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Student Research Report

The Effect of Discrete Ordering via Ballots on Price Selection at the UBC Food Café

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The Effect of Discrete Ordering via Ballots on Price Selection at the UBC Fooood Cafe

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Executive Summary:

Fooood is a non-profit, choose-what-you-pay café on the University of British Columbia (UBC) campus with a three-tier pricing system (i.e. \$5/\$10/\$15). The café is a resource for food insecure individuals because nutritious meals are made available at a subsidized price. Normally, customers convey their price option to the cashier by pointing to an informative poster describing the price choices. For this research, ballot-ordering was implemented for one week as an intervention to promote privacy in the ordering process, as embarrassment and shame are noted barriers to accessing food resources. Literature review, survey results and experimental data (i.e. ordering data of the ballot and non-ballot weeks) were used to evaluate the hypothesis that customers would select the lowest price option at Fooood more frequently when ordering was achieved via ballot. Survey results found that 63% of respondents chose a less healthy meal for financial reasons on a weekly basis. The experimental data shows that there was a slight, but insignificant, increase in \$5 meals ordered during ballot implementation. We recommend that Fooood further evaluate the attitudes that customers have towards Fooood's ordering process so that operational changes can be made targeting potential barriers to accessing the resource e.g. fear of judgement.

Introduction:

Food insecurity is defined as limited access to “sufficient, nutritious, personally acceptable food” (Davis & Tarasuk, 1994), and affects approximately one-third of post-secondary students across Canada (Hattangadi et al., 2019). This has serious implications on student well-being, both physically and academically (Meza et al., 2019).

A 2018 study on food pantry usage across college campuses in the United States found that only 38% of identified food insecure students were making use of available food pantries as a resource (El Zein et al., 2018). Survey results found that social stigma, or embarrassment, and the feeling that the food pantry was “not for them” were identified as being critical barriers to seeking out support from food pantries (El Zein et al., 2018).

University students may be especially susceptible to being food insecure due to high cost of living situations, and the financial strain associated with paying tuition and prioritizing payments on student debt (Hattangadi et al., 2019). A study conducted on a student volunteer-run cafe at the University of British Columbia (UBC), Seedlings Café, found that affordability was one of three main reasons that customers frequent this café (MacEwan et al., 2016). Seedlings Café is similar to another eatery on UBC’s campus, Fooood, which also emphasizes the important role that healthy, yet affordable, food options play in supporting a food secure student population. Fooood has a three tier choose-what-you-pay price structure. The idea behind this pricing system is that food insecure students can access a healthy meal at a subsidized price by selecting the lowest price option (i.e. \$5), and individuals who would like to pay-it-forward and support the program can choose to pay the highest price option (i.e. \$15). The middle price option of \$10 covers the cost of meal ingredients, labor, etc.

Gneezy et al., 2012 conducted several studies on pay-what-you-want pricing schemes and asked why customers would feel motivated to pay in situations where they can receive products for free. It was concluded that customers might “opt-out” of pay-what-you-want schemes if they

feel they cannot afford an appropriate price, because they want to be perceived as being non-selfish or prosocial. With this in mind, if customers are under the impression that customers behind them in line will notice their price option they may select a less affordable choice to preserve self-image.

Considering that social stigma is a barrier to seeking out food resources for food insecure students, and that pricing-schemes involving choices lead to opt-out behaviors, this study asks how the method of ordering at Fooood might affect the price choice of customers. We hypothesized that customers would select the lowest price option (i.e. \$5) at UBC's three-tier choose-what-you-pay cafe, i.e. Fooood, more frequently when ordering was achieved by checking a box on a paper ballot rather than by communicating price choice to a cashier via verbal communication or by pointing to an option because ballot-ordering adds additional discretion to the ordering process.

Methodology:

Participants: For the ordering component of this research N= 1523 meals ordered at the Fooood Cafe. This can be broken down into the status quo condition in the first week of data collection when 49.8% of orders were made (N = 759), and the ballot condition during the second week when 50.2% of orders were made (N=764). No target sample size was identified as this study was a quasi-experiment where the sample size was dependent on the number of customers who frequented the cafe in a two-week period.

