

# QSR customer sustainable behaviors and brand practice perceptions on willingness to pay a premium

Michael C. Ottenbacher

*Kansas State University, Manhattan, Kansas, USA*

Graciela Kuechle

*Heilbronn University, Heilbronn, Germany*

Robert James Harrington

*School of Hospitality Business Management, College of Business,  
Washington State University, Vancouver, Washington, USA, and*

Woo-Hyuk Kim

*Department of Consumer Science,  
Incheon National University, Incheon, The Republic of Korea*

## Abstract

**Purpose** – The purpose of this paper is to investigate the effect of consumer sustainability attitudes and quick service restaurants (QSRs) practices along with the willingness of consumers to pay a premium for sustainability efforts.

**Design/methodology/approach** – A random sample of QSR customers in Germany resulted in 428 completed surveys. First, common factor analysis was conducted to assess the summated scales related to the sustainable behavior of customers, the importance attached by them to the different dimensions of sustainability and the extent to which customers perceive that QSR implement such practices. Second, the effect of these summated scales on the willingness to pay a premium (WTPP) for sustainability practices were assessed by means of a logistic regression.

**Findings** – The findings indicated that WTPP for sustainability efforts is primarily driven by internal beliefs and behaviors of consumers themselves rather than actions by QSR firms. Furthermore, when comparing five major QSRs, QSR brands did not appear to create a strong point of differentiation in their sustainability practices in the minds of frequent QSR consumers in the context of this study.

**Practical implications** – Implications of these results suggest that a growing number of consumers place high importance on sustainability and engage in personal sustainability practices that impact behaviors such as QSR selection and a WTPP for QSR brands and products that are perceived as implementing sustainable practices.

**Originality/value** – This paper addresses a gap by assessing drivers of willingness of QSR customers to pay a premium for sustainable practices and if QSR brands sustainability practices differ in the minds of consumers.

**Keywords** Economic, Sustainable practices, Willingness to pay a premium, QSR, Social and environmental sustainability

**Paper type** Research paper



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## 1. Introduction

Sustainability has made a major impact and continues to challenge restaurants of all sizes and in all segments. In the last few years, the growing significance of sustainability has forced many quick service restaurant (QSR) brands to implement major environmental initiatives. For example, Yum! Brands has built more than 30 LEED-certified buildings around the world and plans to incorporate LEED-certified green buildings in all other locations, McDonald's recently eliminated foam packaging and has committed to sourcing 100 percent of their packaging from renewable or recycled sources by 2025 and Subway is dedicated to sourcing ingredients from environmentally responsible suppliers (Murphy, 2018).

A recent study by the Nielsen (2015) Company found that the majority of Millennial and Gen Z consumers are willing to pay more for sustainable products and services; additionally, consumer brands that communicate a commitment to sustainability have higher performance than those that do not. With growing concerns for effective use of our planet's natural resources and increasing consumer expectations, an understanding of the impact of implementing sustainable practices appears in imperative restaurant success with a greater ability to attract and retain a younger demographic customer and employees.

While the study of sustainable in restaurants is not new, the role of varying types of sustainable practices on customer image and attitudes toward a restaurant brand remains an unresolved question. This study addresses the impact of four main relationships: the importance of sustainable practices for QSR consumers, the impact of QSR consumer perceptions of QSR brand implementation of sustainable practices, QSR consumer sustainable behaviors and if or how these constructs impact a willingness to pay a premium (WTPP) in the QSR context. Additionally, uncertainties remain in understanding the impact of differing categories of sustainable practices (economic, social and environmental), how these are impacted by categories of consumers and which (if any) impact QSR consumers' willingness to pay more. Answers to these questions are critical for QSR firms hoping to create a favorable brand image, maximize differentiation from competitors and create impactful communication campaigns.

## 2. Literature review and hypotheses

### 2.1 Theory of planned behavior (TPB)

This study draws on the TPB (Ajzen, 1991) as its conceptual foundation. Among the most widely supported theories in social psychology, the TPB has been applied in various contexts to predict human decision making and behaviors (Rivis *et al.*, 2009). The TPB ultimately assumes that an individual's behavioral intent is the drive that prompts actual behavior; this behavioral intent is directly determined by his or her attitude toward behaviors, subjective norms and behavioral control. Predictors of that intent are based on beliefs of behavioral assessments, formative assessment and control. All of these weigh heavily on cognitive outcome assessments, compliance motivation and control factors (Ajzen, 1991; Ajzen and Fishbein, 1980).

TPB has been widely used in the hospitality industry (e.g. Chen and Tung, 2014; Han *et al.*, 2010; Wu *et al.*, 2016). Given the efficacy of the TPB, this framework has been used to examine the behavioral and psychological aspects of restaurant customers' eco-friendly decision-making processes with significant attention from restaurant-industry researchers. For example, Chou *et al.* (2012) investigated the attitudinal and behavioral decision-making factors affecting the adoption of green practices by employing TPB. Furthermore, Jang *et al.* (2017) investigated the effects of top managers' values and leadership in environmental sustainability. They found that key variables for understanding environmental sustainability included environmental values, leadership, stakeholder engagement, environmental sustainability and restaurant performance. Moreover, Kim *et al.* (2013) examined the relationship between consumers' acceptance

and engagement and their behavior in the restaurant industry. They found that emotion influences customers' levels of engagement. In addition, Raab *et al.* (2018) explored the understanding of motivations for the adoption and implementation of sustainable practices by applying the TPB. They suggested that casual restaurant managers are affected by pressures exerted by both their suppliers and customers. In short, in terms of fast food restaurants industry, all of the predictors-attitudes, subjective norms, and perceived and behavioral control had positive effects on customers' intention to stay at a green QSR. In this vein, this study applied the theory to investigate a plan of QSR customers to visit QSRs.

