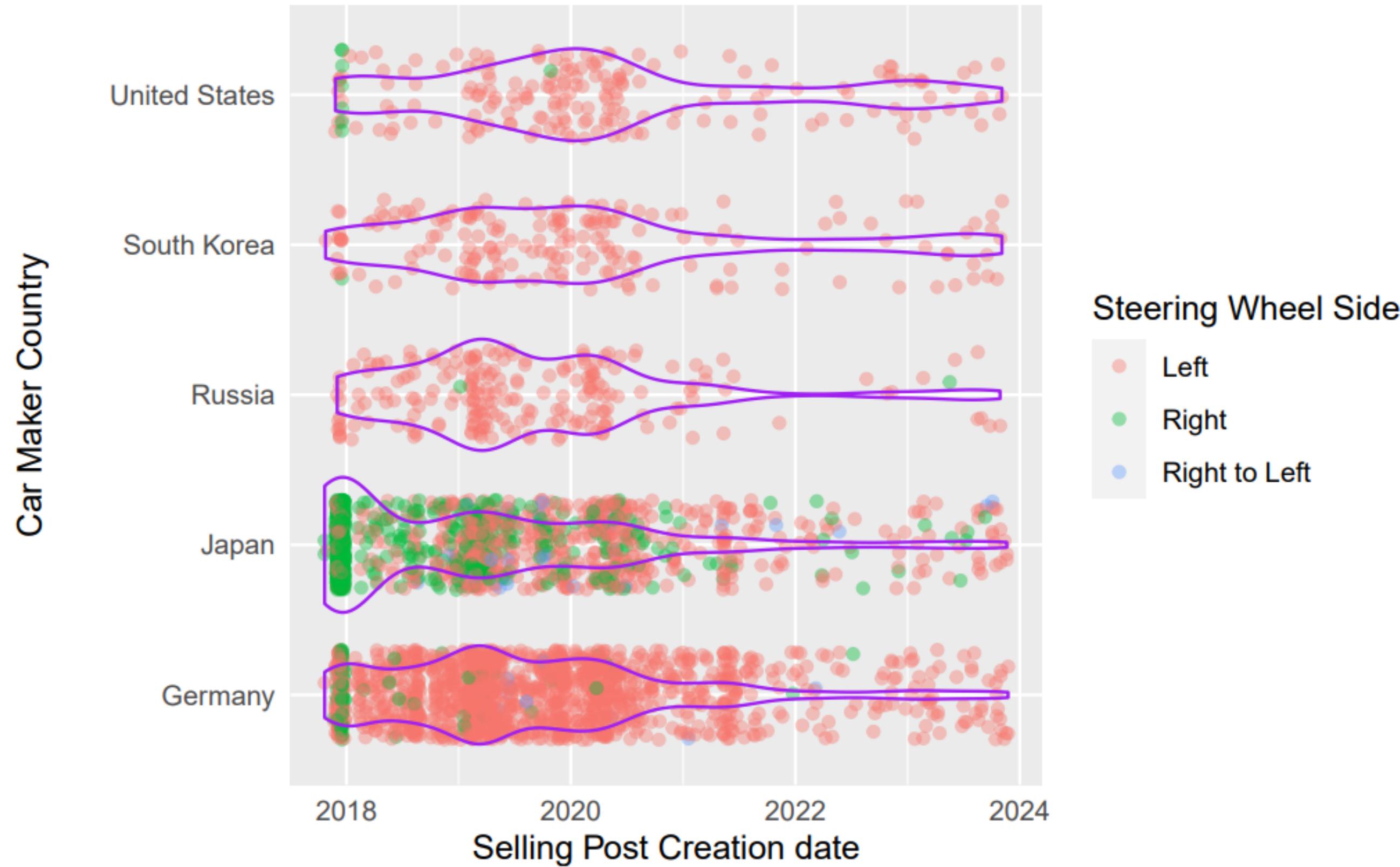
Armenian car market became diverse just after the 1991 which was the year when Armenia left Soviet Union

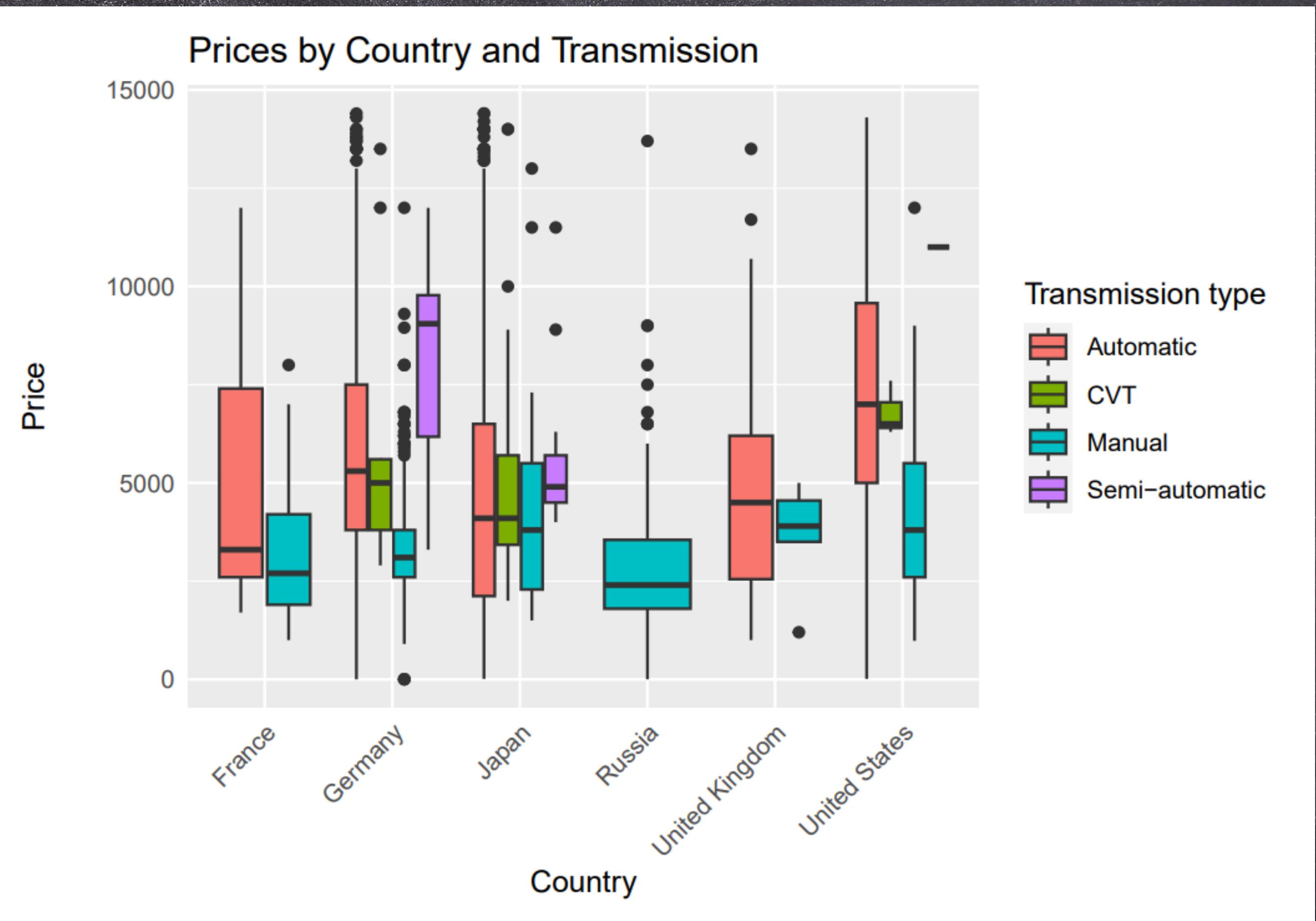


Proportion and frequency of German cars compared with the other countries by condition



Scatter Plot of Car selling post creation date by top 5 Country Colored by Wheel Side







Hypothesis conclusion

There are two leading car maker countries(Germany and Japan) in Armenian market where Germany is ahead a little.

The high frequency of Japanese cars present in Armenian market, despite the fact that majority of the cars produced in Japan are with Right steering wheel. So, maybe Armenians are more comfortable to own Japanese production cars because of the quality, price and diversity in choice and maybe more cars produced by Japan with Left steering wheel would make the Japan the first dominant in the Armenian market.