The online survey had a sample size of N = 28. The survey was originally intended to be administered in person at three different UBC locations for a minimum of three hours, but due to this research coinciding with the COVID-19 pandemic amendments were made to study methodology (Appendix A).

Presumably the sample demographic at the cafe was largely students and staff from UBC. Social media outreach was targeted towards UBC students, however no demographic information was collected so it cannot be assumed that UBC students were the only respondents.

Conditions: The ordering experiment was composed of six conditions. Customers either ordered during a status quo or ballot ordering week (i.e. control or experimental condition, respectively). The week of ordering is the independent variable. Within a given week customers chose to pay \$5, \$10, or \$15 for their meal. The price choice is the dependent variable of this study.

Similarly, the survey contained six conditions overall as some questions required respondents to imagine ordering in either ballot or verbal conditions, and to select their corresponding price choice (i.e. \$5, \$10, or \$15). All respondents were given the same questionnaire.

Procedure: For the first week of data collection the cafe operated as it typically does. When customers reached the till, they were asked to point to their price choice on an informative poster explaining the different price options (Appendix B, Fig. 1). Members of the project group made observations throughout the week but otherwise operations of the cafe were status quo.

Ballot ordering at the cafe was implemented in the second week of study. 1000 2.8 X 1.6 in. ballots (Appendix B, Fig. 2) were printed and cut. A small box full of ballots and pencils was placed on the counter near the till on Monday morning of the experimental week, prior to the cafe's opening at 7:30 a.m. The workers at Fooood were debriefed on how to handle the ballots and were encouraged to direct customers towards the ballot method of ordering. Observations were made throughout the week, but no further interventions occurred. Fooood returned to

regular ordering the following Monday.

The survey was created using Qualtrics survey software. The survey included three multiple choice questions and one likert scale question (Appendix C). First, respondents were asked to select which of three situations, indicative of being food insecure (USDA, 2012), they had experienced on a weekly basis over the past twelve months, if any. Secondly, they were asked to imagine selecting the lowest price option at a choose-what-you-pay cafe and to rate the extent to which they associated this option with various thoughts or feelings, such as “Great deal!” or “Embarrassing”. The final two questions asked participants to imagine ordering at a three-tier pay-what-you-can cafe and to select whether they would choose to pay \$5, \$10, or \$15. In the first scenario, respondents were told that they would verbally announce their choice to the cashier, whereas in the second scenario they would write down their price option and hand it to the cashier.

Results:

28 respondents opened the online survey (Appendix C), 24 of which completed it. For Question 1 respondents were asked whether they had experienced any of the following criteria for food insecurity once a week over the past 12 months: 1) Skipped a meal because you couldn't afford it, 2) Chosen a less healthy meal for financial reasons, 3) Were worried where your next meal would come from, or 4) None of the above. Fourteen respondents selected #2, one respondent selected #1 and #2, one respondent left the question blank, and eight respondents selected #4 (Appendix D, Fig. 3). Overall, 62.5% of respondents identified with at least one measure of food insecurity.

For Question 2, respondents ranked their association between various statements and the price options on a 5-point scale. The majority of respondents associated the \$5 price point with “Great deal!”, “I can afford this”, and “I can afford more”, but not with “Embarrassing”, “This is all I can afford”, or “I’m being selfish by picking this option” (Appendix D, Fig. 4).

Questions 3 and 4 asked respondents which of the price options they would hypothetically choose, if using verbal or ballot ordering, respectively. When imagining verbal ordering, 8 respondents chose the \$5 option, while 16 chose the \$10 option. When imagining ordering via ballot, thirteen respondents chose the \$5 option and eleven chose the \$10 option (Appendix D, Fig. 5). A chi-square test of independence was performed to examine the relation between method of ordering and price selection. The relation between these variables was not significant, $\chi^2(1, N = 24) = 2.1, p = .15$.

