



## Will reduced portion size compromise restaurant customer's value perception?



Li Ge\*, Barbara Almanza, Carl Behnke, Chun-Hung (Hugo) Tang

Purdue University, 900 West State St., West Lafayette, IN, 47907, USA

### ARTICLE INFO

#### Keywords:

Food portion size  
Plate size  
Value perception  
Willingness to pay  
Consumer research

### ABSTRACT

The restaurant industry's increased portion sizes have led to accusations that they contribute to food overconsumption. Reducing excessive food portions in restaurants, however, may be considered risky by foodservice operators concerned about consumers' perceived value of the food. Two quasi-experiments were conducted examining how changes in portion and plate size would affect restaurant consumers' perceived reasonable price of food and their willingness to pay. A two-by-two, between-subject factorial design was used in study 1 ( $n = 101$ ) with plate size (small & medium) and portion size (regular & reduced) as independent variables. Study 2 used a between subject design with three experimental conditions: large portion, medium portion, and small portion ( $n = 71$ ). Results showed that the impact of a reduced portion size on consumer's perceived value of the food depended on the consumers' perceived quality of the food and their purchase intention.

### 1. Introduction

Over the past several decades, the food supply in the United States has increased substantially (United States Department of Agriculture, 2003). Adjusted for food loss and plate waste, calories from the U.S. per capita food supply has increased by 24.5 percent (about 530 kcal) since 1970, approaching 2700 kcal per person per day by the year 2000, after which it remained relatively stable (United States Department of Agriculture, n.d., 2016). With an abundant supply and variety of relatively affordable foods, the current environment is one that encourages excessive food consumption (Hill and Peters, 1998; Rozin, 2005; Steenhuis and Vermeer, 2009; Young and Nestle, 2002). Since the 1970s, the average portion size of common food items consumed at home, restaurants, and fast food establishments have all increased (Nielsen and Popkin, 2003). Evidence suggests that the portion sizes of many restaurant meals and beverages have exceeded the USDA and FDA recommendations (Young and Nestle, 2002).

Increased portion sizes significantly increase people's food consumption and energy intake (Diliberti et al., 2004; Rolls et al., 2006; Rolls et al., 2004a,b; Rolls et al., 2002; Wansink and Kim, 2005). It also contributes to increased food waste at the post-consumer stage (Freedman and Brochado, 2010). In addition, increased portion sizes of common foods might have contributed to a distorted perception about "appropriate" food portions, such that large portion sizes are considered typical or normal for a single eating occasion (MacDiarmid et al., 2013; Penisten and Litchfield, 2004; Schwartz and Byrd-

Bredbenner, 2006).

Because of highly energy-dense foods provided in large portion sizes, the restaurant industry has been accused of encouraging food overconsumption and contributing to the obesity epidemic (Diliberti et al., 2004; Guthrie et al., 2002; Kral and Rolls, 2004; Lachat et al., 2012; McCrory et al., 1999; Young and Nestle, 2002). In June 2012, the New York City Department of Health and Mental Hygiene proposed a regulation on the maximum size for sugar sweetened beverages offered in foodservice establishments, stating that "sugary drinks shall not be offered or sold in cups or manufacturer-sealed containers that contain more than 16 fluid ounces" (New York City Department of Health and Mental Hygiene, 2012). Although this proposal was eventually rejected by the state's highest court in June 2014 (Grynbaum, 2014), government interventions targeting restaurant portion sizes have been considered by some researchers as legitimate from a legal standpoint (Pomeranz and Brownell, 2012) and have the potential to reverse the trend of portion inflation and to mitigate the effects of excessive portion size (Dobson and Gerstner, 2010; Steenhuis and Vermeer, 2009).

The increase in restaurant food portion sizes, however, may be partly driven by customers' changing appetite and their concern about the value of the food (Steenhuis, and Vermeer, 2009; Vermeer et al., 2010). The overall increase in food consumption and portion sizes might have inflated consumers' expectations about food portions. On the other hand, food cost only accounts for about 30 percent of the total expenses for many commercial foodservice operations (National Restaurant Association, 2010); therefore, food of larger portion size is

\* Corresponding author.

E-mail addresses: [geli@purdue.edu](mailto:geli@purdue.edu) (L. Ge), [almanzab@purdue.edu](mailto:almanzab@purdue.edu) (B. Almanza), [behnke@purdue.edu](mailto:behnke@purdue.edu) (C. Behnke), [tang14@purdue.edu](mailto:tang14@purdue.edu) (C.-H.H. Tang).

likely to have a lower per-unit price that offers more value for money to the consumers, which has been considered an important factor directing consumers' decisions towards purchasing large portions (Dobson and Gerstner, 2010; Vermeer et al., 2010).

Even though reducing excessive food portions in restaurants may potentially help encourage eating in moderation and minimize the financial and health-care costs associated with food overconsumption, reducing food portion sizes is considered risky and disadvantageous by foodservice operators concerned about consumers' perceptions of the value of the food (Vermeer et al., 2009). For restaurant operators to adopt any changes that involve potential risk, it would be important to understand how these changes may affect consumer's value perceptions. A comprehensive literature search was conducted and no study investigating the association between portion size and customer's perceptions of quality or value of the food was identified. The effect of portion size on consumers' perceived value of restaurant food has not been empirically tested. Consequently, the purpose of this study is to address the following research question: Will reducing portion size compromise consumers' perceptions about the value of restaurant food?

