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ALL YOU CAN EAT: BEHAVIORAL EVIDENCE FROM TAIWAN

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ABSTRACT

All-you-can-eat buffet is a popular meal-serving system for people who like to eat a lot and want a wide variety of food. This paper uses the theory of planning behavior to investigate the behavioral intention and overeating behavior of people at an all-you-can-eat restaurant through a questionnaire format from January 1, 2013 to April 1, 2013. The research findings show that attitude, subjective norms, and perceived behavioral control all have a significantly positive influence on behavioral intention. However, people's overeating behavior is determined mainly by perceived behavioral control, not by behavioral intention.

JEL: M31, M39

KEYWORDS: All-You-Can-Eat Buffet, Theory of Planned Behavior

INTRODUCTION

All-you-can-eat buffet is a popular meal-serving system for people who like to eat a lot and want a wide variety of food. However, many consumers have had the experience of eating too much and then feeling uncomfortable after going to an all-you-can-eat restaurant, which gives rise to the following questions: Do individuals always eat too much in an all-you-can-eat restaurant? Why do individuals pay money and consume an amount of food that is more than they can normally eat, thus decreasing their utility of consumption or destroying their health? What factors cause consumers' overeating behavior? The theory of planned behavior (TPB) has been widely used in hospitality research. For example, Chen and Tung (2014), Teng, Wu, and Liu (2013), Han, Hsu and Sheu (2010), and Han and Kim (2010) explained customers' intention to visit a green hotel by applying TPB. Padgett, Kim, Goh, and Huffman (2013) used TPB to explain Generation Y Chinese consumers' purchase behavior regarding a fast food restaurant meal. Seo, Lee, and Nam (2011) explored factors influencing fast food consumption behaviors of middle-school students in Seoul by applying TPB. Dunn, Mohr, Wilson, and Wittert (2011) examined factors influencing fast-food consumption in Australian.

Most all-you-can-eat related studies focus on pricing (Erez and Gideon, 2012; Just and Wansink, 2011; Nahata, Ostaszewski, and Sahoo, 1999), paying timing for a meal (Siniver, Mealem and Yaniv, 2013), service quality (Oyewole, 2013a; 2013b), and the relationships between eating behavior and obesity (Wansink and Payne, 2008; Temple and Nowrouzi, 2013). With limited research targeting the behavioral intention or the overeating behavior of people dining at all-you-can-eat restaurants, this paper uses the theory of planning behavior to investigate these two issues through a questionnaire format. Results of this study can provide a reference for buffet practitioners and consumers. The rest of this paper is organized as follows. Section 2 reviews previous research on all-you-can-eat buffet restaurant and the theory of planned behavior. Section 3 describes the data and method we employ. Section 4 reports the empirical results, and section 5 concludes the paper.

LITERATURE REVIEW

All-you-can-eat buffet is a widespread meal-serving system where consumers decide how much food they wish to eat in a single meal for a fixed price. In a buffet restaurant, food is often placed in a public area

where diners generally serve themselves, and they can directly view the food and immediately select which dishes they wish to consume.   These all-you-can-eat buffet restaurants are particularly great for people who like to eat a lot and want a wide variety of food. People's eating behavior at an all-you-can-eat buffet restaurant is related to price, paying timing for the buffet meal, service quality, and obesity.   Siniver, Mealem and Yaniv (2013) conducted two experiments in a sushi restaurant to test whether a buffet restaurant's practice of collecting the meal price in advance rather than at the end actually encourages overeating.   Their experiments reveal that paying for the buffet meal after eating reduces sushi consumption by about 4.5 units as compared to paying before eating.   Another experiment conducted by Just and Wansink (2011) at an all-you-can-eat pizza restaurant shows that a 50% meal price discount led customers to eat 27.9% less pizza and that individual taste ratings of pizza are inversely related to how much is consumed.   Namely, individuals may consume an amount that enables them to get their money's worth rather than eating until their marginal utility of consumption is zero.