### *2.2 Sustainable or green practices in the restaurant industry*

The complexity of today's global economy is mirrored in unprecedented population growth and its resulting burdens on energy, food and natural resources (Manganari *et al.*, 2016). Increased consumption significantly affects environmental stability; and most modern consumers have become aware of their collective impact on the planet (Han and Yoon, 2015). These concerns are affecting consumers' lifestyles choices, including their buying patterns (Xue and Muralidharan, 2015). As more and more customers become aware of the seriousness of environmental issues, consumer choices are increasingly undergirded by new perceptions of the importance of purchasing eco-friendly products and services (Jones *et al.*, 2016). Therefore, with restaurant customers increasingly interested in sustainability and ever more sensitive to the value of environmentally friendly restaurants, the restaurant industry has both social and bottom-line responsibilities to participate in sustainable practices (Feniger, 2015). Marketers are hence becoming committed to developing and promoting eco-friendly products in order to meet growing consumer demand for "green" alternatives.

Focusing on such eco-friendliness, the restaurant industry has sought to make adjustments to its services to meet the changing expectations of its customers. Green practices are rapidly being adopted in the restaurant industry, with a multitude of terms being applied to green practices (such as sustainable practices) (Cha *et al.*, 2018). The US restaurant industry, which in 2016 generated more than \$783bn in revenue (NRA, 2016), uses substantial energy resources, water resources, cleaning supplies and disposables products (Wang *et al.*, 2013). Therefore, consumers' increasing interest in sustainability has manifested as pressure on restaurants to participate in sustainable practices (Feniger, 2015). The negative environmental footprint of the restaurant industry has not only amplified public interest in adopting sustainable practices but has also helped to accelerate research and policies on such practices (Millar and Baloglu, 2011).

The phrase "going green" refers to employing sustainable measures that minimize environmental damage (DiPietro and Gregory, 2012). More specifically, green practices are efforts to mitigate the carbon footprint of an organization while reducing resource overload, non-recyclable product use, ineffective recycling processes and environmental damage from harmful chemicals (DiPietro and Gregory, 2012; Schubert *et al.*, 2010). For a green restaurant, serving green foods procured and prepared through green practices can be an essential factor influencing sponsorship decisions (Hu *et al.*, 2010). In general, green practices are widely seen in restaurant businesses, including in the use of energy, the adoption of efficient water equipment, the use of locally grown organic food, the provision of healthy menus, the abandonment of disposable cups and to-go containers, the serving of biodynamic and sustainable wines and the reducing pollution (Schubert *et al.*, 2010).

Although the US restaurant industry currently thrives, foodservice operations face challenges and competitive pressures due to labor-intensive cost structures, commodity price fluctuations and high utility costs (NRA, 2016). As the restaurant industry has grown, its excessive energy and water consumption and massive creation of non-recyclable waste have been problematic for the environment and the industry's reputation (Hu *et al.*, 2006). In response, the NRA (2016) ranked environmental sustainability among the most popular

trends in the restaurant industry in 2015. That same year, the Green Restaurant Association (2018) enumerated seven indicators of environmental sustainability as guidelines for restaurateurs: the reduction of energy and water usage, decreased waste production, less reliance on disposables, reduced chemical use, pollution reduction and increased adoption of sustainable food.

In terms of the restaurant industry, Chou *et al.* (2012) found that attitude and perceived behavioral control positively affected behavioral intent, whereas social influence did not appear in the restaurant in Taiwan. Jeong *et al.* (2014) investigated the effect of green restaurant practices on the restaurant's image and customers' attitudes. They found that customers' favorable perceptions of green practices affect restaurant' green image and customers' attitudes significantly. Xu (2014) examined the relationships among corporate social responsibility strategies, customer satisfaction and customer loyalty in the QSR industry. They indicated that corporate social responsibility positively influences customer satisfaction and customer loyalty. At a management level, Raab *et al.*'s (2018) investigation of restaurant managers' behavior when faced with environmental pressures showed that managers were most affected by the external expectations of suppliers, customers, employees and society as a whole. Choi and Parsa (2008) suggested three general areas of sustainable practices to include incorporating organic or locally grown food, environmentally friendly practices, or donating money and time to the community. Specifically, they found that the restaurant industry increasingly provides sustainable food, promotes energy efficiency, water efficiency and conservation, reduce waste, reuses and recycles and supports community environmental efforts.

These studies indicated that customers are increasingly aware of issues related to green practices in their daily lives, and they are beginning to look at the green practices of their sponsored restaurants. Thus, green practices play a crucial role in restaurant operations in order to attract more potential customers to their restaurants as strategic management (DiPietro, 2017).

### 2.3 Sustainable or green practices in QSRs

QSR is a term used to describe restaurants that specialize in the preparation and delivery of meals quickly with limited service levels (Harrington *et al.*, 2017). Customers are interested in green practice in the restaurant industry (Kwok *et al.*, 2016). Moreover, in recent years, the QSR sector has increasingly adopted green practices (DiPietro, Gregory and Jackson, 2013).

In terms of QSR, most previous studies have considered the impact of various attributes on satisfaction and brand equity (Ha and Jang, 2013; Han and Ryu, 2009; Jones *et al.*, 2002; Kim and Kim, 2004; Ogaard *et al.*, 2005; Ottenbacher and Harrington, 2009; Robinson *et al.*, 2005; Ryu *et al.*, 2008, 2012) along with definitions of factors related to service quality (Tripathi and Dave, 2014; Wu and Mohi, 2015), attributes impacting restaurant-selection decisions (Harrington *et al.*, 2013; Lim and Loh, 2014; Mathe-Soulek *et al.*, 2016; Dutta *et al.*, 2014; Verma and Thompson, 1996), the impact of human health (An, 2015; Khan *et al.*, 2018; Rudelt *et al.*, 2014; Ziauddeen *et al.*, 2015) and strategic management (Cullen, 2004; Ehsan, 2012; Harrington *et al.*, 2017; Jochim *et al.*, 2015; Reish *et al.*, 2005).

Although there have been previous studies investigating the relationship between green practices and customers' perceptions of the restaurant industry, there is still little research regarding the attributes of green practices in the QSR context. For example, DiPietro, Gregory and Jackson (2013) investigated the relationship between green practices, satisfaction and willingness to pay in the restaurant setting. In short, there are still little studies exploring how the many dimensions of green practices affect foodservice customer perceptions (DiPietro, Gregory and Jackson, 2013).

