

STAT550 Homework No 2: Advise for Evaluating Interventions on Sugary and Zero-Calorie Beverage Consumption

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Introduction

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Data Description and Summaries

To determine the impact of different interventions on the consumption of sugary and zero-calorie beverages, the study collected data on the beverages sold at four cafeterias and three convenience shops across three sites. Daily sales of these beverages were recorded over a period of 221 days, from October 27 to May 23. The resulting dataset includes variables related to ...

As a summary, Table 1 shows the variables available in the dataset, their classification and how they are measured.

Missing data is CAR.

Table 1: **Description of Observations**

Variable	Type	Unit
Day of the quasi-experiment	Continuous	-
Day of the week	Continuous	-
Site	Categorical	-
Intervention	Categorical	-
Sugary beverages sold	Continuous	Standardized units
Zero-calorie beverages sold	Continuous	-
Other beverages sold	Continuous	-

Exploratory Analysis

To start understanding the behavior of the data in this study,

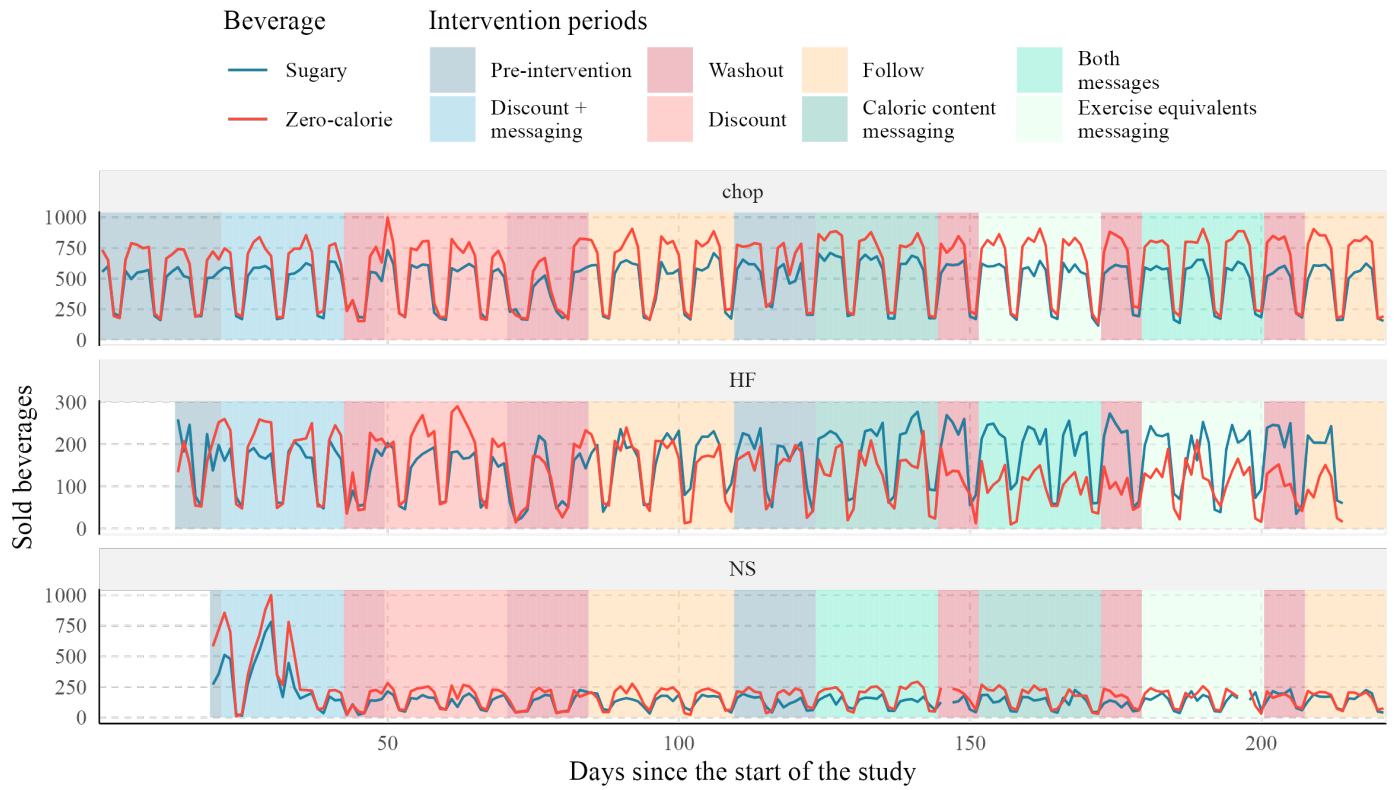


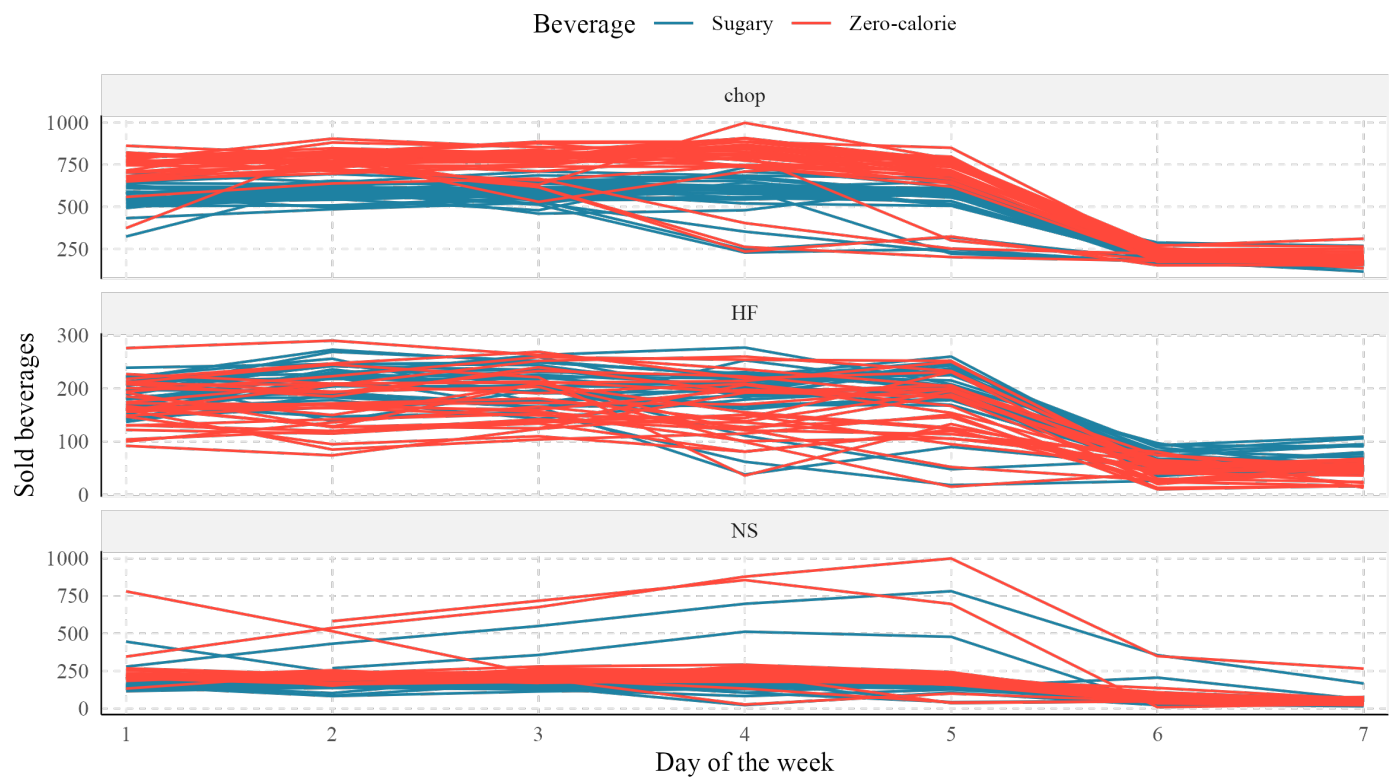
Figure 1: **Sale of sugary and zero-calorie drinks by intervention**

Based on the plot provided, we can observe some important characteristics of the data. Firstly, the measurements for each site began at different times. For example, the first site has 21 pre-intervention observations, whereas the last site only has two. Secondly, the third site experienced a significant increase in sales during most of the first intervention, but afterwards, sales remained at a lower and more stable level. Thirdly, the order of the three calorie messaging interventions was different for each site. Lastly, it is evident from the data that there is a weekly seasonal effect.

