

All-You-Can-Eat in Reality: You Eat what You Choose

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ABSTRACT All-you-can-eat buffet is a long-standing favourite for gourmands and restaurateurs. In behavioural economics, literature shows mixed findings in how price interacts with customers' perceived food quality and consumption. Some research found that lower payment led to higher food consumption and worse ratings, while others found that this phenomenon to be associated with higher payment. This inconsistency may be due to the difference of experimental design; namely, whether participants were aware that different prices are available to choose from. If individuals can choose between two sets of two different prices, individuals who choose the cheaper set may consider their meal more cost-effective and will not push themselves to consume more, only to make up for the price. This study proposal aims to use Korean BBQ buffet to understand how the presence of choice impacts consumers' behaviour. We hypothesize that individuals in both the standard and the premium set condition will show similar results in all three variables — number of dishes ordered, level of perceived food quality, and level of satisfaction in dining experiences — when a choice is given. Conversely, when individuals do not have a choice, those who are assigned with the standard set will consume more food and give more negative ratings than those assigned to the premium set. If this hypothesis is confirmed, results will have strong implications for food industries and government policymakers. For businesses, this implies that choice architecture can nudge consumers to make decisions that both lower operation costs and maintain customer satisfaction. For public welfare, the presence of choice can encourage an autonomous attitude in consuming healthy food.

INTRODUCTION

The sunk cost fallacy refers to the notion that individuals will continue in an investment due to previous efforts (Roth et al., 2015). In an all-you-can-eat (AYCE) buffet context, the sunk cost fallacy justifies why people irrationally continue to consume food even when they are already full or the food tastes mediocre – only to make up for the price they have paid. One paper proposed three possible models to understand the relationships and interaction between price, food quality and consumption (Just & Wansink, 2011). These three models justify three possible scenarios on how price can influence the amount of food consumption and perceived food quality. In the first scenario, price has no significant impact on consumer's behaviour; the greater the amount of food consumed, the more cost-worthy the meal is perceived to be. In the second scenario, the amount of food consumed depends on the price; the higher the cost of the meal, the more consumption is required to make the meal feel cost worthy. This is because if individuals perceive that their level of consumption meets the price paid, a low-cost buffet is equally satisfactory as a high-cost buffet (Thaler, 2004). In the third scenario, high cost implies higher quality, which sets taste expectation higher in accordance with the price. This idea is supported by a study on price-perceived quality relationship in the U.S. cheese market, which found that higher price is associated with higher perceived quality (Yu & Du, 2019). In other words, higher price may lead to lower food satisfaction because the anchor point is set higher.

Literature findings were inconsistent in testing the above three models. In one experiment at an AYCE pizza restaurant, researchers offered half of their participants a 50% off discount coupon (Just & Wansink, 2011). Results revealed that individuals who did not receive the discount consumed more pizza, and higher consumption was associated with lower ratings of food taste. When the pizza was perceived as lower quality, more pieces was consumed to make the money worth, which corresponds to the transaction utility model (second scenario). Just & Wansink (2011) concluded that higher payment leads to higher food consumption and more negative ratings. Sigirci and Wansink (2015) conducted a similar study where participants were charged either \$4 or \$8 for a pizza lunch buffet at a pizza place. Researchers replicated the relationship between consumption and dining experience – those who consumed more pizza rated their experience more negatively, with stronger feelings of guilt and physical discomfort. Researchers failed to replicate the relationship between price and consumption – the \$4 condition consumed more pizza than the \$8 condition. The \$4 condition also rated the food less tasty and less satisfactory (Sigirci & Wansink, 2017). Sigirci and Wansink (2015, 2017) concluded that lower payment leads to higher food consumption and a more negative rating.

Current literature fails to explain why these contradicting findings occur. One possible explanation may be the difference between the two experiment designs, which lies in whether the participants in the experiment condition were aware of another option. In the first study,

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participants were presented with a 50% off coupon, which implied that they were aware of the original price (Just & Wansink, 2011). In the second and third studies, participants were given flyers that only marked one price; hence, the \$4 condition were not aware of the price of the \$8 condition (Sigirci & Wansink, 2015, 2017). If the mere presence of options could produce such significant effect, what would happen if individuals were given the chance to make their own choice? One research study investigated this question with a repeated measures forced choice paradigm. In this study, participants were first asked to estimate the prices for a list of snacks. They then went through a decision phase where they were forced to choose between a series of two random snacks. Finally, they went through the list of snacks again where they re-indicated how much they would be willing to pay for those snacks. Findings showed that in the re-indication phase, participants were willing to pay more for the item they selected, compared to before the choice was made (Voigt et al., 2019). This brings to the question whether the presence of choice can eliminate the sunk cost fallacy. Specifically, if individuals can choose between two sets of two prices, will they consider their meal more cost-effective than normal, such that they would not need to increase consumption to make up for the price?