Oyewole (2013a) conducted a two-phase study to determine the dimensions of service quality in the all-you-can-eat buffet restaurant industry from the consumer's perspective. Their factor analysis found twelve distinct dimensions were able to discriminate among three groups of buffet restaurant patrons.   Oyewole's (2013b) results also show that "freshness," "hygiene," "variety and reliability," and "value," are the top four dimensions of service quality most important to consumers. Temple and Nowrouzi (2013) conducted the relationship between buffets, energy intake, and weight gain. Wansink and Payne (2008) investigated whether the eating behaviors of people at all-you-can-eat Chinese buffets differ depending upon their body mass. They found that people with higher body mass index (BMI) levels are more likely to be associated with using larger plates, seating facing the buffet, using forks, serving themselves immediately, not having a napkin on their lap, leaving less food on their plates, and chewing less per bite of food. The theory of reasoned action (TRA) is a model for the prediction of behavioral intention developed by Fishbein and Ajzen (1975, 1980).

Behavioral intention is used to predict one's intention to perform a certain behavior. TRA states that a person's behavioral intention depends on his attitude toward the behavior and his subjective norms. Attitude is the individual's positive or negative feelings about performing a behavior (Fishein, 1967), and it can be measured by the sum of beliefs about a particular behavior weighted by evaluations of these beliefs (Lee and Green, 1991). Subjective norms are an individual's perception about a particular behavior and are seen as being a combination of beliefs of what others think along with the motivation to comply with others (Fishbein & Ajzen, 1975).   The judgments of significant relevant individuals or groups influence these subjective norms.   TRA has been tested in many areas such as dieting (Sejwacz, Ajzen & Fishbein, 1980) and consuming genetically engineered foods (Sparks, Shepherd & Frewer, 1995).   Sheppard, Hartwick, and Warshaw (1988) also confirmed a high correlation of attitude and subjective norms with behavioral intention and subsequently to behavior.

Under TRA, a person's volitional (voluntary) behavior is predicted by his attitude toward that behavior and how he thinks other people would view him if he performed that behavior. Moreover, when someone forms an intention to act, that person will be free to act without limitation.   However, in practice, constraints such as limited ability, time, environmental or organizational limits, and unconscious habits limit the freedom to act.   Therefore, Ajzen (1985, 1991) revised and extended TRA into the theory of planned behavior (TPB) by adding a new component: perceived behavioral control.   Specifically, he extended TRA to cover non-volitional behaviors for predicting behavioral intention and actual behavior.

Perceived behavioral control is an individual's perceived ease or difficulty at performing a particular behavior and is determined by the control beliefs and perceived facilitation. TPB suggests that attitude toward behavior, subjective norms, and perceived behavioral control together decide an individual's behavioral intention and behavior. Subjective norms look at the influence of people's social environment on their behavioral intentions.   An individual will refer to or comply with people who are important to him and who think he should or should not perform a certain behavior (Venkatesh and Davis, 2000). Perceived behavioral control includes some internal factors (such as individual difference, information, skills, abilities, power of will, emotions and compulsions, forgetting, and knowledge) and some external

factors (such as time and opportunities).   Previous studies have shown that people's behavior is directly or indirectly influenced by their confidence in their ability to perform that behavior (Fishbein, 1963; Fishben & Ajzen, 1975; Bandura, Adams, Hardy, and Howells, 1980; Ajzen & Madden, 1986; Ajzen, 1991).

RESEARCH METHODS

The gauging scales are selected from the literature.   Attitude is gauged by 5 items taken from Fishbein (1967).   Subjective norm is measured by 5 items by means of Fishbein and Ajzen (1975) and Fishbein and Ajzen (1980).   Perceived behavioral control is measured by 3 items taken from Ajzen (1985, 1991). Behavioral intention is gauged by 6 items and overeating behavior is measured by 3 items. According to the research framework, we design the items of the questionnaire for the five dimensions: attitude, subjective norms, perceived behavioral control, behavioral intention and behavior. These items are measured on Likert's five-point scale, ranging from 1 point to 5 points, denoting "very disagree", "disagree", "neutral", "agree", and "very agree", respectively.   We administered the questionnaires to residents living in Taiwan using convenience sampling from January 1, 2013 to April 1, 2013.

