



Exploring the Impact of the COVID-19 Pandemic on Food Production and Waste Sustainability within Boston College Dining Services

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Introduction

In order to open its campus during the global coronavirus pandemic (COVID-19), Boston College was faced with the challenge of protecting the health and safety of all students, faculty, and staff. Boston College Dining Services (BCDS) is an integral campus facility that previously provided upwards of 23,000 daily meals to students as well as employed over 200 individuals. Because BCDS is such a necessary part of campus operation, it was imperative that new safety precautions be administered in order to maintain food service while protecting the community it serves. This study intends to determine the impact of COVID-19 and subsequent safety protocols on sustainability within Boston College Dining Services in three key areas: sources of food, waste and recycling, and economics.

We have observed BC dining hall patterns as a response to Massachusetts state guidelines¹ and the Centers for Disease Control and Prevention (CDC) recommendations². These include limiting the use of shared (i.e. reusable) objects and drastically reducing indoor dining capacities. A disruption in the typical dining operations poses a potential environmental sustainability concern, which we address with the following research objectives:

Objectives

Food Sources:

- Has the amount of food being distributed changed; do the same amount of students rely on dining halls for their meals?
- Has there been a change in the types of meals being offered?
- Has there been a change in Boston College Dining Services' food sourcing; what are the ramifications of this change?

Waste and Recycling:

- To what extent were disposables used in BC Dining before the pandemic; to what extent are disposables currently being used?
- How has BC Dining's use of food packaging changed since the pandemic started (i.e. type of packaging material, amount of food packaged)?
- How has the overall waste production and management (including both trash and recycling) changed since the start of the COVID-19 pandemic?

Economics:

- Were there any sustainability initiatives that had to be put on hold due to the pandemic?
- Has there been a change in cost as it relates to food processing and packaging; is BC Dining spending more on packaging and disposable products than before?
- Has the cost structure/cash flows of BC Dining changed as a direct result from the pandemic?

Methods

This research uses both qualitative and quantitative data in order to understand the effect of COVID-19 on sustainability within BCDS. We discussed our research objectives with representatives from BCDS as well as Student Sustainability Manager, Molly Funk, in order to obtain data and informational statements from them. From BCDS, we received data reports documenting the amounts of food purchased, location produced, and food sales at dining halls from 2019 and 2020. From this data, we were able to analyze shifts in food procurement and costs from pre-pandemic and current practices. We also received waste and recycling audits across campus from 2017-2020, as well as a statement titled "Impact of COVID-19 on BC Dining sustainability." We used the audits to analyze various waste output trends from before and during the pandemic, and the statement to guide our analysis. We interviewed several dining staff members regarding changes in staff and dining revenues to inform our observations on economic changes. We also conducted a student survey with over 50 BC students and to gauge how COVID-19 has affected their thoughts and behaviors in regards to their dining habits. We asked them a series of over 30 questions in multiple choice, ranking, and open-ended formats.

Results and Discussion

Food Sources

Across all the data sets analyzed, the found percent decreases during the Fall 2020 semester are less steep than the Spring 2020 semester furthering the conclusion that, while a huge decrease in food purchasing occurred during the months of March, April, and May of the Spring 2020 semester, the Fall 2020 semester is increasing its food purchasing, though at a slower rate that reflects the estimation that BC Dining Services are currently operating at 70% of their usual capacity. Overall, these trends suggest that there has been an understandable decrease in Boston College Dining Services' food sourcing, and therefore, the amount of food being distributed has decreased as well.

Figure 1 shows the 51.42% decrease in spending between the Fall 2019 and Spring 2020 semesters and the 44.15% decrease in spending between the Fall 2019 and Fall 2020 semesters.

