Green Business or Greenwashing? Consumer Valuation
of Green Business Certifications

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ABSTRACT

Rising interest in corporate social responsibility in the mid-1900s has led to widespread adoption of green certifications. While research has been conducted on how consumers react to green building, fair trade, and other types of certifications, there is a lack of knowledge on consumers and green business certifications. To motivate businesses to continue to seek green business certifications, it is imperative to understand how consumers support and value these certifications. To better understand consumer valuation, I distributed a survey amongst UC Berkeley students that measured consumer environmental value scores, consumer value of green business certifications through willingness to travel (WTT), and the effect of information on consumer values. I found that consumers were willing to travel further for certified green businesses and, on average, were willing to travel further with the presence of information about the certification. I also found that the information treatment and environmental score, a score indicating a consumer's level of concern for the environment, had a positive effect on consumer WTT. On the other hand, demographic factors like age and income had no effect on consumer WTT. Quantifying consumer support and value for certified green businesses will help incentivize businesses to get certified, implement sustainable solutions into their business models and supply chains, and ultimately combat global climate change and environmental degradation.

KEYWORDS

Corporate social responsibility, green certifications, survey, willingness to travel, information treatment

INTRODUCTION

The concept of corporate social responsibility (CSR) was first introduced in the mid-1900s and has become a new way of doing business today. CSR was initially incorporated into corporate strategies as a way for companies to address their responsibilities to society and the environment (Moura-Leite and Padgett 2011). From the 1980s onward, the idea of CSR as a way to address social interest and stakeholder concerns became prominent, and many corporations embraced CSR as a new strategic initiative in their business models (Moura-Leite and Padgett 2011). Today, some businesses pursue CSR as a means of gaining profit and popularity amongst consumers rather than to benefit society and the environment. Buehler and Shetty (1976) identify "enlightened self-interest", a philosophy stating that people who act for the benefit of others ultimately act to benefit themselves, as the top motivator for companies to pursue CSR strategies. In a more recent study, three individual motivations for social responsibility stood out: altruism, material incentives, and social and self-esteem concerns (Bénabou and Tirole 2009). A survey conducted by McKinsey and Company (2006) of corporate executives revealed that many companies choose to participate in CSR because of the expected favorable responses from stakeholders and consumers. It is evident that company motives behind CSR can differ between firms, which leaves consumers questioning if they really are supporting a good cause.

Given that business motives behind CSR are not always consistent, consumer perception and responses to CSR programs can be widely varied. Some research shows that consumer perception of CSR campaigns can affect support of the company. One study on Gap, a popular clothing company, found that while the company was sincere in its motives behind employing their CSR campaign, consumers felt that their campaign was deceiving and that Gap should employ a new marketing strategy (Amazeen 2011). Sen and Bhattacharya (2001) found that under certain conditions, consumer intentions to buy a company's product can be negatively affected by poorly-marketed CSR initiatives. However, Salmones et al. (2005) found no relationship between the perception of CSR and customer loyalty to businesses. These contradictory findings indicate uncertainty surrounding how consumer attitudes and support for business CSR initiatives. Because consumers play such a large role in influencing businesses and the CSR initiatives they implement,

it is important to understand why consumers are doubtful about CSR and how companies can pursue and market CSR initiatives without eliciting skepticism.

One way to gain insight on consumer perceptions and reactions to CSR is studying consumer thought surrounding green certifications (Bhattacharya et al. 2009). Businesses have attempted to tackle consumer mistrust of CSR initiatives by obtaining green certifications: many companies have pursued environmentally-focused certifications such as the Leadership in Energy and Environmental Design (LEED), USDA Organic, the Forest Stewardship Program, the California Green Business Program, and many more. Unfortunately, the use of green certifications has led to mixed results. Devine and Kok (2015) found that commercial real estate companies that owned buildings with green certifications had more satisfied tenants, demonstrating that tenants do value green certifications. However, another study on green hotel rooms found different results, as consumers supported the idea of green hotel rooms but were not willing to pay more for these rooms (Miller and Baloglu 2011). Overall, these studies demonstrate that there is no real consensus on consumer valuation of green certifications, elucidating the need for more research on consumers and green certifications. Moreover, quantifying consumer valuation for specific green certifications would have a great impact on how businesses view these certifications, as it would allow companies to understand consumer thinking and even potentially persuade companies to pursue green certifications in the future. Additionally, consumer valuation for green certifications can vary with certification types and purposes. Thus, it is crucial for the success of green businesses to find out why consumers support green certifications and exactly how much this support is.