During the 2 weeks of data collection 1523 meals were ordered, with 759 during the first week and 764 the second week. During the first week, where ordering took place as usual, there were 647 \$5 orders, 96 \$10 orders, and 16 \$15 orders. During the second week, when ballot ordering was in place, there were 675 \$5 orders, 77 \$10 orders, and 12 \$15 orders (Appendix D, Fig. 6 & 7). Once again a chi-square test of independence was performed to examine the relation between method of ordering and price selection. The relation between these variables was not significant, $\chi^2(1, N = 1523) = 3.2, p = .20$.

Discussion:

Food insecurity is a serious issue, and it is important to ensure that intended resources are benefitting targeted individuals. The feeling that an individual is not eligible to access resources targeting food insecurity issues has been identified as a barrier to such individuals seeking support (El Zein et al., 2018). Additionally, if customers feel that they are straying from the

social norm by selecting a low-price option customers may rather avoid ordering than to make a choice which would negatively impact their self-image (Gneezy et al., 2012). By implementing “ballot ordering” this study aimed to create a more discrete ordering environment for food insecure students.

A 2017 study conducted by Rideout and James on students in the faculty of Land and Food Systems at UBC found that 45% of respondents were food insecure, using a more comprehensive survey than our own. In a study on food insecurity across five Canadian university campuses, 30.7% of students were deemed to be moderately food insecure, and an additional 8.3% were severely food insecure (Silverthorn, 2016). Based on our own survey results from question 1, 62.5% of respondents identified with at least one measure of food insecurity. While our survey was not robust in measuring food insecurity, it does imply that access to healthy, yet affordable, food is a challenge for many respondents.

Our second survey question was intended to measure whether respondents had negative attitudes towards ordering the lowest price option at a three-tier choose-what-you-pay café. However, very few respondents associated the \$5 option with embarrassment or selfishness suggesting that this option did not feel stigmatizing to them, as we had expected. Future research could further consider attitudes towards the subsidized payment option targeting concepts such as “I would be taking resources from those who may need it more than me”, and “I’m not sure if I qualify [for the \$5 option]” (El Zein et al., 2018).

Chi-square analysis of both the final survey questions and the experiment concluded that results were not significant. However, in both cases participants did show an increased tendency to select lower price options in the ballot condition. No conclusions can be drawn regarding the reasoning behind this shift; however it suggests that ballot implementation may aid customers in feeling more comfortable to select the lowest price option.

Naturalistic observations by the researchers suggest that many uncontrolled variables may have weakened the validity of these results. For one, during the week of ballot ordering customers stood very close together in the line thus potentially undermining any discretionary advantage of the ballot system. Secondly, many customers were still verbalizing or pointing to their price choice during ballot implementation. Due to the fact that ballot ordering was only implemented for a one-week period, regular customers may have been unfamiliar with, or unaware of, the new ordering process leading to the high rates of pointing and verbalizing observed in ballot-implementation week. As well, it was observed that some staff members asked customers to verbalize their ballot choice which further interrupts the results as not everyone was using ballots during the experimental week of data collection.

Overall, this research could have benefitted from utilizing a better measurement of stigma and from better addressing the extent to which this may have affected people's comfort in choosing an appropriate meal price at UBC's Fooood cafe. Further limitations include the possibility of cultural differences on perceptions of food insecurity or stigmatization which may have affected people's view of the ballot ordering method. For example, one aspect of food security is the access to culturally appropriate food (Hattangadi et al., 2019; Moffat et al., 2017) which Fooood does not necessarily provide. However, no specific demographic information was collected during this study, and attitudes towards the ordering method from actual customers were not collected.

With the above limitations in mind, no conclusions can be drawn regarding any “stigmatization” effects of the ordering process at Fooood. While there is literature on the use of food pantries in university settings (e.g. El Zein et al., 2018), more research could focus on

perceptions of alternative food security resources and how to best manage such resources to support food insecure populations.