Amount of Sum Sales (in Dollars) of Food Purchased from Distributors

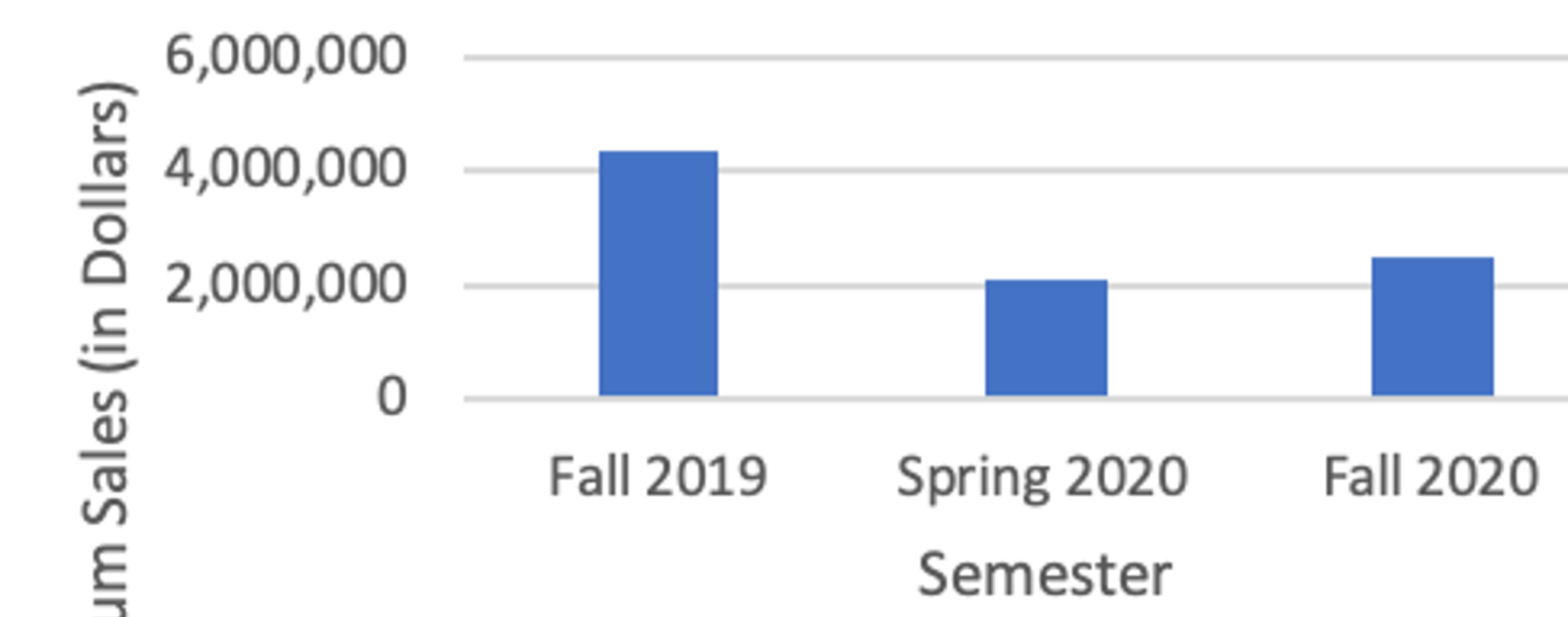


Figure 1. Amount of sum sales of food purchased from Fall 2019 through Fall 2020.

Waste and Recycling

In response to COVID-19, BCDS switched from serving ~40% of meals on reusable dishware to 100% in disposable containers. While the majority of containers are World Centric 100% compostable containers, BCDS reports that they have noticed more frequent disposal of plastic bags, clamshell containers, and cutlery; many items must be wrapped in plastic now too. To combat this, BCDS also implemented several sustainable programs including a reintroduction Green2Go reusable container program³ and the addition of new composting bins in more convenient locations outside dining halls.

The data we received from BCDS documents waste and recycling across campus. Despite BCDS' switch to 100% disposable use and increased plastic, there is actually less waste being produced at the Boston College campus during the coronavirus than there was before the pandemic (Fig. 2). This is consistent with the report from BCDS that although all more food is served in disposable containers, they are serving about 70% less meals than usual. One consideration might be that this reduction in operation has offset any increase in waste output.