It should be noted that distinct differences exist in the form of regulations related to sustainability across the globe. In Germany, which is part of the European Union, large

restaurant chains have to follow a directive on reporting sustainability efforts in order to increase transparency on the environmental and social aspects of EU companies. It covers information on environmental, social and labor issues as well as respect for human rights and the fight against corruption and bribery. At the same time, the CSR Directive Implementation Act aims to enable companies to better recognize their risks in the future and prevent their implementation. Germany has transposed the Directive into national law. The CSR Directive Implementation Act sets new reporting requirements, especially for large companies with more than 500 employees. These are often internationally active firms and the investors of these companies as well as other groups (such as consumers) are interested in comprehensive non-financial reporting (Bundesministerium fuer Arbeit und Soziales, 2019).

#### *2.4 Willingness to pay a premium for sustainability (WTPP)*

Some previous studies indicated that consumers are willing to pay more for green products, implying that they are satisfied to offset the higher costs of organizations with environmental and social-responsibility practices (Parsa *et al.*, 2015). These studies found that green practices play an important role in affecting customer perceptions. Namkung and Jang (2017) examined restaurant customers' intentions to pay more for green practices and detected positive relationships between four variables – age, previous experience, involvement and self-perception – when it came to their WTPP for green practices. They also observed that customers were more likely to pay for green practices if they were aware of green brand images.

However, other studies have found mixed results. For example, Dutta *et al.* (2008) investigated consumers in the USA and India and suggested that they had different levels of WTPP for sustainability in the form of green practices for healthy, environmentally and socially responsible restaurant practices. Hu *et al.* (2010) suggested that related to WTPP at a green restaurant in Taiwan, more than half of respondents paid 2–6 percent more in green restaurants, and approximately a third were WTPP of 8–12 percent. Examining the industry from foodservice providers' viewpoints, Choi and Parsa (2008) examined the intention of restaurant managers to impose a premium for green practices, indicating that restaurant managers with high preferences for social and environmental involvement sought to impose a higher premium over practices of over 6 percent for green practices. DiPietro, Gregory and Jackson (2013) found that while QSRs should use green practices, most people were not willing to pay higher prices for green practices.

Thus, while a number of studies have investigated how restaurant consumers perceive green practices, results have been mixed and inconclusively dependent on sector, context and constructs investigated. Some studies indicated that implementing green practices can increase customer loyalty and reduce costs in the restaurant industry. Such studies show (either implicitly or explicitly) that customers wanted to focus on their beliefs. Subsequently, with some customers' groups having intentions to pay higher prices to restaurants that adopt sustainable practices.

#### *2.5 Hypothesis development*

Regarding the dimensions of green practices in restaurants, Choi and Parsa (2008) suggested different scopes of "green" by dividing green practices in the restaurant industry into three perspectives, each of which contains detailed sub-dimensions. Typically, green practices can be divided into these three major dimensions: health/nutritional factors, environmental factors and social factors. Many studies have focused on these dimensions to understand green restaurants. In other words, the most important green characteristics of restaurants and the effect of consumers' attitudes toward various green attributes on their behavioral intentions (Kwok *et al.*, 2016).

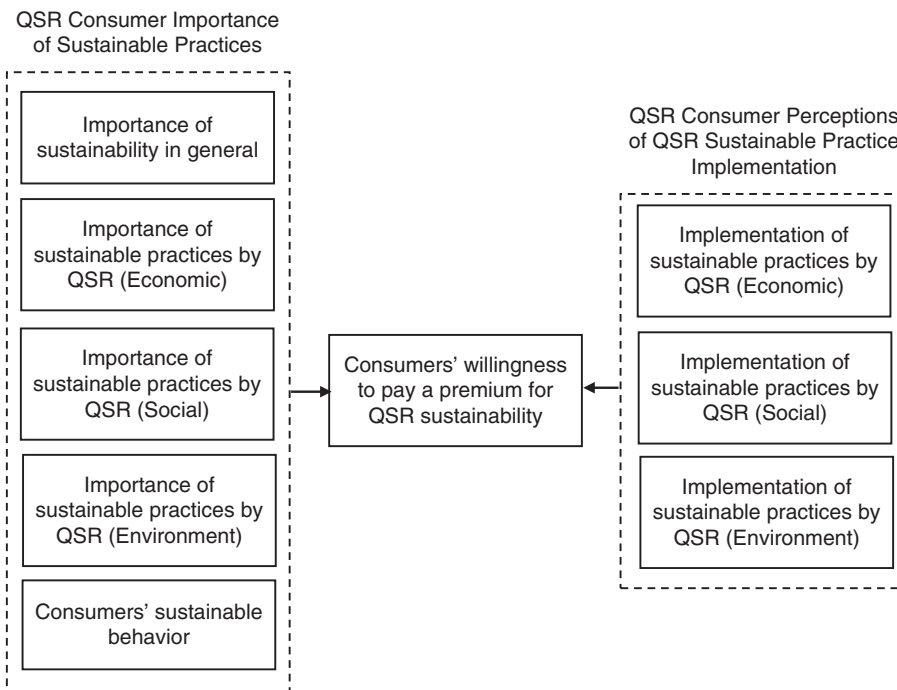
In the context of a QSR, there are few studies regarding the dimensions of green practices in the sector. For instance, DiPietro, Gregory and Jackson (2013) suggested that they used

five items to explain green practices in QSRs, including local products, green activities, environmentally safe, environmentally and organic products. However, there is still little research investigating the relationship between the dimensions of green practices in QSR and customer's perceptions.

Moreover, according to Elkington (2004), organizations need to consider environmental and social aspects along with economic aspects as these aspects affect perceptions of the environment and society, making them influential factors. Previous studies indicated that, in order to provide higher value to customers, QSR brands should strive to deliver higher value images with a low-cost strategy (Hu *et al.*, 2006). Thus, the focus of QSRs tends to be value, putting primacy on price rather than quality. Therefore, QSRs should include three sustainability dimensions: economic, environmental and social dimensions.