Recommendations:

Going forward, we suggest that measures are taken to inform both staff and customers on the importance of ordering discretion. While our results were not statistically significant we did see an increase in \$5 purchases during ballot implementation. Though no conclusions can be drawn regarding the nature of this increase, our survey result supported the fact that people may be more likely to choose the \$5 option when ordering is less personal. This might include more awareness and training for staff on food insecurity and the associated feelings that food insecure customers may have such as embarrassment and shame (El Zein et al., 2018; Hattangadi et al., 2019). Additionally, Fooood could consider setting up the physical process of ordering differently so that customers have more privacy at the till. In the case of business-as-usual, this could include a line which customers must stand behind until the previous customer has ordered. If ballot-ordering were to be tested again, this could include a separation in the line between where ballots are filled out, where customers line up, and where they order. If any changes are made it is important to maintain the efficiency of ordering, from both a business and customer standpoint. This being said, further research with a longer period of ballot-ordering where more attention is given to optimizing the discretion and efficiency of the process may be beneficial. By giving customers time to get used to any changes in the ordering process at Fooood, individuals that might have felt intimidated or uncomfortable about making a lower price-option might appreciate the additional measures of privacy.

When advertising this cafe as a resource for food insecure students, Fooood should consider the fact that embarrassment and shame have been reported as barriers to accessing food resources by other research groups. The UBC community should know that this eatery is inclusive to all and that anyone who struggles with finding nutritious, yet affordable, meals is eligible for the \$5 choice.

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Appendix:

Appendix A: Changes to Methodology

Due to the transition to online classes during the COVID-19 pandemic amendments were made to the original methodology of this study. The survey portion of this research was intended to be administered in-person to students at three different building locations across campus. The goal was to target UBC students from a variety of faculties and who were in different years of study. in-person surveys were not feasible. The sample size is thus small due to a shift in plans, as well as being less representative of the student population.

Appendix B: Figures, Procedure



Figure 1. Poster displayed near the till at Fooood explaining the price-choice system and indicating that customers should point to their price option.



Figure 2. The ballot provided for ordering during the experimental week of this study,

Appendix C: Qualtrics Survey

In the past 12 months, have you experienced any of the following on a weekly basis? Select all that apply.

- Skipped a meal because you couldn't afford it
- Chosen a less healthy meal for financial reasons
- Were worried about where your next meal would come from
- None of the above.

Imagine you are at a pay-what-you-can cafe, with a \$5, \$10, and \$15 option. You will get the exact same meal regardless of what you choose to pay. To what extent would you associate the \$5 option with the following on a scale from 1 (not at all) to 5 (completely):

1	5
Great Deal!	
Embarrassing	
I can afford this	
This is all I can afford	
I can afford more	
I'm being selfish by picking this option	

Imagine that you are next in line at a pay-what-you-can cafe and you are verbally asked which price point you would like to pick. Each price option leads to the same meal. Which option do you select?

- \$5
- \$10
- \$15

Imagine that you are next in line at a pay-what-you-can cafe and you are asked to pick your price option via a slip of paper that you fill out discreetly and hand in to the cashier. Each price option leads to the same meal. Which option do you select?

- \$5
- \$10
- \$15

Appendix D: Figures, Results

#	Answer	%	Count
1	Skipped a meal because you couldn't afford it	4.17%	1
2	Chosen a less healthy meal for financial reasons	62.50%	15
3	Were worried about where your next meal would come from	0.00%	0
4	None of the above.	33.33%	8
	Total	100%	24

Figure 3. Results from survey question 1. 62.5% of respondents identified with at least one measure of being food insecure.

