



BOSTON
UNIVERSITY

The Rhythm of Dining

GAUGING THE IMPACT OF MUSIC ON STUDENT BEHAVIOR

Team 9

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The Rhythm of Dining

INTRODUCTION



Research Question

The purpose is to determine whether the presence of music in the café would influence the student's decision to remain seated and dine or leave the premises.



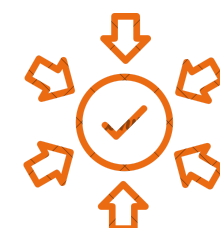
Hypothesis

The null hypothesis is that music has no effect on whether a student sits down in the cafe or not, and the alternative hypothesis is that music, infact, influences student behavior.



Technique

This is an observational study and the experimental design is a Switchback Analysis.



Implications

To provide recommendations on whether on-campus cafes should play music or not, and this decision's impact on revenue and sales.

SwitchBack

Experimentation

An Observational Study



The experiment followed the Switchback strategy over three days:

- Wednesday (03/01/2023): 3:30pm to 8:00pm
- Thursday (03/02/2023): 12pm to 8:00pm
- Friday (03/03/2023): 12pm to 3:30pm



The experiment spanned over a period of 16 hours, from noon till closing, at 8pm. The study consisted of 61 time groups, of 10 minutes each, with a 5 minute freeze time between time groups.



Music was played through a speaker centrally placed in the cafe. Music was selected from the worldwide top trending songs to ensure student engagement.





Outcome Variable

Does a student coming into the cafe actually sit down?

Treatment Group


Exposed to about 3 songs for a period of 10 minutes

Control Group


Not exposed to any music for 10 minutes, after the freeze time

	Outcome Variable	Coffee	Bagel
Treatment Effect	0.349*** (0.076)	0.057 (0.085)	0.120 (0.086)
Num.Obs.	359	359	359
R2	0.166	0.153	0.126