The main modes include written and Internet questionnaires.   A total of 550 responses were distributed, and 510 usable responses were collected. An acceptable response rate was 92.73%. The questionnaire was modified through a pilot test and a pre-test. The research subjects were consumers who live in Taiwan and who have dining experiences in an all-you-can-eat restaurant. The pre-test results show a good reliability, because the Cronbach's α coefficient has a value greater than 0.7 (Nunnally, 1978; Wortzel, 1979). The results from factor analysis also indicate that all factors have an eigenvalue greater than 1, a factor loading greater than 0.6, a cumulative explained variation greater than 50%, and all the correlations between each factor and their items are greater than 0.5. This meets the criterion of convergent validity proposed by Kaiser (1958).   Accordingly, we use this pre-test questionnaire as our formal questionnaire.

ANALYSES AND RESULTS

We perform data analyses on SPSS 13.0 and AMOS 19.0.   The methods adopted include descriptive statistics analysis, reliability and validity analysis, correlation analysis, and structural equation modeling (SEM) analysis. Through descriptive statistics analysis in Table 1, we found that the basic attributes of major group are female (56.9%), unmarried (69.2%), younger than 25 years old (51.2%), university education level (66.9%), live in central Taiwan(62.4%), students (42.5%) and monthly income below NT$25,000 (63.5%). Composite reliability (CR) is used as a measure of the reliability.   It is defined to have "internal consistency reliability" when CR has a value greater than 0.7 (Fornell and Larcker, 1981). As presented in Table 2, all the dimensions have a CR value greater than 0.7, which indicates good internal consistency reliability.   Convergent validity and discriminant validity are commonly regarded as subsets of construct validity.

This research conducts confirmatory factor analysis (CFA) to measure convergent validity.   According to the results in Table 2, all CR estimates are greater than 0.7, all factor loadings are greater than 0.5, and all Average Variance Extracted (AVE) estimates are also greater than 0.5 in these five dimensions.   This is consistent with the criterion of convergent validity proposed by Fornell and Larcker (1981) and Hair et al. (2009).

Table 1: Descriptive Statistics Analysis of Sample

	Items	No. of respondents	Percent (%)
Gender	Male	220	43.1
	Female	290	56.9
Marital status	Unmarried	353	69.2
	Married	157	30.8
	Younger than 25 years old	261	51.2
	26-35 years old	92	18.0
Age group	36-45 years old	82	16.1
	46-55 years old	66	12.9
	Older than 55 years old	9	1.8
	Junior high school	33	6.5
	Senior high school	94	18.4
Education level	University	341	66.9
	Graduate school	42	8.2
	Northern Taiwan	118	23.1
	Central Taiwan	318	62.4
Residential area	Southern Taiwan	59	11.6
	Eastern Taiwan	13	2.5
	Others	2	0.4
	manufacturing industry	64	12.5
	financial industry	20	3.9
	technology industry	34	6.7
Occupation	service industry	89	17.5
	public servants & teachers	20	3.9
	students	217	42.5
	others	66	12.9
	below 25,000	324	63.5
	25,001-50,000	148	29.0
Monthly income	50,000-75,000	28	5.5
	75,000-100,000	9	1.8
	more than 100,000	1	0.2

This table shows descriptive statistics analysis of the sample. The first two columns represent demographic variables and their items considered in this research. The third and fourth column reports the number of respondents and its corresponding percent, respectively.