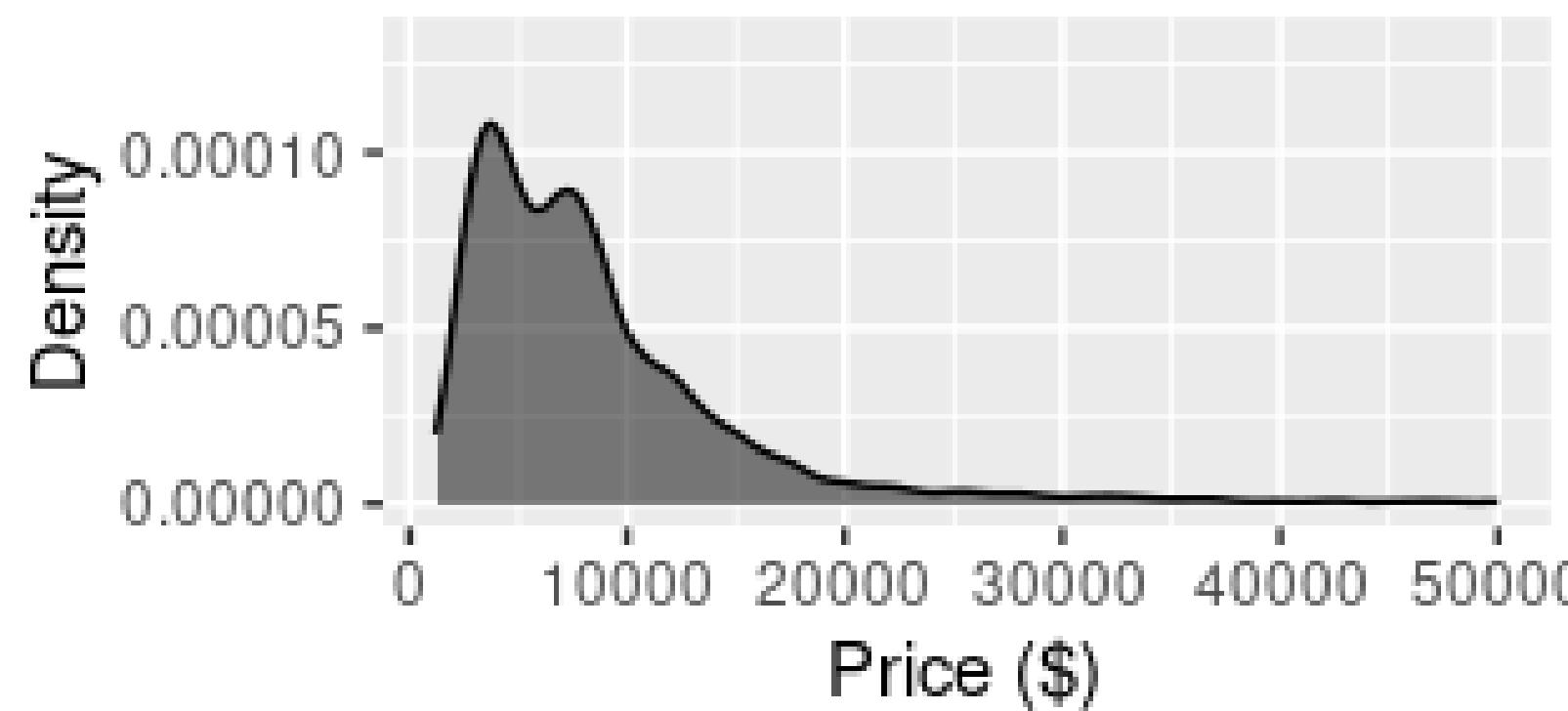
Japanese cars are more of latest production than German production cars.