In the present study, we will use a Korean BBQ AYCE buffet setting to understand how the presence of choice impacts individual's consumption behaviour. The objective of this study is to resolve contradictions in previous literature by suggesting how the role of choice can potentially eliminate the phenomenon of the sunk cost fallacy. Our proposed methodology incorporates a 2x2 design where we have two independent variables: set (standard or premium) and choice (with or without). The experiment group will have a choice of either standard or premium set; whereas the control group will be assigned to either a standard or premium set without know the other choice exists. Our study design has three dependent variables: level of consumption (number of orders), level of food satisfaction (food quality rating), and level of dining experience (physical and psychological discomforts). We hypothesize that when a choice is given, individuals in both the standard and the premium set condition will show similar results in all three variables. Conversely, when individuals do not have a choice, those who are assigned to the standard set will order more dishes, rate the food quality lower and their dining experiences less satisfactory, as compared to those assigned to the premium set.

METHOD

Participants

The methodological frame of this study is adapted from previous literature that studied the relationship between AYCE and consumption behaviour, with modifications to include the provision of choice. A G power analysis with an effect size of 80% suggests a sample of 64 adult participants, excluding confederates. Using the University of Toronto's internal mailing system, individuals will be recruited from the Toronto population, which includes a variety of individuals in terms of ethnicity, age, and gender.

Participants will be assigned to one of the four conditions: standard set with choice, standard set without choice, premium set with choice, premium set without choice. The differences between standard set and premium set lies in how much they cost, and the food types offered in the menu. The difference between with and without choice implies whether the participants can choose their set, which comes with a minimal priming procedure. Lab members will take turn to play the role of confederate in each with-choice condition.

Materials

Setting

An experiment room will be set up for the distraction task. It will contain a table, two chairs, some stationary, materials on different AYCE menus, and an information sheet which participants will fill in. The restaurant is at the centre's basement where the experiment is conducted. One room is allocated for the dining task, with a portable BBQ grill plate and a menu on a table. Food ingredients are provided by the restaurant and delivered by a server.

Menu

The design of two sets explicitly ties the price and the quality of food together. The price of each set is referenced from one famous Korean BBQ AYCE Restaurant in Toronto. The standard menu has a fixed price of \$15. It covers vegetables, starch, and meat, but only offers chicken for the meat section. The premium menu has a fixed price of \$25. It has a wider variety of options for all three categories; especially for meat, where it offers chicken, beef, and pork.

Questionnaires

Two customer surveys ask about participants' agreements with statements on a 9-point Likert scale (1 = strongly disagree; 9 = strongly agree). The questionnaire on food focuses on the quality of food (e.g., taste, temperature, appearance). It also highlights the cost-performance ratio, i.e., if the food is good value for the money they paid. The questionnaire on dining experience is adapted from Sigirci and Wansink's (2017) study. Questions highlight physical and psychological perceptions, such as level of satiety, guilt, and physical discomforts. Apart from the two surveys, personal information (e.g., age, gender, body mass index, diet), participant's experience with AYCE, and their level of hunger will be collected on a separate demographic questionnaire.

Procedure

Distraction Task

Participants are first brought into the experiment room and told that we are interested in studying how different individuals code data. Demographics are collected before the task. During the task, participants read six AYCE menus from different restaurants. They then write down each of their prices, sets, and food items onto a separate information sheet. This task has two objectives. First, we want to distract them from our actual study purpose. Second, we want to familiarize them with AYCE and anchor them to the normal pricing standard of different sets.

A minimal priming procedure is additionally included for individuals assigned to the with-choice conditions before the distraction task. The participant first fills in some demographic information, including food interest, in a room on their own. After the participant hands in the form, an experimenter enters the room along with a confederate, and announces that both the participant and the confederate belong to the same group because of their common food interest. The confederate then initiates a conversation with the participant that highlights their similarities. The participant will then proceed with the distraction task as described above.

Dining Task

After the distraction task, all participants are given a \$30 coupon to the AYCE restaurant in the experiment centre. They are told that the remaining amount can be converted to cash. Participants in the no-choice conditions will only receive the set (standard/premium) based on their assignment. Participants in the with-choice conditions can choose between the standard and the premium set. They will observe the confederate they met earlier choosing the set at the restaurant. The set which the confederate will choose depends on the condition that the participant was assigned to. At the same time, a new confederate will come in and choose the opposite set. Because the participant finds themselves more familiar and similar with the first confederate, they are more likely to follow the choice of the first than the second confederate. This scene aims to direct the participant to choose their assigned set.

All participants will be led to the dining room individually and place their orders through an electronic tablet, which records the number and variety of items ordered. Participants would have 90 minutes to order and consume as many foods on the menu as they want. Immediately after these 90 minutes, participants will need to stop eating and will complete a customer survey on both the food quality and their dining experience.

Since our study involves deception, a debriefing session will be arranged. Researchers will explain our purpose of study, answer questions, and provide resources for counselling.