Table 2: Confirmatory Factor Analysis

Dimension		Factor loading	SMC	CR	AVE
Attitude	AT1	0.754	0.569		
	AT5	0.757	0.573		
	AT6	0.700	0.490	0.838	0.509
	AT7	0.675	0.456		
	AT8	0.676	0.457		
Subjective Norms	SN4	0.522	0.272		
	SN5	0.825	0.680		
	SN6	0.807	0.651	0.844	0.525
	SN7	0.699	0.488		
	SN8	0.730	0.533		
Perceived Behavioral Control	PB2	0.644	0.415		
	PB6	0.732	0.536	0.771	0.531
	PB7	0.802	0.643		
Behavioral Intention	BI1	0.790	0.624		
	BI2	0.772	0.596		
	BI3	0.844	0.713	0.894	0.585
	BI4	0.764	0.583		
	BI5	0.704	0.495		
	BI6	0.706	0.499		
Behavior	BE1	0.939	0.881		
	BE2	0.918	0.843	0.849	0.665
	BE13	0.520	0.270		

This table shows confirmatory factor analysis on attitude, subjective norms, perceived behavioral control, behavioral intention, and behavior. SMC, CR, AVE represents square multiple correlation, composite reliability, and average variance extracted, respectively.

Table 3 presents the results of discriminant analyses, with the values on the diagonal being AVE of our five dimensions (constructs): attitude (AT), subjective norm (SN), perceived behavioral control (PB), behavioral intention (BI), and behavior (BE). Values on the non-diagonal are the square of the correlation between two constructs. We note that the questionnaire has discriminant validity, because the AVE of each construct is greater than the square of the correlation between any two constructs (Fornell and Larcker, 1981). In addition, it also has content validity, because our scale and item contents are constructed according to the literature review and do pass the questionnaire pre-test.

Table 3: Discriminant Validity Analysis

	AT	SN	PB	BI	BE
AT	0.509				
SN	0.274	0.525			
PB	0.271	0.118	0.531		
BI	0.287	0.221	0.271	0.585	
BE	0.215	0.127	0.362	0.237	0.665

This table shows the discriminant validity analysis. Values on the diagonal and non-diagonal are AVE estimates and the square of correlation between two constructs, respectively. AT, SN, PB, BI, BE represents attitude, subjective norms, perceived behavioral control, behavioral intention, and behavior, respectively.

This section conducts structural equation modeling (SEM) analysis to test the fit of the factors (dimensions) of attitude, subjective norms, perceived behavioral control, behavioral intention, and behavior. For a model with good fit, GFI (goodness of fit) should greater than 0.8 (Browne and Cudeck, 1993). AGFI (adjusted goodness of fit) should be greater than 0.8, and CFI (comparative fit index) should be greater than 0.9 (Doll, Xia, Torkzadeh, 1994; MacCallum and Hong, 1997; Hair et al., 2009; Hu and Bentler, 1999; Gefen et al., 2000). RMSEA (root mean square error of approximation) should be under 0.08 (Brown and Cudeck, 1993), and the ratio of the chi-square value to degrees of freedom (x^2/df) should be no greater than 5 (Wheaton et al., 1977). The goodness-of-fit indices of the model are as follows: GFI is 0.879, AGFI is 0.848, CFI is 0.909, RMSEA is 0.073, and x^2/df is 3.689. All these indices are within the acceptable range, meaning that the overall model fitness is good.

Figure 1 presents the path analysis from SEM. According to the estimated values of the standardized parameters of the relationship model in Figure 1, we find that attitude, subjective norms, and perceived behavioral control all have a significantly positive influence on behavioral intention. Perceived behavioral control also has a significantly positive impact on behavior. However, the impact of behavioral intention on behavior is insignificant. These results indicate that attitude, subjective norms, and perceived behavioral control, together decide an individual's behavioral intentions. However, people's overreating behavior is determined mainly by perceived behavioral control, not by behavioral intention. These results only partially support the theory of planned behavior.