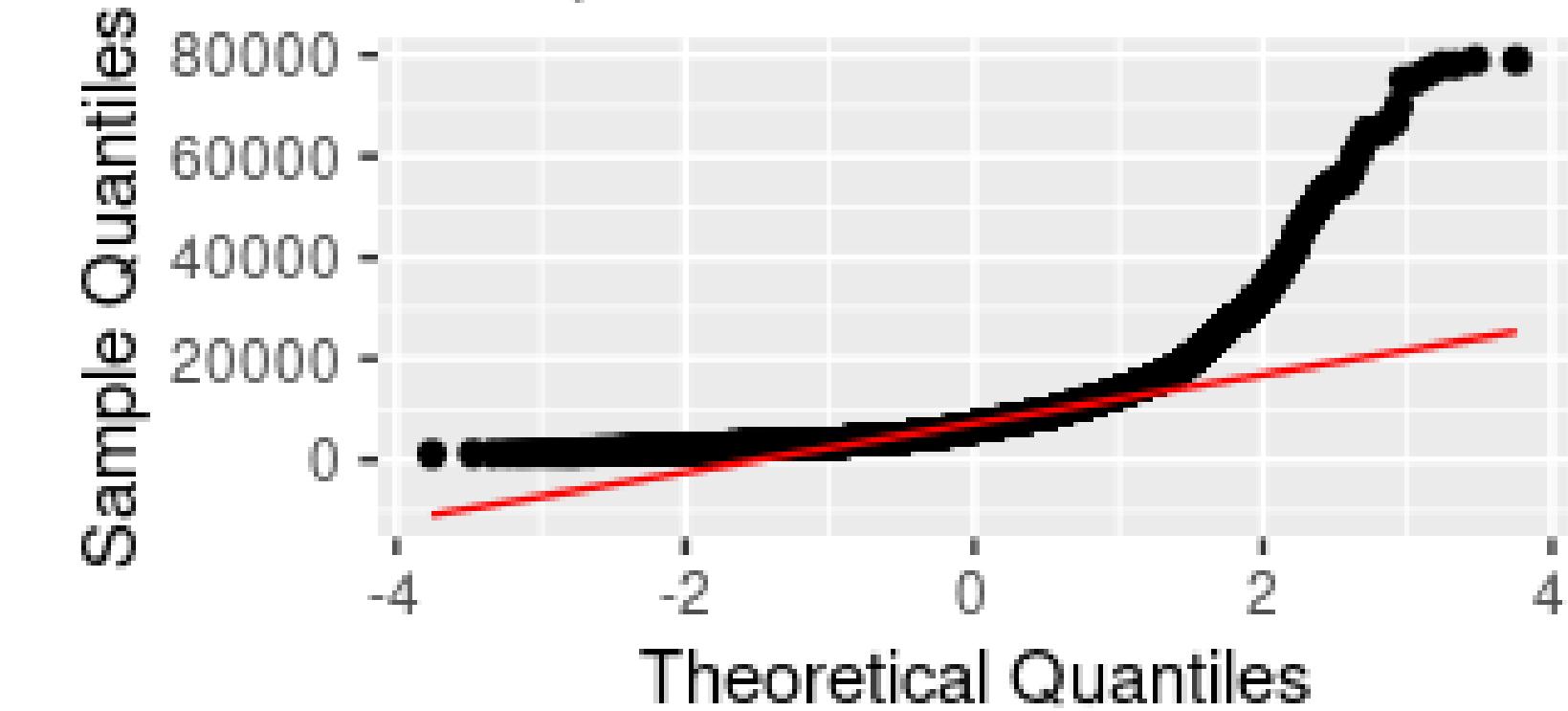
H3

The market of Armenian cars are significantly different from US market

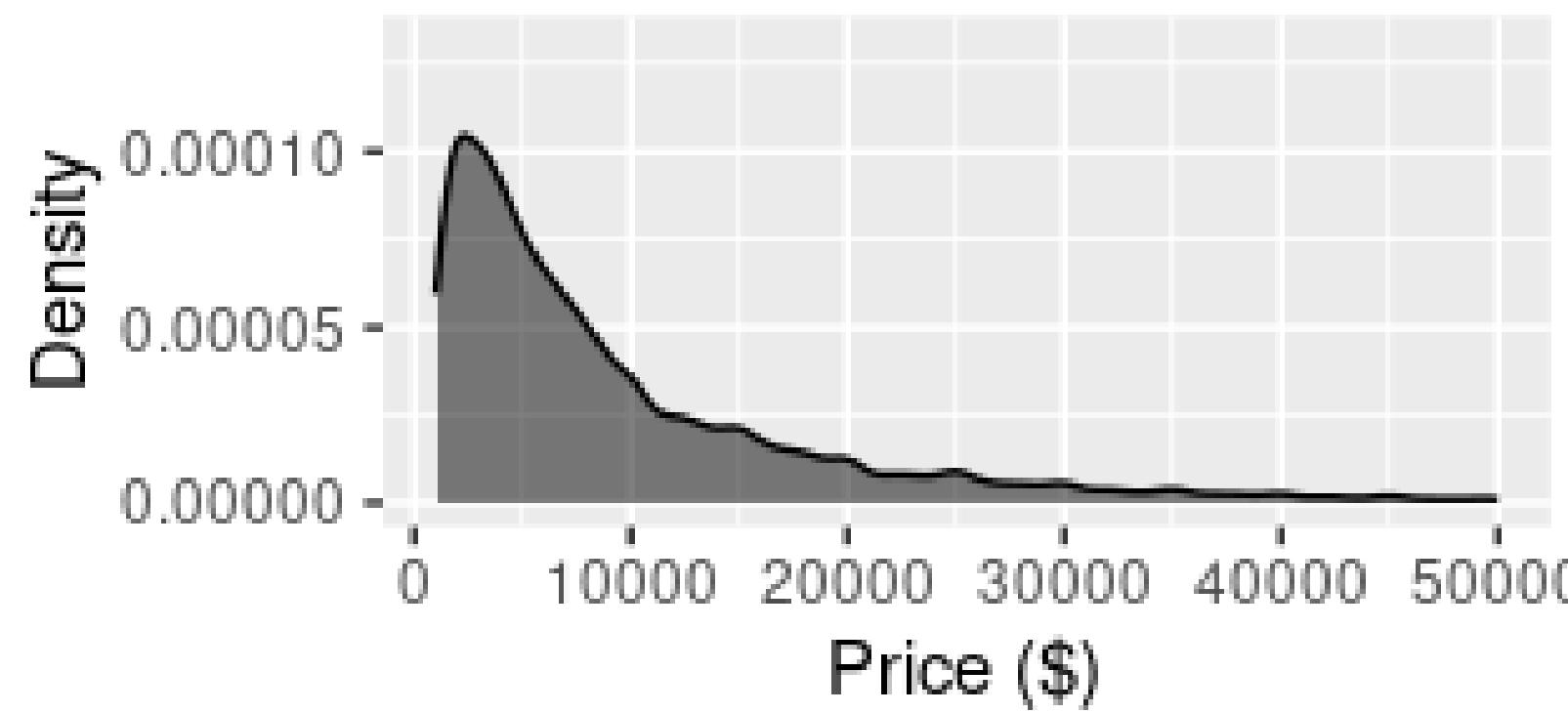
Armenian cars



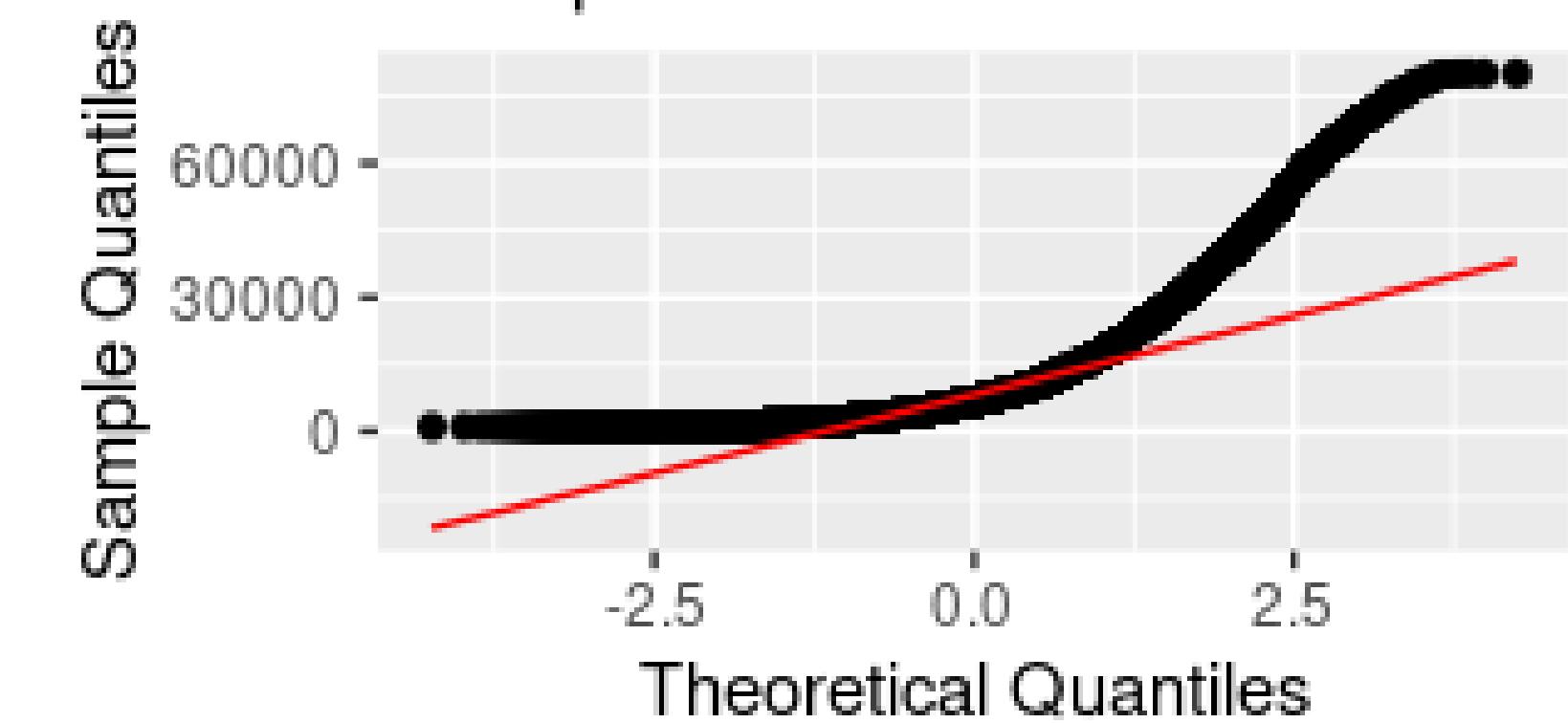