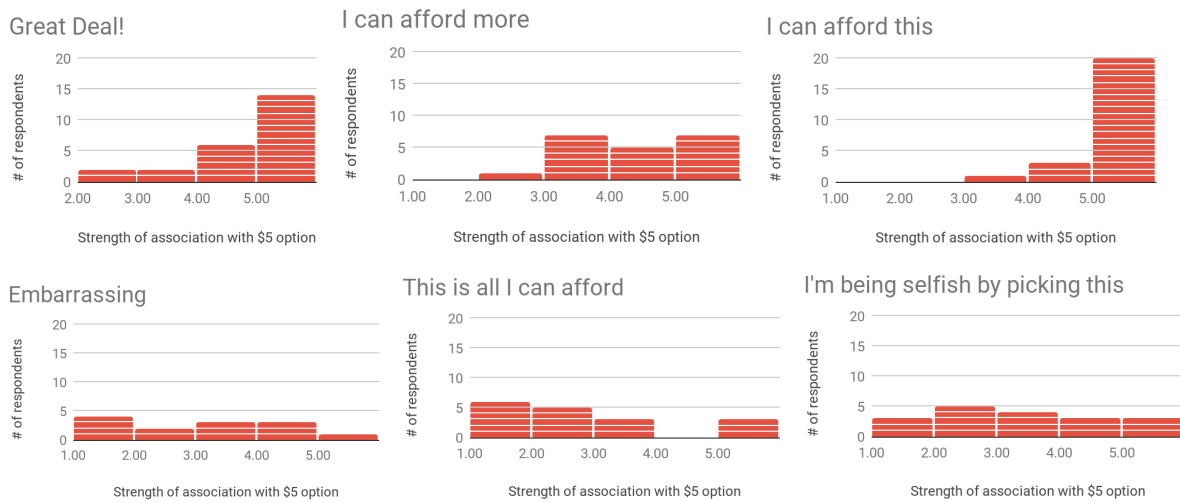


Figure 4. Results from survey question 2. Over half of respondents identify that a \$5 meal option is a great deal, and affordable. An answer of 1.00 indicates that the respondent does not associate the \$5 option with the provided statement, and an answer of 5.00 indicates that they completely associate the \$5 option with the statement.

Results			
	\$5	\$10	Row Totals
Verbal	8 (10.50) [0.60]	16 (13.50) [0.46]	24
Ballot	13 (10.50) [0.60]	11 (13.50) [0.46]	24
Column Totals	21	27	48 (Grand Total)

Figure 5. Results from survey questions 3 and 4. Some participants imagined switching from picking a \$10 option to a \$5 option if ordering was done via ballot but this was not a statistically significant result ($\chi^2(1, N = 24) = 2.1, p = .15$)

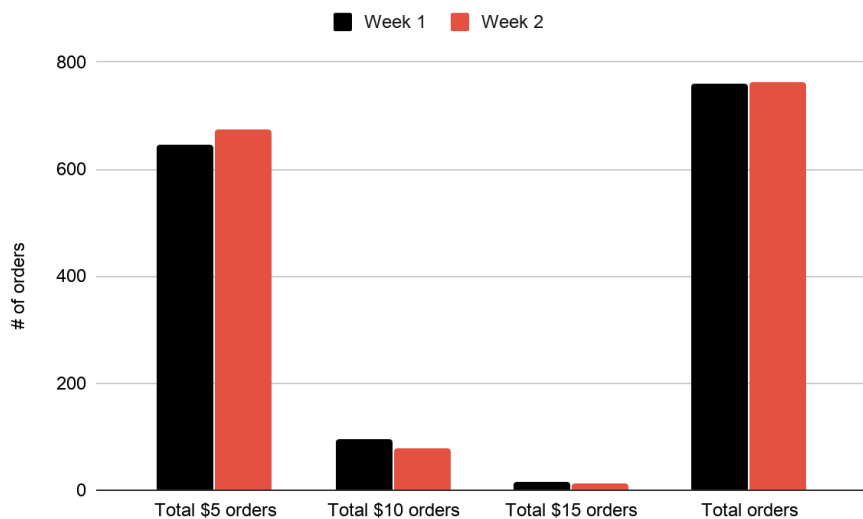


Figure 6. Graph of Fooood Cafe sales during the status quo week (Week 1) and the ballot intervention week (Week 2)

Results				
	\$5	\$10	\$15	Row Totals
Status Quo	647 (658.83) [0.21]	96 (86.22) [1.11]	16 (13.95) [0.30]	759
Ballot	675 (663.17) [0.21]	77 (86.78) [1.10]	12 (14.05) [0.30]	764
Column Totals	1322	173	28	1523 (Grand Total)

Figure 7. Fooood cafe sales, broken down by price, along with each price option's expected frequency. No statistically significant difference between two weeks' sales ($X^2(1, N = 1523) = 3.2, p = .20$)