These three dimensions add up to a well-known sustainability-focused approach, which helps corporations work toward meeting the three pillars of economic, social and environmental sustainability – collectively known as the triple bottom line (Hardcastle and Waterman-Hoey, 2010; Labuschagne *et al.*, 2005; Pérez and del Bosque, 2014). This approach shifts the focus of corporations from short-term profits to long-term performance (Elkington, 1998). In practice, this perspective provides a framework for measuring and reporting the performance of companies regarding these three areas of sustainability (Elkington, 2004). Thus, in order to measure green practices in QSRs, this study used these three dimensions. Figure 1 provides a conceptual model of the proposed predictors of WTPP for QSR sustainable practices assessed in this study. Based on these concepts and a review of extant literature, the following hypotheses are proposed:

*H1a.* The importance of economic viability in the QSR industry increases the WTPP for sustainability.



**Figure 1.** Conceptual model of drivers of QSR consumer WTPP for sustainable QSR practices

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- H1b.* The importance of social values in the QSR industry increases the WTPP for sustainability.
- H1c.* The perceived importance of environmental issues in the QSR industry increases the WTPP for sustainability.
- H2a.* The perceived implementation of viable economic policies by QSRs increases the WTPP.
- H2b.* The perceived implementation of socially responsible policies by QSRs increases the WTPP for sustainability.
- H2c.* The perceived implementation of environmental policies by QSRs increases the WTPP for sustainability.
- H3.* Consumers' sustainable behavior increases the WTPP for the sustainability practices of QSRs.

### 3. Method

#### 3.1 Measurement

Based on a thorough literature review, the model displayed in Figure 1 was developed. A corresponding questionnaire collected information about the following broad categories: the respondents' opinions about sustainability in general and of QSRs in particular, the implementation of sustainability practices by QSRs, perceptions about the implementation of sustainability practices by the chosen QSR, the WTPP for sustainability practices and basic demographics. In the introduction, respondents provided basic demographic measures and choose their most visited restaurant. Respondents used this most visited choice as their referent but were also able to use their overall QSR experiences to assess sustainability implementation perceptions. In Part I, they provided their general opinion about sustainability and their WTPP for it. In Part II, respondents rated the importance of sustainability and their knowledge of the practices of the chosen QSR and in Part III, they assessed their own sustainable practices. All attitude measures except for the WTPP are measured on a Likert-type scale ranging from 1 – not at all important to 5 – very important. Survey questions were adapted from earlier studies to address the research questions and hypotheses in the current study (i.e. DiPietro and Gregory, 2012; DiPietro, Gregory and Jackson, 2013; DiPietro, Yang and Partlow, 2013; Jeong *et al.*, 2014; Kwok *et al.*, 2016). For WTPP, respondents were asked to state their WTPP for a meal at a QSR that implements sustainable practice by means of two questions. The first one provides a binary yes/no measure and the second asks them to assess how much of a premium they are willing to pay with the options ranging from up to 1, 5, 10 percent and more than 10 percent.

For the QSR sustainability, consumers were asked about the level of importance that they placed on the three main dimensions of sustainability, namely, economic, social and environmental (Pérez and del Bosque, 2014) and the extent to which their most visited QSR implements policies to achieve them. Before asking these questions, respondents were provided the following definition of sustainability:

A sustainable foodservice [restaurant] seeks to realize sustainable development through integrated efforts to manage the social and environmental impacts while achieving economic viability in foodservice operations.

The questionnaire was pilot-tested with a convenient sample of 40 QSR's customers and refined through expert reviews to ensure the readability, understandability and measure the time necessary to complete the questionnaire. It was also checked for reliability and validity of the scales in Part II by means of a second sample of 108 observations. Feedback from faculty members and researchers was collected and suggestions were implemented.

The survey items measuring the attitude toward sustainability and sustainability practices were modified to fit the context of the present paper. In order to ensure reliable and valid measures, the modified constructs were measured using multiple items and the measures were pre-tested. Brief descriptions of all items are displayed in Tables II–V along with loadings. The purpose of the attitude toward sustainability construct was to reflect consumers' attitudes on the importance of economic, social and environmental dimensions of sustainability. These have been described as the three pillars of sustainability (e.g. Elkington, 2004) and, thus, an understanding the similarities and differences among these in regards to consumer impacts on QSR brand image and WTPP were a key contribution of the current study. The respondents rated the issues on a scale from one to five where 1 represented "Not at all" and 5 represented "Very."

As for the dependent variable, it was measured by asking the respondents two questions, namely, whether they would be willing to pay a premium or not and which percent they would be willing to pay a premium for sustainability practices. While earlier researchers used actual dollar amounts to estimate WTP levels (Dutta *et al.*, 2014), the authors determined this two-step approach to be more meaningful given the nature of the current study and following earlier related research (Nomura and Akai, 2004).

### 3.2 Data collection, sample characteristics and descriptive statistics

The goal of this study was to investigate the effect of sustainability attitudes and practices by QSRs. Therefore, the population of interest was customers of QSRs, from which, a random sample was selected. The questionnaires were handed out to the participants in person and after completion by hand, they were returned to the researcher. The survey took place from August to November 2017 in the city of Heilbronn and its surroundings, which is located in the state of Baden Württemberg in Germany. The market value of consumer foodservice in Germany has increased 13.21 percent from 2013 to 2018 (Statista, 2018) and Baden Württemberg is the third-largest and fifth-richest federal state in Germany with a population density of 790 sq. mi.

Table I displays basic descriptive statistics and demographic characteristics of the respondents included in the study. The sample consisted of 428 individuals, 53.8 percent were females and 46.2 percent were males. The average age was 26.82 years (std. dev. 9.5 years). Respondents were asked to choose a QSR that they visit regularly for a referent when responding. The percentage broken down by QSR brand was as follows: McDonald's (41.32 percent), Starbucks (21.32 percent), Subway (15.26 percent), Burger King (13.42 percent) and KFC (8.68 percent). The selection of these QSR choices followed earlier research that indicated these five brands represent the top-selling QSR worldwide and the highest sales in Germany (Harrington *et al.*, 2017).