To understand if consumers support green certifications and quantify the value placed on green certifications, I conducted an online survey on the Green Business Program, a popular green certification in California. In this paper, I address the following questions: (1) What is consumer willingness to travel to a certified green business? ; (2) Does an information treatment affect consumer willingness to travel to certified green businesses? ; (3) Do consumer demographic backgrounds, specifically age, gender, and income, affect their willingness to travel to certified green businesses? ; (4) How do respondents' environmental scores affect their willingness to travel to certified green businesses? Through this analysis, I quantified consumer willingness to travel to certified green businesses and determined if an information treatment, consumer environmental scores, and consumer demographics had an effect on consumer willingness to travel.

METHODS

Survey development

Discrete Choice Experiment

I prompted survey respondents to choose between two options, a normal business located ten minutes away and a certified green business located at varying amounts of time away, in ten choice scenarios. Both businesses are located ten minutes away during the first scenario, and then I increased the distance for the certified green business by five additional minutes with each scenario until the certified green business is 55 minutes away in the last scenario. I chose to use distance as a way to estimate value placed on the green business certification because I did not want to imply that certified green businesses are always associated with a higher cost. Because people view their time as very valuable, I followed existing literature that uses time as a proxy for value and decided to use willingness to travel to extrapolate consumer valuation, similar to the concept of "willingness to pay". I also instructed survey respondents to assume that both stores were the same type of retail stores and that the time provided was the shortest amount of time to get to the store.

Survey Distribution and Implementation

I distributed my survey online via Qualtrics, courtesy of UC Berkeley, to students. I utilized various distribution methods to gather responses. I distributed the survey in UC Berkeley's ESPM 50AC class as an extra credit opportunity during both Fall and Spring semesters.

Information Treatment

To study the role of information on consumer choices and valuation, I incorporated an information treatment into the survey. Fifty percent of my sample population was chosen at random based on their student ID number to receive the information treatment. The information was taken from the California Green Business Network website and gives a general overview

about the program, information about the certification, and various metrics that green businesses certified by the California Green Business Network have achieved (Appendix A). Given this information treatment, some survey respondents had more knowledge about the certification and its impacts, so they knew more about the certified green business in the choice scenarios. The control group completed the survey and choice scenario without the additional information.

Demographics and Environmental Score

In addition to the choice scenario, I asked demographic questions regarding income, age, and education to get a better overview of the survey respondents and to determine if these factors had an impact on consumer willingness to travel. Additionally, I was interested in calculating an "environmental score" for each survey respondent, similar to Krovetz et al. (2018). A consumer's "environmental score" represents their level of concern for the environment. I prompted survey respondents to indicate their level of agreement for ten statements covering various beliefs about climate change, the role of government in combatting climate change, individuals' responsibilities to the environment, and the role of businesses as a part of contributing to and combatting environmental issues. They were given five choices, 1 being "strongly disagree" to 5 being "strongly agree," so a response of 1 demonstrated lower environmental concern and a response of 5 demonstrated higher environmental concern. Respondents had a choice for a neutral option of 3 "neither agree nor disagree."

Data Analysis

I used STATA to run a multiple linear regression on willingness to travel with information, environmental score, age, and income. I used Microsoft Excel to conduct summary statistics on demographic data and willingness to travel responses.

RESULTS

Demographic Statistics

I collected 571 survey responses from the Fall and Spring ESPM 50AC classes. Respondents were asked demographic questions regarding age, household income, and gender (Table 1 and 2).

Table 1. Gender breakdown of ESPM 50AC survey respondents.

Gender	Percentage of Survey Population
Female	54%
Male	46%

Table 2. Household income breakdown of ESPM 50AC survey respondents.