**waste data is calculated on a campus-wide basis as BC does not measure dining-specific output the materials available to us **

Total Waste Trends

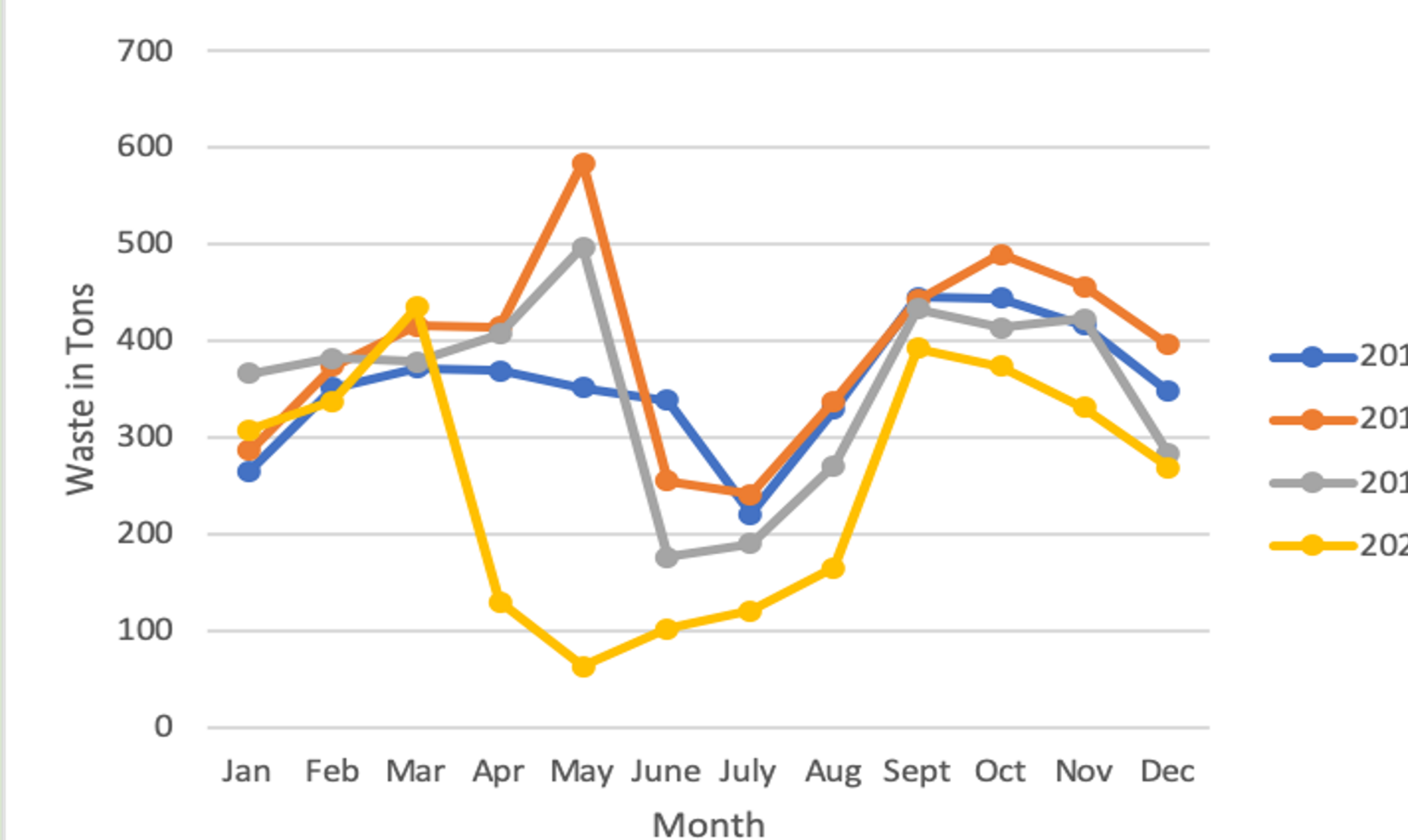


Figure 2. Total waste output trends across BC campus from 2017-2020.