EXPECTED RESULTS

A 2 (set: standard or premium) x 2 (choice: with or without) independent-factorial analysis of variance (ANOVA) on test scores will reveal a significant main effect of choice and a significant interaction between set and choice for all three dependent variables.

For the main effect of choice, participants who cannot choose between the sets will order more dishes, rate the food quality lower and their dining experiences less satisfactory. On the

contrary, participants in the with-choice condition would order fewer dishes, rate the food quality higher, and their dining experiences more satisfactory than their counterparts in the without-choice condition. There will be no significant main effect of set.

An interaction effect will show larger mean differences in all three variables — number of dishes, level of perceived food quality, and level of satisfaction in dining experiences — between sets in with-choice conditions than without-choice conditions. The with-choice conditions will show no significant difference between the standard and the premium sets for all three outcome variables. In without-choice conditions, those who has the standard set will order more dishes, rate the food quality lower and their dining experiences less satisfactory than those who has the premium set.

DISCUSSION

This study expects to confirm the hypothesis that the presence of choice eliminates the effect of sunk cost fallacy on the relationships between price, quality, and consumption. Specifically, when individuals are presented with a choice, the consumption and quality ratings will not differ between having a standard or a premium set; whereas when individuals do not make a choice over the food they consume, those with the standard set will consume more food, perceive the food quality lower, and their dining experience less satisfactory.

The role of choice in the meal set, and thus how much people pay for one meal, can be explained by the action-based model of the cognitive dissonance theory (Harmon-Jones et al., 2015). In the original theory, individuals change their attitudes to reduce the psychological discomfort due to inconsistencies between thoughts and actions (Festinger, 1957). A deeper interpretation of this theory implies that the internal conflict between an action and why this action is taken can also create negative arousals. Since individuals have already committed to the course of action, they need to change their attitudes to help them follow through with the behaviour (Harmon-Jones et al., 2015). This theory helps us understand why participants in the with-choice condition will rate their chosen set more favourably regardless of the food they consume, resulting in no difference in evaluations towards the standard versus premium sets. Since the participants have already decided on which set to consume, they are motivated to rate it more favourably so that they can enjoy themselves throughout the meal.

Likewise, the concept of “the spreading of alternatives” illustrates how individuals shift their perceptions in a free-choice paradigm. After a difficult decision between two items, individuals feel more positive about the item that they chose and more negative about the one they gave up (Brehm, 1956; Ferrer & Shi, 2015). This concept has been replicated in several contexts, including the choice of apartment, paintings, and household appliances (Beckmann & Kuhl, 1984; Brehm, 1956). One study demonstrates how this concept responds to the sunk-cost fallacy. Compared to the easy-decision condition, individuals who had to write about implementing a difficult decision were more likely to change their evaluations in favour of their tasks (Harmon-Jones & Harmon-Jones, 2002). This suggests how the cost of action (e.g., effort) can make the chosen item more positive. Thereby, participants in the with-choice condition are more likely to evaluate their chosen set more favourably regardless of which set they chose.

Strengths and limitations

These findings of the present study will have significant impact on both food industries and government policies. For business, this research implies that choice architecture can nudge consumers to make decisions that both lower operation costs and maintain customer satisfaction (Johnson et al., 2012). In buffet restaurants, simply providing a choice of set will guarantee less consumption after satiation, which not only reduces food waste, but also individual's feeling of guilt after meals due to overeating. For public welfare, the presence of choice can encourage an autonomous attitude in consuming healthy food. The notion of trigger food is defined as foods that increase or decrease the selection of other foods through their simple presence (Hanks et al., 2012). In one study, children were either required to consume carrots or given a choice between taking carrots or celery. In the former condition, only 69% consumed their given vegetable, while in the latter condition, where two choices were given, 91% consumed their vegetables (Just & Wansink, 2009). Integrating this with our findings, we see how the presence of choice increased positive attitudes towards the vegetables, thus higher voluntary vegetable consumption.

This study has two limitations. First, the choice satisfaction rating may be an effect of minimal priming rather than an individual's deliberate decision. To ensure participants select the condition that they are randomly assigned to, we primed individuals to choose the set that their in-group correspondent has chosen. If the participant's choice expression is based on automatic rather than systematic processing, their evaluation may differ from choices made with careful thought. More future follow-up studies can introduce the sense of control in the decision as a mediating variable. For example, one research study has shown that when the notion of self-control is made salient, individuals are less likely to consider their choice as an authentic indicator of their preference (Sela et al., 2017). Since self-control implies a need to conform to norms, individuals perceive less subjective control over their choices. Second, most individuals familiar with AYCE belong to a middle-class population, making the results less generalizable to people from different social statuses. Future studies can use other consumption measures to see whether these findings are replicable with individuals who have less exposure to AYCE-like situations.

In conclusion, this proposed study hopes to show that the presence of choice will increase an individual's positive attitude towards their decision, thus attenuating the sunk-cost fallacy in making the most out of one's sacrifice. This finding will contribute to both business and government policies on food consumption behaviours if results are as predicted.

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