Household Income	Percentage of Survey Population
Less than $25,000	8%
$25,000 to $49,999	9%
$50,000 to $74,999	8%
$75,000 to $99,999	11%
$100,000 to $149,99	20%
$150,000 to $199,999	13%
$200,000 to $249,999	10%
$250,000+	18%

Table 3. Age breakdown of ESPM 50AC survey respondents

Age Range (in years)	Percentage of Survey Population
Under 18	0.7%
18-19	49%
20-21	44%
22-25	4%
26-30	0.8%

Environmental Score

In addition to demographic questions, respondents were presented with five environmental statements in order to determine their environmental score. They were prompted to choose whether they strongly disagreed, disagreed, neither agreed nor disagreed, agreed, or strongly agreed with these statements. To analyze their responses, I assigned each response a number from 1 to 5, so that strongly disagree indicated 1, disagree indicated 2, and so on. I then added up their responses to each of these statements to give each person an environmental score out of 25. The first and last statements are tied for the highest averages, while the statement on purchasing environmental products has the lowest average. The average environmental score was 21.45, and each statement received an average score of 4.29 (Table 4).

Table 4. Average Scores to Environmental Score Statements

Question	Average
Climate change is largely a result of human activities.	4.48
The current generation has a responsibility to protect the environment for future generations, even if it leaves the current generation less well off.	4.32
People should make lifestyle changes to reduce environmental damage.	4.31
It is important to purchase things that are more environmentally friendly, even if they are at a greater cost.	3.86
Businesses should utilize green solutions, such as a restaurant using compostable silverware for takeout orders or offices located in LEED Platinum certified buildings, when possible to reduce their environmental footprint.	4.48
Environmental Score	21.45

Willingness to Travel

From my survey, I was able to extrapolate the furthest respondents were willing to travel further to shop at a certified green business over a closer, comparable non-certified business. The maximum willingness to travel was 35 minutes while the minimum willingness to travel was 0 minutes (these respondents would not travel further for a certified green business). The average willingness to travel for both the control and treatment groups are shown in Table 5. Respondents

receiving an information treatment were willing to travel significantly longer than those without information about the California Green Business Network (t-test, p<0.05).

Table 5. Average Willingness to Travel (in minutes)

	Control	Treatment
Average Willingness To Travel	7.28	8.46

Multiple Linear Regression Results

I conducted a multiple linear regression model with willingness to travel as the dependent variable and environmental score, income, and treatment as the independent variables. Environmental score is a continuous variable that ranks respondents' environmental values. Income and age are also categorical variables given that the answers respondents could choose from were ranges of income levels and ages. Treatment is binary, where 0 indicates the respondent was not given the treatment information and 1 indicates the respondent was given the treatment information. Figure 1 shows the results from the multiple regression model.

Both the information and environmental score variables are positively correlated with willingness to travel and are also statistically significant at a 95% confidence level, with p values below 0.05. The information treatment variable has a coefficient of approximately 1.4, which means that the presence of information increases a consumer's willingness to travel by 1.4 minutes. The environmental score variable has a coefficient of approximately 0.4, indicating that an increase in environmental score by 1 point increases a consumer's willingness to travel by 0.4 minutes. However, income, age, and gender had no significant effect on willingness to travel (p>0.05). Thus, no conclusion can be made about these variables and their effect on willingness to travel.

Figure 1. Multiple Linear Regression Model Results

Source	SS	df	MS		Number of obs	=	571
					F(5, 565)	=	6.03
Model	1463.74111	5	292.748221		Prob > F	=	0.0000
Residual	27429.6039	565	48.5479715		R-squared	=	0.0507
					Adj R-squared	=	0.0423
Total	28893.345	570	50.690079		Root MSE	=	6.9676

wtt	Coef.	Std. Err.	t	P>|t|	[95% Conf. Interval]	
ïenvscore	.449052	.0979323	4.59	0.000	.2566962	.6414078
treatment	1.409723	.5854936	2.41	0.016	.2597131	2.559733
income	-.106786	.1329944	-0.80	0.422	-.3680098	.1544378
age	-.6595053	.4600466	-1.43	0.152	-1.563116	.2441053
gender	-.5612082	.5880505	-0.95	0.340	-1.71624	.5938239
_cons	.0629982	2.662025	0.02	0.981	-5.165676	5.291672

DISCUSSION

I found that on average consumers are willing to travel further for a certified green business, indicating that they do place more value on green-certified businesses than normal businesses. Environmental score and information treatment had a significant impact on consumer willingness to travel, while consumer demographic variables had no effect. Despite the limited scope of my results, they are valuable to understanding how consumers react to green business marketing and a first step towards being able to quantify consumer value for green business certifications. More work is needed to fully grasp how much consumers are willing to pay for green business certifications and what factors affect that value.