Q-Q plot for Armenian cars



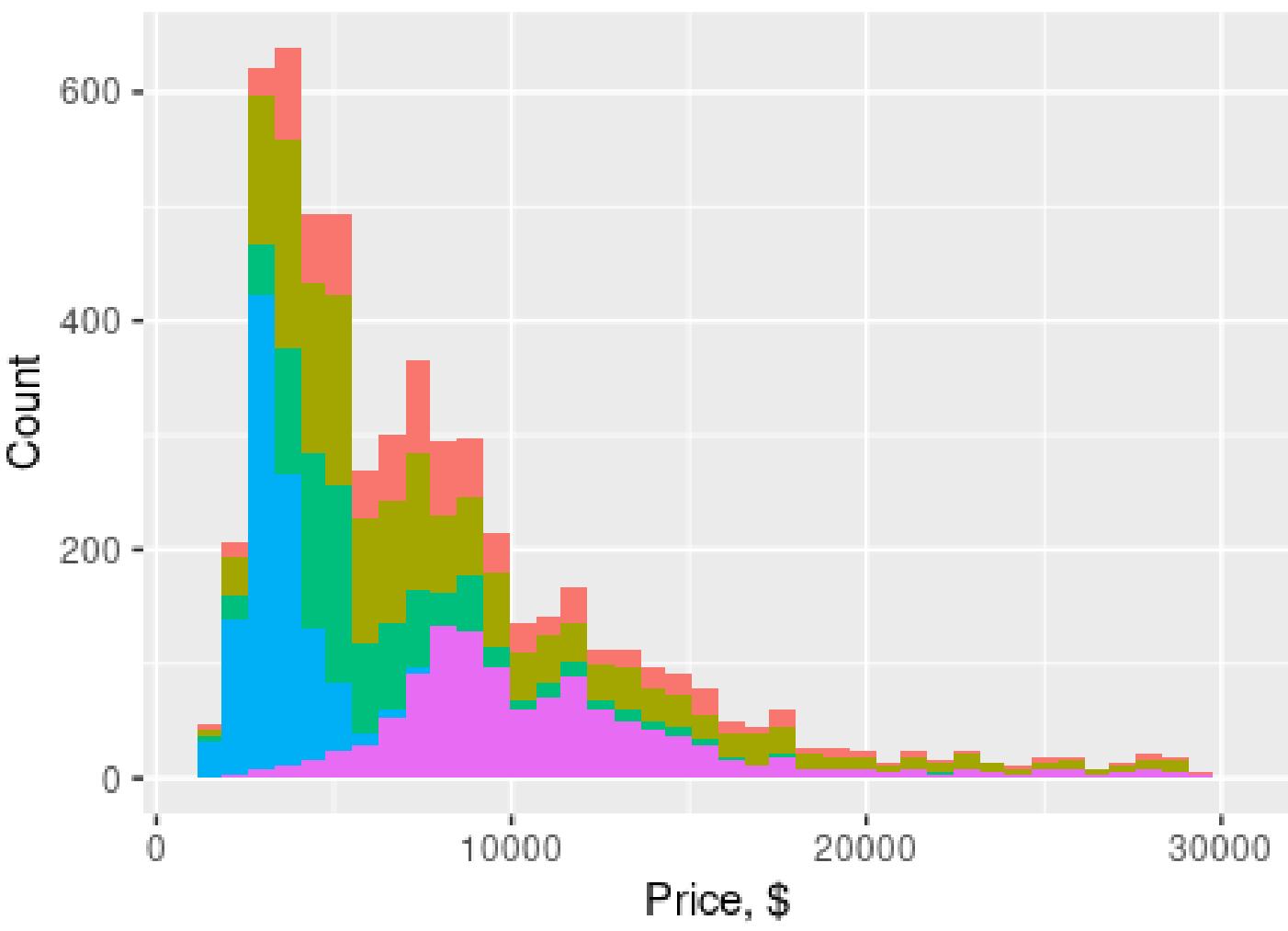
US cars



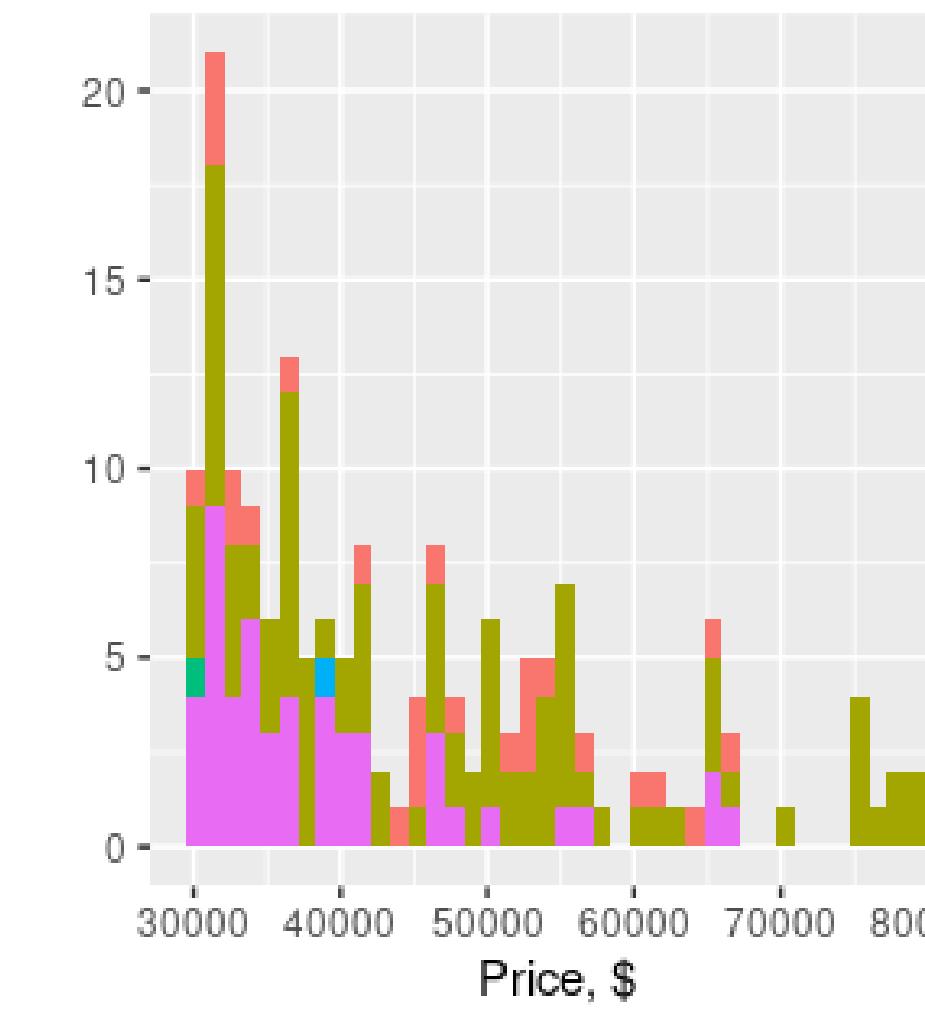
Q-Q plot for US cars



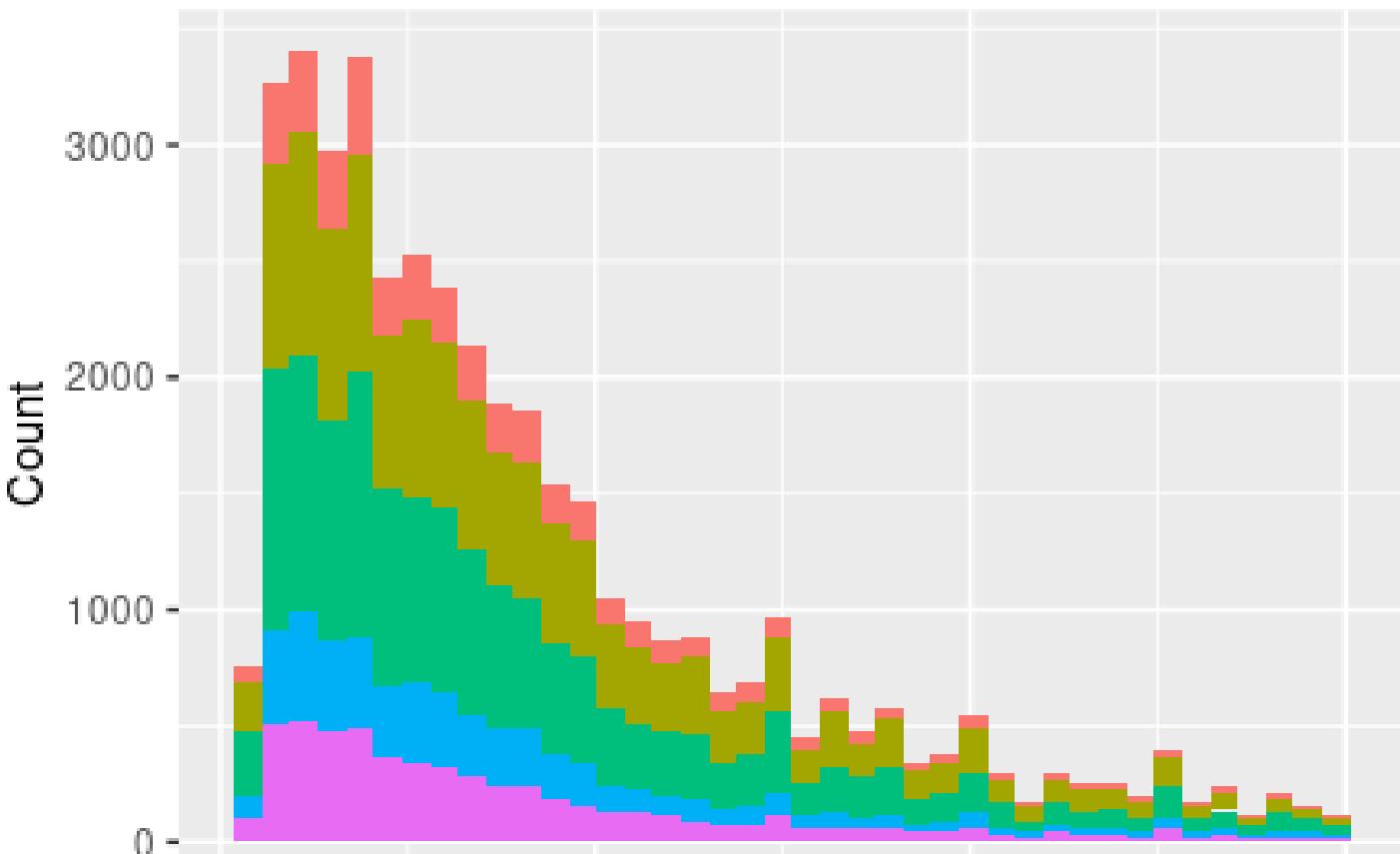
Armenian Cars Below \$30k



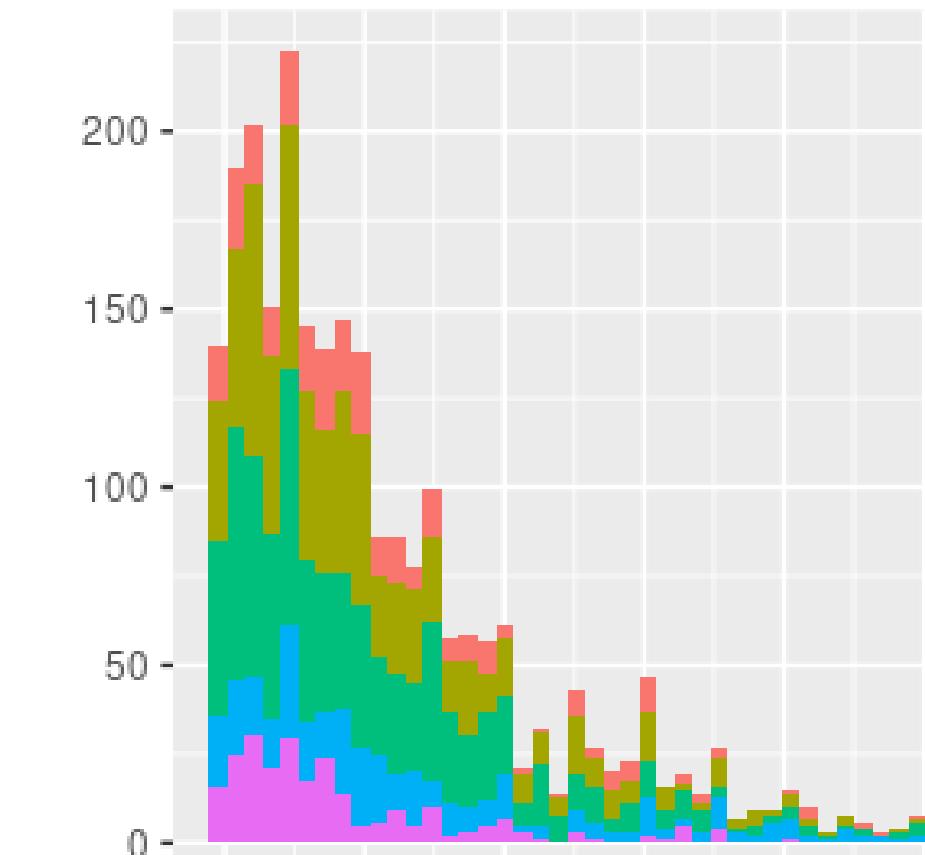