Note: ^^ + p < 0.1, * p < 0.05, ** p < 0.01, *** p < 0.001

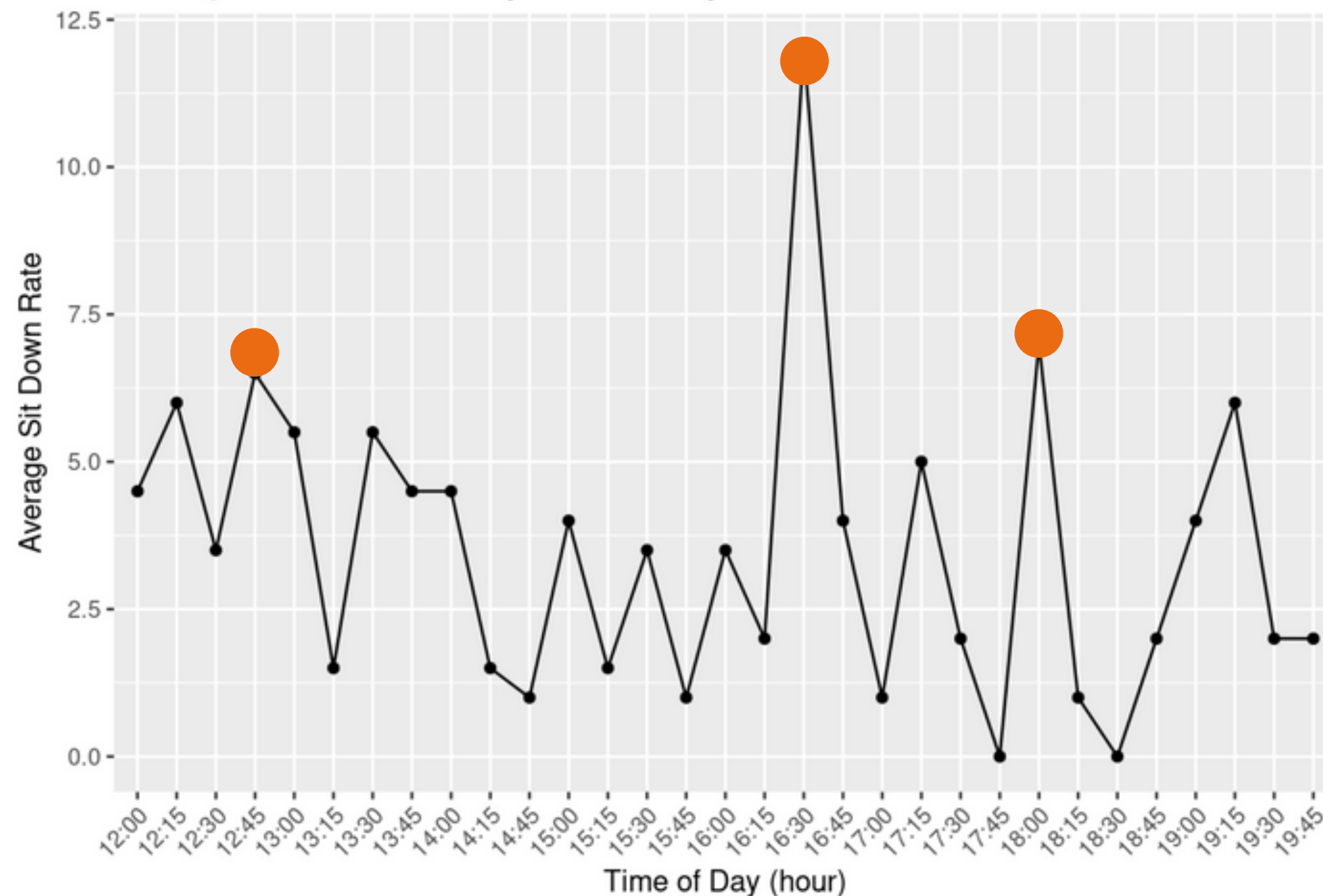
0.349***
**AVERAGE
TREATMENT EFFECT**

Being exposed to the treatment caused more students to sit down at the cafe

0.076
**STANDARD
ERROR**

The experimental study has a low standard error of 0.076

Average Sit Down Rate by Time of Day



Analysis

- Ggplot:** Used ggplot to visualize the rush hours in the cafe. The graph was plotted with the average number of student sit-downs against the hour of the day and for the 8 time frames.
- Regression:** Using the 'feols' function, regression was done while taking the outcome variable against being treated, with date and time as fixed effects, and clustering by the timestamp.
- Prop test:** To check for randomization, a prop test was conducted for all students who were treated with the total number of students in the experiment.
- Balance Check:** Checking for proportion of Males and Females in the Treatment and Control Groups.

THE RHYTHM OF DINING

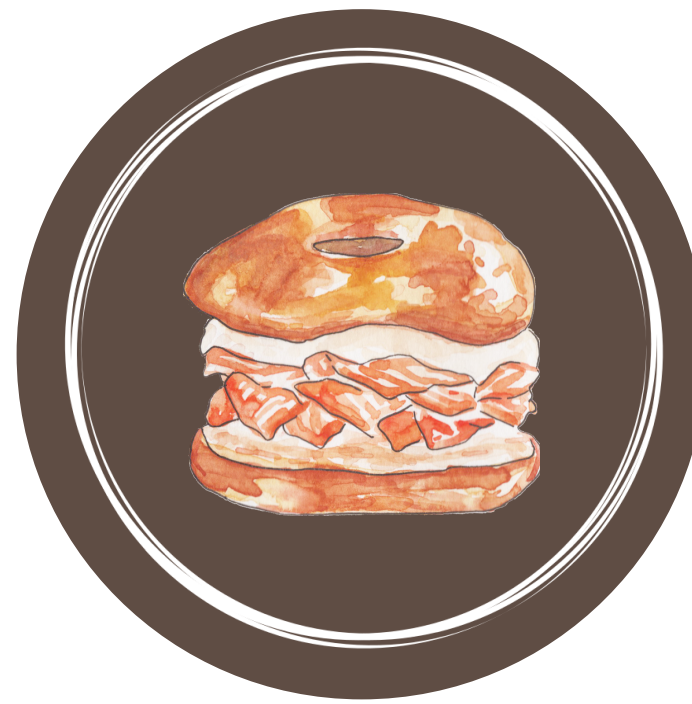
CONCLUSION



NULL HYPOTHESIS



NULL HYPOTHESIS



NULL HYPOTHESIS



Limitations



Limited Seating Capacity

The experiment was only conducted on three specific days (Wednesday, Thursday, and Friday) before spring break, introducing bias.



Limited Selection of Days

The experiment only observed 61 time frames of 10 minutes each, with a 5-minute freeze time between treatment and control.



Limited Number of Observations

The cafe's limited seating capacity resulted in many students sitting outside the cafe, despite the intention to observe their behavior inside.



Limited to a broad range of Music

The study did not account for the genre of music being played, which ranged from hip-hop to indie, Spanish, & country music.





ThankYou.