Consumer Willingness to Travel and Information

The multiple regression results indicated that the information treatment does have an effect on consumer willingness to travel. Having information about the certification program can provide transparency to consumers, helping them understand how a business is being more sustainable and realize the effects of the certification. This, in turn, can increase consumers' perceived value for

the business. Wang et al. (2018) also found that the information treatment in their study had a positive impact on consumer perception and increased consumer value.

However, this increase in consumer value does not hold true for all studies. Other studies have found that information may have no effect or even a negative effect on consumer valuation, as a result of what is known as green washing. A recent trend in marketing is for companies to use "green" advertising to draw in consumers without following through on promised actions a practice known as "greenwashing" (Nyilasy et. al. 2013). If consumers feel that their interest in the environment is being exploited, they may reject the green marketing and no longer seek products from the given company (Davis 1992). Nyilasy et. al. (2013) found that in some cases, green advertising can even harm companies due to greenwashing, so much that no advertising at all is more beneficial.

Additionally, the type of information provided in the information treatment could explain why information and green marketing can have varying effects on consumers. The information presented in this treatment was informational, relying heavily on statistics and numerical metrics to prove the success of the green certification program. However, perhaps an information treatment that relied more on storytelling or graphics, similar to what is commonly present in advertising, would have had a different effect on the survey respondents. Consumers often want to see that the company actually makes the changes they promise in environmental marketing. Otherwise, the environmental marketing could be perceived as opportunistic and negatively affect the company's reputation (Fraj-Andres et. al. 2009).

Ultimately, while the results of my study show that information has a positive effect on consumer willingness to travel, they cannot be widely applied to the general populations. UC Berkeley students are not representative of the general consumer population, given that the education levels and demographics of the study population are quite homogenous. In conclusion, more research is needed to fully understand what types of information will be the most effective for the general population, as the effect of an information treatment may not be the same as the impact found in my study.

Consumer Demographics

Consumer age, gender, and income backgrounds did not influence willingness to travel to certified businesses. This may have resulted due to my limited sample population. In regards to income, I sampled a population composed entirely of UC Berkeley students. In my survey, I had to ask for students' household income, as many students do not have a self-sustaining income while in school. This could have influenced the demographic data that I collected through the survey. Moreover, the students I surveyed were also very close in age, ranging from 18 to 26 years old. Not being able to collect a representative sample of age ranges could have made the effect of consumer age on willingness to travel negligible. In order to understand how these and other demographic factors affect consumer valuation of green business certifications, further research needs to be conducted on a more representative and diverse population.

Consumer Environmental Scores

The coefficient for consumer environmental score in my multiple regression was positive, indicating a positive relationship between consumer environmental score and willingness to travel. This result suggests that consumer beliefs and concern for the environment do have an impact on their actions in the choice scenario. However, because my sample population consisted of UC Berkeley students, the results could have been skewed to have higher environmental scores due to local culture and educational levels. In a study regarding green building certifications, investors were more likely to invest in green certifications for a community that is well-educated and has more of a liberal-leaning political preference (similar to the student population at UC Berkeley) because they will be more supportive of green certifications (Dippold et al 2014). Thus, these results cannot be applied generally to California consumers and can only be used to describe UC Berkeley students. However, this study does show that consumers with higher environmental scores will have a higher willingness to travel than those with lower environmental scores. This conclusion is further supported by findings from Vlosky et al. (1999) stating that there is a positive correlation between willingness to pay and variables such as environmental consciousness. There is a good amount of evidence proving that prior environmental beliefs and concern do influence consumer valuation of green business certifications. However, more research utilizing

representative population samples is needed in order to assert any conclusions about the impact of environmental scores on willingness to travel.

Consumer Valuation of Certified Green Businesses

This study showed that consumers do value certified green businesses more than normal businesses and that various factors influence consumers' willingness to travel. The valuation method I utilized in my study, using time and travel as a way to extrapolate value, does make this conclusion nuanced. The choice scenario could not account for certain uncertainties and factors that come with real-life travel, so it is not possible to fully equate willingness to travel and perceived value.