As displayed in Table II, the descriptive statistics of the main variables show that pro-sustainability attitudes were fairly elevated. The mean of each of the 12 questions measuring the importance of sustainability have average ratings above 3 (on a scale from 1 to 5). The same can be said about sustainability practices, which were especially high for recycling of paper and plastic. When comparing the economic, social and environmental dimensions, environmental sustainability had the highest ratings. As for the differences between rated importance and implementation, it is also in the environmental domain where there are the highest gaps.

### 3.3 Irregularities and missing values

Only three observations were deleted due to incomplete information. Concerning the restaurant of choice (Q4), the following irregularities were observed in the data set. In total, 35 subjects chose more than one restaurant simultaneously, 3 subjects wrote down the name of a restaurant that was not among the options and 6 subjects wrote "none." The last group



**Table I.**  
Demographics and  
descriptive statistics  
of respondents

Variables	Count	%
<i>Gender</i>		
Female	224	53.8
Male	188	45.2
<i>Fast food restaurant</i>		
McDonald's	157	41.5
Starbucks	81	21.4
Subway	57	15.1
Burger King	50	13.2
KFC	33	8.7
<i>Visiting frequency</i>		
< 1	9	2.2
1–4	268	65.8
5–8	83	20.4
9–12	30	7.4
> 12	17	4.2
<i>Willingness to pay a premium</i>		
No	198	47.6
Yes	218	52.4
<i>Premium for sustainability in case WTP is "yes" (%)</i>		
Up to 1	52	12.5
Up to 5	99	23.8
Up to 10	42	10.1
More than 10	25	6.0

(nine cases) was deleted because these are not customers of any of the listed QSRs. Regarding the frequency of visit (Q5), nine subjects fell below the minimum given option (one to four times a month). These cases were coded with 0 as these customers visit QSRs less than once a month. Finally, some consumers provided inconsistent answers to the two questions about WTPP. Some subjects (29) answered they would not be willing to pay a premium for sustainability practices (Q8) but in the next question (Q9), that was only for those who had answered "yes" in the previous one, they picked a positive premium.

To assess the impact of missing values, 12 McNemar tests comparing the proportion of missing cases for importance and implementation (Q10–Q21) were run; results yielded  $p$ -values below 0.0001 indicating no statistical impact. The explanation for missing values is that customers were not sure about their perceptions concerning the extent to which QSRs implement sustainable practices.

## 4. Data analysis and results

### 4.1 Preliminary analysis

The data were analyzed using SPSS 23. Preliminary  $t$ -tests allowing to compare the means in opinions, perceptions and practices between those respondents who were willing to pay a premium for sustainability practices and those who were not. The frequency of categories rating the importance of sustainability in general and in the particular case of QSRs for these two groups was assessed. It was observed that among those consumers who are willing to pay for sustainability there are more cases with high importance ratings. This result was corroborated by several  $\chi^2$  tests that yielded highly significant differences in opinions, perceptions and sustainable practices among consumers who are willing to pay a premium and those who are not. As for effects, a chi-square test showed that consumers'

Descriptive statistics	<i>n</i> Statistic	Mean Statistic	SD Statistic
Importance sustainability	416	3.56	1.06
Importance sustainability QSR	412	3.12	1.14
<i>Economic aspects of sustainability</i>			
Importance focus on profit	411	3.23	1.15
Implementation focus on profit	391	2.69	0.89
Importance goals publicity	411	3.35	1.11
Implementation goals publicity	388	2.87	0.93
Importance sustainability planning	409	3.36	1.10
Implementation sustainability planning	385	2.81	0.90
Importance information disclosure	409	3.42	1.12
Implementation information disclosure	387	2.89	0.98
<i>Social aspects of sustainability</i>			
Importance community engagement	403	3.14	1.18
Implementation community engagement	378	2.44	1.00
Importance fair pay	403	3.70	1.17
Implementation fair pay	376	2.69	0.95
Importance healthy habits promotion	406	3.13	1.29
Implementation healthy habits promotion	382	2.52	1.14
Importance consistent efforts	402	3.34	1.09
Implementation consistent efforts	376	2.74	0.94
<i>Environmental aspects of sustainability</i>			
Importance water saving	408	3.62	1.10
Implementation water saving	376	2.66	0.86
Importance energy saving	408	3.62	1.10
Implementation energy saving	375	2.73	0.87
Importance waste reduction	407	3.79	1.15
Implementation waste reduction	377	2.34	1.04
Importance local supplies	407	3.50	1.18
Implementation local supplies	379	2.43	1.04
<i>Sustainability practices by respondents</i>			
Recycle plastic	410	3.71	1.15
Drive slowly	404	2.62	1.15
Buy energy efficient products	409	2.80	1.07
Recycle paper	409	3.94	1.08
Read energy practices	407	2.58	1.12
Avoid pollution	410	3.02	0.93
Recycle compost	410	3.0.23	1.48
Walk to store	406	3.06	1.13
Buy local	409	3.23	0.96
Reuse	408	3.28	0.97
Use public transport	409	3.12	1.17
Use of less packaging	409	2.92	0.98

**Table II.**  
Attitudes toward sustainability, perception and sustainable practices

opinion about the importance of sustainability was affected by gender. The proportion of consumers who are WTPP for sustainability is 61 percent for females and 57 percent for men ( $p < 0.0001$ ).

It was further analyzed if there were significant differences in the WTPP for sustainability among the consumers of the five referent QSRs. A  $\chi^2$  test showed no significant difference ( $p = 0.97$ ). Finally,  $\chi^2$  tests and correlation analyses were performed to assess the relationships and internal consistency of our multi-item scales; these results are in the next section.