Formal analysis

Conclusion

Appendices



Source: client submission.

Figure A.1: Sale of sugary and zero-calorie drinks by week and site

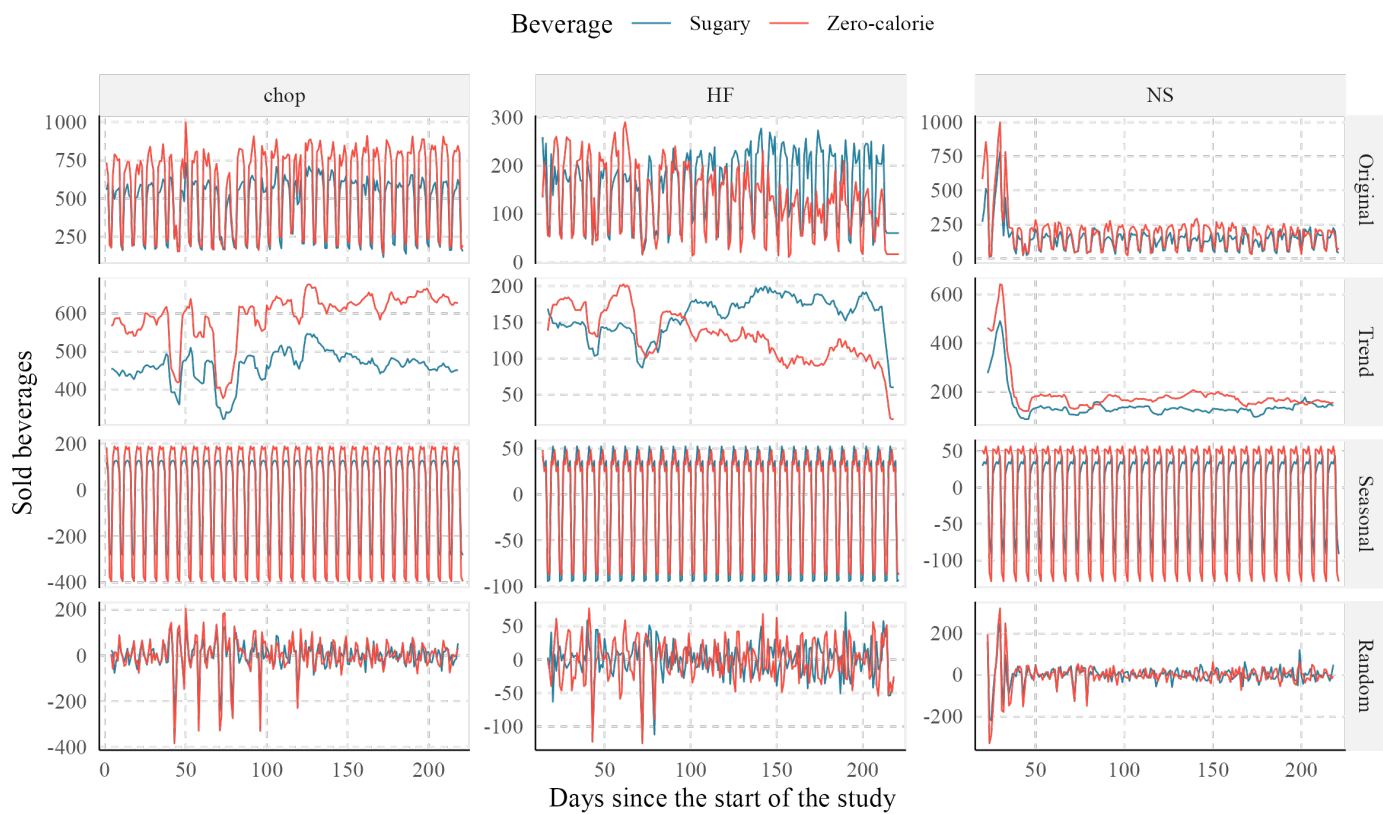


Figure A.2: Decomposition Analysis of Sales for Sugary and Zero-Calorie Beverages