Economics

The pandemic has financially impacted BC dining operations by decreasing revenues and increasing costs. Costs have increased due to increased staffing needs to meet COVID safety regulations, a 15% increase in packaging expenses (as only disposable containers are used), a policy which requires unserved food be thrown out at the end of the meal period, and macroeconomic factors which have led to an increased cost of meat/dairy products. Revenues have decreased because students are choosing to eat elsewhere; BC dining is operating at 50-70% capacity as compared to a "normal year."

Student Survey

Relative to before COVID protocols were put in place, how much do you eat at the dining halls now?
54 responses

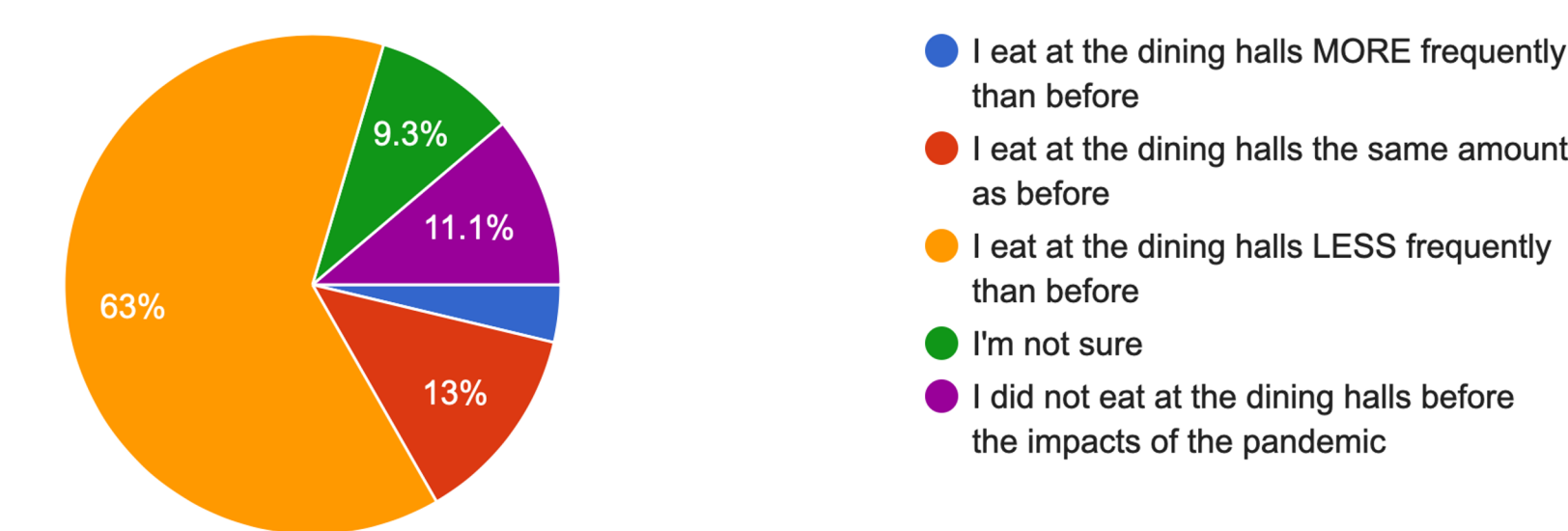


Figure 3. Student survey response regarding frequency of BC dining visits.

How comfortable do you feel eating at BC dining halls during the COVID-19 pandemic?
54 responses