Armenian Cars Above \$30k



US Cars Below \$30k



US Cars Above \$30k



Brand

- bmw
- mercedes-benz
- nissan
- opel
- toyota

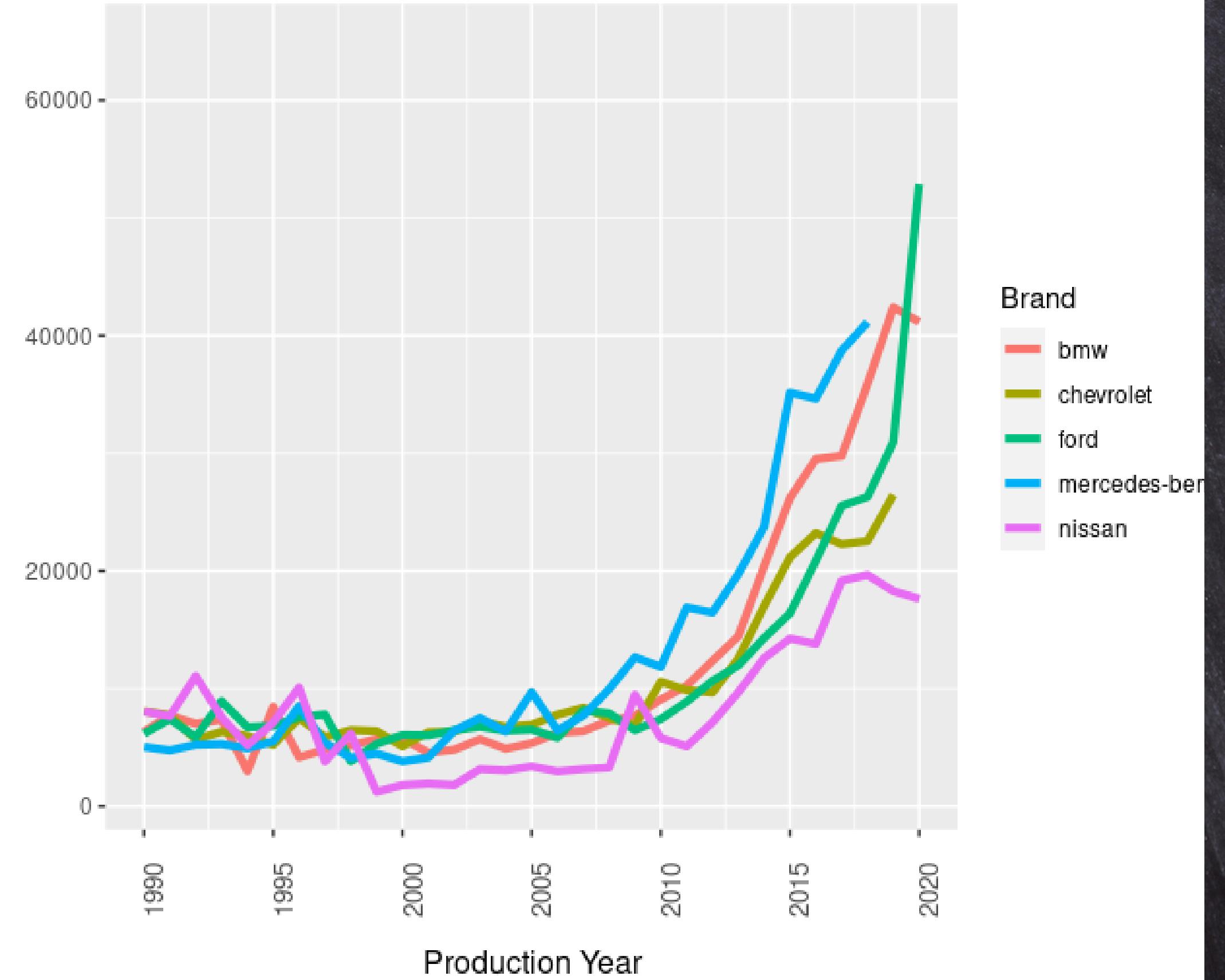
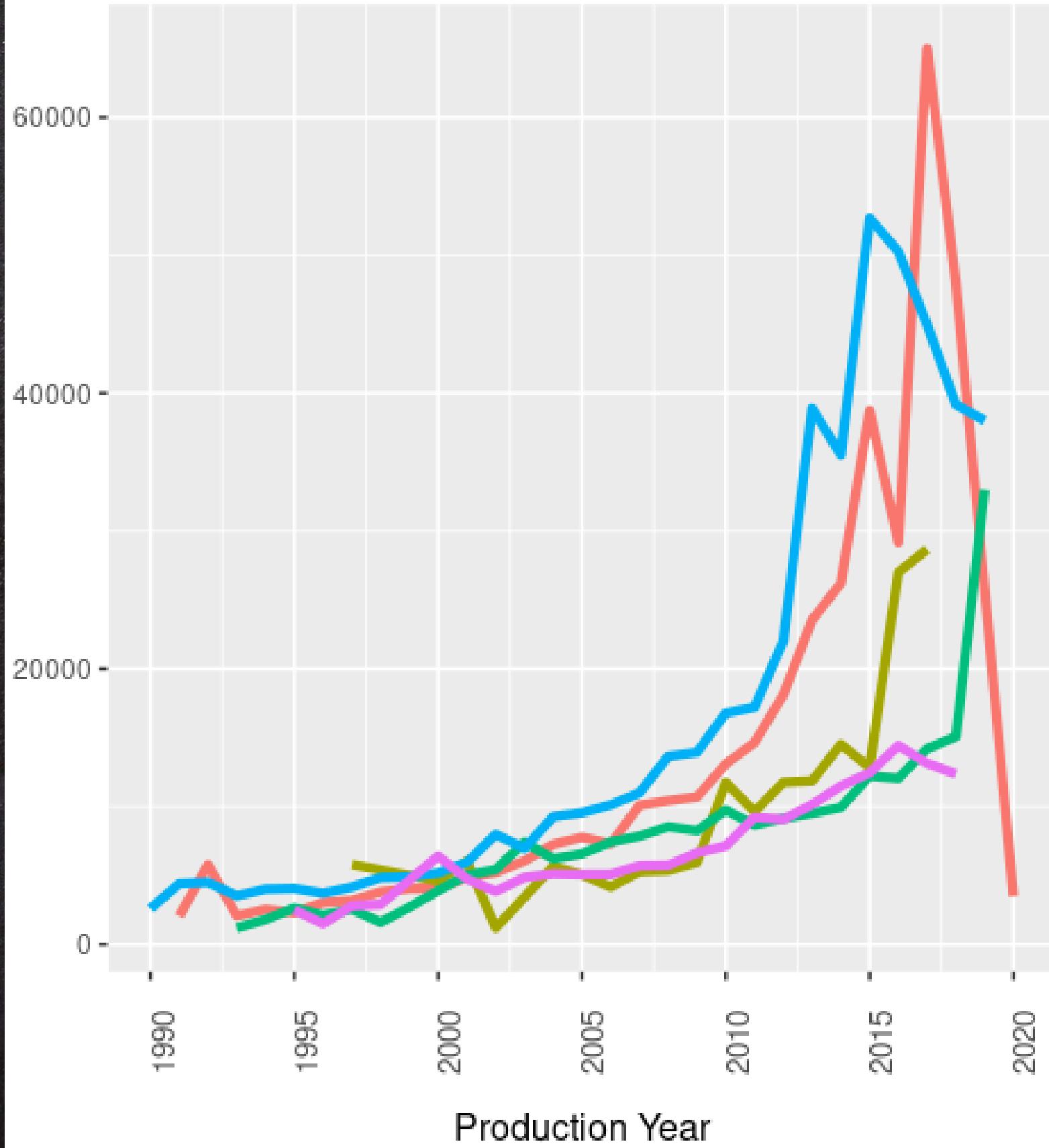
Brand