## 2. Theoretical background

### 2.1. Perceived value

To investigate how reduced portion size might affect consumer's perceptions about the value of restaurant food, it is necessary to first define "perceived value". Perceived value was defined by Zeithaml (1988) as "the consumer's overall assessment of the utility of a product based on perceptions of what is received and what is given" (Zeithaml, 1988, p.14). "What is received" refers to the consumer's perception about what value they derive from a product, which is determined collectively by the consumer's perceived quality as well as various attributes of the product. The attributes include the physical composition and characteristics (intrinsic attributes) of the product, attributes that are related to, but not a physical part of the product such as brand name (extrinsic attributes), and higher level abstractions associated with the product (Zeithaml, 1988). Perceived quality is also an abstraction associated with the intrinsic and extrinsic attributes of the product (Zeithaml, 1988). On the other hand, "what is given" is determined by the consumer's perceived sacrifice for obtaining the product, including monetary price and non-monetary costs such as time, energy, and effort expended (Zeithaml, 1988).

For the purpose of this study, we adapted the definition provided by Zeithaml (1988). In this study, perceived value is defined as the consumer's overall assessment of "what should be given" to obtain a product based on perceptions of "what is received", which can also be understood as the amount of money that the product is worth based on the overall assessment of its utility. Based on this definition, reducing the portion size reduces the utility that the food offers and should negatively affect consumers' perception of "what should be given" to obtain the food.

H1. Reducing the portion size of food will reduce consumer's perceived value of the food.

On the other hand, consumers' perception of the food quality may also affect their perception of the utility of the food (Zeithaml, 1988), which should then influence perception about the food's monetary value. It therefore seems reasonable to speculate that, when the food is perceived by the consumer as having low quality or otherwise not worth buying, the portion size will need to be increased to improve the perceived utility of the food and how much the food is thought to be worth. For these reasons, we propose that consumers' purchase intention and perceptions about food quality may attenuate the association between portion size and perceived value.

H2. Perceived quality of food moderates the association between portion size and perceived value.

H3. Purchase intention moderates the association between portion

size and perceived value.

Previous research on the influence of portion size on consumer behaviors has largely focused on the effects of portion size on food consumption, and has provided important insights on how changes in portion size may lead to biases in size perception and food consumption. Although not the focus of this study, understanding the mechanism of the portion size effect on food consumption may shed light on how a reduced portion size may potentially affect people's perception of the food's value.

### 2.2 The portion size effect on food consumption

The positive association between portion size and food intake has been well-established in previous studies (Diliberti et al., 2004; Fisher et al., 2007; Rolls et al., 2006; Rolls et al., 2004a,b; Rolls et al., 2002; Wansink and Kim, 2005), and has been observed among people of various demographic characteristics (Fisher et al., 2007; Rolls et al., 2007). Meta-analysis results indicated that the effect of portion size could be moderated by gender, age, weight status, and mindfulness of the subjects (Zlatevska et al., 2014). The size of the effect also varied among different types of foods (Fisher et al., 2007; Marchiori et al., 2014; Zlatevska et al., 2014).

Previous research has explored the mechanism underlying the effect of portion size on food consumption, but without any clear conclusions. One possible explanation of the portion size effect is that the amount of food served on the plate might offer a visual anchor for evaluating the appropriate amount of food to consume, which can further influence how much food people intend to consume (English et al., 2014; Marchiori et al., 2014; Wansink, 2004; Wansink et al., 2005).

Additionally, increased dinnerware size was found to increase the amount of food served and consumed by some studies (Van Ittersum and Wansink, 2012; Wansink and Cheney, 2005; Wansink et al., 2006; Wansink and Van Ittersum, 2013), whereas other studies did not find such effect (Robinson et al., 2014; Rolls et al., 2007a; Shah et al., 2011; Yip et al., 2013). In a few studies, the effect of dinnerware size on food consumption was observed even among people who had been educated about it (Van Ittersum and Wansink, 2012; Wansink and Cheney, 2005; Wansink and Van Ittersum, 2007, 2013). A study conducted by Marchiori et al. (2012) showed that increasing container size significantly increased food intake when portion size was held constant, suggesting that container size may influence food consumption beyond the effect of portion size. Since dinnerware size is not correlated with the nutritional content of the food, it is more likely to influence food intake in ways that are perceptual.

A few studies have suggested the Delboeuf illusion as a possible explanation of serving and consumption biases associated with dinnerware size (Van Ittersum and Wansink, 2012; Wansink and Van Ittersum, 2013). The Delboeuf illusion is an optical illusion where a circle is perceived as different in size when surrounded by differently sized concentric circles, and was first proposed by the Belgian scientist Joseph Delboeuf in 1865 (Nicolas, 1995). Based on the Delboeuf illusion, when food is served on a larger plate (versus a small plate), the amount of food is likely to be underestimated which may lead to overconsumption (Van Ittersum and Wansink, 2012). Based on this theory, research has shown that people tended to serve themselves more food when they used larger bowls and less food when they used smaller bowls, and this serving bias had a countercyclical sinus-shaped relationship with the relative size of the space between the edge of the food and the edge of the dinnerware (Van Ittersum and Wansink, 2012; Wansink and Van Ittersum, 2013).

If the space between the edge of the food and the edge of the dinnerware provides a visual anchor suggesting the appropriate amount of food to consume, it is also likely to influence people's estimation of the amount of food available on the plate and, therefore, their perception about the monetary value of the food.

H4. Changes in plate size relative to portion size may affect consumer's perceived value of food.

Based on current knowledge about plate size and perceived value,

Download English Version:

<https://daneshyari.com/en/article/7419111>

Download Persian Version:

<https://daneshyari.com/article/7419111>

[Daneshyari.com](https://daneshyari.com)