Figure 1: Path Analysis from SEM
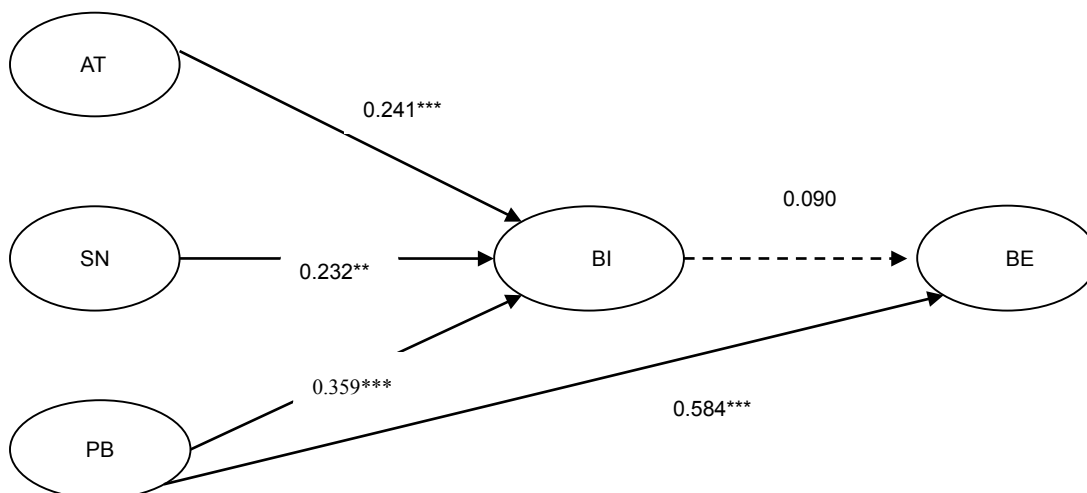
*This figure shows the path analysis from SEM. ***, ** and * indicate significance at the 1, 5 and 10 percent levels respectively.*

CONCLUSION AND IMPLICATIONS

All-you-can-eat buffet is a popular meal-serving system for people who like to eat a lot and want a wide variety of food. However, many consumers have had the experience of eating too much and then feeling

uncomfortable after going to an all-you-can-eat restaurant, which gives rise to the following questions: Do individuals always eat too much in an all-you-can-eat restaurant?   Why do individuals pay money and consume an amount of food that is more than they can normally eat, thus decreasing their utility of consumption or destroying their health?   What factors cause consumers' overeating behavior?   This paper uses the theory of planning behavior to investigate the behavioral intention and overeating behavior of people at an all-you-can-eat restaurant through a questionnaire format.   The questionnaires were administered to residents living in Taiwan using convenience sampling from January 1, 2013 to April 1, 2013. The research findings show that attitude, subjective norms, and perceived behavioral control all have a significantly positive influence on behavioral intention.   Perceived behavioral control also has a significantly positive impact on behavior.   However, the impact of behavioral intention on behavior is insignificant.   These results indicate that attitude, subjective norms, and perceived behavioral control, together decide an individual's behavioral intentions, but people's overreeating behavior is determined mainly by perceived behavioral control, not by behavioral intention.

According to the research findings, we recommend that consumers should be aware that overeating is harmful when they go to an all-you-can-eat restaurant.   For the sake of health, people should not eat too much even if they have enough time and the ability to eat a lot of food. On the other hand, we suggest that buffet restaurant practitioners should adopt a marketing strategy that primarily helps to increase consumers' positive attitude, subjective norms, and perceived behavioral control, thus increasing consumers' behavioral intention to go to an all-you-can-eat restaurant.   Additionally, in order to reduce consumers' overeating behaviors, buffet restaurant practitioners may devise a discriminated pricing strategy.   For example, they can price the meal according to different dining time or set a different price for males vs. females.   They can also consider giving customers a discount if they shorten their dining time.   The results of this study only partially support the theory of planned behavior, perhaps because the behavior we discuss in this study is an individual overeating rather than the general behavior of an individual actually going to an all-you-can-eat buffet restaurant.   Future research is recommended to compare the differences between these two behaviors.   Additionally, we only considered attitude, subjective norms, perceived behavioral control, behavioral intention, and behavior in this study.   There are still other determinants of behavioral intention that could be included in more comprehensive models that have possibly higher explanatory power. Finally, most of the respondents in our study are from the age group of younger than 25 years old, students, or persons whose monthly income is below NT$25,000.   The result may be biased due to the different behaviors among different age, occupation, or monthly income groups.   Therefore, the results of the study can be further strengthened by balancing and comparing different age, occupation, and income groups.

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