- bmw
- chevrolet
- ford
- mercedes-benz
- toyota

Average price of cars posted in 2018-2020

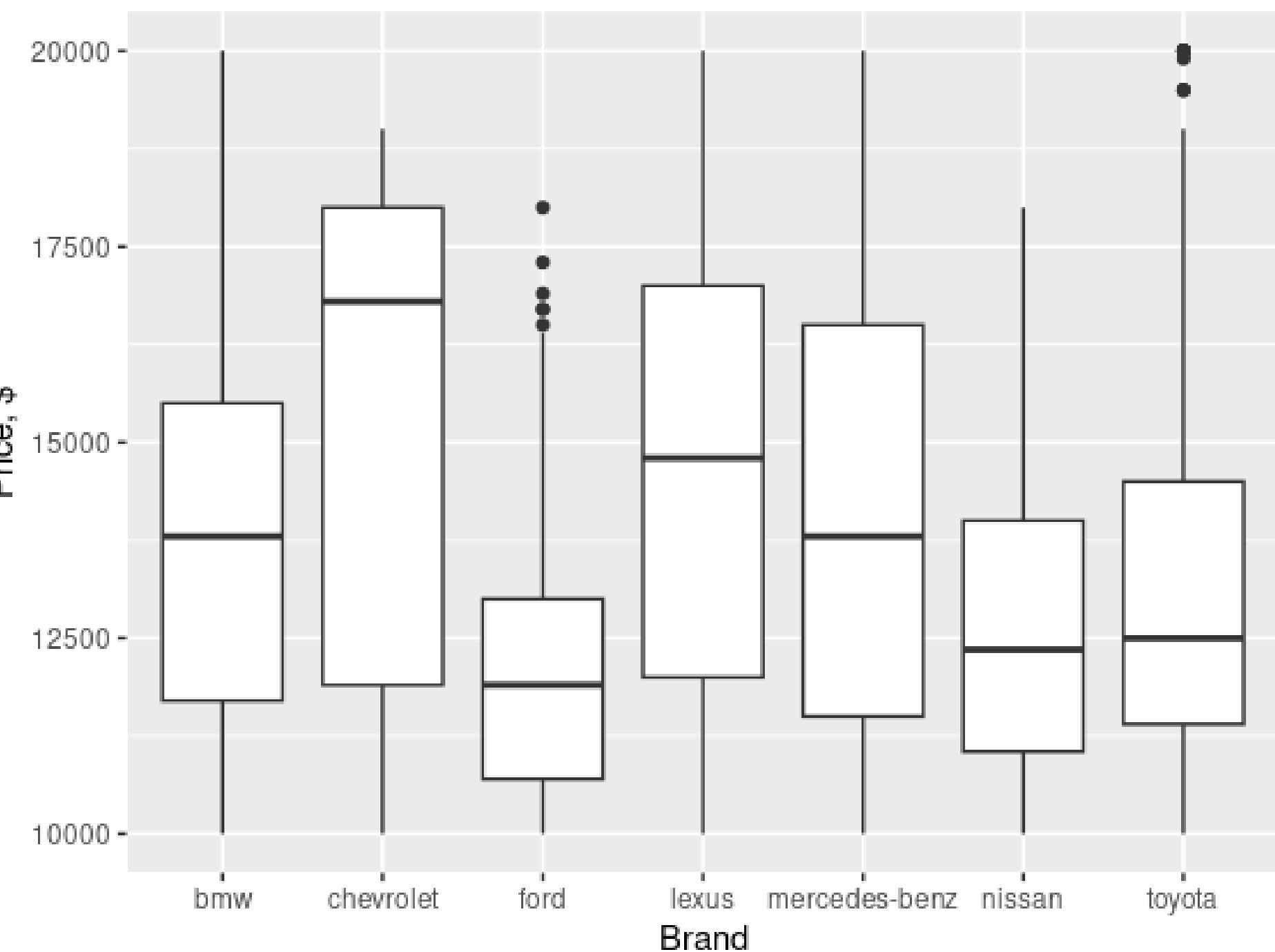
Armenian Cars, produced 1990-2023

US Cars, produced 1990-2023

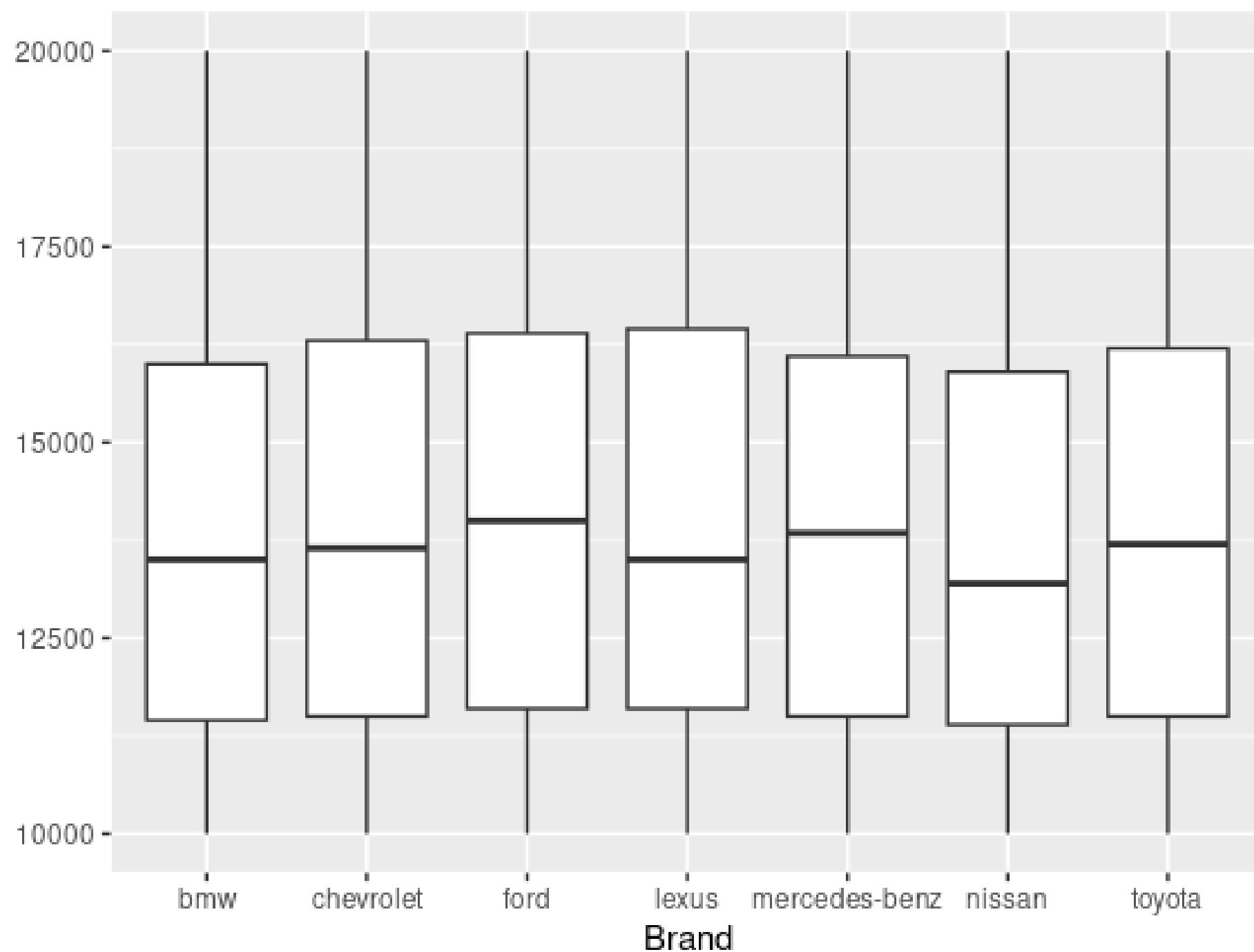


Price distribution of cars posted in 2018-2020

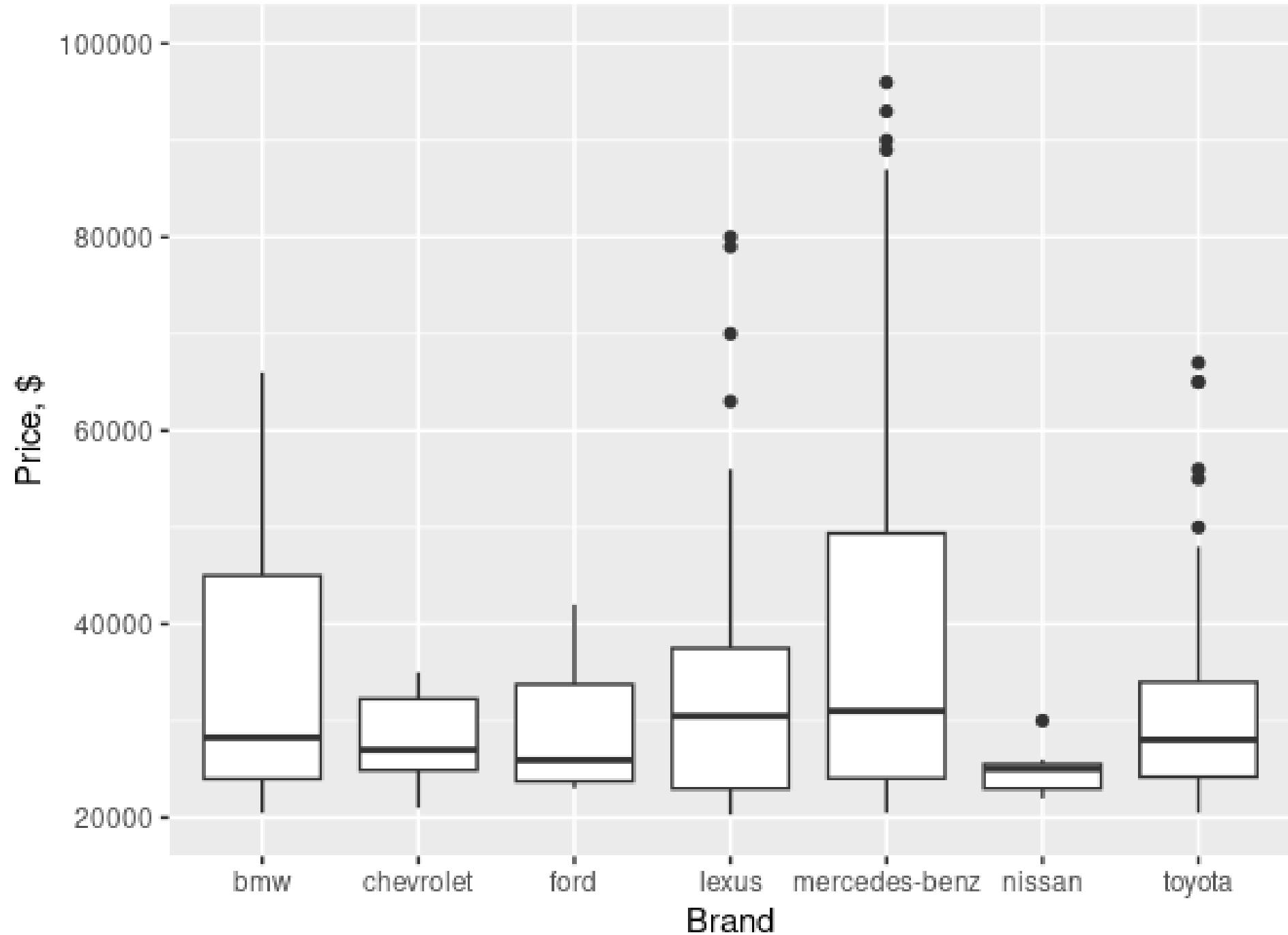
Armenia



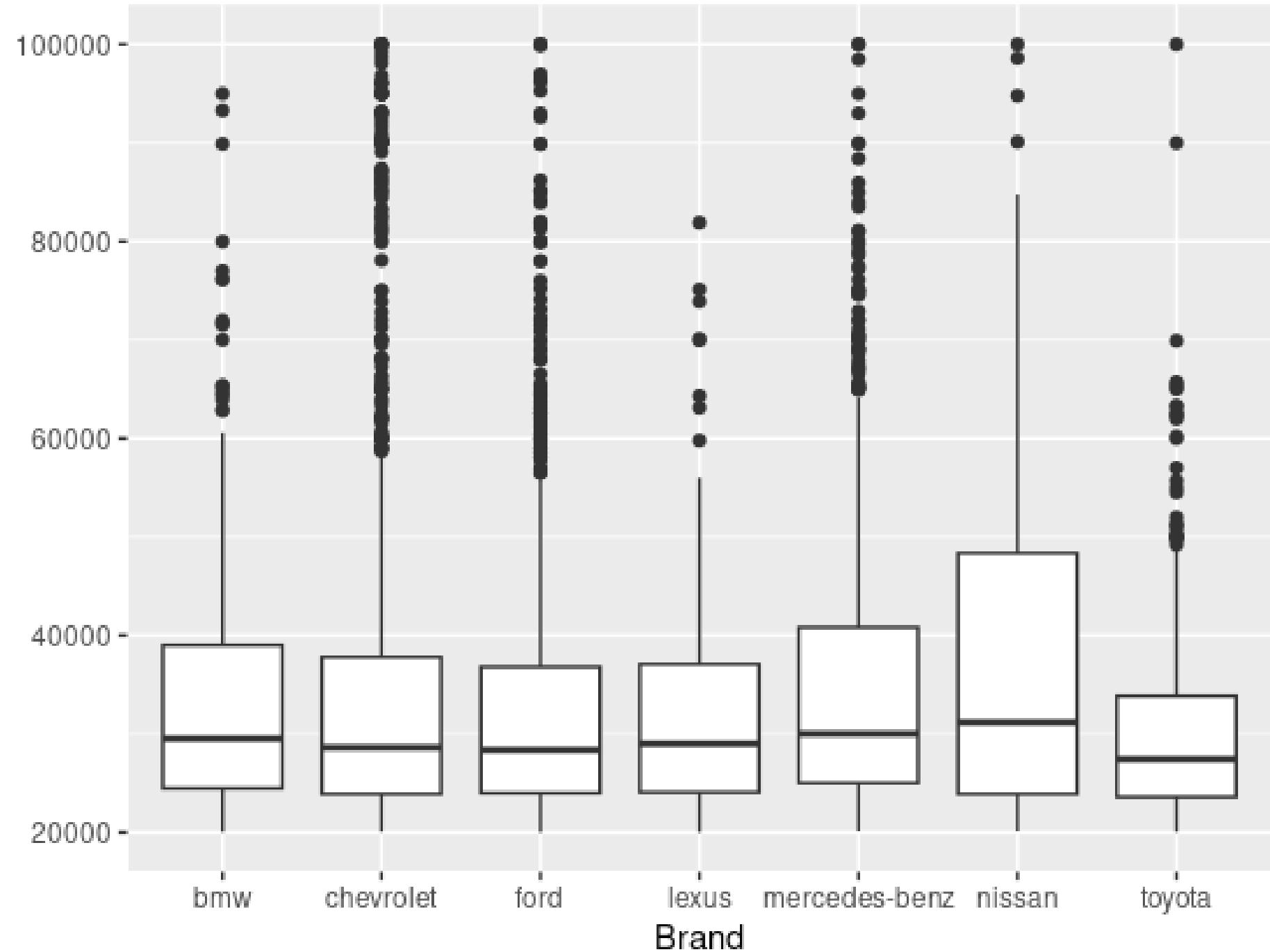
USA



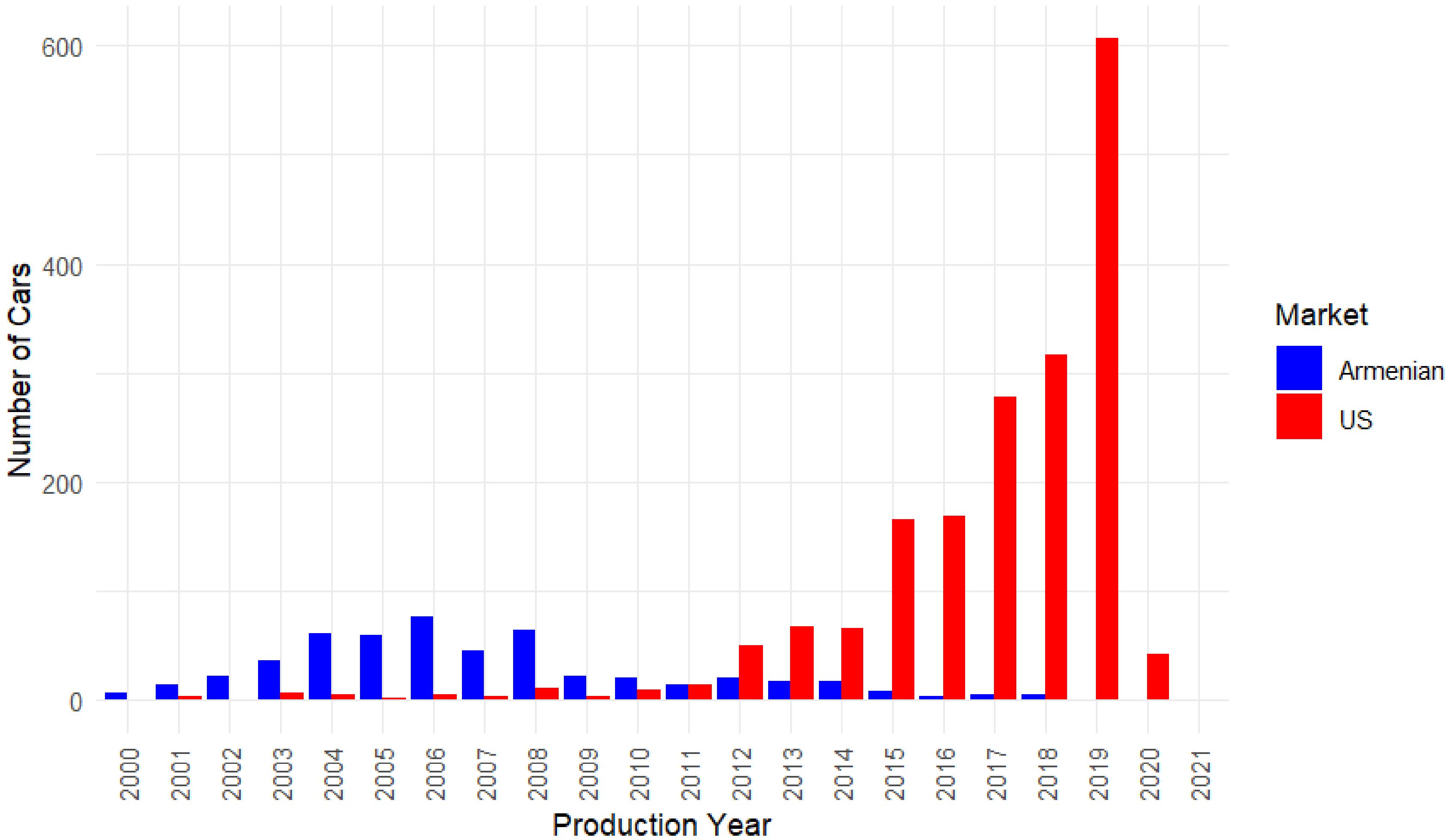
Armenia



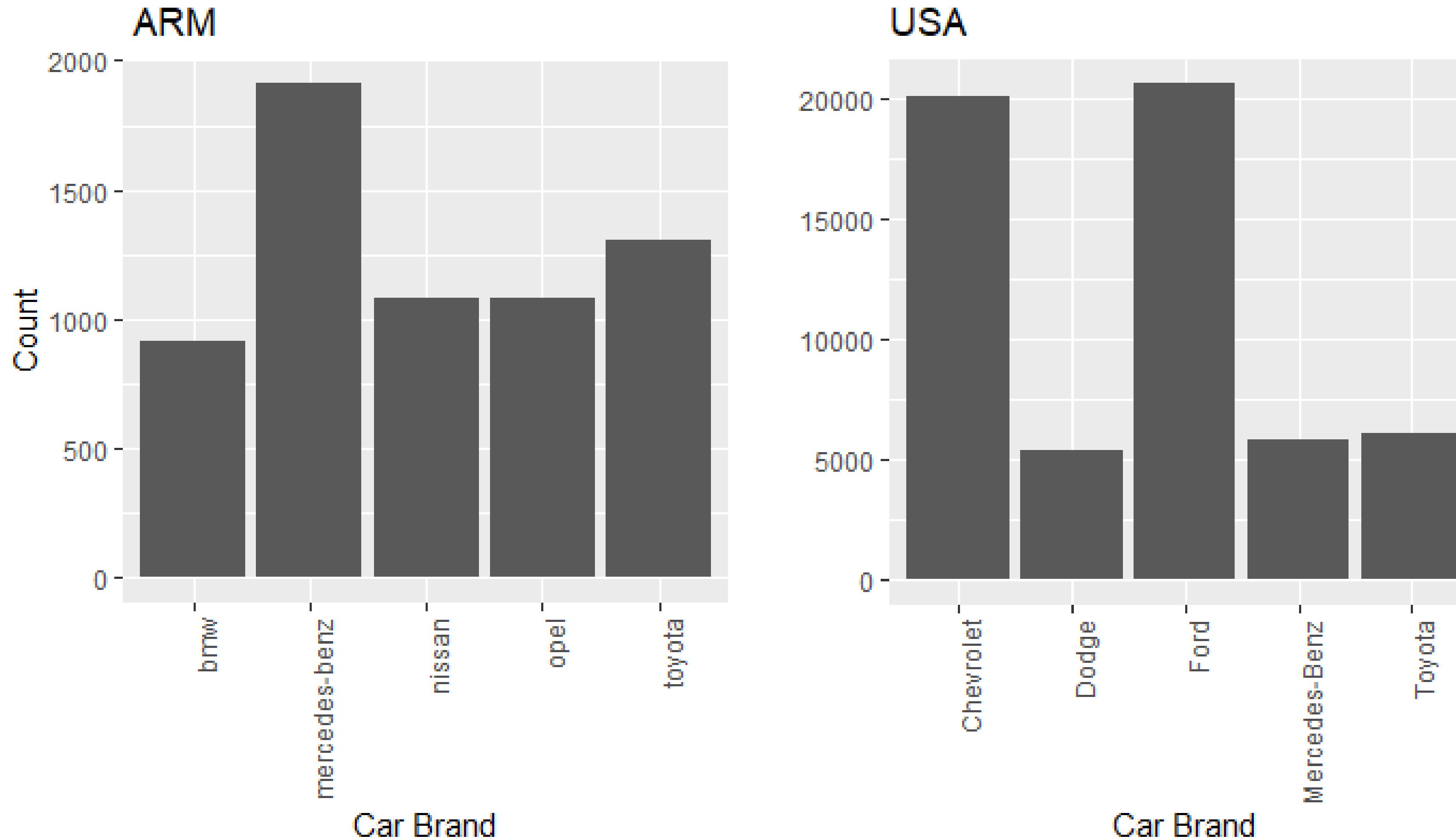
USA