4.2 Common factor analysis

Prior to data analysis, the adequacy of normality assumptions was assessed. This evaluation revealed that the predictors were significantly negatively skewed. Due to the large sample size, Kolmogorov–Smirnov test of normality of the items in the construct matters less as it is more likely to be significant. Afterwards, an assessment of the summated scales was done by means of common factor analysis. Factor analysis was used to assess any impact of modifications to items in the study and enhance parsimony in the number variables/factors with a minimal loss of information (Hair *et al.*, 2010). By providing an empirical estimate of the structure of the variables considered, factor analysis was the basis for creating the final summated scales.

Because the primary goal was to measure customers’ attitude toward sustainability (ImpoSus), their perception of QSRs’ implementation of sustainable practices (ImpleSus) and their own sustainable behavior (SusBeh), these constructs needed to be measured using multiple items to tap into the many facets of each construct.

According to the definition of sustainability provided earlier, the first two constructs were conceptualized as having three dimensions, namely, economic, social and environmental. Each dimension was measured by four items reflecting the main components of the category in question. As for the sustainable behavior construct, a 12-item scale was implemented focusing on efficient use of energy to avoid pollution and recycling. To assess whether the different measures are driven by the same underlying variable, common factor analysis was conducted for each of the three constructs and these results are reported in the next three subsections.

4.2.1 Importance of sustainability (ImpoSus) practices of QSRs. A preliminary analysis of the bivariate correlations of the 12 items of ImpoSus revealed significant correlations that were neither too high nor too low, as required for EFA. Bartlett’s test provided significant results corroborating that the correlation matrix is significantly different from an identity matrix ( $p < 0.0001$ ). A principal axis factor analysis was conducted on the 12 items with orthogonal rotation (varimax). The Kaiser–Meyer–Olkin measure verified the sampling adequacy for the analysis,  $KMO = 0.940$  (“marvelous” according to Hutcheson and Sofroniou, 1999) and all values for individual items were greater than 0.53 which is above the acceptable limit of 0.5. An initial analysis was run to obtain eigenvalues for each factor of the data. Two factors had eigenvalues over Kaiser’s criterion of 1 and explained 58.61 percent of the variance. The scree plot showed inflexions that would justify retaining two factors containing four and eight items. Therefore, two factors were retained whose loadings after rotation are shown in Table III. These two factor models made conceptual sense; the items that clustered on the same factor suggested that Factor 1 represents an attitude toward social and environmental criteria of sustainability, and Factor 2 an attitude toward

**Table III.**  
Factor loadings of  
importance of  
sustainability  
practices by QSRs

Items	Factor 1 (ImpoSocEnv)	Factor 2 (ImpoEco)
Q18A Importance of water saving	0.80	
Q19A Importance of energy saving	0.78	
Q20A Importance of waste reduction	0.75	
Q15A Importance of fair pay	0.67	
Q17A Importance of consistent efforts	0.61	
Q21A Importance of local supplies	0.59	
Q14A Importance of community engagement	0.55	
Q16A Importance of healthy habits promotion	0.53	
Q11A Importance of goals publicity		0.78
Q12A Importance of sustainability planning		0.71
Q10A Importance of profit focus		0.67
Q13A Importance of information disclosure		0.65

economic matters. The two subscales (ImpoSocEnv and ImpoEco) had high reliabilities, Cronbach's  $\alpha = 0.910$  and  $\alpha = 0.897$ , respectively.

4.2.2 *Perception of implementation of sustainability (ImpleSus) practices by QSRs.* As with sustainability importance, the bivariate correlations of the 12 items of ImpleSus and Bartlett's test corroborated that the correlations were appropriate. Principal axis factor analysis on the 12 items using varimax and the Kaiser–Meyer–Olkin measure verified the sampling adequacy for the analysis ( $KMO = 0.907$ ) with all values for individual items at or above the acceptable limit of 0.5. As shown in Table IV, the analysis produced two conceptually meaningful factors (ImpleSocEnv and ImpleEco) with eight and four items, respectively, explaining 52.10 percent of the variance. An inspection of the scree plot confirmed the adequacy of retaining these two factors. Item's clusters indicated that Factor 1 represents the perception of implementation of sustainability practices in the social and environmental realm, and Factor 2 the implementation of sustainable practices in the economic dimension. The subscales ImpleSocEnv and ImpleEco had high reliabilities with Cronbach's  $\alpha$  equal to 0.871 and 0.859, respectively.

4.2.3 *Common factor analysis of sustainability practices (SusBeh).* Analysis for the 12 items of consumer sustainability practices using varimax rotation provided three conceptually meaningful factors. The correlation matrix, Bartlett's test, Kaiser–Meyer–Olkin measure ( $KMO = 0.874$ ) and scree plots confirmed the adequacy of retaining the three factors and sampling adequacy. The three factors in SusBeh explained 47.86 percent of the variance (Table V). These results indicated that Factor 1 represents behaviors aimed to reduce

Items	Factor 1 (ImpleSocEnv)	Factor 2 (ImpleEco)
Q19B Implementation of energy saving	0.73	
Q20B Implementation of waste reduction	0.73	
Q18B Implementation of water saving	0.69	
Q21B Implementation of local supplies	0.64	
Q17B Implementation of consistent efforts	0.54	
Q16B Implementation of healthy habits promotion	0.52	
Q14B Implementation of community engagement	0.50	
Q15B Implementation of fair pay	0.50	
Q11B Implementation of goals publicity		0.81
Q12B Implementation of sustainability planning		0.80
Q13B Implementation of information disclosure		0.69
Q10B Implementation of profit focus		0.59

**Table IV.**  
Factor loadings of perception of implementation of sustainability practices by QSRs

Items	Factor 1 (Pollute)	Factor 2 (Recycle)	Factor 3 (Locality)
Q26 Read about energy saving practices	0.71		
Q24 Buy energy efficient products	0.66		
Q27 Avoid products that pollute	0.61		
Q33 Buy items with less packaging	0.49		
Q23 Drive more slowly	0.48		
Q31 Look for ways to reuse	0.42		
Q22 Recycle plastic glass or cans		0.81	
Q25 Recycle paper or cardboard		0.78	
Q28 Recycle compostable materials		0.39	
Q32 Use public transportation			0.67
Q29 Walk rather than drive			0.61
Q30 Buy local products			0.41

**Table V.**  
Factor loadings of sustainability behaviors by customers

pollution and waste, Factor 2 represents recycling practices and Factor 3 represents the local orientation of customers. The three subscales, namely, pollution and waste (six items), recycling (three items) and locality (three items) had acceptable reliabilities (Cronbach's  $\alpha$  equal 0.810, 0.714 and 0.641, respectively, and 0.851 overall).

