Assigned group: 1

Jenny(Ruoxuan) Wang

In this presentation, group 1 presented two topics. First, considering the volatile gas price at the current time, group one aimed to find if there exists a potential relationship between gas prices and transportation. In this case, the transportation group was divided into two main types, public and private, and June 13 was used as the focal point since this is the date that the gas price arrived at its peak. Besides, the group noticed that starting this August, the orange line was removed from the schedule of Boston public transportation, and they would like to analyze its effect on public and private transportation. In both cases, the number of visitors was used as the measurement of the impact.

To begin with, I recommend group 1 change the time unit to best fit the topic. In the analysis process part, group 1 used month as the unit and summed the number of visitors in each month. After analyzing all the statistics, the results were summarized in a line chart that represents the trend of visitor numbers within the eight months. In order to further analyze the representation of the selected topic, I searched the gas price in the year range and observed that although June 13 is the date that the price arrived at its peak, it doesn’t last long and dropped below 4.8USD/gal within one week (Y charts, Dec.12, 2022). Considering the fact that the average frequency of gas refueling is 3 times a month (Oreizi D., Jun. 8, 2020), the volatile price changes in June may cause bias if the group chooses the month, instead of the week, as the grouping unit, since the gas price actually decreased in the second half of the June. In this case, I would suggest group 1 modify the time unit from month to week. Or, more specifically, summarize significant periods with the most representative gas prices and compare the number of visitors among different periods.

Besides, taking into account the time span of the Safegraph data, I would suggest group 1 eliminate the second question. As mentioned above, the Safegraph dataset recorded data from January to August. In this case, since the orange line was removed from Boston public transportation in the middle of August, the transportation data after the action was very limited and may cause bias considering the sample size.

From the code perspective, one advantage of group 1’s code is that all the names were assigned clearly, which makes each step of the process clear and understandable. Diving into the more detailed content part, one suggestion I would like to give is to add more dimensions to the analysis process. For instance, by observing the line graph, we can find that the conclusion that the group made is actually inconsistent with the analytical results shown in the graph. Although the group mentioned that visitors are sensitive to gas prices and may change their plans due to such a characteristic, the line graph shows that the decrease in visitor numbers actually started in April, when the gas prices haven’t been that high, which indicates potential omitted variable bias. In this case, considering the difference in the refueling frequency between private transportation and public transportation (public transportation refuels on daily basis and is comparably inelastic to the price change), I would suggest comparing the trends’ differences between the public and the private transportation in various time periods and make conclusion base on the consistency of such a result.

Besides, I recommend the usage of the focused factor in the presented result. For instance, since the group tends to use the line graph to address the conclusion to both of the topics, I would suggest that in addition to the visitor numbers of public and private transportation, the group may also add the trend of gas prices as a comparison to make the results more easily understandable.

Reference

Y Charts. December 12, 2022. Retrieved from <https://ycharts.com/indicators/boston_retail_price_of_gasoline>.

Oreizi D., June 8, 2020. Charged Future. “EV Charging vs Gas Refueling Comparison: EVs Take Less of Your Time!”

Retrieved from <https://www.chargedfuture.com/ev-charging-vs-gas-refueling/>.