Production Year Comparison

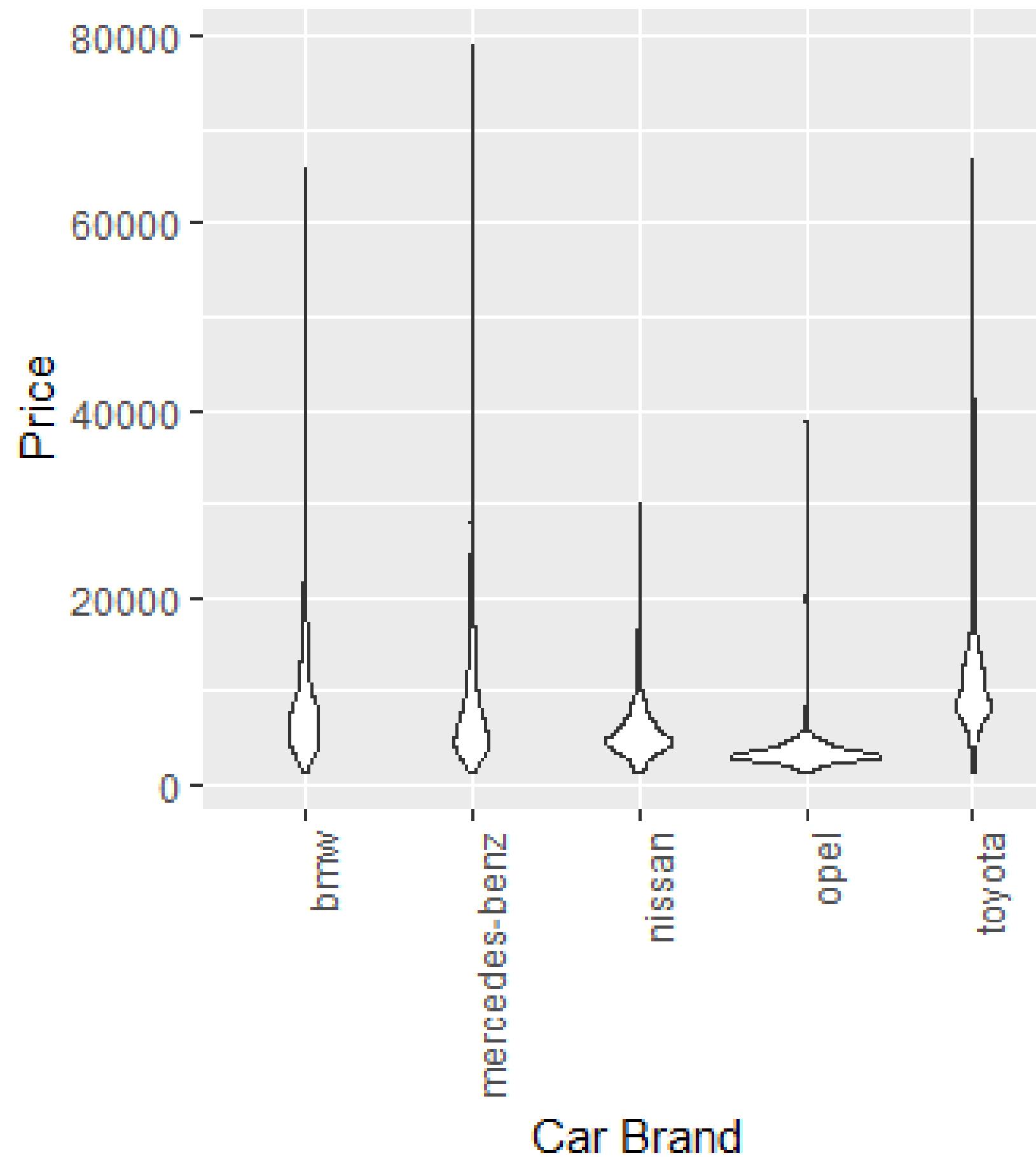


Bar chart for top 5 brands

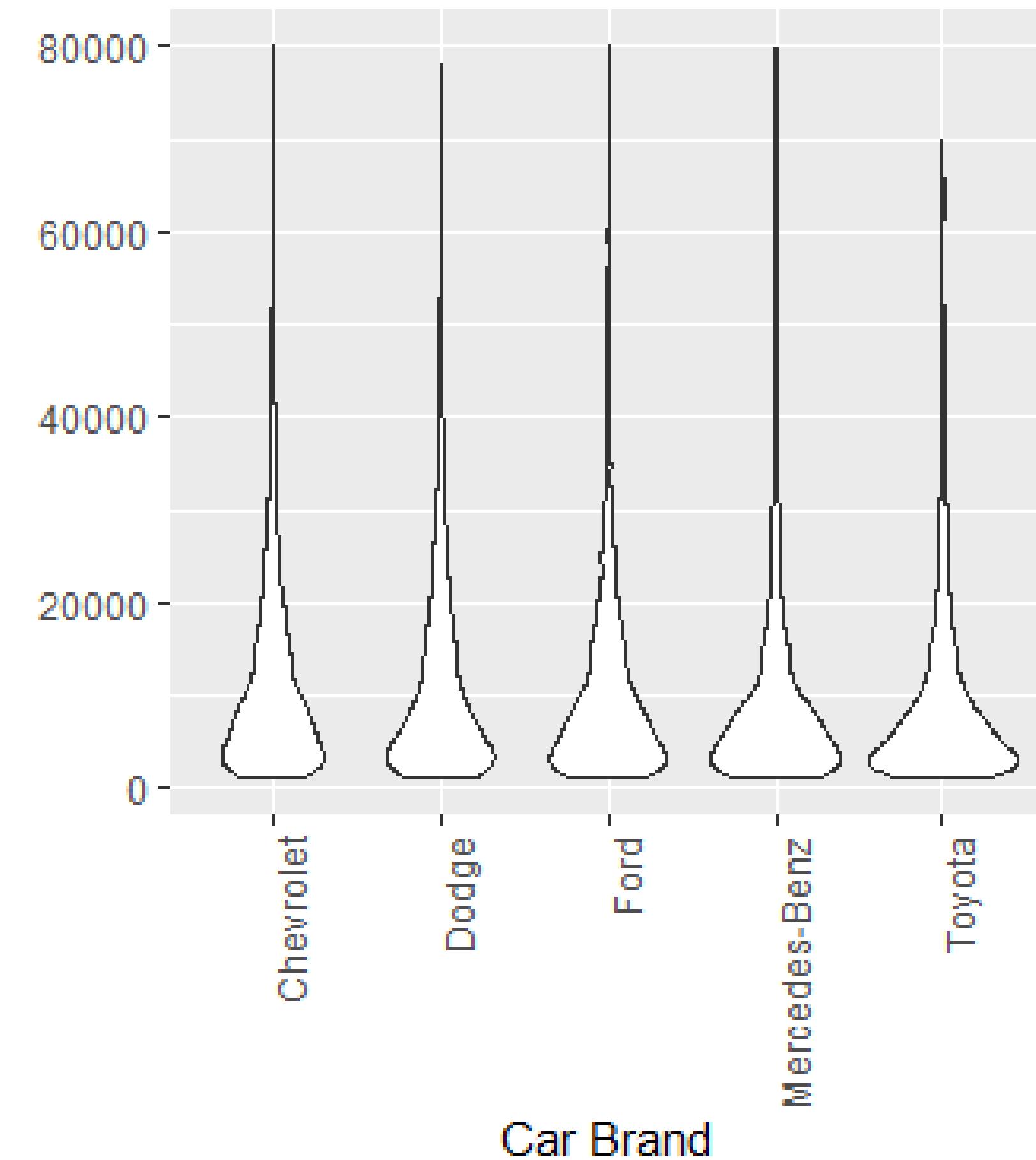


Violin plot of car prices for top 5 brands

ARMENIA



USA





HYPOTHESIS CONCLUSION

THE EXAMINATION OF PRODUCTION YEARS REVEALS THAT THE U.S. MARKET TENDS TO HAVE A MORE SIGNIFICANT PROPORTION OF NEWER VEHICLES, POTENTIALLY CONTRIBUTING TO THE OVERALL HIGHER PRICING TREND. WHILE BOTH MARKETS EXHIBIT UNIQUE CHARACTERISTICS AND TRENDS, THE COLLECTIVE EVIDENCE SUPPORTS THE HYPOTHESIS THAT, ON AVERAGE, U.S. CAR PRICES ARE COMPARATIVELY HIGHER THAN THOSE IN ARMENIA. THIS DISTINCTION LIKELY ARISES FROM A COMBINATION OF ECONOMIC FACTORS, CONSUMER PREFERENCES, AND MARKET DYNAMICS THAT INFLUENCE THE PRICING STRUCTURES IN EACH COUNTRY'S AUTOMOTIVE INDUSTRY.

INTERACTIVE DASHBOARD

<https://hassah.shinyapps.io/Dashboard1/>



Reference

<https://haycar.am/en/sale/search?category=car>

<https://www.kaggle.com/>



THANK
YOU

QUESTIONs?