4.3 Model and hypothesis testing

As the focus was to explain the WTPP (a binary DV) for sustainability practices, hypothesis testing used logistic regressions. The independent variables included  $X_1$  = Importance economic and general sustainability;  $X_2$  = Importance social and environmental sustainability;  $X_3$  = Implementation economic and general sustainability;  $X_4$  = Implementation social and environmental sustainability;  $X_5$  = Pollution and waste reduction;  $X_6$  = Recycling;  $X_7$  = Local orientation. For these variables, the factor loadings obtained from the factor analysis were used. Control variables included  $X_8$  = Restaurant;  $X_9$  = Gender and  $X_{10}$  = Age (because neither gender nor age were significant, results are not shown).

To assess for violations of assumptions, tests were completed to check for influential cases, outliers, the linearity of the logit of the continuous variables and multicollinearity. For the linearity test, Box–Tidwell test was conducted over the transformed factor loadings. To eliminate negative values that are unsuitable for logarithmic calculations, scores were transformed by means of a linear transformation ( $\text{new\_score} = [\text{factor\_score} - \text{min}]/[\text{max} - \text{min}]$ ). Because none of the interactions were significant ( $p$ -values of the coefficients ranging from 0.213 to 0.971) the assumption of linearity of the logit was not rejected. To test multicollinearity, VIF values were calculated and were between 1.101 and 1.451 (clearly below the critical value of 10). Hence, the multicollinearity diagnostics revealed no serious problem. The condition index was more or less the same as the variance proportions and there were no predictors that have high proportions in the same small eigenvalue.

As a first step, an initial hierarchical analysis was run to look at competing models. Besides the postulated model shown in Figure 1, an alternative model establishing a mediation between sustainability value domains and environmental behavior was determined as potentially relevant for the current study (see Sirakaya-Turk *et al.*, 2014). Results indicated no mediating effect of sustainability practices. Thus, tests assessing the main postulated model were performed.

The hierarchical analysis showed that neither  $X_4$  (ImpleSocEnv) nor the choice of restaurant had significant effects on the WTPP, confirming the previous  $\chi^2$  test. The final logistic regression included  $X_1$ – $X_3$  and  $X_5$ – $X_7$  (shown in Table VI). This final model was a significant improvement over the initial block ( $\chi^2 = 120,715$ ,  $p = 0.000$ ) and predicted 75 percent of the cases correctly. The pseudo  $R^2$  were 0.297 (Cox and Snell) and 0.397 (Nagelkerke).

Overall results partially support the study's model. In terms of the impact of QSR consumers' level of importance of sustainability factors, the social and environmental factor and economic factor were significant. These findings support *H1a–H1c* indicating that QSR consumers that place higher importance on all three sustainability pillars are more willing to

**Table VI.**  
Variables included in the final logistic regression model predicting WTPP

Variable	<i>B</i>	SE	Wald	df	Sig.	Exp( <i>B</i> )
$X_2$ ImpoSocEnv	0.74	0.16	21.637	1	0.000	2.091
$X_1$ ImpoEco	0.91	0.18	24.736	1	0.000	2.491
$X_3$ ImpleEco	0.37	0.15	6.200	1	0.013	1.444
$X_5$ Pollute	0.34	0.15	5.302	1	0.021	1.411
$X_6$ Recycle	0.32	0.14	4.969	1	0.026	1.379
$X_7$ Locality	0.36	0.14	6.838	1	0.009	1.435
Constant	0.09	0.13	533	1	0.465	1.100

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pay a premium for QSR products. In contrast, only one QSR sustainable practices factor, namely, economic sustainable practices as perceived by QSR consumers was a significant predictor of WTPP, providing support for *H2a*. Finally, QSR consumer sustainable behaviors were a significant predictor of WTPP. These behaviors included reducing pollution, recycling and locality factors; therefore, *H3* was strongly supported.

## 5. Discussion and conclusion

This study assessed the importance of sustainable practices for QSR consumers and if perceptions of QSR brand implementation of sustainable practices or QSR consumer sustainable behaviors impacted purchase behaviors. Specifically, QSR purchase behaviors were assessed in relation to a WTPP in the QSR context. Sustainable practices were divided into three categories of sustainable practices (economic, social and environmental).

In general, the hypotheses that were supported indicated WTPP is primarily driven by internal beliefs and behaviors of the customers themselves rather than actions by leading QSR firms. Due to the EU context of this study, the authors theorize that the CSR Directive Implementation Act requiring reporting of sustainability efforts may impact consumer perceptions where very little differentiation exists in the minds of QSR consumers for the five international brands used in this study. Second, given earlier studies finding that more than 70 percent of Gen Z and Millennial age groups place high importance on and are willing to pay more for sustainable products and services (Nielsen, 2015), consumer internal beliefs or concerns for effective use of resources appear to be drivers of trends in implementing sustainable practices that enhance QSR success with a continuing ability to retain younger customers as well as employees.

These internal beliefs tie closely to TPB's ability to explain complex human behavior. TPB has been used as a basis in a variety of studies, including earlier sustainability-behavior connections. In the current study, TPB was used as a basis for the study's model and development of research questions/hypotheses. Specifically, the study considered the relationship of social attitudes (importance of three sustainability categories) and perceptions of QSR practices on human behavior intentions (WTPP for QSR products). These relationships are likely to have important implications on QSR communication strategies, resource decisions and market positioning in the sector and fit with the notion of TPB.