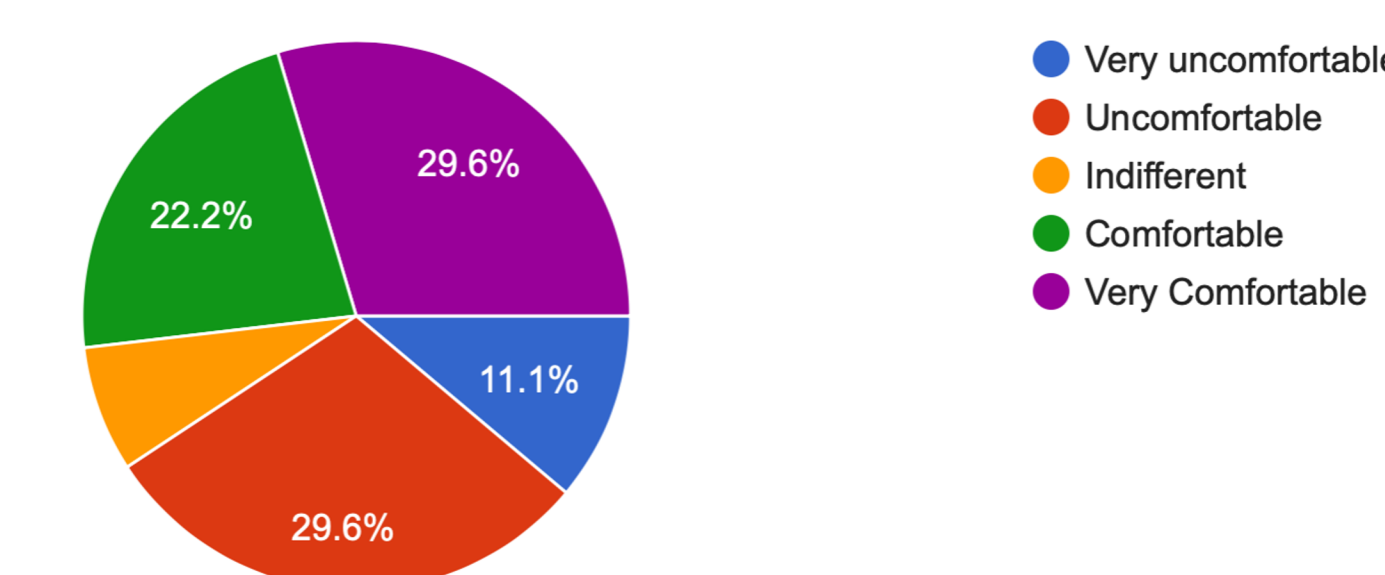


Figure 4. Student survey response regarding comfortability of eating in dining halls.

Recommendations

Continue to encourage students to use reusables:

In order to encourage reusable container opportunities among students during the pandemic, we believe that BCDS should expand its Green2Go Program to accommodate all dining locations, and increase transparency regarding the sanitization process reusables so that students feel safe using them.

Make waste disposal more environmentally friendly:

BCDS and BC more generally should clearly advertise where outdoor composting bins are placed so students know where to find them. They should also increase monitoring and emptying of MSW, recycling, and compost bins within dining halls to limit overflow.

Post-pandemic operations:

When it is safe to do so, BCDS should transition to normal protocols, as students have indicated many protocols currently in place negatively affect their dining experience. Because of this, they eat at dining halls far less (Fig. 3). Similarly, many students report that they feel less comfortable eating in dining halls (Fig. 4) which in turn, affects revenue.

BCDS should safely reintroduce pre-pandemic staff numbers. They should phase out the 100% disposable guidelines; reusable containers and dishware should be placed in prominent, easily accessible locations across all dining halls. Discount programs that benefit students who opt for reusables should be reinstated. Overall, further research should be conducted on the pandemic effects on sustainability at Boston College and in local, global, and international spheres.

References

¹ *Safety Standards and Checklist: Restaurants.* (2021). Mass.gov. Retrieved April 26, 2021, from <https://www.mass.gov/info-details/safety-standards-and-checklist-restaurants>.

² *Considerations for restaurant and bar operators.* (2020). Centers for Disease and Control Prevention. Retrieved April 26, 2021, from <https://www.cdc.gov/coronavirus/2019-ncov/community/organizations/business-employers/bars-restaurants.html>.

³ Murphy, Hannah. *Green2Go Program to Expand from Stuart to Lower Campus Dining Halls*, Oct. 2020, www.bc.edu/content/dam/files/offices/sustainability/pdf/EnvEagleNewsletterOct2010.pdf.

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