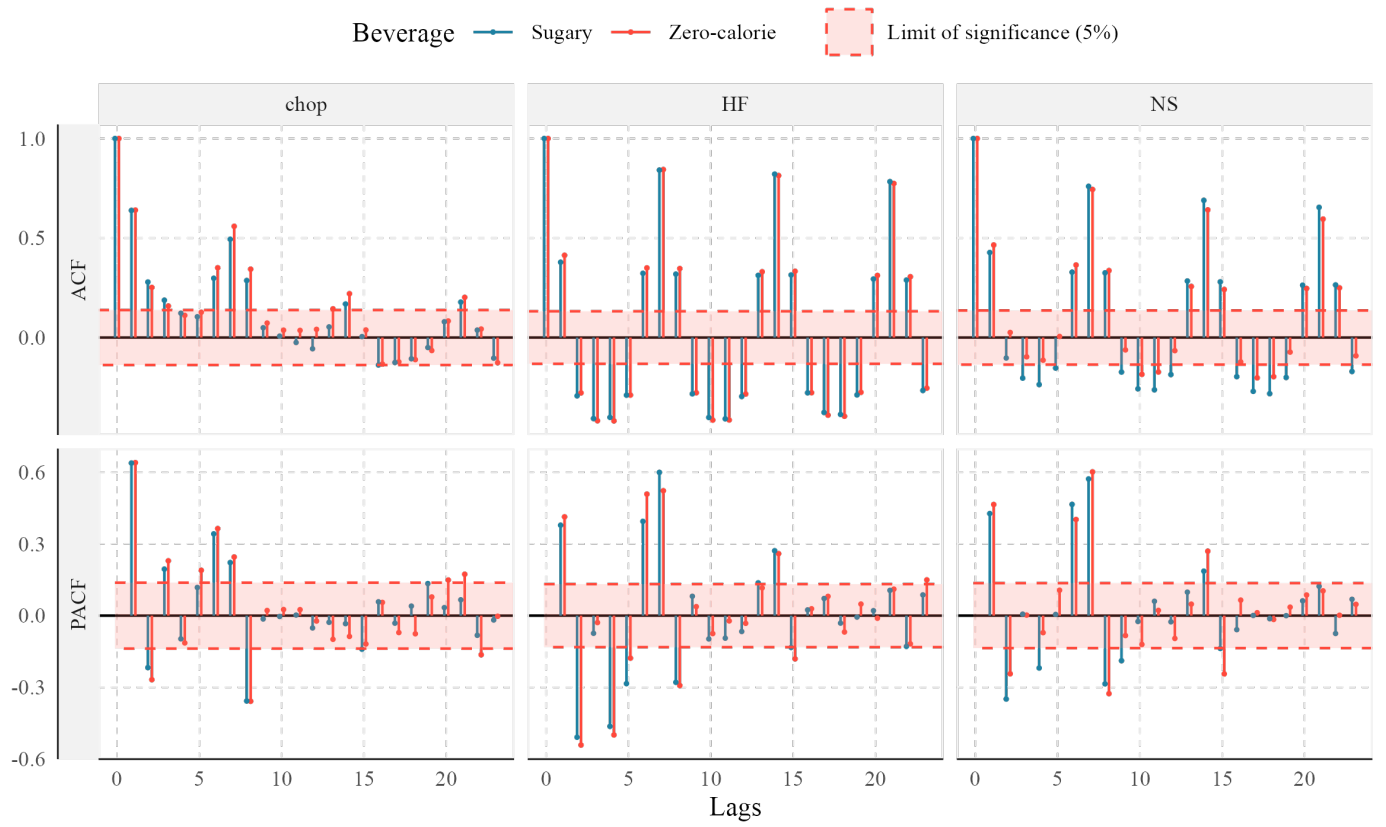


Figure A.3: ACF and PACF by Beverage and Site