In terms of demographic impact, female respondents in this study placed more importance on QSR sustainability than did their male counterparts. When comparing the five referent QSRs, frequent users of their referent QSR did not differentially impact their WTPP. Thus, it appears these top five QSR brands did not appear to create a strong point of differentiation in their sustainability practices in the minds of consumers. As stated earlier, using this one indicator could result in an interpretation that subjective norms were not strong enough to interact with behavioral attitudes to impact the intention to pay more for sustainable QSR as a whole. When in reality, the EU sustainability reporting requirements and our findings on the importance of sustainability factors indicate that all three sustainability factors are important to QSR consumers. Furthermore, consumers that place a high importance on these factors are, in fact, willing to pay a premium. Perceptions of actual QSR practices indicate economic sustainability practices were also drivers of WTPP for QSR products. And significantly, when QSR consumers personally engaged in sustainability behaviors (reducing pollution, recycling and locality factors), these consumers, in particular, appeared WTPP for QSR products at brands that implemented sustainable practices.

When QSR customers place strong emphasis on increasing economic viability, social values and environmental issues, it creates an increase in the WTPP for sustainability. In other words, QSR consumers that view green practices of economic, social and environmental as very important established planned behaviors due to their attitudes, resulting in a higher WTPP for sustainability efforts. A managerial implication for QSR managers from this study

is that they need to understand their target customers' beliefs. These findings create several issues related to the QSR industry. As WTTP is strongly related to internal beliefs and behaviors of consumers, these internal beliefs are apparently common in younger consumers, which are the most frequent QSR customers and QSR employees (Gaille, 2016). This study and others support the need for QSR restaurants to closely fit with the makeup of the community in which the restaurant is located. This strategy needs to fit with not only menu, service and atmospherics but also sustainability efforts in the areas of economic, social and environmental factors. By so doing, better marketing decisions can be achieved for decisions related to products and services offered, pricing (and if premium pricing can be achieved based on the consumer experience and firm sustainability efforts), sustainable design, communication strategies and service process. In locales with younger clientele, clientele that practice sustainable behaviors and female decision makers, implementation and communication of sustainable practices by QSR are likely to assist in creating potential differentiation (being unique compared to referents – when not legislated), provide relevance (value based on needs fulfillment), and an enhanced sense of esteem for the brand (higher perceived experience quality) (e.g. Harrington *et al.*, 2017).

While it is interesting that only the perceived implementation of economic sustainability practices increased the WTTP, in the context of the EU, mandated sustainability efforts may have limited any differentiation of social and environmental factors across QSR firms by patrons in this context. Thus, a limitation and opportunity for future research is to test these relationships on other geographic locations to determine if legislated sustainability impacts WTTP in QSR or other foodservice sectors. Second, QSR firms in a context of strong sustainability regulation should ensure that economic sustainability is followed as well as implementing information disclosure of goals and sustainability planning to communicate perceptions of sustainability differentiation and value to QSR patrons.

It should be noted that 80 percent of respondents in this study were less than 30 years of age and 90 percent less than 40 years. While this demographic fits with other findings that QSR consumers are more likely younger, it also supports earlier findings that a growing number younger consumers (in particular) place high importance on sustainability and engage in personal sustainability practices that impact behaviors such as QSR selection and a WTTP for QSR brands and products that are perceived as implementing sustainable practices. For example, Amed *et al.* (2017) found 66 percent of global Millennials are WTTP more on brands that are sustainable and Nielsen (2015) found that more than 70 percent of Gen Z and Millennial aged consumers are WTTP for products and services that are more sustainable. Thus, a lack of clear marketing communication appears more likely to be the culprit between a WTTP gap rather than a lack of conviction by younger consumers. To provide some context to this statement, the authors reviewed the webpages of five QSR chains that were defined as among the fastest growing in the USA (Taylor, 2017). Based on this review, these fast growing chains appeared to communicate issues related to economic and social sustainability more frequently than environmental sustainability practices. For example, Chick-fil-a (2019) described their “upcycling” program (environmental) but provided as much promotion of the social sustainability factor of being closed Sunday's to provide work life balance for their associates. The remaining four of the Top 5 focused on communicating their social and economic sustainability factors: Wingstop's (2019) foundation to support team members in need, Marco's Pizza (2019) “slice of support” for team members and charitable organizations, Jersey Mike's Subs (2019) mission description of “giving [...] making a difference in someone's life” and Raising Cane's (2019) promotion of community involvement as a core value. While these examples provide some support for successful QSR chains playing an active role in effectively marketing their sustainability activities, most QSR consumers are unlikely to take the time to visit a brand's corporate sustainability page or read their sustainability report. Sustainability information should be

communicated in both words and visible actions in restaurant outlets as well online for these activities to enhance QSR differentiation. Thus, practices and communication strategies should be tailored to create perceptions of sustainable firm practices. This practice includes a balance between profits without sacrificing sustainable practices, a public communication of sustainability objectives and goals, perceptions of sustainability as a core element of firm strategy and capital budgets, and sharing of information to all stakeholders.

This study is not free of limitations. Data for the sample were collected in only one country (Germany). Therefore, the extent to which the results are generalizable to other regions of the world is somewhat limited. Future research should consider other locales for study, and evaluate the effect of consumer sustainability attitudes and QSRs practices along with the WTPP for sustainability efforts.

Another limitation of this study is that the questionnaire used self-reported measures. This sometimes results in social desirability bias, as survey respondents often have a tendency to answer questions in a manner that will be viewed favorable by others. This could be avoided by not only asking the surveyed respondents if they would pay higher prices for sustainability efforts but also using methods to observe them if they really do so in reality. Thus, future research should not only use a survey but should be supported by observational research, auction type purchases or research treatments that vary the level of sustainability communication along with pricing. It also would be interesting for future research to use a case study approach to investigate consumer sustainability attitudes and behaviors in more detail. For instance, researchers could further assess and analyze the impact of social attitudes (sustainability importance), social norms (consumer personal sustainability practices), intentions and actual behaviors associated with QSR practices, perceptions and consumer behaviors such as QSR selection, loyalty, WTPP or selection of more sustainable QSR products.

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### Corresponding author

Robert James Harrington can be contacted at: [rharrington@wsu.edu](mailto:rharrington@wsu.edu)

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