Limitations and Future Directions

For the results to be applicable to a broader population, the study can be improved upon in several ways. The first area that can be improved the way to measure consumer value of green business certifications. Because green certifications are goods that do not have an exact market value and are not always associated with a higher cost, it is difficult to price them. Using time and travel as a way to extrapolate value had its limitations. The survey was not designed to account for intricacies that come with time and travel, such as how the person is traveling (i.e. via car, foot, or public transit). Each of these methods has a different greenhouse gas footprint, with car being the worst. If a person travels 30 minutes via car to a green business, then that may defeat the purpose of going to an environmentally friendly business. Further studies should either make the survey more complex to account for many uncertainties and complexities that come with travel and time or choose another way to extrapolate value.

The second area for improvement is the survey population. Only being able to sample UC Berkeley students was a limitation, as I cannot conclude that this willingness to travel is the same for all California residents. Thus, further studies should expand the sample population to include a representative sample of people from California. This would potentially shed more light on how demographic factors tie into consumer valuation of green business certifications.

Third is the information treatment. While I found that information treatment had a positive effect on consumer willingness to travel, more research is necessary to fully understand the effect of information on consumer valuation. Wang et al. (2018) also found that the information treatment in their study had a positive impact on consumer perception and increased their perceived value. However, growing consumer skepticism about greenwashing can influence the effect information has on consumers (Davis 1992). Further studies should vary types of information presented to consumers to determine which type of marketing content is the most effective with consumers (for example, in a future survey some information could be presented via a storytelling or graphic-based format). Thus, it is imperative to continue studying the effect of information on consumers and determine what types of information resonate best with consumer values.

Fourth, this study generalizes the type of industry that these businesses are in. The CA Green Business Network works with businesses from all kinds of industries, ranging from hotels to hardware stores to local restaurants. Future studies should focus on different types of industries to determine whether the type of industry impacts consumer valuation.

Lastly, further attempts to utilize the environmental score aspect of this study can be expanded to include more targeted statements that provide more comprehensive overviews of consumer environmental values, which would produce more nuanced results.

Broader Implications

Knowledge about green business certifications is growing. This study is an initial dive into learning how consumers react to green business marketing and what consumer valuation of green business is. While the survey found that consumers are willing to travel approximately 7 to 8 more minutes for certified green businesses, further studies need to be conducted in order to quantify consumer valuation for green businesses, obtain a full understanding of how consumers react to green business marketing, and determine how consumer values for green businesses might change from industry to industry. Green businesses are important players in addressing environmental issues as private companies are the main producers of greenhouse gas emissions and consumers of limited resources (Griffin 2017). However, businesses may not be motivated to obtain certifications without consumer support or a profitable strategy. Thus, being able to quantify and understand consumer valuation for green business certifications will help persuade businesses to

get certified. Further studies would strengthen knowledge surrounding the impact of green business certification programs and the marketing of green business programs on consumers. This knowledge will hopefully motivate businesses to work toward green certifications and to make an impact in fighting global environmental degradation through reducing their emissions and resource consumption.

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APPENDIX A: Information treatment given to fifty percent of survey respondents

Overview

The California Green Business Program is a network of local programs operated by counties and cities throughout California. Businesses that apply receive personal attention from the public agencies and utilities that serve them. The program is funded by grass-roots contributions from local government and utility partners to make it accessible to small to medium sized businesses in California. Certified Green Businesses exceed all environmental regulations, and implement specific practices to reduce pollution, save water and energy, and protect human health.

Our Goal

The goal of our incentive and assistance programs is to help local businesses conserve energy, water, minimize waste, prevent pollution, and shrink their carbon footprints.

Our Impact

The measured results of all 3000+ California Green Businesses put together nets some huge environmental outcomes:
- Over 800,000 metric tons of greenhouse gas emissions reduced, the equivalent of planting over
- 40,000 urban acres of trees a year for ten years.
- Enough kilowatt-hours saved to power 25,000 houses for an entire year.
- Over 400,000 metric tons of waste diverted from the landfill, almost
- 60,000 garbage trucks worth of waste eliminated.
  124 million gallons of water saved – a lot of toilets and shower heads folks!
- Over 28,000 gallons of hazardous waste eliminated.